

Workbook Info

Project:	Expert Panel 2015-2016	Primary Data Recorder:	Nick Legg, Geomorphologist, Cardno Inc.
Meeting:	Upper Grande Ronde Look Back Process	Latest Revision:	3/29/2016
Filename:	UGRCC_EP_2012-15_LookBack_CalcSpreadsheet_3-29-16.xlsx		

Workbook Description

This workbook is the "Calculation Spreadsheet" for the Expert Panel Look Back Process in the Upper Grande Ronde Basin. The spreadsheet incorporates comments from the panel made after the Look Back meeting (week of December 1, 2015), as well as changes made to select limiting factors during the Look Forward meeting (week of March 7, 2016). The calculation spreadsheet captures numerical details of completed actions and functional uplift calculations. This table was created in support of the biological notes contained in the spreadsheets below. The biological notes spreadsheet also documents the rationale underlying this spreadsheet.

Biological Notes Spreadsheets

Steelhead	UpperGrandeRonde_Steelhead_2013-2018LookFWD_HabFunction_w_bionotes_3-29-16.xlsx
Chinook	UpperGrandeRonde_Chinook_2013-2018LookFWD_HabFunction_w_bionotes_3-29-16.xlsx

Sheets: Sheets are produced for individual Assessment Units and named by the Assessment Unit Code. When the panel identified no actions in an assessment unit, a sheet was generally not created.

Highlighting Key:	Cells with outstanding follow-up items
	Cells containing comments from the Panel members during their review of spreadsheets following the Look Back Meeting
	Cells containing comments regarding changes made in response to panel comments.

% Uplift

0.7%

UGC1A - LF 7.2 Sediment Conditions (Increased Quantity/Too much)

Action	mi. treated	Rel. Treatment size	2018 % Improvement	Realized Change in 2018 (mi)
No actions				0
Total	0			0
Total Stream Miles (Denominator)	43.5 mi.			

% Uplift

0.0%

UGC1A - LF 8.1 (Temperature)

Action	mi. treated	Rel. Treatment size	2018 % Improvement	Realized Change in 2018 (mi)
No Actions				0
Total	0			0
Total Stream Miles (Denominator)	43.5 mi.			

% Uplift

0.0%

UGC1A - LF 9.2 (Water Quantity)

No benefits from actions listed for above limiting factors.

UGC 2

Middle GR Mainstem (Five-Points Cr. To Meadow Cr.)

Chinook Miles14.3 mi

UGC 2 - LF 4.1 (Riparian Vegetation)

Action	Miles treated	% Improve ment	Realized Change in 2018 (mi)
No actions			
Total Projects	0		
Total # Projects			

Total Stream Miles Affected0
Total Stream Miles (Denominator)14.3 mi.

% Uplift0.0%

UGC 2 - LF 8.1 (Water Quality: Temperature)

See flow scoring below.

UGC 2 - LF 9.2 (Water Quantity: Decreased Water Quantity)

Action	Leases (cfs)					Permanent (cfs)
	2012	2013	2014	2015		
City of La Grande Reservoir Beaver Creek Releases		3.5	3.5	3.5		
Total	0	3.5	3.5	3.5		0

Average of leases ==>2.625

Total2.625 cfs
Estimated water right diversions25 cfs
Prorating factor (2018)0%

% Uplift (2018)0.0%

Baseflow measured at OWRD Gauge (GRR at Perry)
Prorating based on fact that release is not year-long and at times of year that have little effect. 2013 release in October (not very effective). Effect in mainstem is also negligible
This rationale and scoring applies to both temperature and flow.

UGC 3A

Beaver Creek

Chinook Miles

0.3 mi

UGC 3A - LF 4.1 (Riparian Vegetation)

Action	mi. treated	% Improvement	Realized Change in 2018 (mi)
No Actions			0
Total	0		0
Total Stream Miles (Denominator)	mi.		
% Uplift	#DIV/0!		

UGC 3A - LF 8.1 (Water Quality: Temperature)

See flow scoring below.

UGC 3A - - LF 9.2 (Water Quantity)

Action	2012	2013	2014	2015	Permanent (cfs)
City of La Grande Reservoir Beaver Creek Releases	0	3.5	3.5	3.5	
Total	0	3.5	3.5	3.5	0
		Average of leases ==>		2.625	
Total	2.625 cfs				
Estimated water right diversions	cfs				
Temperature before release	12.5 deg C				
Temperature after release	12.1 deg C				
Change in temperature	0.4				
			Percent decrease just below flow release, but Panel felt this effect did not extend downstream		
Proration factor	3%				
	0%				
Uplift (2018)	0.0%				

Meadow Cr. and Tributaries

Chinook Miles11.1 mi

UGC4 - LF 1.1 (Barriers)

Action	mi. treated	Rel. Treatment size
Dark Canyon Creek Barrier Removal	0	0.0% Had no Chinook benefit, but may for steelhead
Total Stream Miles Opened	0	
Total Stream Miles (Denominator)	mi.	
% Uplift	0.0%	

UGC4 - LF 4.1 (Riparian Vegetation)

Action	mi. treated	Rel. Treatment size	2018 % Improvement (Prorate factor)	Realized Change in 2018 (mi)
Meadow Creek LWD and Planting Project	7.25	100.0%	0%	0 Determined to be upstream of Chinook use.
Total	7.25			0
Total Stream Miles (Denominator)	11.1 mi.			
% Uplift	0.0%			

UGC4 - LF 4.2 (LWD Recruitment)

Action	mi. treated	Rel. Treatment size	2018 % Improvement (Prorate factor)	Realized Change in 2018 (mi)
Meadow Creek LWD and Planting Project	7.25	100.0%	0%	0 Determined to be upstream of Chinook use.
Total	7.25			0
Total Stream Miles (Denominator)	11.1 mi.			
% Uplift	0.0%			

UGC4 - LF 6.2 Channel structure and Form (Complexity))

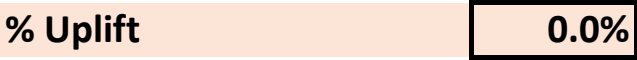
Action	mi. treated	Rel. Treatment size	2018 % Improvement (Prorate factor)	Realized Change in 2018 (mi)
Meadow Creek LWD and Planting Project	7.25	100.0%	0%	0 Determined to be upstream of Chinook use.
Total	7.25			0
Total Stream Miles (Denominator)	11.1 mi.			
% Uplift	0.0%			

UGC4 - LF 7.2 Sediment

Action	mi. treated	Rel. Treatment size	2018 % Improvement (Prorate factor)	Realized Change in 2018 (mi)
Meadow Creek LWD and Planting Project	7.25	100.0%	0%	0 Determined to be upstream of Chinook use.
Total	7.25			0
Total Stream Miles (Denominator)	11.1 mi.			
% Uplift	0.0%			

UGC4 - LF 8.1 (Water Quality: Temperature)

Action	mi. treated	Rel. Treatment size	2018 % Improvement (Prorate factor)	Realized Change in 2018 (mi)
Meadow Creek LWD and Planting Project	7.25	100.0%	0%	0 Determined to be upstream of Chinook use. No effect.
Total	7.25			0
Total Stream Miles (Denominator)	11.1 mi.			



UGC5 **UGR Mainstem (Meadow Cr. To Sheep Cr.)**

Chinook Miles

14.4 mi

UGC5 - LF 4.1 (Riparian Vegetation)

<u>Action</u>	<u>mi. treated</u>	<u>Rel. Treatment size</u>	<u>2018 % Improvement (Prorate factor)</u>	<u>Realized Change in 2018 (mi)</u>	<u>2033 % Improvement (prorating factor)</u>	<u>Realized Change in 2033 (mi)</u>
UGR Fence (2012)	1	33.3%	1%	0.01	20%	0.2
UGR LWD and Planting	2	66.7%	1%	0.02	20%	0.4
Total	3			0.03		0.6
Total Stream Miles (Denominator)	14.4 mi.					
% Uplift (2018)	0.2%					
% Uplift (2033)	4.2%					

UGC5 - LF 4.2 (LWD Recruitment)

<u>Action</u>	<u>mi. treated</u>	<u>Rel. Treatment size</u>	<u>2018 % Improvement (Prorate factor)</u>	<u>Realized Change in 2018 (mi)</u>	<u>2033 % Improvement (prorating factor)</u>	<u>Realized Change in 2033 (mi)</u>	
UGR Fence (2012)	1	33.3%		0	10%	0.1	Negligible effect in 2018 due to minimal plant growth
UGR LWD and Planting	2	66.7%		0	10%	0.2	
Total (2018)	3			0		0.3	
Total Stream Miles (Denominator)		14.4 mi.					
% Uplift (2018)	0.0%						
% Uplift (2033)	2.1%						

UGC5 - LF 6.2 Channel structure and Form (Complexity))

<u>Action</u>	<u>mi. treated</u>	<u>Rel. Treatment size</u>	<u>2018 % Improvement (Prorate factor)</u>	<u>Realized Change in 2018 (mi)</u>
USFS - UGR Small Wood and Pods	5	100.0%	1%	0.05
Total	5			0.05
Total Stream Miles (Denominator)	14.4 mi.			

Panel determined that slash/brushy material had negligible effect on channel complexity.

Roni, Beechie et al. (2002) determined response time of 1-5 years for LWD placement

% Uplift

0.3%

UGC5 - LF 7.2 Sediment Conditions (Increased Quantity)

Action	mi. treated	Rel. Treatment size	2018 % Improvement (Prorate factor)	Realized Change in 2018 (mi)	2033 % Improvement		Realized Change in 2033 (mi)	
					(prorating factor)			
UGR Fence (2012)	1	33.3%	0%	0	0	0%	0	Fencing to protect plantings
UGR LWD and Planting	2	66.7%	0%	0	0	0%	0	Roni, Beechie et al. (2002) determined response time of 5-20 years for planting/fencing
Total	3				0		0	
Total Stream Miles (Denominator)		14.4 mi.						

% Uplift (2018)

0.0%

% Uplift (2033)

0.0%

UGC5 - LF 8.1 (Temperature)

Action	mi. treated	Rel. Treatment size	2018 % Improvement (Prorate factor)	Realized Change in 2018 (mi)	2033 % Improvement		Realized Change in 2033 (mi)	
					(prorating factor)			
UGR Fence (2012)	1	33.3%	0%	0	0	5%	0.05	
UGR LWD and Planting	2	13.9%	0%	0	0	5%	0.1	
Total	3				0		0.15	
Total Stream Miles (Denominator)		14.4 mi.						

% Uplift (2018)

0.0%

% Uplift (2033)

1.0%

UGR & Tribs. (Meadowbrook Cr. To E. Fk.; Clear Cr. & E. Fk.)

Chinook Miles

6.2 mi

UGC7 - LF 4.1 (Riparian Vegetation)

Action	mi. treated	Rel. Treatment size	2018 % Improvement (Prorate factor)	Realized Change in 2018 (mi)	2033 % Improvement (prorating factor)	Realized Change in 2033 (mi)	
Upper Grande Ronde Small Wood and Pods	3	100.0%	0%	0	10%	0.3	Negligible effect in 2018 due to minimal plant growth
		0.0%		0		0	
Total	3			0		0.3	
Total Stream Miles (Denominator)	6.2 mi.						
% Uplift (2018)	0.0%						
% Uplift (2033)	4.8%						

UGC7 - LF 4.2 (LWD Recruitment)

Action	mi. treated	Rel. Treatment size	2018 % Improvement (Prorate factor)	Realized Change in 2018 (mi)	2033 % Improvement (prorating factor)	Realized Change in 2033 (mi)	
Upper Grande Ronde Small Wood and Pods	3	100.0%	0%	0	5%	0.15	Negligible effect in 2018 due to minimal plant growth
		0.0%		0		0	
Total	3			0		0.15	
Total Stream Miles (Denominator)	6.2 mi.						
% Uplift (2018)	0.0%						
% Uplift (2033)	2.4%						

UGC7 - LF 6.2 Channel structure and Form (Complexity))

Action	mi. treated	Rel. Treatment size	2018 % Improvement	Realized Change in 2018 (mi)	
Upper Grande Ronde Small Wood and Pods	3	100.0%	1%	0.03	Fencing to protect plantings
				0	Roni, Beechie et al. (2002) determined response time of 5-20 years for planting/fencing
Total	3			0.03	
Total Stream Miles (Denominator)	6.2 mi.				
% Uplift	0.5%				

UGC7 - LF 7.2 Sediment Conditions (Increased Quantity)

Action	mi. treated	Rel. Treatment size	2018 % Improvement (Prorate factor)	Realized Change in 2018 (mi)	2033 % Improvement (prorating factor)	Realized Change in 2033 (mi)	
Upper Grande Ronde Small Wood and Pods	3	100.0%	0%	0	10%	0.3	Fencing to protect plantings
Total	3			0		0.3	

Total Stream Miles (Denominator) 6.2 mi.

% Uplift (2018)	0.0%
% Uplift (2033)	4.8%

Chinook Miles

15.6 mi

UGC8 - LF 4.1 (Riparian Vegetation)

Action	mi. treated	Rel. Treatment size	2018 % Improvement (Prorate factor)	Realized Change in 2018 (mi)	2033 % Improvement (prorating factor)	Realized Change in 2033 (mi)	
Sheep Creek Large Wood and Planting (2014-15)	2.5	100.0%	0%		0	0.5	Negligible effect in 2018 due to minimal plant growth
Total	2.5				0	0.5	

Total Stream Miles (Denominator) 15.6 mi.

% Uplift (2018) 0.0%

% Uplift (2033) 3.2%

UGC8 - LF 4.2 (LWD Recruitment)

Action	mi. treated	Rel. Treatment size	2018 % Improvement (Prorate factor)	Realized Change in 2018 (mi)	2033 % Improvement (prorating factor)	Realized Change in 2033 (mi)	
Sheep Creek Large Wood and Planting (2014-15)	2.5	100.0%	0%		0	0.25	Negligible effect in 2018 due to minimal plant growth
Total	2.5				0	0.25	

Total Stream Miles (Denominator) 15.6 mi.

% Uplift (2018) 0.0%

% Uplift (2033) 1.6%

UGC8 - LF 6.2 Channel Structure and Form (Complexity))

Action	mi. treated	Rel. Treatment size	2018 % Improve	Realized Change in 2018 (mi)	pieces	Pieces per mile
Sheep Creek Large Wood and Planting (2014-15)	2.5	55.6%	19%	0.4625	192	
Chicken Cr Large Wood and Planting	2	44.4%	15%	0.3	117	

Total 4.5 0.7625

Total Stream Miles (Denominator) 15.6 mi.

% Uplift 4.9%

76.8 #DIV/0!
20

UGC8 - LF 7.2 Sediment Conditions (Increased Quantity)

Action	mi. treated	Rel. Treatment size	2018 % Improvement (Prorate factor)	Realized Change in 2018 (mi)	2033 % Improvement (prorating factor)	Realized Change in 2033 (mi)
Sheep Creek Large Wood and Planting (2014-15)	2.5	55.6%	0%	0	10%	0.25
Chicken Cr Large Wood and Planting	2	44.4%	0%	0	10%	0.2
Total	4.5			0		0.45

Total Stream Miles (Denominator) 14.4 mi.

% Uplift (2018) 0.0%

% Uplift (2033) 3.1%

UGC8 - LF 8.1 (Temperature)

No Actions

Ideal Pieces Per mile	20*16.09=322 ideal pieces/mile
76.8	27*16.09=434 ideal pieces/mile
58.5	434 pieces/mile for Little Minam reference according to notes.
	No change made in response to panel's comment since it did not influence the calculation. Original weighting factors by panel appeared to reflect the 434 pieces per mile target value from the Little Minam.

Middle Grande Ronde River Mainstem - Grande Ronde Valley

Steelhead Miles22.4 mi

UGS3 - LF 1.1 (Barriers)

Action	mi. treated	Rel. Treatment size	2018 % Improvement (Prorate factor)	Realized Change in 2018 (mi)
No Actions				

UGS3 - LF 7.2 Sediment Conditions (Increased Quantity)

Action	mi. treated	Rel. Treatment size	2018 % Improvement (Prorate factor)	Realized Change in 2018 (mi)	2033 % Improvement (prorating factor)		Realized Change in 2033 (mi)
I think this should be Voelz Project	Voelz Project	0.2	100.0%	100%	0.2	100%	0.2
Corrected project name					0		0
Total		0.2			0.2		0.2
Total Stream Miles (Denominator)		22.4 mi.					
% Uplift (2018)		0.9%					
% Uplift (2033)		0.9%					

UGS7

Indian Creek and Tributaries

Steelhead Miles

34.2 mi

UGS7 - LF 1.1 (Barriers)

Action	mi. treated	Rel. Treatment size	2018 % Improvement	Realized Change in 2018 (mi)
No Actions				

UGS7 - LF 4.1 (Riparian Vegetation)

Action	mi. treated	Rel. Treatment size	2018 % Improvement (Prorate factor)	Realized Change in 2018 (mi)	2033 % Improvement (prorating factor)	Realized Change in 2033 (mi)
Little Indian Creek Fence	0.25	100.0%	0%	0	20%	0.05
Total	0.25			0		0.05
Total Stream Miles (Denominator)	34.2 mi.					

% Uplift (2018)

0.0%

% Uplift (2033)

0.1%

This value was updated from the previous lookback spreadsheet that assigned a 0.2% uplift to this limiting factor. A note referring to this is included in the spreadsheet RM 8/9/2016.

UGS7 - LF 4.2 (LWD Recruitment)

Action	mi. treated	Rel. Treatment size	2018 % Improvement	Realized Change in 2018 (mi)
		#DIV/0!	0%	0
Total	0			0
Total Stream Miles (Denominator)	34.2 mi.			

% Uplift

0.0%

UGS7 - LF 6.2 Channel structure and Form (Complexity))

Action	mi. treated	Rel. Treatment size	2018 % Improvement	Realized Change in 2018 (mi)
No Actions				
Total	0			0
Total Stream Miles (Denominator)	34.2 mi.			

% Uplift

0.0%

76.8

#DIV/0!

20

UGS7 - LF 7.2 Sediment Conditions (Increased Quantity)

Action	mi. treated	Rel. Treatment size	2018 % Improvement	Realized Change in 2018 (mi)
Little Indian Creek Fence	0.25	100.0%	100%	0.25
Total	0.25			0.25
Total Stream Miles (Denominator)	34.2 mi.			

% Uplift

0.7%

UGS7 - LF 8.1 (Temperature, tabulated using flow increases)

No Actions

Willow Creek and Tributaries

Steelhead Miles64.7 mi

UGS8 - LF 1.1 (Barriers)

Action	mi. treated	2018 % Improvement	Realized Change in 2018 (mi)
Lanman Creek Barrier Replacement	1.4	25%	0.35
Willow Creek - Coon Creek Culvert	0.42	25%	0.105
Total	1.82		0.455
Total Stream Miles (Denominator)	64.7 mi.		

% Uplift0.7%

UGS8 - LF 4.1 (Riparian Vegetation)

Action	mi. treated	2018 % Improvement	Realized Change in 2018 (mi)
No planting completed by Action Agencies			0
Total	0		0
Total Stream Miles (Denominator)	64.7 mi.		

% Uplift0.0%

UGS8 - LF 4.2 (LWD Recruitment)

Action	mi. treated	Rel. Treatment size	2018 % Improvement	Realized Change in 2018 (mi)
No planting completed by Action Agencies			0%	0
Total	0			0
Total Stream Miles (Denominator)	64.7 mi.			

% Uplift0.0%

UGS8 - LF 6.1 Bed and Channel Form

Action	mi. treated	Rel. Treatment size	2018 % Improvement	Realized Change in 2018 (mi)
Channel Construction	1	20.0%	80%	0.8
LWD Addition	4	80.0%	25%	1
Total	5			1.8
Total Stream Miles (Denominator)	64.7 mi.			

% Uplift2.8%

UGS8 - LF 6.2 Instream Structural Complexity

Action	mi. treated	Rel. Treatment size	2018 % Improvement	Realized Change in 2018 (mi)
Channel Construction	1	20.0%	37%	0.37
LWD Addition	4	80.0%	37%	1.46 73 structures placed in 5 miles. ~700 pieces. Compared the constructed pieces per mile to target value of 20 pieces per 100 meters of channel.
Total	5			1.83
Total Stream Miles (Denominator)	64.7 mi.			

% Uplift2.8%

UGS8 - LF 7.2 Sediment Conditions (Increased Quantity/Too much)

				<u>2033 %</u>		
				<u>Improvement</u>		
<u>Action</u>	<u>mi. treated</u>	<u>Rel. Treatment size</u>	<u>2018 % Improvement</u>	<u>Realized Change in</u>	<u>(prorating factor)</u>	<u>Realized Change in</u>
Willow Creek OR Ag (Channel Construction)	1	20.0%	50%	0.5	50%	0.5
Willow Creek OR Ag (LWD Addition)	4	80.0%	34%	1.36	34%	1.36
Total	5			1.86		1.86
Total Stream Miles (Denominator) 64.7 mi.						
% Uplift (2018)		2.9%				
% Uplift (2033)		2.9%				

UGS8 - LF 8.1 (Temperature)

<u>Action</u>	<u>mi. treated</u>	<u>Rel. Treatment size</u>	<u>2018 % Improvement</u>	<u>Realized Change in 2018 (mi)</u>
Willow Creek OR Ag (Channel Construction)	1	20.0%	0%	0
Willow Creek OR Ag (LWD Addition)	4	80.0%	0%	0
Total	5			0
Total Stream Miles (Denominator) 64.7 mi.				
% Uplift		0.0%		

UGS8 - LF 9.2 (Water Quantity)

No benefits from actions listed for above limiting factors.

UGS9A

Lower Catherine Creek Migration Corridor

Steelhead Miles

36 mi

UGS9A - LF 4.1 (Riparian Vegetation)

Action	mi. treated	Rel. Treatment size	2018 % Improvement (Prorate factor)	Realized Change in 2018 (mi)	2033 % Improvement (prorating factor)	Realized Change in 2033 (mi)
CC Baum Restoration	0.25	100.0%	0%	0	10%	0.025
Total	0.25			0		0.025
Total Stream Miles (Denominator) 36 mi.						
% Uplift (2018)	0.0%					
% Uplift (2033)	0.1%					

UGS9A - LF 4.2 (LWD Recruitment)

Action	mi. treated	Rel. Treatment size	2018 % Improvement (Prorate factor)	Realized Change in 2018 (mi)	2033 % Improvement (prorating factor)	Realized Change in 2033 (mi)
CC Baum Restoration	0.25	100.0%	0%	0	5%	0.0125
Total	0.25			0		0.0125
Total Stream Miles (Denominator) 36 mi.						
% Uplift (2018)	0.0%					
% Uplift (2033)	0.0%					

UGS9A - LF 5.1 Side channels

Action	mi. treated	Rel. Treatment size	2018 % Improvement (Prorate factor)	Realized Change in 2018 (mi)
CC Baum Restoration	0.25	100.0%	50%	0.125
Total	0.25			0.125
Total Stream Miles (Denominator) 36 mi.				
% Uplift	0.3%			

UGS9A - LF 5.2 Floodplains

<u>Action</u>	<u>mi. treated</u>	<u>Rel. Treatment size</u>	<u>2018 % Improvement (Prorate factor)</u>	<u>Realized Change in 2018 (mi)</u>
CC Baum Restoration	0.25	100.0%	50%	0.125
		0.0%		0
Total	0.25			0.125
Total Stream Miles (Denominator)	36 mi.			
% Uplift	0.3%			

UGS9A - LF 6.2 Instream Structural Complexity

<u>Action</u>	<u>mi. treated</u>	<u>Rel. Treatment size</u>	<u>2018 % Improvement (Prorate factor)</u>	<u>Realized Change in 2018 (mi)</u>
CC Baum Restoration	0.25	100.0%	5%	0.0125
		0.0%		0
Total	0.25			0.0125
Total Stream Miles (Denominator)	36 mi.		65	
% Uplift	0.0%			

UGS9A - LF 8.1 Temperature

Benefits from actions listed in LF 9.2 because not enough water and solar radiation too high. No uplift

UGS9A - LF 9.2 Flow Quantity

Leases

<u>Action</u>	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>2015 Permanent (cfs)</u>	<u>2018 Weighting Factor</u>	<u>Weighted CFS (2018)</u>
Davis to Mouth	0	0.76	0.76	0.76	93.0%	0.530
Malmburg Lease	0	0	0.26	0.26	6.7%	0.009
Sheehee Lease	0	0	0.53	0.53	6.7%	0.018
Malmburg Split Season lease	0.19	0.19	0.19	0	6.7%	0.010
D Ricker Lease	0	0	0.34	0.34	6.7%	0.011
DRTLTL	0	0.31	0.31	0.31	6.7%	0.016
LC Lease	0	0.38	0.38	0.38	6.7%	0.019
DS	0	0.12	0.12	0.12	6.7%	0.006
Southern Cross Forbearance	0	0	1.08	0	6.7%	0.018
Glen Smith Full	0	0	0.22	0	6.7%	0.004
Boyd Little Creek SSL	0.21	0.21	0.21	0.21	3.9%	0.008
Fresh Water Trust (2014)	0	0	0.15	0	3.9%	0.001

CTUIR Water Transaction (2014)	0	0	0.38	0		3.9%	0.004
CTUIR Water Transaction (2013)	0	1	0	0		3.9%	0.010
Total	0.4	2.97	4.93	2.91	0		0.662

Average of
leases (2012-
2018)==> 2.8025

Total 2018 0.7 cfs
Estimated Baseflow 30 cfs

% Uplift (2018) 2.2%

ODFW instream Flow target (30 cfs). 95% exceedance flow is 25 cfs.

Releases during critical months

3.9%

Lower Catherine Creek and Tributaries (contributing area and tributaries only)

Steelhead Miles47 mi

UGS9B - LF 1.1 (Barriers)

Action	mi. treated	Rel. Treatment size	2018 % Improvement (Prorate factor)	Realized Change in 2018 (mi)	
Little Creek Diversion	1.5	100.0%	50%	0.75	Partial barrier for juveniles only. Opens miles to LC-4
		0.0%		0	
Total	1.5			0.75	
Total Stream Miles (Denominator)	47 mi.				
% Uplift	1.6%				

UGS9B - LF 5.2 Floodplains and Peripheral Habitats

Action	mi. treated	Rel. Treatment size	2018 % Improvement (Prorate factor)	Realized Change in 2018 (mi)	
Highway 203 Bridge Replacement - Ladd Creek Reconnection	1.1	100.0%	80%	0.88	
		0.0%		0	
Total	1.1			0.88	
Total Stream Miles (Denominator)	47 mi.				
% Uplift	1.9%				

UGS9B - LF 6.1 Bed and Channel Form

Action	mi. treated	Rel. Treatment size	2018 % Improvement (Prorate factor)	Realized Change in 2018 (mi)	
Highway 203 Bridge Replacement - Ladd Creek Reconnection	1.1	100.0%	90%	0.99	
		0.0%		0	
Total	1.1			0.99	
Total Stream Miles (Denominator)	47 mi.				
% Uplift	2.1%				

UGS9B - LF 6.2 Structural Complexity

Action	mi. treated	Rel. Treatment size	2018 % Improvement (Prorate factor)	Realized Change in 2018 (mi)	
Highway 203 Bridge Replacement - Ladd Creek Reconnection	1.1	100.0%	5%	0.055	
		0.0%		0	
Total	1.1			0.055	
Total Stream Miles (Denominator)	47 mi.				
% Uplift	0.1%				

UGS9B - LF 7.2 Sediment Quantity (too much)

<u>Action</u>	<u>mi. treated</u>	<u>Rel. Treatment size</u>	<u>2018 % Improvement (Prorate factor)</u>	<u>Realized Change in 2018 (mi)</u>	<u>2033 % Improvement (prorating factor)</u>	<u>Realized Change in 2033 (mi)</u>
Highway 203 Bridge Replacement - Ladd Creek Reconnection	1.1	100.0%	0%	0	10%	0.11
				0		0.11
Total	1.1			0		
Total Stream Miles (Denominator)	47 mi.					
% Uplift (2018)			0.0%			
% Uplift (2033)			0.2%			

UGS9B - LF 8.1 Temperature

Existing temperatures exceed 20 deg between 81% and 100% days (20-22 deg C) so flow increases are insufficient to cause uplift. No uplift

UGS9B - LF 9.2 Flow Quantity

<u>Action</u>	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>	<u>Permanent (cfs)</u>	<u>2018 Weighting Factor</u>	<u>Weighted CFS (2018)</u>
Boyd Little Creek SSL	0.21	0.21	0.21	0.21		6%	0.01323
Fresh Water Trust (2014)	0	0	0.15	0		6%	0.002363
CTUIR Water Transaction (2014)	0	0	0.38	0.38		6%	0.01197
CTUIR Water Transaction (2013)	0	1	0	0		6%	0.01575
Total	0.21	1.21	0.7	0.6	0.0		0.0

Average of leases (2012-2018)==>

0.55

Weighting factor based on Little Creek miles relative to entire AU in steelhead stream miles (~47 miles)

2018 Total	0.0433125 cfs	
Estimated Baseflow	7.5 cfs	Base flow of Little Creek based on it having ~25% flow of Cath. Creek (NHD Vogel Method)
% Uplift (2018)	0.6%	

Transaction Name	certificate	lease	priority	term of deal	instream dates	certificated rate	final order rate at POD	final order rate at 10th St gage	final order rate at Davis Dam	final order rate below Davis Dams
Sheehy IL	49739	IL-1402	1867	2014-2016	7/1-10/30	1.34	0.67	0.53	0.53	0.53
Ricker IL/TLT*	6181	IL-1285	1864	2013-2017, 2018-2032	7/1-10/30	0.79	0.39	0.31	0.31	0.31
Ricker new IL/TLT*	6181	IL-1404	1864	2014-2018, 2019-2033	7/2-10/31	0.83	0.33	0.33	0.33	0.33
Charlson IL/TLT*	81811	IL-1284	1870	2013-2017,2018-2027	7/1-10/30	0.94	0.47	0.47	0.37	0.37
Schubert IL	6274,6489	IL-1385	1870	2014-2018	6/1-9/30	0.31	0.15	0.12	0.12	0.06

Priority Date	Final order rate below Davis Dams [cfs]
Senior to 1870	1.17
1870 and senior	1.6

Middle Catherine Creek (Pyles Cr. To Swackhammer Diversion)

Steelhead Miles3.7 mi

UGS10A - LF 4.1 (Riparian Vegetation)

Action	mi. treated	Rel. Treatment size	2018 % Improvement (Prorate factor)	Realized Change in 2018 (mi)	2033 % Improvement (prorating factor)	Realized Change in 2033 (mi)	
2012 CC RM 37 Restoration	0.75	100.0%	0%	0	15%	0	0.1125 Roni, Beechie et al. (2002) response time of 5-20 years. Negligible effect.
Total	0.75			0		0	
Total Stream Miles (Denominator)	3.7 mi.					0.1125	
% Uplift (2018)	0.0%						
% Uplift (2033)	3.0%						

UGS10A - LF 4.2 (LWD Recruitment)

Action	mi. treated	Rel. Treatment size	2018 % Improvement (Prorate factor)	Realized Change in 2018 (mi)	2033 % Improvement (prorating factor)	Realized Change in 2033 (mi)	
2012 CC RM 37 Restoration	0.75	100.0%	0%	0	8%	0	0.05625 Roni, Beechie et al. (2002) response time of 5-20 years. Negligible effect.
Total	0.75			0		0	
Total Stream Miles (Denominator)	3.7 mi.					0.05625	
% Uplift (2018)	0.0%						
% Uplift (2033)	1.5%						

UGS10A - LF 5.1 Side channels

Action	mi. treated	Rel. Treatment size	2018 % Improvement (Prorate factor)	Realized Change in 2018 (mi)	
2012 CC RM 37 Restoration	0.75	100.0%	11%	0.0825	11% Peripheral habitat ratio
Total	0.75			0.0825	
Total Stream Miles (Denominator)	3.7 mi.		65		
% Uplift	2.2%				

UGS10A - LF 5.2 Floodplains

Action	mi. treated	Rel. Treatment size	2018 % Improvement (Prorate factor)	Realized Change in 2018 (mi)	
2012 CC RM 37 Restoration	0.75	100.0%	25%	0.1875	Main channel was oversized due to flood concerns, which reduced floodplain connection. Rationale for small % Improvement factor.
Total	0.75			0.1875	
Total Stream Miles (Denominator)	3.7 mi.				
% Uplift	5.1%				

UGS10A - LF 6.1Bed and channel Form

Action	mi. treated	Rel. Treatment size	2018 % Improvement (Prorate factor)	Realized Change in 2018 (mi)	
2012 CC RM 37 Restoration	0.75	100.0%	40%	0.3	Sinuosity and W/D ratio from Champ, design criteria, and historic reference to arrive at 40%. Design sinuosity = 1.1-1.45. historic baseline was 2.2-2.4. W/D reduced from 22.6 to 18.6 at bankfull.
		0.0%		0	

Total	0.75	0.3
Total Stream Miles (Denominator)	3.7 mi.	
% Uplift	8.1%	

UGS10A - LF 6.2 Instream Structural Complexity

Action	mi. treated	Rel. Treatment size	2018 % Improvement (Prorate factor)	Realized Change in 2018 (mi)		
2012 CC RM 37 Restoration	0.75	100.0% 0.0%	25%	0.1875 0	13 wood complexes, 81 key members. Champ data says LWD piece frequency went from 13.4 (pre-project) to 14 (post) pieces per 100 meters in bankfull channel. Compared 14 logs (50 % were buried and were not providing complexity) per 100 meters to target value of 18 pieces per 100 m for Minam River. Many of the structures do not mimic natural wood accumulations.	Where did the 18 pieces/100m come from? We have been using 20/27 for Minam/Little Minam
Total	0.75			0.1875	Adjusted downward further due to recent research showing engineered structures oftentimes don't have fish response of natural structures	No change to uplift in response to panel's comment, due to the Panel's original comment in cell to left (i.e. they did not determine weighting only by percentage of target.
Total Stream Miles (Denominator)	3.7 mi.		65			
% Uplift	5.1%					

UGS10A - LF 7.2 Sediment Conditions (Increased Quantity/Too much)

Action	mi. treated	Rel. Treatment size	2018 % Improvement (Prorate factor)	Realized Change in 2018 (mi)	2033 % Improvement (prorating factor)	Realized Change in 2033 (mi)	
2012 CC RM 37 Restoration	0.75	100.0% 0.0%	28% 0%	0.21 0	38%	0.285 0	Project included bank stabilization, so some immediate benefit. Reduction in bank height as well.
Total	0.75			0.21		0.285	1125 lineal feet of eroding bank
Total Stream Miles (Denominator)	3.7 mi.						3960 total project length
% Uplift (2018)	5.7%						28%
% Uplift (2033)	7.7%						

UGS10A - LF 8.1 Temperature

Percent summer days (July 20-Aug31st) are 100% exceedance of 20 deg C. Background temps are too hot for flow increases to have measurable effect.

UGS10A - LF 9.2 Flow Quantity

Action	Leases				2015 Permanent (cfs)	2018 Weighting Factor	Weighted CFS (2018)
Malmburg Lease	0	0	0.26	0.26		100%	0.13
Sheehee Lease	0	0	0.53	0.53		80%	0.212
Malmburg Split Season lease	0.19	0.19	0.19	0		100%	0.1425
D Ricker Lease	0	0	0.34	0.34		100%	0.17
DRTLTL	0	0.31	0.31	0.31		100%	0.2325
LC Lease	0	0.38	0.38	0.38		80%	0.228
DS	0	0.12	0.12	0.12		80%	0.072
Southern Cross Forbearance	0	0	1.08	0		100%	0.27
Glen Smith Full	0	0	0.22	0		100%	0.055
Total	0.19	1	3.4	1.9	0.0		1.5
			Average of leases (2012-2018)==>	1.64			

Total (2018)	1.5 cfs	
Estimated Baseflow	30 cfs	ODFW instream Flow target (30 cfs). 95% exceedance flow is 25 cfs.
% Uplift (2018)	5.0%	

Middle Catherine Creek and Tributaries - Swackhammer to North and South Forks

Steelhead Miles23 mi

UGS10B - LF 1.1 (Barriers)

Action	mi. treated	Rel. Treatment size	2018 % Improvement		Realized Change in 2018 (mi)	
			(Prorate factor)			
CC44 Phase II (2014) - Push-up dam removal (Southern Cross and Smith)	18		100.0%	25%	4.5	partial barrier to juveniles Kinsley benefit should be calculated f
			0.0%	0%	0	
			0.0%		0	
			0.0%		0	
Total	18				4.5	
Total Stream Miles (Denominator)	23 mi.					
% Uplift		19.6%				

Phase I Wood Placement and Side Channel

ft862
546
mi0.163257576
0.103409091
main channel
side channel
LWD complexes
11

Phase II

Eliminate push up dam, removal (decommission) of Southern Cross (Ayers) diversion structure
Construct roughened channel
Headgate and pipe delivery system
On farm water conservation (irrigation efficiencies)
HabitatKirby and Fite29 LWD complexes
1 side channel constructed421 feet
2 alcoves constructed

Phase III

Instream complexity
56 wood structures

UGS10B - LF 4.1 (Riparian Vegetation)

Action	mi. treated	Rel. Treatment size	2018 % Improvement		Realized Change in 2018 (mi)	2033 % Improvement		Realized Change in 2033 (mi)
			(Prorate factor)			(prorating factor)		
CC44 Phase I - Kirby, Fite, and Smith (small scale planting 1400 ft)	0.27	19.3%		0%	0	15%		0.0405
CC44 Phase II (2014) - planting and fencing	1.13	80.7%		0%	0	15%		0.1695
Little Cath/Milk Creek Fencing and Planting (Pinship, 18 acres)	TBD							
Total	1.4				0			0.21
Total Stream Miles (Denominator)	23 mi.							
% Uplift (2018)		0.0%						
% Uplift (2033)		0.9%						

Vegetation not established yet

18 acres of fencing and riparian treatment

UGS10B - LF 4.2 (LWD Recruitment)

Action	mi. treated	Rel. Treatment size	2018 % Improvement		Realized Change in 2018 (mi)	2033 % Improvement		Realized Change in 2033 (mi)
			(Prorate factor)			(prorating factor)		
CC44 Phase I - Kirby, Fite, and Smith (small scale planting 1400 ft)	0.27	19.3%		0%	0	8%		0.02025
CC44 Phase II (2014) - planting and fencing	1.13	80.7%		0%	0	8%		0.08475
Total	1.4				0			0.105
Total Stream Miles (Denominator)	23 mi.							
% Uplift (2018)		0.0%						
% Uplift (2033)		0.5%						

UGS10B - LF 5.1 Side channels and Wetland Conditions

Action	mi. treated	Rel. Treatment size	2018 % Improvement		Realized Change in 2018 (mi)	
			(Prorate factor)			
CC44 Phase I - Kirby, Fite, and Smith	0.16	8.2%		5%	0.008	2113 side channel feet 56 wood structures 0.66 mi main channel length
CC44 Phase II (2014)	1.13	4.9%		50%	0.565	
CC44 Phase III (2015) - side channel including alcoves	0.66	33.8%		50%	0.33	
Total	1.95				0.903	
Total Stream Miles (Denominator)	23 mi.				65	
% Uplift		3.9%				

UGS10B - LF 5.2 Floodplains

Action	mi. treated	Rel. Treatment size	2018 % Improvement		Realized Change in 2018 (mi)	
			(Prorate factor)			
CC44 Phase I - Kirby, Fite, and Smith	0.16	8.2%		0%	0	Oversized channel designed for flood concerns. Activation of floodplain doesn't occur until ~5-yr flood
CC44 Phase II (2014)	1.13	57.9%		0%	0	
CC44 Phase III (2015) - side channel including alcoves	0.66	33.8%		10%	0.066	
Total	1.95				0.066	
Total Stream Miles (Denominator)	23 mi.					
% Uplift		0.3%				

UGS10B - LF 6.1Bed and channel Form

Action	mi. treated	Rel. Treatment size	2018 % Improvement		Realized Change in 2018 (mi)	
			(Prorate factor)			
CC44 Phase I - Kirby, Fite, and Smith - bank stability and gravel sorting	0.16	8.2%		8%	0.0128	8% is the percentage of total 2 miles
CC44 Phase II (2014)	1.13	57.9%		10%	0.113	

CC44 Phase III (2015)	0.66	33.8%	60%	0.396	Considering W/D ratio improvement. Tight radius pools also add improvement
Total	1.95			0.5218	
Total Stream Miles (Denominator)	23 mi.				
% Uplift		2.3%			

UGS10B - LF 6.2 Instream Structural Complexity

Action	mi. treated	Rel. Treatment size	2018 % Improvement (Prorate factor)	Realized Change in 2018 (mi)					
CC44 Phase I to III combined	2	100.0%	50%	1	well-above reference condition of 27 LWD pieces per 100 m	1772 pieces of wood in phase 1.	Some structures were bank stabilization structures.	Group considered life stage use relative to placement of wood in main versus side channels.	meets 27 pieces
Total	2			1					886 pieces of "large v per 100 m
Total Stream Miles (Denominator)	23 mi.		65						
% Uplift		4.3%							

UGS10B - LF 7.2 Sediment Conditions (Increased Quantity/Too much)

Action	mi. treated	Rel. Treatment size	2018 % Improvement (Prorate factor)	Realized Change in 2018 (mi)	2033 % Improvement (prorating factor)	Realized Change in 2033 (mi)
CC44 Phase I - Kirby, Fite, and Smith - bank stabilization and gravel sorting	0.16	8.2%	100%	0.16	100%	0.16
CC44 Phase II (2014)	1.13	57.9%	60%	0.678	68%	0.76275
CC44 Phase III (2015)	0.66	33.8%	60%	0.396	68%	0.4455
Total	1.95			1.234		1.36825
Total Stream Miles (Denominator)	23 mi.					
% Uplift (2018)		5.4%				
% Uplift (2033)		5.9%				

UGS10B - LF 8.1 Temperature

Percent summer days (July 20 - Aug 31) are 57% exceedance of 20 deg C . Background temperatures are too hot for flow increases to have measurable effect. Input water is not cool water.

UGS10B - LF 9.2 Flow Quantity

<u>Leases</u>							
<u>Action</u>				<u>Permanent</u>	<u>Weighted</u>		
	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>2015 (cfs)</u>	<u>2018 Weighting Factor</u>	<u>CFS (2018)</u>	
D Ricker Lease	0	0.39	0.39	0.39	100%	0.2925	Reported flows may differ from other assessment units according to spreadsheet from GRMW. Weighting factors (100%) because the point of diversion is the point of reference for the diversion as opposed to length of stream.
New Ricker Lease/TLT	0	0	0.33	0.33	100%	0.165	
Southern Cross Forbearance	0	0	1.08	0	100%	0.27	
Glen Smith Full	0	0	0.22	0.22	100%	0.11	
Total	0	0.39	2.0	0.9	0.0	0.84	

Average of leases (2012-2018)==> 0.8375

Total (2018)	0.84 cfs	
Estimated Baseflow	30 cfs	ODFW instream Flow target (30 cfs). 95% exceedance flow is 25 cfs.
% Uplift (2018)		2.8%

South Fork Catherine Creek

Steelhead Miles

13.5 mi

UGS11 - LF 4.1 (Riparian Vegetation)

Action	mi. treated	Rel. Treatment size	2018 % Improvement (Prorate factor)	Realized Change in 2018 (mi)	2033 % Improvement t (prorating factor)	Realized Change in 2033 (mi)
Corral Creek - LWD and Planting (2014-2015)	1	18.2%	0%	0	20%	0.2
SF CC Riparian Planting	4.5	81.8%	0%	0	20%	0.9
Total	5.5			0		1.1
Total Stream Miles (Denominator)						
13.5 mi.						
% Uplift (2018)	0.0%					
% Uplift (2033)	8.1%					

UGS11 - LF 4.2 (LWD Recruitment)

Action	mi. treated	Rel. Treatment size	2018 % Improvement (Prorate factor)	Realized Change in 2018 (mi)	2033 % Improvement t (prorating factor)	Realized Change in 2033 (mi)
Corral Creek - LWD and Planting (2014-2015)	1	18.2%	0%	0	10%	0.1
SF CC Riparian Planting	4.5	81.8%	0%	0	10%	0.45
Total	5.5			0		0.55
Total Stream Miles (Denominator)						
13.5 mi.						
% Uplift (2018)	0.0%					
% Uplift (2033)	4.1%					

UGS11 - LF 6.2 Instream Structural Complexity

Action	mi. treated	Rel. Treatment size	2018 % Improvement (Prorate factor)	Realized Change in 2018 (mi)		
Corral Creek - LWD and Planting (2014-2015)	1	18.2%	27%	0.27	115 pieces per mile (7.2 per 100 m)	27%
SF Cath Creek Riparian Planting (Instream Structures)	4.5	81.8%	30%	1.35	Added 8 pieces per 100 m, puts average LWD frequency over 27 pieces per 100 m	30%
Total	5.5			1.62		
Total Stream Miles (Denominator)						
13.5 mi.						
% Uplift	12.0%					

UGS11 - LF 7.2 Sediment Conditions (Increased Quantity/Too much)

Action	mi. treated	Rel. Treatment size	2018 % Improvement (Prorate factor)	Realized Change in 2018 (mi)	2033 % Improvement t (prorating factor)	Realized Change in 2033 (mi)	
Corral Creek - LWD and Planting (2014-2015)	1	18.2%	35%	0.35	45%	0.45	Culvert removals improved sediment conditions. Based on the number of cross drain culverts (>10) and their position relative to the stream ==> improvement %. Recontoured/reclaimed and planted a road prism. (not including riparian plantings)
SF Cath Creek Riparian Planting	4.5	81.8%	75%	3.375	85%	3.825	
				0			
Total	5.5			3.725		4.275	
Total Stream Miles (Denominator)							
13.5 mi.							
% Uplift (2018)	27.6%						
% Uplift (2033)	31.7%						

UGS11 - LF 8.1 Temperature

No change. Temp is properly functioning

UGS11 - LF 9.2 Flow Quantity

Action	Lease (2012)	Lease (2013)	Lease (2014)	Lease (2015, cfs)	Permanent (cfs)	Weighting Factor	Weighted CFS
No Actions							#DIV/0!
Total	0	0	0	0	0		#DIV/0!

Total
Estimated Baseflow

#DIV/0!
30 cfs

% Uplift

0.0%

Average of
leases (2012-
2018)==>

0

Steelhead Miles12.5 mi

UGS12 - LF 1.1 (Barriers)

Action	mi. treated	Rel. Treatment size	2018 % Improvement (Prorate factor)	Realized Change in 2018 (mi)	
NF Catherine Creek Ford Removal	6	100.0%	25%	1.5	Partial barrier for ~ 2 months of the year (July to end of October; dependent on flow).
Total	6			1.5	
Total Stream Miles (Denominator)	12.5 mi.				
% Uplift (2018)	12.0%		Note this LF is weighted 0. Potentially reweight during Look Forward.		

UGS13A Five Points Creek and Tributaries

Steelhead Miles

43.5 mi

UGS13A - LF 1.1 (Barriers)

Action	mi. treated	Rel. Treatment size	2018 % Improvement	Realized Change in 2018 (mi)
Union Pacific Diversion Dam (USFS removal 2015)	21	100.0%	10%	2.1
Total	21			2.1
Total Stream Miles (Denominator)	43.5 mi.			

Improves juvenile migration. Prior to removal, limited adult steelhead passage (they jumped in high flows).

% Uplift

4.8%

UGS13A - LF 4.1 (Riparian Vegetation)

Action	<u>mi. treated</u>	<u>Rel. Treatment size</u>	<u>2018 % Improvement</u>	<u>Realized Change in 2018 (mi)</u>
No Actions		#DIV/0!		0
Total	0			0
Total Stream Miles (Denominator)	43.5 mi.			

% Uplift

0.0%

UGS13A - LF 4.2 (LWD Recruitment)

Action	mi. treated	Rel. Treatment size	2018 % Improvement	Realized Change in 2018 (mi)
No planting completed by Action Agencies		#DIV/0!	0%	0
Total	0			0
Total Stream Miles (Denominator)	43.5 mi.			

% Uplift

0.0%

UGS13A - LF 6.1 Bed and Channel Form

<u>Action</u>	<u>mi. treated</u>	<u>Rel. Treatment size</u>	<u>2018 % Improvement (Prorate factor)</u>	<u>Realized Change in 2018 (mi)</u>	<u>2033 % Improvement (prorating factor)</u>	<u>Realized Change in 2033 (mi)</u>
Five Pts Phase I LWD and Planting (Union Pacific Diversion Dam - LWD structures below diversion dam)	0.5	100.0%	0%	0	10%	0.05
Total	0.5			0		0.05
Total Stream Miles (Denominator)	43.5 mi.					

% Uplift (2018)

0.0%

% Uplift (2033)

0.1%

UGS13A - LF 6.2 Instream Structural Complexity

Action	mi. treated	Rel. Treatment size	2018 % Improvement	Realized Change in 2018 (mi)
Five Pts Phase I LWD and Planting (Union Pacific Diversion Dam - LWD structures below diversion dam)	0.5	100.0%	65%	0.325
		0.0%		0
Total	0.5			0.325
Total Stream Miles (Denominator)	43.5 mi.			

15 pieces at 7 sites (105 pieces), compared to 20 pieces per 100 meters
0.65625

% Uplift

0.7%

UGS13A - LF 7.2 Sediment Conditions (Increased Quantity/Too much)

Action	mi. treated	Rel. Treatment size	2018 % Improvement	Realized Change in 2018 (mi)
No actions				0
Total	0			0
Total Stream Miles (Denominator)	43.5 mi.			

% Uplift

0.0%

UGS13A - LF 8.1 (Temperature)

Action	mi. treated	Rel. Treatment size	2018 % Improvement	Realized Change in 2018 (mi)
No Actions				0
Total	0			0
Total Stream Miles (Denominator)	43.5 mi.			

% Uplift

0.0%

UGS13A - LF 9.2 (Water Quantity)

No benefits from actions listed for above limiting factors.

UGS14

Meadow Creek and Tributaries (Except Dark Canyon and McCoy Creeks)

Steelhead Miles

63.7 mi

UGS14 - LF 1.1 (Barriers)

Action	mi. treated	Rel. Treatment size	2018 % Improvement (Prorate factor)	Realized Change in 2018 (mi)
No Actions		0.0%		0
Total	0			0
Total Stream Miles (Denominator)	63.7 mi.			
% Uplift	0.0%			

UGS14 - LF 4.1 (Riparian Vegetation)

Action	mi. treated	Rel. Treatment size	2018 % Improvement (Prorate factor)	Realized Change in 2018 (mi)	2033 % Improvement (prorating factor)	Realized Change in 2033 (mi)
Meadow Creek Large Wood and Planting Battle/Campbell Creek Lwood and Floodplain Restoration	7.25	70.7%	0%	0	20%	1.45
	3	29.3%	0%	0	20%	0.6
Total	10.25			0		2.05
Total Stream Miles (Denominator)	63.7 mi.					
% Uplift (2018)	0.0%					
% Uplift (2033)	3.2%					

UGS14 - LF 4.2 (LWD Recruitment)

Action	mi. treated	Rel. Treatment size	2018 % Improvement (Prorate factor)	Realized Change in 2018 (mi)	2033 % Improvement (prorating factor)	Realized Change in 2033 (mi)
Meadow Creek Large Wood and Planting Battle/Campbell Creek Lwood and Floodplain Restoration	7.25	70.7%	0%	0	10%	0.725
	3	29.3%	0%	0	10%	0.3
Total	10.25			0		1.025
Total Stream Miles (Denominator)	63.7 mi.					
% Uplift (2018)	0.0%					
% Uplift (2033)	1.6%					

UGS14 - LF 6.1 Bed and Channel Form

Action	mi. treated	Rel. Treatment size	2018 %	Realized	
			Improvement (Prorate factor)	Change in 2018 (mi)	
					29 structures, 82 boulders, last 15 structures to have 175 pieces. 560 pieces total for the two project phases.
Meadow Creek Large Wood and Planting (two phases)	7.25	72.5%	25%	1.8125	Lack of channel forming flows since installation.
Battle/Campbell Creek Lwood and Floodplain Restorati	2.75	27.5%	10%	0.275	
Total	10			2.0875	
Total Stream Miles (Denominator)	63.7 mi.				
% Uplift	3.3%				

UGS14 - LF 6.2 Instream Structural Complexity

Action	mi. treated	Rel. Treatment size	2018 %	Realized	
			Improvement (Prorate factor)	Change in 2018 (mi)	
Meadow Creek Large Wood and Planting	7.25	72.5%	25%	1.8125	4.8 pieces per 100 meter 323 pieces per mile. 7.3 pieces per 100 m. Ideal is 27 per 100m from Little Minam Champ survey
Battle/Campbell Creek Lwood and Floodplain Restorati	2.75	27.5%	27%	0.7425	
Total	10			2.555	
Total Stream Miles (Denominator)	63.7 mi.		65		
% Uplift	4.0%				

UGS14 - LF 7.2 Sediment Conditions (Increased Quantity/Too much)

Action	mi. treated	Rel. Treatment size	2018 %	Realized	2033 %	Realized	
			Improvement (Prorate factor)	Change in 2018 (mi)	Improvement (prorating factor)	Change in 2033 (mi)	
Meadow Creek Large Wood and Planting	7.25	54.7%	25%	1.8125	35%	2.5375	8% decrease of pool tail fines according to CHAMP data starting in 2011
Battle/Campbell Creek Lwood and Floodplain Restorati	6	45.3%	20%	1.2	30%	1.8	
Total	13.25			3.0125		4.3375	
Total Stream Miles (Denominator)	63.7 mi.						
% Uplift (2018)	4.7%						
% Uplift (2033)	6.8%						

UGS14 - LF 8.1 (Temperature)

<u>Action</u>	<u>mi. treated</u>	<u>Rel. Treatment size</u>	<u>2018 % Improvement (Prorate factor)</u>	<u>Realized Change in 2018 (mi)</u>	
No uplift			0.0%	0%	0
Total	0				0
Total Stream Miles (Denominator)	63.7 mi.				
% Uplift	0.0%				

UGS14 - LF 9.2 (Water Quantity)

No benefits to flow from actions listed for above limiting factors.

McCoy Creek, Dark Canyon, and Tributaries

Steelhead Miles39 mi

UGS15 - LF 1.1 (Barriers)

<u>Action</u>	<u>mi. treated</u>	<u>2018 %</u>	<u>Realized Change</u> <u>in 2018 (mi)</u>	
		<u>Improvement</u> <u>(Prorate factor)</u>		
Dark Canyon Culvert Replacement	2	100%	2	Seasonal barrier to juveniles.
Total	2		2	
Total Stream Miles (Denominator)	39 mi.			
% Uplift		2.0%	Uplift revised to 2% to arrive at 100% function score.	

Rock, Whiskey, Spring, Jordan, Bear, and Beaver Creeks and Tributaries

Steelhead Miles110.7 mi

UGS16 - LF 1.1 (Barriers)

Action	mi. treated	Rel. Treatment	2018 % Improvement (Prorate factor)	Realized Change in 2018 (mi)	2033 % Improvement (prorate factor)	Realized Change in 2033 (mi)
SF Spring Creek Culvert Replacement	2.5	22.7%	5%	0.125		Was a partial, seasonal barrier.
Total	2.5			0.125		
Total Stream Miles (Denominator)	110.7 mi.					

% Uplift0.1%

UGS16 - LF 4.1 (Riparian Vegetation)

Action	mi. treated	Rel. Treatment	2018 % Improvement (Prorate factor)	Realized Change in 2018 (mi)	2033 % Improvement (prorate factor)	Realized Change in 2033 (mi)		
Rock Creek Phase 1 (on Graves Cr.)	6	54.5%	0%	0	20%	1.2	7000 plants	One season of growth. Too soon for uplift.
Rock Creek Phase 2	5	45.5%	0%	0	20%	1		
Total	11			0		2.2		
Total Stream Miles (Denominator)	110.7 mi.							

% Uplift (2018)0.0%
% Uplift (2033)2.0%

UGS16 - LF 4.2 (LWD Recruitment)

Action	mi. treated	Rel. Treatment	2018 % Improvement (Prorate factor)	Realized Change in 2018 (mi)	2033 % Improvement (prorate factor)	Realized Change in 2033 (mi)
Rock Creek Phase 1 (on Graves Cr.)	6	54.5%	0%	0	10%	0.6
Rock Creek Phase 2	5	45.5%	0%	0	10%	0.5
Total	11			0		1.1
Total Stream Miles (Denominator)	110.7 mi.					

% Uplift (2018)0.0%
% Uplift (2033)1.0%

UGS16 - LF 6.1 Bed and Channel Form

Action	mi. treated	Rel. Treatment size	2018 % Improvement (Prorate factor)	Realized Change in 2018 (mi)
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Rock Creek Phase 1 (on Graves Cr.) - activated channel	1	12.5%	90%	0.9	750 large pieces (spread across 3 project components), 128 log complexes, 25 riffle complexes installed
Rock Creek Phase 1 (on Graves Cr.) - wood with riffles	1	12.5%	60%	0.6	
Rock Creek Phase 1 (on Graves Cr.) - wood additions	1	12.5%	25%	0.25	
Rock Creek Phase 2	5	62.5%	25%	1.25	167 LWD complexes, each with 5 key members, 1650 large pieces,
Total	8			3	
Total Stream Miles (Denominator)	110.7 mi.				
% Uplift	2.7%				

UGS16 - LF 6.2 Instream Structural Complexity

Action	mi. treated	Rel. Treatment size	2018 % Improvement (Prorate factor)	Realized Change in 2018 (mi)	
Rock Creek Phase 1 (on Graves Cr.)	3	37.5%	58%	1.74	Compared to ideal LWD piece frequency of 27 pieces per 100 m.
Rock Creek Phase 2	5	62.5%	76%	3.8	
		0.0%		0	
Total	8			3.8	
Total Stream Miles (Denominator)	110.7 mi.				
% Uplift	3.4%				

UGS16 - LF 7.2 Sediment Conditions (Increased Quantity/Too much)

<u>Action</u>	<u>mi. treated</u>	<u>Rel. Treatment size</u>	<u>2018 % Improvement (Prorate factor)</u>	<u>Realized Change in 2018 (mi)</u>	<u>2033 % Improvement (prorate factor)</u>	<u>Realized Change in 2033 (mi)</u>
Rock Creek Phase 1 (on Graves Cr.)	6	54.5%	10%	0.6	30%	1.8
Rock Creek Phase 2	5	45.5%	10%	0.5	30%	1.5
Total	11			1.1		3.3
Total Stream Miles (Denominator)	110.7 mi.					
% Uplift (2018)	This value was updated from an earlier draft of the calculation spreadsheet where the uplift was estimated at 0% for 2018.					
% Uplift (2033)						

UGS16 - LF 8.1 (Temperature)

Action	mi. treated	Rel. Treatment size	2018 % Improvement (Prorate factor)	Realized Change in 2018 (mi)
Temperatures already in steelhead preferred range, so decreased temp has no change.		0.0%	0%	0
Total	0			0
Total Stream Miles (Denominator)	110.7 mi.			
% Uplift	0.0%			

UGS16 - LF 9.2 (Water Quantity)

<u>Action</u>	<u>Leases</u>				<u>Permanent (cfs)</u>
	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>	
Beaver Creek Release	0	3.5	3.5	3.5	
Total	0	3.5	3.5	3.5	0
			Average of	2.625	

Total 2.625 cfs
Estimated base flow cfs

Panelists determined no benefit due to timing and minimal amount of release.

% Uplift **0.0%**

Upper Grande Ronde River Mainstem, Meadow Creek to Limber Jim Creek

Steelhead Miles17.8 mi

UGS17 - LF 1.1 (Barriers)

Action	mi. treated	Rel. Treatment size	2018 % Improvement (Prorate factor)	Realized Change in 2018 (mi)
No actions		0.0%	10%	0
Total	0			0
Total Stream Miles (Denominator)	17.8 mi.			
% Uplift	0.0%			

UGS17 - LF 4.1 (Riparian Vegetation)

Action	mi. treated	Rel. Treatment size	2018 % Improvement (Prorate factor)	Realized Change in 2018 (mi)	2033 % Improvement (prorating factor)	Realized Change in 2033 (mi)
UGR Pod fencing (2012)	1	66.7%	1%	0.01	20%	0.2
Warm Springs Fencing	0.5	33.3%	1%	0.005	20%	0.1
Total	1.5			0.015		0.3
Total Stream Miles (Denominator)	17.8 mi.					
% Uplift (2018)	0.1%					
% Uplift (2033)	1.7%					

UGS17 - LF 4.2 (LWD Recruitment)

Action	mi. treated	Rel. Treatment size	2018 % Improvement (Prorate factor)	Realized Change in 2018 (mi)	2033 % Improvement (prorating factor)	Realized Change in 2033 (mi)
UGR Pod Fencing (2012)	1	66.7%	0%	0	10%	0.1
Warm Springs Fencing	0.5	33.3%	0%	0	10%	0.05
Total	1.5			0		0.15
Total Stream Miles (Denominator)	17.8 mi.					
% Uplift (2018)	0.0%					
% Uplift (2033)	0.8%					

Pod fencing does not influence stream condition.

UGS17 - LF 6.2 Instream Structural Complexity

Action	mi. treated	Rel. Treatment size	2018 % Improvement (Prorate factor)	Realized Change in 2018 (mi)	
USFS - UGR Small Wood and Pod Fencing Installation (2014)	5	100.0%	1%	0.05	Panel determined that slash/brushy material had negligible effect on channel complexity.
		0.0%		0	Roni, Beechie et al. (2002) determined response time of 1-5 years for LWD placement
Total	5			0.05	
Total Stream Miles (Denominator)	17.8 mi.				
% Uplift	0.3%				

UGS17 - LF 7.2 Sediment Conditions (Increased Quantity/Too much)

Action	mi. treated	Rel. Treatment size	2018 % Improvement (Prorate factor)	Realized Change in 2018 (mi)	2033 % Improvement (prorating factor)	Realized Change in 2033 (mi)
USFS - UGR Small Wood and Pod Fencing Installation (2014)	1	66.7%	0%	0	0%	0
UGR Pod Fencing (2012)	0.5	33.3%	0%	0	0%	0
Total	1.5			0		0
Total Stream Miles (Denominator)	17.8 mi.					
% Uplift (2018)	0.0%					
% Uplift (2033)	0.0%					

UGS17 - LF 8.1 (Temperature)

<u>Action</u>	<u>mi. treated</u>	<u>Rel. Treatment size</u>	<u>2018 % Improvement (Prorate factor)</u>	<u>Realized Change in 2018 (mi)</u>	<u>2033 % Improvement (prorating factor)</u>	<u>Realized Change in 2033 (mi)</u>
USFS - UGR Small Wood and Pod Fencing Installation (2014)	1	66.7%	0%	0	5%	0.05
Total	1			0		0.05
Total Stream Miles (Denominator)	17.8 mi.					
% Uplift (2018)	0.0%					
% Uplift (2033)	0.3%					

Upper Grande Ronde River Mainstem and Tributaries, Clear Creek to Headwaters

Steelhead Miles5.4 mi

UGS19 - LF 1.1 (Barriers)

Action	mi. treated	Rel. Treatment size	2018 % Improvement (Prorate factor)	Realized Change in 2018 (mi)
No actions		0.0%	10%	0
Total	0			0
Total Stream Miles (Denominator)	5.4 mi.			
% Uplift	0.0%			

UGS19 - LF 4.1 (Riparian Vegetation)

Action	mi. treated	Rel. Treatment size	2018 % Improvement (Prorate factor)	Realized Change in 2018 (mi)	2033 % Improvement (prorating factor)	Realized Change in 2033 (mi)
USFS - UGR Small Wood and Pod Fencing Installation (2014)	3	100.0%	0%	0	10%	0.3
Total	3			0		0.3
Total Stream Miles (Denominator)	5.4 mi.					
% Uplift (2018)	0.0%					
% Uplift (2033)	5.6%					

UGS19 - LF 4.2 (LWD Recruitment)

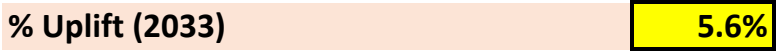
Action	mi. treated	Rel. Treatment size	2018 % Improvement (Prorate factor)	Realized Change in 2018 (mi)	2033 % Improvement (prorating factor)	Realized Change in 2033 (mi)
Upper Grande Ronde Small Wood and Pods	3	100.0%	0%	0	5%	0.15
Total	3			0		0.15
Total Stream Miles (Denominator)	5.4 mi.					
% Uplift (2018)	0.0%					
% Uplift (2033)	2.8%					

UGS19 - LF 6.2 Instream Structural Complexity

Action	mi. treated	Rel. Treatment size	2018 % Improvement (Prorate factor)	Realized Change in 2018 (mi)	
Upper Grande Ronde Small Wood and Pods	3	100.0%	1%	0.03	Fencing to protect plantings
				0	Roni, Beechie et al. (2002) determined response time of 5-20 years for planting/fencing
Total	3			0.03	
Total Stream Miles (Denominator)	5.4 mi.			65	
% Uplift	0.6%				

UGS19 - LF 7.2 Sediment Conditions (Increased Quantity/Too much)

Action	mi. treated	Rel. Treatment size	2018 % Improvement (Prorate factor)	Realized Change in 2018 (mi)	2033 % Improvement (prorating factor)	Realized Change in 2033 (mi)
Upper Grande Ronde Small Wood and Pods	3	100.0%	0%	0	10%	0.3
Total	3			0		0.3
Total Stream Miles (Denominator)	5.4 mi.					
% Uplift (2018)	0.0%					



Sheep Creek and Tributaries

Steelhead Miles32.1 mi

UGS22 - LF 4.1 (Riparian Vegetation)

Action	mi. treated	Rel. Treatment size	2018 % Improvement (Prorate factor)	Realized Change in 2018 (mi)	2033 % Improvement (prorating factor)	Realized Change in 2033 (mi)	
Sheep Creek Large Wood and Planting (2014-15)	2.5	100.0%		0%	0	20%	0.5 Negligible effect in 2018 due to minimal plant growth
Total	2.5				0		0.5
Total Stream Miles (Denominator)	32.1 mi.						
% Uplift (2018)		0.0%					
% Uplift (2033)		1.6%					

UGS22 - LF 4.2 (LWD Recruitment)

Action	mi. treated	Rel. Treatment size	2018 % Improvement (Prorate factor)	Realized Change in 2018 (mi)	2033 % Improvement (prorating factor)	Realized Change in 2033 (mi)	
Sheep Creek Large Wood and Planting (2014-15)	2.5	100.0%		0%	0	10%	Negligible effect in 2018 due to minimal plant growth
Total	2.5				0		0.25
Total Stream Miles (Denominator)	32.1 mi.						0.25
% Uplift (2018)		0.0%					
% Uplift (2033)		0.8%					

UGS22 - LF 6.2 Instream Structural Complexity

Action	mi. treated	Rel. Treatment size	2018 % Improvement (Prorate factor)	Realized Change in 2018 (mi)		LWD Pieces	Target Pieces	
Sheep Creek Large Wood and Planting (2014-15)	2.5	55.6%		19%	0.4625	192	320	20*16.09=322 ideal pieces/mile
Chicken Cr Large Wood and Planting	2	44.4%		15%	0.3	117		27*16.09=434 ideal pieces/mile
Total	4.5				0.7625			434 pieces/mile for Little Minam reference according to notes.
Total Stream Miles (Denominator)	32.1 mi.			65				No change made in response to panel's comment since it did not influence the uplift calculation. Original weighting factors by panel appeared to reflect the 434 pieces per mile target value from the Little Minam.
% Uplift		2.4%						

UGS22 - LF 7.2 Sediment Conditions (Increased Quantity/Too much)

Action	mi. treated	Rel. Treatment size	2018 % Improvement (Prorate factor)	Realized Change in 2018 (mi)	2033 % Improvement (prorating factor)	Realized Change in 2033 (mi)
Sheep Creek Large Wood and Planting (2014-15)	2.5	55.6%		0%	0	10%
Chicken Cr Large Wood and Planting	2	44.4%		0%	0	10%
Total	4.5				0	0.45
Total Stream Miles (Denominator)	32.1 mi.					
% Uplift (2018)		0.0%				
% Uplift (2033)		1.4%				

Lower Catherine Creek (State Ditch Div. to old GR River conf.)

Chinook Miles15.1 mi

CCC2A - LF 1.1 (Barriers)				
Action	mi. treated	Rel. Treatment size	2018 % Improvement (Prorate factor)	Realized Change in 2018 (mi)
No actions		#DIV/0!		0
Total	0			0
Total Stream Miles (Denominator)	15.1 mi.			
% Uplift	0.0%			

CCC2A - LF 4.1 (Riparian Vegetation)				
Action	mi. treated	Rel. Treatment size	2018 % Improvement (Prorate factor)	Realized Change in 2018 (mi)
No planting completed by Action Agencies		#DIV/0!		0
Total	0			0
Total Stream Miles (Denominator)	15.1 mi.			
% Uplift	0.0%			

CCC2A - LF 4.2 (LWD Recruitment)				
Action	mi. treated	Rel. Treatment size	2018 % Improvement (Prorate factor)	Realized Change in 2018 (mi)
No planting completed by Action Agencies		#DIV/0!	0%	0
Total	0			0
Total Stream Miles (Denominator)	15.1 mi.			
% Uplift	0.0%			

CCC2A - LF 6.1 Bed and Channel Form				
Action	mi. treated	Rel. Treatment size	2018 % Improvement (Prorate factor)	Realized Change in 2018 (mi)
Total	#REF!			#REF!
Total Stream Miles (Denominator)	15.1 mi.			
% Uplift	#REF!			

CCC2A - LF 6.2 Instream Structural Complexity

<u>Action</u>	<u>mi. treated</u>	<u>Rel. Treatment size</u>	<u>2018 % Improvement (Prorate factor)</u>	<u>Realized Change in 2018 (mi)</u>
Total		0		#REF!
Total Stream Miles (Denominator)		15.1 mi.		
% Uplift		0.0%		

CCC2A - LF 7.2 Sediment Conditions (Increased Quantity/Too much)

<u>Action</u>	<u>mi. treated</u>	<u>Rel. Treatment size</u>	<u>2018 % Improvement (Prorate factor)</u>	<u>Realized Change in 2018 (mi)</u>
Total		0		0
Total Stream Miles (Denominator)		15.1 mi.		0
% Uplift		0.0%		

CCC2A - LF 8.1 (Temperature)

<u>Action</u>	<u>mi. treated</u>	<u>Rel. Treatment size</u>	<u>2018 % Improvement (Prorate factor)</u>	<u>Realized Change in 2018 (mi)</u>
Total		0		0
Total Stream Miles (Denominator)		15.1 mi.		
% Uplift		0.0%		

CCC2A - LF 9.2 (Water Quantity)

No benefits from actions listed for above limiting factors.

Lower Catherine Creek (State Ditch Div. to old GR River conf.)

Chinook Miles22.5 mi

CCC2B - LF 8.1 Temperature

Benefits from actions listed in LF 9.2 because not enough water and solar radiation too high. No uplift
Existing temperatures exceed 20 deg between 81% and
100% days (20-22 deg C) so flow increases are
insufficient to cause uplift. No uplift

CCC2B - LF 9.2 Flow Quantity

Action	Leases					Weighting Factor	Weighted CFS	
	2012	2013	2014	2015	Permanent (cfs)			
Davis to Mouth	0	0.76	0.76	0.76		100.0%	0.57	Want to account for historic rearing (current habitat suitability is zero), but may not see occupancy until some threshold, but we want to track incremental uplift toward that threshold.
Total	0	0.76	0.76	0.8	0.00		0.57	
		Average of leases (2012-2018)==>			0.57			
Total (2018)		0.57 cfs						
Estimated Baseflow		30 cfs			ODFW instream Flow target (30 cfs). 95% exceedance flow is 25 cfs.			
% Uplift (2018)		1.9%			Releases during critical months			

Lower Catherine Creek (old Grande Ronde River conf. to Pyles Cr)

Chinook Miles18.3 mi

CCC2C - LF 1.1 (Barriers)

Action	mi. treated	Rel. Treatment size	2018 % Improvement (Prorate factor)	Realized Change in 2018 (mi)	
Little Creek Diversion	1.5	100.0%	10%	0.15	Partial barrier for juveniles only. Opens miles to LC-4. Chinook usage low and uncertain.
Total	1.5			0.15	
Total Stream Miles (Denominator)	18.3 mi.				
% Uplift	0.8%				

CCC2C - LF 4.1 (Riparian Vegetation)

Action	mi. treated	Rel. Treatment size	2018 % Improvement (Prorate factor)	Realized Change in 2018 (mi)	2033 % Improvement (prorating factor)	Realized Change in 2033 (mi)
CC Baum Restoration	0.25	100.0%	0%	0	10%	0.025
Total	0.25			0		0.025
Total Stream Miles (Denominator)	18.3 mi.					
% Uplift (2018)	0.0%					
% Uplift (2033)	0.1%					

CCC2C - LF 4.2 (LWD Recruitment)

Action	mi. treated	Rel. Treatment size	2018 % Improvement (Prorate factor)	Realized Change in 2018 (mi)	2033 % Improvement (prorating factor)	Realized Change in 2033 (mi)
CC Baum Restoration	0.25	100.0%	0%	0	5%	0.0125
Total	0.25			0		0.0125
Total Stream Miles (Denominator)	18.3 mi.					
% Uplift (2018)	0.0%					
% Uplift (2033)	0.1%					

CCC2C - LF 5.1 Side channels

Action	mi. treated	Rel. Treatment size	2018 % Improvement (Prorate factor)	Realized Change in 2018 (mi)
CC Baum Restoration	0.25	100.0%	50%	0.125
Total	0.25			0.125

Total Stream Miles (Denominator)18.3 mi.

% Uplift0.7%

CCC2C - LF 5.2 Floodplains

Action	mi. treated	Rel. Treatment size	2018 % Improvement		Realized Change in 2018 (mi)
			(Prorate factor)		
CC Baum Restoration	0.25	100.0%	50%		0.125
Total	0.25				0.125
Total Stream Miles (Denominator)	18.3 mi.				

% Uplift0.7%

CCC2C - LF 6.2 Instream Structural Complexity

Action	mi. treated	Rel. Treatment size	2018 % Improvement		Realized Change in 2018 (mi)
			(Prorate factor)		
CC Baum Restoration	0.25	100.0%	5%		0.0125
Total	0.25				0.0125
Total Stream Miles (Denominator)	18.3 mi.			65	

% Uplift0.1%

CCC2C - LF 8.1 Temperature

Benefits from actions listed in LF 9.2 because not enough water and solar radiation too high. No uplift
Existing temperatures exceed 20 deg between 81% and
100% days (20-22 deg C) so flow increases are
insufficient to cause uplift. No uplift

CCC2C - LF 9.2 Flow Quantity

Action	Leases				2015 Permanent (cfs)	Weighted	
	2012	2013	2014			2018 Weighting Factor	CFS (2018)
Davis to Mouth	0	0.76	0.76	0.76		87.0%	0.4959
Malmburg Lease	0	0	0.26	0.26		13.0%	0.0169
Sheehee Lease	0	0	0.53	0.53		13.0%	0.03445
Malmburg Split Season lease	0.19	0.19	0.19	0		13.0%	0.018525
D Ricker Lease	0	0	0.34	0.34		13.0%	0.0221
DRTLTL	0	0.31	0.31	0.31		13.0%	0.030225
LC Lease	0	0.38	0.38	0.38		13.0%	0.03705
DS	0	0.12	0.12	0.12		13.0%	0.0117
Southern Cross Forbearance	0	0	1.08	0		13.0%	0.0351
Glen Smith Full	0	0	0.22	0		13.0%	0.00715
Boyd Little Creek SSL	0.21	0.21	0.21	0.21		7.0%	0.0147
Fresh Water Trust (2014)	0	0	0.15	0		7.0%	0.002625

CTUIR Water Transaction (2014)	0	0	0.38	0		7.0%	0.00665
CTUIR Water Transaction (2013)	0	1	0	0		7.0%	0.0175
Total	0.4	2.97	4.9	2.9	0.0		0.75

Average of
leases (2012-
2018)==>

2.24

Total (2018) 0.75 cfs
Estimated Baseflow 30 cfs

ODFW instream Flow target (30 cfs). 95% exceedance flow is 25 cfs.

% Uplift (2018) **2.5%**

Releases during critical months

Middle Catherine Creek (Pyles Cr. To Swackhammer Diversion)

Chinook Miles3.7 miSAME DENOMINATOR AS STEELHEAD

CCC3A - LF 4.1 (Riparian Vegetation)

Action	mi. treated	Rel.	2018 %	Realized Change in 2018 (mi)	2033 %	Realized Change in 2033 (mi)
		Treatment	Improvement		Improvement	
		size	(Prorate factor)		(prorating factor)	
2012 CC RM 37 Restoration	0.75	100.0%	0%	0	15%	0.1125
		0.0%	0%	0		0
Total	0.75			0		0.1125
Total Stream Miles (Denominator)	3.7 mi.					

% Uplift (2018)

0.0%

% Uplift (2033)

3.0%

Panel notes this uplift value is only projectable to 2027 (agreement term is 2013 to December 31, 2027) at the agreement end date

Roni , Beechie et al. (2002) response time of 5-20 years. Negligible effect.

CCC3A - LF 4.2 (LWD Recruitment)

Action	mi. treated	Rel.	2018 %	Realized Change in 2018 (mi)	2033 %	Realized Change in 2033 (mi)
		Treatment	Improvement		Improvement	
		size	(Prorate factor)		(prorating factor)	
2012 CC RM 37 Restoration	0.75	100.0%	0%	0	8%	0.05625
		0.0%	0%	0		0
Total	0.75			0		0.05625
Total Stream Miles (Denominator)	3.7 mi.					

% Uplift (2018)

0.0%

% Uplift (2033)

1.5%

Panel notes this uplift value is only projectable to 2027 (agreement term is 2013 to December 31, 2027) at the agreement end date

Roni , Beechie et al. (2002) response time of 5-20 years. Negligible effect.

CCC3A - LF 5.1 Side channels

Action	mi. treated	Rel.	2018 %	Realized Change in 2018 (mi)	
		Treatment	Improvement		
		size	(Prorate factor)		
2012 CC RM 37 Restoration	0.75	100.0%	11%	0.0825	11% Peripheral habitat ratio
		0.0%		0	
Total	0.75			0.0825	
Total Stream Miles (Denominator)	3.7 mi.			65	

% Uplift

2.2%

CCC3A - LF 5.2 Floodplains

Action	mi. treated	Rel.	2018 %	Realized Change in 2018 (mi)	
		Treatment	Improvement		
		size	(Prorate factor)		
2012 CC RM 37 Restoration	0.75	100.0%	25%	0.1875	Main channel was oversized due to flood concerns, which reduced floodplain connection. Rational for small % Improvement factor.
		0.0%		0	
Total	0.75			0.1875	
Total Stream Miles (Denominator)	3.7 mi.				

% Uplift

5.1%

CCC3A - LF 6.1Bed and channel Form

Action	mi. treated	Rel.	2018 %	Realized Change in 2018 (mi)
		Treatment	Improvement	
		size	(Prorate factor)	

2012 CC RM 37 Restoration	0.75	100.0%	40%	0.3
		0.0%		0
Total	0.75			0.3
Total Stream Miles (Denominator)	3.7 mi.			
% Uplift	8.1%			

Sinuosity and W/D ratio from Champ, design criteria, and historic reference to arrive at 40%. Design sinuosity = 1.1-1.45. historic baseline was 2.2-2.4. W/D reduced from 22.6 to 18.6 at bankfull.

CCC3A - LF 6.2 Instream Structural Complexity

Action	mi. treated	Rel. Treatment size	2018 % Improvement (Prorate factor)	Realized Change in 2018 (mi)
2012 CC RM 37 Restoration	0.75	100.0%	25%	0.1875
		0.0%		0
Total	0.75			0.1875
Total Stream Miles (Denominator)	3.7 mi.		65	
% Uplift	5.1%			

13 wood complexes, 81 key members. Champ data says LWD piece frequency went from 13.4 (pre-project) to 14 (post) pieces per 100 meters in bankfull channel. Compared 14 logs (50 % were buried and were not providing complexity) per 100 meters to target value of 20 pieces per 100 m for Minam River. Many of the structures do not mimic natural wood accumulations.

Where did the 18 pieces/100m come from? We have been using 20/27 for Minam/Little Minam

Adjusted downward further due to recent research showing engineered structures often times don't have fish response of natural structures

No change to uplift in response to panel's comment, due to the Panel's original comment in cell to left (i.e. they did not determine weighting only by percentage of target.

CCC3A - LF 7.2 Sediment Conditions (Increased Quantity/Too much)

Action	mi. treated	Rel. Treatment size	2018 % Improvement (Prorate factor)	Realized Change in 2018 (mi)	2033 % Improvement (prorating factor)	Realized Change in 2033 (mi)
2012 CC RM 37 Restoration	0.75	100.0%	28%	0.21	38%	0.285
Total	0.75			0.21		0.285
Total Stream Miles (Denominator)	3.7 mi.					
% Uplift (2018)	5.7%					
% Uplift (2033)	7.7%					

Project included bank stabilization, so some immediate benefit. Reduction in bank height as well.

1125 lineal feet of eroding bank
3960 total project length
28%

CCC3A - LF 8.1 Temperature

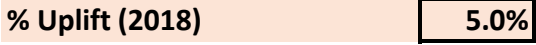
Percent summer days (July 20-Aug31st) are 100% exceedance of 20 deg C (precludes spawning). Background temps are too hot for flow increases to have measurable effect.

CCC3A - LF 9.2 Flow Quantity

Action	2012	2013	2014	2015 Permanent (cfs)	2018 Weighting Factor	Weighted CFS (2018)
Malmburg Lease	0	0	0.26	0.26	100%	0.13
Sheehee Lease	0	0	0.53	0.53	80%	0.212
Malmburg Split Season lease	0.19	0.19	0.19	0	100%	0.1425
D Ricker Lease	0	0	0.34	0.34	100%	0.17
DRTLTL	0	0.31	0.31	0.31	100%	0.2325
LC Lease	0	0.38	0.38	0.38	80%	0.228
DS	0	0.12	0.12	0.12	80%	0.072
Southern Cross Forbearance	0	0	1.08	0	100%	0.27
Glen Smith Full	0	0	0.22	0	100%	0.055
Total	0.19	1	3.4	1.9	0.0	1.5

Total (2018)
Estimated Baseflow

1.5 cfs
30 cfs



Average of
leases (2012-
2018)==>

1.64

ODFW instream Flow target (30 cfs). 95% exceedance flow is 25 cfs.

Middle Catherine Creek - Swackhammer to North and South Forks

Chinook Miles14.4 mi

CCC3B - LF 1.1 (Barriers)

Action	mi. treated	size	Rel.	2018 %	Realized
			Treatment	Improvement (Prorate factor)	Change in 2018 (mi)
CC44 Phase II (2014) - Push-up dam removal (Southern Cross and Smith)	10.5	100.0%		10%	1.05
				0.0%	0
				0.0%	0
				0.0%	0
Total	10.5				1.05
Total Stream Miles (Denominator)	14.4	mi.			

% Uplift7.3%This value will bring the function score above 100% Low bookend thought to be too high.

CCC3B - LF 4.1 (Riparian Vegetation)

Action	mi. treated	size	Rel.	2018 %	Realized	2033 %	Realized
			Treatment	Improvement (Prorate factor)	Change in 2018 (mi)	Improvement (Prorate factor)	Change in 2033(mi)
CC44 Phase I - Kirby, Fite, and Smith (small scale planting 1400 ft)	0.27	19.3%		0%	0	20%	0.054
CC44 Phase II (2014) - planting and fencing	1.13	80.7%		0%	0	20%	0.226
Total	1.4				0		0.28
Total Stream Miles (Denominator)	14.4	mi.					

% Uplift (2018)0.0%Vegetation not established yet

% Uplift (2033)1.9%

CCC3B - LF 4.2 (LWD Recruitment)

Action	mi. treated	size	Rel.	2018 %	Realized	2033 %	Realized
			Treatment	Improvement (Prorate factor)	Change in 2018 (mi)	Improvement (Prorate factor)	Change in 2033(mi)
CC44 Phase I - Kirby, Fite, and Smith (small scale planting 1400 ft)	0.27	19.3%		0%	0	10%	0.027
CC44 Phase II (2014) - planting and fencing	1.13	80.7%		0%	0	10%	0.113
Total	1.4				0		0.14
Total Stream Miles (Denominator)	14.4	mi.					

% Uplift (2018)0.0%

% Uplift (2033)1.0%

CCC3B - LF 5.1 Side channels and Wetland Conditions

Action	mi. treated	size	Rel.	2018 %	Realized	
			Treatment	Improvement (Prorate factor)	Change in 2018 (mi)	
CC44 Phase I - Kirby, Fite, and Smith	0.16	8.2%		5%	0.008	2113 side channel feet
CC44 Phase II (2014)	1.13	7.8%		50%	0.565	56 wood structures
CC44 Phase III (2015) - side channel including alcoves	0.66	33.8%		50%	0.33	0.66 mi main channel length
Total	1.95				0.903	
Total Stream Miles (Denominator)	14.4	mi.			65	

% Uplift6.3%

CCC3B - LF 5.2 Floodplains

Action	mi. treated	size	Rel.	2018 %	Realized
			Treatment	Improvement (Prorate factor)	Change in 2018 (mi)
CC44 Phase I - Kirby, Fite, and Smith	0.16	8.2%		0%	0
CC44 Phase II (2014)	1.13	57.9%		0%	0
CC44 Phase III (2015) - side channel including alcoves	0.66	33.8%		10%	0.066
Total	1.95				0.066
Total Stream Miles (Denominator)	14.4	mi.			

% Uplift0.5%Oversized channel designed for flood concerns. Activation of FP doesn't occur until ~5-yr flood

CCC3B - LF 6.1 Bed and Channel Form

Action	mi. treated	size	Rel.	2018 %	Realized
			Treatment	Improvement (Prorate factor)	Change in 2018 (mi)

Phase I Wood Placement and Side Channel

ftmi
8620.163257576
5460.103409091
11
main channel
side channel
LWD complexes

Phase II

Eliminate push up dam, removal (decommission) of Southern Cross (Ayers) diversion structure
Construct roughened channel
Headgate and pipe delivery system
On farm water conservation (irrigation efficiencies)
Habitat Kirby and Fite 29 LWD complexes
1 side channel constructed 421 feet
2 alcoves constructed

Phase III

Instream complexity
56 wood structures

CC44 Phase I - Kirby, Fite, and Smith - bank stability and gravel sorting	0.16	8.2%	8%	0.0128	8% is the percentage of total 2 miles
CC44 Phase II (2014)	1.13	57.9%	10%	0.113	
CC44 Phase III (2015)	0.66	33.8%	60%	0.396	Considering W/D ratio improvement. Tight radius pools also add improvement
		0.0%		0	
				0	
Total	1.95			0.5218	
Total Stream Miles (Denominator)	14.4 mi.				
% Uplift		3.6%			

CCC3B - LF 6.2 Instream Structural Complexity

Action	mi. treated	Rel. Treatment size	2018 % Improvement (Prorate factor)	Realized Change in 2018 (mi)						
CC44 Phase I to III combined	2	100.0%	50%	1	well-above reference condition of 27 LWD pieces per 100 m	1772 pieces of wood in phase 1.	Some structures were bank stabilization structures.	Group considered life stage use relative to placement of wood in main versus side channels.	meets 27 pieces	886 pieces of "large wood per 100 m
Total	2			1						
Total Stream Miles (Denominator)	14.4 mi.		65							
% Uplift		6.9%								

CCC3B - LF 7.2 Sediment Conditions (Increased Quantity/Too much)

Action	mi. treated	Rel. Treatment size	2018 % Improvement (Prorate factor)	Realized Change in 2018 (mi)	2033 % Improvement (Prorate factor)	Realized Change in 2033(mi)
CC44 Phase I - Kirby, Fite, and Smith - bank stabilization and gravel sorting	0.16	8.2%	100%	0.16	100%	0.16
CC44 Phase II (2014)	1.13	57.9%	60%	0.678	70%	0.791
CC44 Phase III (2015)	0.66	33.8%	60%	0.396	70%	0.462
		0.0%	0%	0		1.413
Total	1.95			1.234		
Total Stream Miles (Denominator)	14.4 mi.					
% Uplift (2018)		8.6%				
% Uplift (2033)		9.8%				

CCC3B - LF 8.1 Temperature

Percent summer days (July 20-Aug31st) are 27% exceedance of 20 deg C . Background temps are too hot for flow increases to have measurable effect. Input water is not cool water.

CCC3B - LF 9.2 Flow Quantity

Leases						
Action	2012	2013	2014	Permanent 2015 (cfs)	2018 Weighting Factor	Weighted CFS (2018)
D Ricker Lease	0	0.39	0.39	0.39	100%	0.2925
New Ricker Lease/TLT	0	0	0.33	0.33	100%	0.165
Southern Cross Forbearance	0	0	1.08	0	100%	0.27
Glen Smith Full	0	0	0.22	0.22	100%	0.11
Total	0	0.39	2.0	0.9	0.0	0.84
Average of leases (2012-2018)==>						
				0.84		
Total (2018) 0.84 cfs						
Estimated Baseflow 30 cfs						
ODFW instream Flow target (30 cfs). 95% exceedance flow is 25 cfs.						
% Uplift (2018)						
2.8%						

CCC5

N. & S. Forks Catherine Cr.

Chinook Miles

14.7 mi

CCC5 - LF 1.1 (Barriers)

Action	mi. treated	Rel. Treatment size	2018 % Improvement (Prorate factor)	Realized Change in 2018 (mi)	
NF Catherine Creek Ford Removal	2	100.0%	25%	0.5	Partial barrier for ~ 2 months of the year (July to end of October; dependent on flow).
Total	2			0.5	
Total Stream Miles (Denominator)	14.7 mi.				
% Uplift		3.4%			

CCC5 - LF 4.1 (Riparian Vegetation)

Action	mi. treated	Rel. Treatment size	2018 % Improvement (Prorate factor)	Realized Change in 2018 (mi)	2033 % Improvement (prorating factor)	Realized Change in 2033 (mi)
Corral Creek - LWD and Planting (2014-2015)	1	18.2%	0%	0	20%	0.2
SF CC Riparian Planting	4.5	81.8%	0%	0	20%	0.9
Total	5.5			0		1.1
Total Stream Miles (Denominator)	14.7 mi.					
% Uplift (2018)		0.0%				
% Uplift (2033)		7.5%				

CCC5 - LF 4.2 (LWD Recruitment)

Action	mi. treated	Rel. Treatment size	2018 % Improvement (Prorate factor)	Realized Change in 2018 (mi)	2033 % Improvement (prorating factor)	Realized Change in 2033 (mi)
Corral Creek - LWD and Planting (2014-2015)	1	18.2%	0%	0	10%	0.1
SF CC Riparian Planting	4.5	81.8%	0%	0	10%	0.45
Total	5.5			0		0.55
Total Stream Miles (Denominator)	14.7 mi.					
% Uplift (2018)		0.0%				
% Uplift (2033)		3.7%				

CCC5 - LF 6.2 Instream Structural Complexity

Action	mi. treated	Rel. Treatment size	2018 % Improvement (Prorate factor)	Realized Change in 2018 (mi)		
SF Cath Creek Riparian Planting (Instream Structures)	4.5	100.0%	30%	1.35	Added 8 pieces per 100	30%
Total	4.5			1.35		
Total Stream Miles (Denominator)	14.7 mi.					
% Uplift	9.2%					

CCC5 - LF 7.2 Sediment Conditions (Increased Quantity/Too much)

Action	mi. treated	Rel. Treatment size	2018 % Improvement (Prorate factor)	Realized Change in 2018 (mi)	2033 % Improvement (prorating factor)	Realized Change in 2033 (mi)	
SF Cath Creek Riparian Planting	4.5	100.0%	50%	2.25	60%	2.7	Recontoured/reclaimed and planted a road prism. (not including riparian plantings)
				0		0	Riverstyles valley assessment indicates this one of few unconfined reaches in the forks.
Total	4.5			2.25		2.7	
Total Stream Miles (Denominator)	14.7 mi.						
% Uplift (2018)	15.3%						
% Uplift (2033)	18.4%						

NOTE FOR LOOK FORWARD: Panel felt low bookend is too high

CCC5 - LF 8.1 Temperature

No change. Temp is properly functioning

CCC5 - LF 9.2 Flow Quantity

No Actions