

NOTES:
This workbook contains **habitat functions** data downloaded directly from the Taurus database. Functions include those documented during the **Look Back** process covering the **2012-2015** work window for steelhead.

ESU	Population	Code	Assessment Unit	2012 Standardized Limiting Factor	LF Weight	Low Bookend	Original 2018 Estimate	Updated 2018 Estimate	High 2018 Bookend	Original 2033 Estimate	High 2033 Bookend	LF Weight and Bookends Comments	Estimates Comments
Snake River Steelhead	East Fork Salmon River	EFS1	Bayhorse Creek	1.1: Habitat Quantity: Anthropogenic Barriers	20.00%	50	70	100		70	100	low bookend raised from 20, 8/9/12	2012 comment: bayhorse ck 2 and 4 diversion were consolidated in 2011;doesn't include bayhorse 1. 2015: One project was considered by the 2015 Expert panel - Bayhorse Creek culvert to bridge, which opened 7 miles of stream habitat to steelhead. Total steelhead miles of stream in this AU is 12 (based on expert panel opinion). Therefore, the Expert Panel assessed the improvement to this Assessment Unit for this Limiting Factors is 58.3%. Because of the low bookend value, the uplift was rounded down to 50%. EWL 2/1/16
Snake River Steelhead	East Fork Salmon River	EFS1	Bayhorse Creek	2.3: Injury and Mortality: Mechanical Injury	20.00%	20	20	57.5		20	100		2015: SBaC-01 screen treatment (3 cfs design flow). Used 8 cfs as the denominator, which was derived from Morgan Case (IDWR) summation of diversions; Thus the relative improvement was = 37.5% (3/8*100). EWL 2/1/16
Snake River Steelhead	East Fork Salmon River	EFS1	Bayhorse Creek	4.1: Riparian Condition: Riparian Vegetation	20.00%	90	90	90		90	92		The 2015 Expert Panel does not believe this is a limiting factor. EWL 2/1/16
Snake River Steelhead	East Fork Salmon River	EFS1	Bayhorse Creek	7.2: Sediment Conditions: Increased Sediment Quantity	20.00%	45	45	45		45	50		No actions were undertaken during the 2012-2015 period, therefore there is no improvement. EWL 2/1/16
Snake River Steelhead	East Fork Salmon River	EFS1	Bayhorse Creek	9.2: Water Quantity: Decreased Water Quantity	20.00%	20	20	47.9		20	71		2015:One action, a 20 year lease of 2.23 cfs, was considered relative to the summation of diversions in the Assessment Unit (8 cfs) from Morgan Case (IDWR) ; Therefore the Expert Panel estimated a 27.9% improvement (2.23/8*100). EWL 2/1/16

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Snake River Steelhead	East Fork Salmon River	EFS2	Challis Creek	1.1: Habitat Quantity: Anthropogenic Barriers	20.00%	80	80	80		85	100		2012; Actions high up in stream benefit steelhead not Chinook. 2015:No actions were undertaken during the 2012-2015 period that result in improvement for this Limiting Factor. EWL 2/1/16
Snake River Steelhead	East Fork Salmon River	EFS2	Challis Creek	4.1: Riparian Condition: Riparian Vegetation	10.00%	60	60	60		60.5	70		2012: Some improvement from project addressing Decreased Water Quantity LF 2015: No actions were undertaken during the 2012-2015 period that result in improvement for this Limiting Factor. EWL 2/1/16
Snake River Steelhead	East Fork Salmon River	EFS2	Challis Creek	7.2: Sediment Conditions: Increased Sediment Quantity	20.00%	40	40	40		40	45		2015:No actions were undertaken during the 2012-2015 period that result in improvement for this Limiting Factor. EWL 2/1/16
Snake River Steelhead	East Fork Salmon River	EFS2	Challis Creek	8.1: Water Quality: Temperature	10.00%	50	50	50		50.1	65		2015:No actions were undertaken during the 2012-2015 period that result in improvement for this Limiting Factor. EWL 2/1/16
Snake River Steelhead	East Fork Salmon River	EFS2	Challis Creek	9.2: Water Quantity: Decreased Water Quantity	40.00%	32	32	32		33	50		2015:No actions were undertaken during the 2012-2015 period that result in improvement for this Limiting Factor. EWL 2/1/16
Snake River Steelhead	East Fork Salmon River	EFS3	EF Salmon River	1.1: Habitat Quantity: Anthropogenic Barriers	10.00%	93	93	93		94	100		2015:No actions were undertaken during the 2012-2015 period that result in improvement for this Limiting Factor. EWL 2/1/16
Snake River Steelhead	East Fork Salmon River	EFS3	EF Salmon River	2.3: Injury and Mortality: Mechanical Injury	10.00%	70	70	70		70	90		2012: Not enough info on Weir project to assess improvements at 8/9/12 workshop 2015:No actions were undertaken during the 2012-2015 period that result in improvement for this Limiting Factor. EWL 2/1/16
Snake River Steelhead	East Fork Salmon River	EFS3	EF Salmon River	4.1: Riparian Condition: Riparian Vegetation	25.00%	60	60	60.06		60	90		2015: East Fork Fence Project treated 0.8 mi, but the functional uplift is only 3%. Using streamnet steelhead miles as the Denominator = 37.2 mi = the uplift is 0.06 %. EWL 2/1/16

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Snake River Steelhead	East Fork Salmon River	EFS3	EF Salmon River	6.1: Channel Structure and Form: Bed and Channel Form	25.00%	50	50	50		52	65		2012: need alternative to push up dams in high velocity/bedload environment several other treatments needed 2015:No actions were undertaken during the 2012-2015 period that result in improvement for this Limiting Factor. EWL 2/1/16
Snake River Steelhead	East Fork Salmon River	EFS3	EF Salmon River	7.2: Sediment Conditions: Increased Sediment Quantity	15.00%	71	71	71		71	80		2015:No actions were undertaken during the 2012-2015 period that result in improvement for this Limiting Factor. EWL 2/1/16
Snake River Steelhead	East Fork Salmon River	EFS3	EF Salmon River	9.2: Water Quantity: Decreased Water Quantity	15.00%	60	60	60		61	80	low bookend changed from 40, 8/9/12	2015:No actions were undertaken during the 2012-2015 period that result in improvement for this Limiting Factor. EWL 2/1/16
Snake River Steelhead	East Fork Salmon River	EFS4	EF Salmon Tributaries	1.1: Habitat Quantity: Anthropogenic Barriers	0.00%								No actions were undertaken during the 2012-2015 period that result in improvement for this Limiting Factor. EWL 2/1/16
Snake River Steelhead	East Fork Salmon River	EFS4	EF Salmon Tributaries	2.3: Injury and Mortality: Mechanical Injury	20.00%	70	70	70		75	90		2012: 3 diversions on Road Ck remaining; 2015:No actions were undertaken during the 2012-2015 period that result in improvement for this Limiting Factor. EWL 2/1/16
Snake River Steelhead	East Fork Salmon River	EFS4	EF Salmon Tributaries	9.2: Water Quantity: Decreased Water Quantity	80.00%	30	30	30		30	60		2015:No actions were undertaken during the 2012-2015 period that result in improvement for this Limiting Factor. EWL 2/1/16
Snake River Steelhead	East Fork Salmon River	EFS5	Garden Creek	1.1: Habitat Quantity: Anthropogenic Barriers	20.00%	20	30	34.8		30	60		2015: Considered one project as providing improvement toward this limiting factor (opened up 1.2 miles upstream) relative to the steelhead miles from Streamnet (8.1 miles). EWL 2/2/16

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Snake River Steelhead	East Fork Salmon River	EFS5	Garden Creek	2.3: Injury and Mortality: Mechanical Injury	10.00%	20	20	62		20	60		2015: Improvement was calculated based on the flow design of the screen. One screen had a total flow design of 11.09 cfs and based on Morgan Case summation of diversions (IDWR) the total flow is 26.4 cfs. Therefore the uplift calculation was treatment design flow/total flow. EWL 2/2/16
Snake River Steelhead	East Fork Salmon River	EFS5	Garden Creek	4.1: Riparian Condition: Riparian Vegetation	20.00%	35	35	35		35	50		2015: No actions were undertaken during 2012-2015 to address this limiting factor. Therefore there was no improvement. EWL 2/2/16
Snake River Steelhead	East Fork Salmon River	EFS5	Garden Creek	7.2: Sediment Conditions: Increased Sediment Quantity	10.00%	60	60	60		60	75		2015: No actions were undertaken during 2012-2015 to address this limiting factor. Therefore there was no improvement. EWL 2/2/16
Snake River Steelhead	East Fork Salmon River	EFS5	Garden Creek	9.2: Water Quantity: Decreased Water Quantity	40.00%	20	25	26.1		25	50		2012: Garden Ck. project to add abt 3 cfs 2015: Garden creek permanently added 1.6 cfs. Relative to the summation of diversions according to Morgan Case (IDWR; 26.4 cfs) the uplift was 6.1%. EWL 2/2/16
Snake River Steelhead	East Fork Salmon River	EFS6	Herd Creek	1.1: Habitat Quantity: Anthropogenic Barriers	10.00%	71	71	71		75	80	high bookend reflects natural barriers that block access to entire AU	2015: No actions were undertaken during 2012-2015 to address this limiting factor. Therefore there was no improvement. EWL 2/2/16
Snake River Steelhead	East Fork Salmon River	EFS6	Herd Creek	4.1: Riparian Condition: Riparian Vegetation	40.00%	60	60	60		60	80		2015: No actions were undertaken during 2012-2015 to address this limiting factor. Therefore there was no improvement. EWL 2/2/16
Snake River Steelhead	East Fork Salmon River	EFS6	Herd Creek	7.2: Sediment Conditions: Increased Sediment Quantity	30.00%	70	70	70		70	80		2015: No actions were undertaken during 2012-2015 to address this limiting factor. Therefore there was no improvement. EWL 2/2/16

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Snake River Steelhead	East Fork Salmon River	EFS6	Herd Creek	9.2: Water Quantity: Decreased Water Quantity	20.00%	65	65	65		70	80		2012: 8 cfs potential HC-3 pipeline from Lake Ck. 2015: No actions were undertaken during 2012-2015 to address this limiting factor. Therefore there was no improvement. EWL 2/2/16
Snake River Steelhead	East Fork Salmon River	EFS7	Mainstem Salmon River	4.1: Riparian Condition: Riparian Vegetation	15.00%	25	25	27.02		25	35		2012: Remember to update 2015 look-back w/any 12-mi reach easements/projects implemented after 2012. 2015: 3.23.16 - AFTER DISCUSSION WITH EP (KARMA) ADJUSTED VALUE FOR LYON CREEK AND THE UPDATED 2018 ESTIMATE WAS MODIFIED FROM 8.33% TO 2.02% - EWL 3.23.16
Snake River Steelhead	East Fork Salmon River	EFS7	Mainstem Salmon River	5.2: Peripheral and Transitional Habitats: Floodplain Condition	30.00%	60	60	60		60	80		2012: Remember to update 2015 look-back w/any 12-mi reach easements/projects implemented after 2012. 2015: No actions were undertaken during 2012-2015 to address this limiting factor. Therefore there was no improvement. EWL 2/2/16
Snake River Steelhead	East Fork Salmon River	EFS7	Mainstem Salmon River	6.1: Channel Structure and Form: Bed and Channel Form	30.00%	60	60	60		60	80		2012: Remember to update 2015 look-back w/any 12-mi reach easements/projects implemented after 2012. 2015: No actions were undertaken during 2012-2015 to address this limiting factor. Therefore there was no improvement. EWL 2/2/16
Snake River Steelhead	East Fork Salmon River	EFS7	Mainstem Salmon River	7.2: Sediment Conditions: Increased Sediment Quantity	10.00%	50	50	50		50	85		2012: Remember to update 2015 look-back w/any 12-mi reach easements/projects implemented after 2012. 2015: No actions were undertaken during 2012-2015 to address this limiting factor. Therefore there was no improvement. EWL 2/2/16

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Snake River Steelhead	East Fork Salmon River	EFS7	Mainstem Salmon River	8.1: Water Quality: Temperature	15.00%	50	50	50		50	60		2012: Remember to update 2015 look-back w/any 12-mi reach easements/projects implemented after 2012. 2015: No actions were undertaken during 2012-2015 to address this limiting factor. Therefore there was no improvement. EWL 2/2/16
Snake River Steelhead	East Fork Salmon River	EFS8	Morgan Creek	2.3: Injury and Mortality: Mechanical Injury	20.00%	50	50	50		50	80		2015: No actions were undertaken during 2012-2015 to address this limiting factor. Therefore there was no improvement. EWL 2/2/16
Snake River Steelhead	East Fork Salmon River	EFS8	Morgan Creek	4.1: Riparian Condition: Riparian Vegetation	20.00%	60	60	60		60	75		2015: No actions were undertaken during 2012-2015 to address this limiting factor. Therefore there was no improvement. EWL 2/2/16
Snake River Steelhead	East Fork Salmon River	EFS8	Morgan Creek	7.2: Sediment Conditions: Increased Sediment Quantity	10.00%	20	20	20		20	25		2015: No actions were undertaken during 2012-2015 to address this limiting factor. Therefore there was no improvement. EWL 2/2/16
Snake River Steelhead	East Fork Salmon River	EFS8	Morgan Creek	8.1: Water Quality: Temperature	10.00%	60	60	61.8		60	70		2015: Expert Panel summed the riparian vegetation benefit (4.1=0) and the flow benefit (9.2=1.8) for an uplift estimate of 1.8% for this limiting factor. EWL 2/2/16
Snake River Steelhead	East Fork Salmon River	EFS8	Morgan Creek	9.2: Water Quantity: Decreased Water Quantity	40.00%	35	35	36.8		35	85		2015: Beneficial actions (the numerator) were calculated (in cfs) as the sum of the average annual flow benefit of leases in 2012 through 2015, plus the sum of permanent or long-term (e.g., 20 year) leases. This was relative to estimated water right diversions from the Lemhi (the Denominator) of 57 cfs from Morgan Case (IDWR) = 1.8% uplift. EWL 2/2/16

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Snake River Steelhead	East Fork Salmon River	EFS9	Salmon River Tributaries	9.2: Water Quantity: Decreased Water Quantity	100.00%	30	30	32.2		30	60		2015: One action Lyon Cr. 2.6 cfs permanent) was considered for improvement over a total summation of diversions equaling 118 cfs (as per Morgan Case IDWR). = 2.2% uplift. EWL 2/2/16
Snake River Steelhead	Lemhi River	LRS1	Carmen, Bohannon, Wimpey, and Kenney Creeks	1.1: Habitat Quantity: Anthropogenic Barriers	10.00%	30	45	52.1		45	90		2012: 5.5 mi total access fixes 7/21 diversions 2015:Expert Panel considered 7 projects, but gave no credit to Kenny barrier project. Other projects were discussed and Sue (Souix?) Lane and SCC-13 projects were removed because there was no Steelhead benefit. Discussed miles of steelhead benefit for each project. Steelhead benefit is generally longer than for Chinook for any given project. Total treatment = 8.85 mi out of 40 mi for a 22.1% improvement. EWL 2/2/16
Snake River Steelhead	Lemhi River	LRS1	Carmen, Bohannon, Wimpey, and Kenney Creeks	2.3: Injury and Mortality: Mechanical Injury	15.00%	30	45	61		45	90		2012:also includes 7 access projects; close proportion to access projects 2015:Expert Panel considered all Chinook projects within the Assessment Unit, and added the Lower Bohannon screen, which was outside the range of Chinook. STC -03 was removed because it is outside the Assessment Unit (it's on Tower Cr., LRS-3 AU). Uplift Metrics included the screen design flow in cfs. for 6 projects = 49.7 cfs out of 160 cfs (from Lemhi Surface Water/Groundwater Report; Donato, 1998; page 11) = 31% uplift. EWL 2/2/16

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Snake River Steelhead	Lemhi River	LRS1	Carmen, Bohannon, Wimpey, and Kenney Creeks	4.1: Riparian Condition: Riparian Vegetation	10.00%	60	60	60		64	75	changed from 40/75, 8/8/12	2012: 3 mi fence- most of AU in good shape, these are remaining treatment areas 2015: No projects undertaken during 2012-2015 to address this limiting factor, therefore there was no change to the Lowbookend value. EWL 2/2/16
Snake River Steelhead	Lemhi River	LRS1	Carmen, Bohannon, Wimpey, and Kenney Creeks	6.1: Channel Structure and Form: Bed and Channel Form	5.00%	60	60	60		63	75	established 8/8/12	2012: include riparian LF projects also 2015: No projects undertaken during 2012-2015 to address this limiting factor, therefore there was no change to the Lowbookend value. EWL 2/2/16
Snake River Steelhead	Lemhi River	LRS1	Carmen, Bohannon, Wimpey, and Kenney Creeks	7.2: Sediment Conditions: Increased Sediment Quantity	5.00%	50	50	50		52	60		2012: considered riparian, and bed/channel form LF projects 2015: No projects undertaken during 2012-2015 to address this limiting factor, therefore there was no change to the Lowbookend value. EWL 2/2/16
Snake River Steelhead	Lemhi River	LRS1	Carmen, Bohannon, Wimpey, and Kenney Creeks	8.1: Water Quality: Temperature	5.00%	70	71	74		72	80		2012: included riparian, bed/channel form LF projects 2015: For this Limiting Factor, the Expert Panel summed the % uplift for 4.1 riparian vegetation + the uplift for 9.2 flow. Therefore 0%+4%=4%. EWL 2/2/16
Snake River Steelhead	Lemhi River	LRS1	Carmen, Bohannon, Wimpey, and Kenney Creeks	9.2: Water Quantity: Decreased Water Quantity	50.00%	30	33	34		33	50		2012:~11 cfs affecting 1.1+ mi 2015: The treatment (numerator) in cfs was calculated as the sum of the average annual flow benefit of leases in 2012 through 2015, plus the sum of permanent or long-term (e.g., 20 year) leases. Fish screen installs did not count for flow benefit. Denominator = 160 cfs (Lemhi Surface Water/Groundwater Report; Donato, 1998; page 11). Therefore 6.34/160*100 = 4.0% improvement. EWL 2.2.16

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Snake River Steelhead	Lemhi River	LRS2	Mainstem Salmon and Lemhi Rivers and Hayden Creek	1.1: Habitat Quantity: Anthropogenic Barriers	2.00%	85	85	85		85.25	90	stranding changed from 51/60, 8/8/12	2012: evaluated only on L-1 project PLUS I-63, L-54, and L58a (described under LF 9.2) 2015: Expert Panel evaluated the L-1 partial/seasonal barrier as not being a barrier for steelhead. There were no other actions attributable to this limiting factor. Therefore there was not change from the Low bookend. EWL 2/2/16
Snake River Steelhead	Lemhi River	LRS2	Mainstem Salmon and Lemhi Rivers and Hayden Creek	2.3: Injury and Mortality: Mechanical Injury	7.00%	90	91	91.25		91	95		2012: Assumes 10 screen replacements are maintaining current function, not improving. Other screen projects are improving. Remaining screens include Basin Ck., some additional Backdoor issues 2015: Add L-1 diversion project to this Limiting Factor. As discussed by Expert Panel for LRC2-2.3: LHC-08 screen projects (upgrade to new standard). Metrics: use # of screens, or quantity of water screened? Also include L-1 under this Limiting Factor as elimination of diversion and screen. L-1 benefit in context of # of screens in Assessment Unit (~100 screens as denominator). It was a 2-2.5 cfs diversion out of ~50 cfs. Expert Panel: 1% for L-1; 0.25 for LHC-8 = 1.25% uplift. Therefore, for Steelhead, the improvement similarly = 1.25%. EWL 4.1.16

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Snake River Steelhead	Lemhi River	LRS2	Mainstem Salmon and Lemhi Rivers and Hayden Creek	4.1: Riparian Condition: Riparian Vegetation	15.00%	35	35	35.1		38	40		2015: Same projects considered as in Chinook (this Assessment Unit was discussed by the Expert Panel after Chinook) as well as the % improvement that resulting from the projects given the stage they are in. They used Streamnet steelhead miles instead of Chinook = 107.8 miles, and that is the number used for the denominator. The Expert Panel considered that 22% of the total stream miles were treated, but given the % improvement of each project, there was only a 0.31% change in conditions. So they multiplied 22% of the area by 0.31% improvement for an estimate of 0.07% improvement for this limiting factor. The Expert Panel decided to round up to 0.1%. EWL 2/2/16
Snake River Steelhead	Lemhi River	LRS2	Mainstem Salmon and Lemhi Rivers and Hayden Creek	5.2: Peripheral and Transitional Habitats: Floodplain Condition	10.00%	20	20.5	20.7		21	30		2012: 3.22 miles side channel enhancement. 2015:As in Chinook discussion, added several project. Used Streamnet steelhead miles as Denominator= 107.8 miles. Treated miles=0.77 relative to total stream miles=107.8=0.7% uplift. EWL 2/2/16
Snake River Steelhead	Lemhi River	LRS2	Mainstem Salmon and Lemhi Rivers and Hayden Creek	6.1: Channel Structure and Form: Bed and Channel Form	8.00%	40	40	40.8		42	60		2012: Riparian & floodplain LF projects also contribute. 2015: Duplicated treatment calculations as per Chinook but used Streamnet steelhead miles as Denominator= 107.8 miles. Treated miles=0.91 for a relative improvement of 0.8%. EWL 2/2/16

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Snake River Steelhead	Lemhi River	LRS2	Mainstem Salmon and Lemhi Rivers and Hayden Creek	7.2: Sediment Conditions: Increased Sediment Quantity	8.00%	30	30.5	30.8		31	35		2012: Projects addressing other LF;'s in this AU considered for this estimate. 2015:Expert Panel discussion for steelhead mirrored that for Chinook. (added, changed, and removed project(s) as per Chinook). Hayden and Tyler were removed. But, treatment miles were considered relative to Streamnet Steelehead miles = 107.8 miles for an 0.8% improvement in sediment condition. EWL 2/2/16
Snake River Steelhead	Lemhi River	LRS2	Mainstem Salmon and Lemhi Rivers and Hayden Creek	8.1: Water Quality: Temperature	10.00%	28	29	35.8		30	45		2012: Projects addressing other LF's in this AU considered for this estimate 2015:Expert Panel considered upstream tributaries. The summed the benefits to Limiting factor 4.1 (riparian vegetation)=0.07 and 9.2 (flow) =7.7 for an uplift estimate = 7.8%. EWL 2/2/16
Snake River Steelhead	Lemhi River	LRS2	Mainstem Salmon and Lemhi Rivers and Hayden Creek	9.2: Water Quantity: Decreased Water Quantity	40.00%	23.5	24.5	31.2		24.5	30		2012: Upstream flow projects (LRS1) also considered for this estimate. 2015:Expert Panel calculated the sum of the average annual flow benefit of leases in 2012 through 2015, plus the sum of permanent or long-term (e.g., 20 year) leases (in cfs). The uplift was calculated based on total leased water (2012-2015) relative to the estimated water right diversions from the Lemhi (from Donato 1998, page 11 =650 cfs), But then, like with Chinook, modified estimated water right diversion from the Lemhi to 750 cfs when tributary flow from other Assessment Units were considered. Therefore 57.72cfs/750cfs*100 = 7.7% uplift. EWL 2/2/16

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Snake River Steelhead	Lemhi River	LRS3	Other Salmon and Lemhi River seasonally and disconnected tributaries	1.1: Habitat Quantity: Anthropogenic Barriers	20.00%	20	25	39.9		25	50		2012:steelhead use more tribs than chinook 2015: Ten fish passage actions were considered for this Assessment Unit. Pratt project benefits were assessed as zero. The Expert Panel chose not use Streamnet mileage. Instead, they used use Streamnet Chinook 60 mi multiplied by 3 (to reflect larger Steelhead distribution), minus 40 mi (3 tributaries are not in the Assessment Unit) = 140 miles for the denominator. Total treatment miles were assessed as 20.3, however during QA/QC, several projects were identified as having not been accounted for during the Expert Panel meeting. The Uplift was subsequently modified on 1.8.16, to reflect 7 projects not previously considered. The projects were added to the calculation worksheet for review. Based on those additional river miles treated, uplift was modified to 19.9%-EWL 2/2/16
Snake River Steelhead	Lemhi River	LRS3	Other Salmon and Lemhi River seasonally and disconnected tributaries	2.3: Injury and Mortality: Mechanical Injury	15.00%	20	21	21.9		21	50		2012:whole lot more need to be screened 2015: The Expert Panel considered the screen design flows as metrics for three projects in this Assessment Unit equaling 15.25 cfs.. While the Expert Panel considered using LRC1 cfs withdrawals, adjusted by EP for tributaries in this AU as the denominator, they reached consensus on using LRS3 (950 cfs diversions from the mainstem - from Donato 1998 - minus 4 tributaries: Carmen =100, Bohanon =20, Wimpy =25, Kenny =15) for a total cfs of 790. Therefore, the relative improvement regarding mechanical injury = $15.25/790*100=1.9\%$. EWL 2/2/16

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Snake River Steelhead	Lemhi River	LRS3	Other Salmon and Lemhi River seasonally and disconnected tributaries	4.1: Riparian Condition: Riparian Vegetation	5.00%	80	80.3	80.5		80.5	90	changed from 40/65, 8/8/12	2012: ~ 2 mi total 2015: Considerations mirrored Chinook actions; a total of 4 projects for total treatment miles of 4.6 miles. Consider Pratt Creek Ranch during Lookforward. Expert Panel calculated relative improvement by Increasing the Streamnet Chinook miles = 60 for (LRC1) by a factor of 3, minus the three excluded tributaries (40 miles, these have their own assessment unit (LRS-1) for a total (denominator) of 140 miles. $4.6/140 \times 100 = 0.5\%$ uplift. EWL 2/2/16 4.6 mi/140 mi = 0.5%
Snake River Steelhead	Lemhi River	LRS3	Other Salmon and Lemhi River seasonally and disconnected tributaries	5.2: Peripheral and Transitional Habitats: Floodplain Condition	5.00%	75	75.2	75.6		75.5	80	changed from 50/65, 8/8/12	2012: included riparian, bed/channel, channel complexity LF projects 2015: Expert Panel considered two projects for this AU; Lower Little Springs, Lee Creek Fencing (Big 8 Mile) = 1.4 mi treated. Expert Panel calculated relative improvement by Increasing the Streamnet Chinook miles = 60 for (LRC1) by a factor of 3, minus the three excluded tributaries (40 miles, these have their own assessment unit (LRS-1) for a total (denominator) of 140 miles. Therefore, $1.4/140 \text{ mi} = 0.6\%$ uplift. EWL 2/2/16

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Snake River Steelhead	Lemhi River	LRS3	Other Salmon and Lemhi River seasonally and disconnected tributaries	6.1: Channel Structure and Form: Bed and Channel Form	5.00%	75	75.3	76.9		75.5	80	established 8/8/12	2012: included riparian, floodplain condition, complexity LF projects 2015: Expert Panel considered benefits of 3 projects: Lower Little Springs, Lee Creek Fencing (Big 8 Mile), Lower Little Springs Channel Complexity = 2.6 mi treated. The Expert Panel calculated relative improvement by Increasing the Streamnet Chinook miles = 60 for (LRC1) by a factor of 3, minus the three excluded tributaries (40 miles, these have their own assessment unit (LRS-1) for a total (denominator) of 140 miles. Therefore, 2.6 /140 mi; = 1.9% uplift. EWL 2/2/16
Snake River Steelhead	Lemhi River	LRS3	Other Salmon and Lemhi River seasonally and disconnected tributaries	6.2: Channel Structure and Form: Instream Structural Complexity	5.00%	75	75.3	76.9		75.5	80	established 8/8/12	2012: included riparian, floodplain condition, and bed/channel form LF projects 2015: 2015: Expert Panel considered benefits of 3 projects: Lower Little Springs, Lee Creek Fencing (Big 8 Mile), Lower Little Springs Channel Complexity = 2.6 mi treated. The Expert Panel calculated relative improvement by Increasing the Streamnet Chinook miles = 60 for (LRC1) by a factor of 3, minus the three excluded tributaries (40 miles, these have their own assessment unit (LRS-1) for a total (denominator) of 140 miles. Therefore, 2.6 /140 mi; = 1.9% uplift. EWL 2/2/16

ESU	Population	Code	Assessment Unit	2012 Standardized Limiting Factor	LF Weight	Low Bookend	Original 2018 Estimate	Updated 2018 Estimate	High 2018 Bookend	Original 2033 Estimate	High 2033 Bookend	LF Weight and Bookends Comments	Estimates Comments
Snake River Steelhead	Lemhi River	LRS3	Other Salmon and Lemhi River seasonally and disconnected tributaries	7.2: Sediment Conditions: Increased Sediment Quantity	5.00%	50	50.5	50.5		51	60	hi changed from 70, 8/8/12	2012: Riparian, bed/channel form, floodplain condition & complexity projects considered in this estimate. 2015:Expert Panel considered four projects, the miles treated and % current effectiveness - weighed as per LF 4.1. Expert Panel calculated relative improvement by Increasing the Streamnet Chinook miles = 60 for (LRC1) by a factor of 3, minus the three excluded tributaries (40 miles, these have their own assessment unit (LRS-1) for a total (denominator) of 140 miles. Therefore, 4.6/140*100=0.5% uplift. EWL 2/2/16
Snake River Steelhead	Lemhi River	LRS3	Other Salmon and Lemhi River seasonally and disconnected tributaries	8.1: Water Quality: Temperature	5.00%	70	70.5	73.2		71	80	changed from 60/70, 8/8/12	2012: Project addressing other LF considered here. 2015: Expert Panel assessed benefits to this Limiting Factor as the summation of improvement in 4.1 (riparian vegetation)=0.5 and 9.2 (flow)=2.7. Therefore, improvement for this Limiting Factor is (0.5+2.7)=3.2%. EWL 2/2/16
Snake River Steelhead	Lemhi River	LRS3	Other Salmon and Lemhi River seasonally and disconnected tributaries	9.2: Water Quantity: Decreased Water Quantity	35.00%	22.5	23.5	25.2		23.5	40	lo changed from 20, 8/8/12	2015: All four flow projects are permanent leases totalling 21.4 cfs. While the Expert Panel considered using LRC1 cfs withdrawals, adjusted by EP for tributaries in this AU as the denominator, they reached consensus on using LRS3 (950 cfs diversions from the mainstem - from Donato 1998 - minus 4 tributaries: Carmen =100, Bohanon =20, Wimpy =25, Kenny =15) for a total cfs of 790. Therefore, 21.4 out of 790 cfs results in a 2.7% uplift. EWL 2/2/16

ESU	Population	Code	Assessme nt Unit	2012 Standardized Limiting Factor	LF Weight	Low Bookend	Original 2018 Estimate	Updated 2018 Estimate	High 2018 Bookend	Original 2033 Estimate	High 2033 Bookend	LF Weight and Bookends Comments	Estimates Comments
Snake River Steelhead	Pahsimeroi River	PRS1	Pahsimer oi Downstre am Of Big Ck	1.1: Habitat Quantity: Anthropogeni c Barriers	20.00%	40	45	54.2	60	45	60	Steelhead habitat - lack of connectivity to tribs.	2012:17.2 mi total-30 mi from hatchery ladder project already included in other completed projects; hatchery project affects different life history stages.Most barriers in Sulphur & Fury Lane.Fall Ck/Little Morgan projects not considered in this 5% estimate. 2015: Similar to calculations for Chinook (PRC1) PRS1 total steelhead stream miles include an estimate of stream miles in Pahsimeroi River and major connected tributaries from the mouth to the mouth of Big Creek, and including all known spring channels in currently occupied, seasonally occupied, or potentially accessible habitat for steelhead.Straightline distance was calculated using the measure tool in Google Earth and a sinuosity factor was added using professional judgment. Miles of upstream habitat now accessible after removal of barriers was summed and divided by total stream miles. **During QA it was recognized that P-16 headgate project was not included in initial Expert Panel lookback consideration. 1.8.16, added P-16 headgate to calculation and updated

ESU	Population	Code	Assessme nt Unit	2012 Standardized Limiting Factor	LF Weight	Low Bookend	Original 2018 Estimate	Updated 2018 Estimate	High 2018 Bookend	Original 2033 Estimate	High 2033 Bookend	LF Weight and Bookends Comments	Estimates Comments
Snake River Steelhead	Pahsimeroi River	PRS1	Pahsimeroi Downstream Of Big Ck	2.3: Injury and Mortality: Mechanical Injury	15.00%	65	65.25	73		75	100		2015: Expert Panel decided the assessment for Steelhead limiting factors would be exactly the same as that accomplished for Chinook. They verified the design flow for each action and summed the cfs for treatment improvement value. The Expert Panel explained that all diversions are screened, so they considered the screened agreement value of 291 cfs as the best way to measure total flow (cumulative screened flow) for the Assessment Unit (mainstem portion+ AU tributaries). This was the denominator in the calculation of uplift. Thus for the four actions: $23.24/291 = 8\%$ uplift. EWL 2/3/16

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Snake River Steelhead	Pahsimeroi River	PRS1	Pahsimeroi Downstream Of Big Ck	4.1: Riparian Condition: Riparian Vegetation	10.00%	50	50	52.1		55	70	Steelhead habitat - lack of connectivity to tribs.	2012: 14.5 mi riparian enhancement. Estimate does not consider P-13 - include in 2015 look back if it is implemented. 2015:Expert Panel determined that the assessment for Steelhead would be exactly the same as for Chinook. Miles of treatment were adjusted to consider the functional value of the project to date. Expert Panel discussed the Trout Creek Ranch Conservation Easement and the value of the exclusion fencing value. They decided to keep that project in (2.5 mi). Some projects reported values for both sides of the stream (e.g., 2013 Sulfur). For those projects the Expert Panel decided to divide the reported number by 2 because the uplift is relative to total stream length not riparian fence length. Fencing was considered beneficial unless it was installed so recently that benefits could not be realized at all. Hoffman projects were redundant with Stockwater SWCD/TNC (.64 mi), so Hoffman was removed from calculation. The Expert Panel included riparian benefits from a project regardless of Assessment Unit

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Snake River Steelhead	Pahsimeroi River	PRS1	Pahsimer oi Downstre am Of Big Ck	6.1: Channel Structure and Form: Bed and Channel Form	5.00%	50	50.5	52.9		55	60	Steelhead habitat - lack of connectivity to tribs.	2012: Sulphur Ck. Project & other projects from Fury Lane to P12 considered in this estimate - natural process changes. 2015: The Expert Panel determined that the assessment for benefits to this limiting factor for steelhead would be identical to the assessment for Chinook. Two actions were considered totaling1.8 miles of treatment. Considered over all Chinook miles in the assessment unit (62 miles), which was derived from summing stream miles in the Pahsimeroi mainstem, Big Springs Creek and associated tributaries (but not the disconnected tributaries), $1.8/62*100=2.9\%$ improvement. EWL 2/3/16
Snake River Steelhead	Pahsimeroi River	PRS1	Pahsimer oi Downstre am Of Big Ck	7.1: Sediment Conditions: Decreased Sediment Quantity	0.00%	20	20	21.5			50	Make sure spreadsheet breaks is Big Creek (NOT Big Springs Ck)	

ESU	Population	Code	Assessme nt Unit	2012 Standardized Limiting Factor	LF Weight	Low Bookend	Original 2018 Estimate	Updated 2018 Estimate	High 2018 Bookend	Original 2033 Estimate	High 2033 Bookend	LF Weight and Bookends Comments	Estimates Comments
Snake River Steelhead	Pahsimeroi River	PRS1	Pahsimeroi Downstream Of Big Ck	7.2: Sediment Conditions: Increased Sediment Quantity	5.00%	20	20.5	21.5		21	50		2012: Estimate considers projects listed under Riparian LF; PRS3 contributes sediment loads to this AU. 2015:Expert Panel decided the calculations for steelhead would be exactly the same as that used for Chinook. Expert Panel used same rationale as riparian vegetation to estimate improvements to sediment. Carried forward, established vegetation improves stream bank stabilization, reduces erosion potential thus stream sedimentation. Miles of riparian vegetation (limiting factor 4.1) projects (verified by the Panel) were adjusted to account for current functionality (recognizing that vegetative growth takes time). Trout Creek Ranch received a zero improvement value because it is already in excellent condition. Two projects were later added: Big Creek Conservation Easement-TNC and Page Mill Creek. After adjustment for % function, treatment miles were summed for a total of 0.9545 miles over the total stream miles in the Assessment Unit, which was derived from summing

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Snake River Steelhead	Pahsimeroi River	PRS1	Pahsimeroi Downstream Of Big Ck	8.1: Water Quality: Temperature	5.00%	40	40.5	55.3		41	60		2012:Estimate considers projects listed under Riparian & Decreased Water Quantity LF. Most of benefit from Sulphur Cr.to main Pahsimeroi. 2015:The Expert Panel decided that the estimates for steelhead would be exactly the same as that accomplished from Chinook. They evaluated project benefits toward this limiting factor (temperature) by summing the realized uplift from riparian vegetation (4.1) projects =2.1% and flow (9.2) projects=13.2%. Therefore, the uplift for Limiting Factor 8.1=15.3%. EWL 2/3/16
Snake River Steelhead	Pahsimeroi River	PRS1	Pahsimeroi Downstream Of Big Ck	9.2: Water Quantity: Decreased Water Quantity	40.00%	30	32	43.2		32	50	Consider timing of spawning and juveniles between ST and CK. Steelhead habitat - lack of connectivity to tribs.	2012:Sulphur & P13 are only projects that actually gain water; conservative estimate. 2015:Expert Panel decided that evaluation of benefits for steelhead would be exactly the same as what they considered for Chinook. They did not consider screen project because they do not believe there is a flow benefit from them. They verified flow in cfs and determined if the lease is permanent or annual. In this Assessment Unit, all leases are permanent and the cfs were simply summed=38.37cfs. Improvement for this limiting factor was determined relative to total flow 291 cfs; IDFG Cumulative Screened Flow Value). Therefore, 38.37/291*100=13.2% uplift. EWL 2/3/16

ESU	Population	Code	Assessment Unit	2012 Standardized Limiting Factor	LF Weight	Low Bookend	Original 2018 Estimate	Updated 2018 Estimate	High 2018 Bookend	Original 2033 Estimate	High 2033 Bookend	LF Weight and Bookends Comments	Estimates Comments
Snake River Steelhead	Pahsimeroi River	PRS2	Salmon River and Tributaries	1.1: Habitat Quantity: Anthropogenic Barriers	20.00%	65	70	80.5		70	100		2012:Includes McKim Warm Springs, and Poison Ck barriers Upwards of 12 more barriers remaining 2015: Expert Panel verified projects and the amount of upstream opened by barrier removal=9.6 miles. Improvements for this limiting factor were calculated by assessing the percent of improved habitat relative to total steelhead stream miles in the Assessment Unit. Mileage calculation included the mainstem as well as tributaries = 61.8 mi (rounded to 62 miles) from Streamnet. The Panel thinks this estimate may be a bit low. Therefore, benefit was assessed by the following calculation: $9.6/62*100 = 15.5\%$ uplift. EWL 2/3/16
Snake River Steelhead	Pahsimeroi River	PRS2	Salmon River and Tributaries	2.3: Injury and Mortality: Mechanical Injury	20.00%	45	45	46.1		55	100		2012: 2 McKim fish screens about 12 more to be screened 2015: Expert Panel considered two projects in its assessment of improvements for this limiting factor and determined design flows (in cfs) to calculate relative improvement across the Assessment Unit. Total flow across the assessment unit was derived from summing Salmon River irrigation withdrawals (497 cfs). In the future, they believe this should be limited to tributaries (i.e., remove mainstem Salmon river). Sum: 5.7 cfs. Denominator: Morgan calculation of diversions: 497 cfs. Therefore $5.7/497*100 = 1.1\%$ uplift. EWL 2/3/16

ESU	Population	Code	Assessment Unit	2012 Standardized Limiting Factor	LF Weight	Low Bookend	Original 2018 Estimate	Updated 2018 Estimate	High 2018 Bookend	Original 2033 Estimate	High 2033 Bookend	LF Weight and Bookends Comments	Estimates Comments
Snake River Steelhead	Pahsimeroi River	PRS2	Salmon River and Tributaries	4.1: Riparian Condition: Riparian Vegetation	20.00%	70	70	70.6		70	80		2015:Miles of treatment were adjusted to consider the functional value of the project to date. For example, the two Cole Ranch projects: Riparian fencing 1.96 mi and 0.09 mi planting actions (protection and active treatment) were assessed differentially across the 2.05 miles of treatment: 20% for fencing; 3% for planting. Treatment miles were adjusted for functional improvement and those values were summed=0.3947 of currently functionally improved miles. Taken across the 62 steelhead miles in the Assessment Unit (NOAA Streamnet) there was a 0.6% uplift (0.3947/62*100). EWL 2/3/16
Snake River Steelhead	Pahsimeroi River	PRS2	Salmon River and Tributaries	8.1: Water Quality: Temperature	10.00%	33	33	35.6		33	33		2015:The Expert Panel evaluated project benefits toward this limiting factor (temperature) by summing the realized uplift from riparian vegetation (4.1) projects =0.6% and flow (9.2) projects=2.0%. Therefore, the uplift for Limiting Factor 8.1=2.6%. EWL 2/3/16
Snake River Steelhead	Pahsimeroi River	PRS2	Salmon River and Tributaries	9.2: Water Quantity: Decreased Water Quantity	30.00%	65	65	67		65	75		2015:The Expert Panel validated flow amounts (cfs), lease type, and lease locations. The improvement value (in cfs) was calculated as the sum of the average annual flow benefit of leases in 2012 through 2015, plus the sum of permanent or long-term (e.g., 20 year) leases. In this Assessment Unit, all the leases were permanent. Relative to all estimated water right diversions in the Assessment Unit 497 cfs (Morgan Case IDFG) there was a 2% improvement. EWL 2/3/16

ESU	Population	Code	Assessment Unit	2012 Standardized Limiting Factor	LF Weight	Low Bookend	Original 2018 Estimate	Updated 2018 Estimate	High 2018 Bookend	Original 2033 Estimate	High 2033 Bookend	LF Weight and Bookends Comments	Estimates Comments
Snake River Steelhead	Pahsimeroi River	PRS3	Pahsimeroi Upstream Of Big Ck	1.1: Habitat Quantity: Anthropogenic Barriers	20.00%	20	25	34.8		25	35	Different wts and bookends for steelhead due to steelhead use of tribs that chinook don't use	2012:Steelhead benefits only - not for Chinook. Sink system - natural runoff/flow regime influences available water and access any given year. 2015:The Expert Panel used PRC2 projects benefit information to assess benefits for this limiting factor in PRS3, but relative to a different total stream length calculation (the denominator). They measured the approximate distance of high intrinsic potential (steelhead) streams within the Assessment Unit using a NOAA data layer (89 miles). The Expert Panel noted that some Assessment Unit maps confuse PRS2 and PRS3. Four barrier projects were ultimately considered in the improvement calculation: 13.2/89*100 14.8% uplift. EWL 2/3/16
Snake River Steelhead	Pahsimeroi River	PRS3	Pahsimeroi Upstream Of Big Ck	2.3: Injury and Mortality: Mechanical Injury	10.00%	20	20	20		22.5	75	Different wts and bookends for steelhead due to steelhead use of tribs that chinook don't use	2012: ADD PROJECT The Pines Screen Diversion listed under PRC2 LF 2.3.This Pines is only 1 diversion out of many. 2015: No actions were executed during the 2012-2015 period for this limiting factor in this assessment unit. Therefore there was no change to the low bookend. EWL 2/3/16

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Snake River Steelhead	Pahsimeroi River	PRS3	Pahsimeroi Upstream Of Big Ck	4.1: Riparian Condition: Riparian Vegetation	10.00%	20	20	20.1		28	60	Different wts and bookends for steelhead due to steelhead use of tribs that chinook don't use	2012:Estimate considers benefits from projects listed under Decreased Water Quantity LF. 2015: Actions were the same as PRC2, but relative to a different overall stream length (the denominator). 2015: Improvements from two projects were considered. The miles of treated riparian habitat was adjusted to account for the current function of the improvements, recognizing that vegetation needs time to establish and meet the ultimate goal of the action. Once adjusted, the treatment miles were summed (0.08) and divided by the total length of stream miles in the Assessment Unit (89 miles; Measured approximate distance of high intrinsic potential of steelhead streams - NOAA). Therefore, 0.8/89*100=0.1% uplift. EWL 2/3/16

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Snake River Steelhead	Pahsimeroi River	PRS3	Pahsimeroi Upstream Of Big Ck	7.2: Sediment Conditions: Increased Sediment Quantity	10.00%	20	20	20.1		21	50	Different wts and bookends for steelhead due to steelhead use of tribs that chinook don't use	2012: Estimate considers projects under Decreased Water Quantity LF. 2015: Expert Panel used same rationale as riparian vegetation to estimate improvements to sediment. Carried forward, established vegetation improves stream bank stabilization, reduces erosion potential thus stream sedimentation. Miles of riparian vegetation (limiting factor 4.1) projects were adjusted to account for current functionality (recognizing that vegetative growth takes time). Actions were the same as PRC2, but relative to a different overall stream length (the denominator). Improvements from two projects were considered. The miles of treated riparian habitat was adjusted to account for the current function of the improvements, recognizing that vegetation needs time to establish and meet the ultimate goal of the action. Once adjusted, the treatment miles were summed (0.08) and divided by the total length of stream miles in the Assessment Unit (89 miles; Measured approximate distance of high intrinsic potential of steelhead streams, NOAA). Therefore

ESU	Population	Code	Assessment Unit	2012 Standardized Limiting Factor	LF Weight	Low Bookend	Original 2018 Estimate	Updated 2018 Estimate	High 2018 Bookend	Original 2033 Estimate	High 2033 Bookend	LF Weight and Bookends Comments	Estimates Comments
Snake River Steelhead	Pahsimeroi River	PRS3	Pahsimeroi Upstream Of Big Ck	9.2: Water Quantity: Decreased Water Quantity	50.00%	20	20	25.3		32.5	40	Different wts and bookends for steelhead due to steelhead use of tribs that chinook don't use consider timing of spawning and juveniles between ST and CK	2012: Estimate considers total of 23 cfs - 12 cfs from Blg Ck. Hamilton ditch closure adds another 11 cfs to Big Ck. - part of Fury Lane/P16 suite of projects. Benefits better for steelhead than Chinook. Long term benefits to water quantity as system begins to seal water. 2015:The Expert Panel considered the cfs contribution of two leases, both permanent: O'Neal/Big Cr Ranch and Page/Mill Cr. The improvement was assessed by summing the permanent or long-term (e.g., 20 year) leases (17 cfs). Assessed across all water right diversions (estimated; 319 cfs; Morgan Case IDWR), improvement to flow is 5.3% (17cfs/319cfs*100). EWL 2/3/16.
Snake River Steelhead	Salmon River upper mainstem	UMS2	Mainstem Upper Salmon River	4.1: Riparian Condition: Riparian Vegetation	25.00%	40	40.05	40.5	40.1		70		2015:Expert Panel evaluated the progress of one project that treated 2 miles of streambank. The realized improvement was made relative to the entire stream length used by steelhead in the Assessment Unit (calculated through Streamnet)= 73.3 mi. Therefore 0.4/73.3*100 = 0.5% uplift. EWL 2/3/16
Snake River Steelhead	Salmon River upper mainstem	UMS2	Mainstem Upper Salmon River	7.2: Sediment Conditions: Increased Sediment Quantity	25.00%	51	51	51.5	51		75		2015:Expert Panel used the same rationale to evaluate sediment as they did riparian vegetation, assuming that improved stream bank stabilization through vegetating will reduce stream bank erosion and improve sedimentation.Expert Panel evaluated the progress of one project that treated 2 miles of streambank. The realized improvement was made relative to the entire stream length used by steelhead in the Assessment Unit (calculated through Streamnet)= 73.3 mi. Therefore 0.4/73.3*100 = 0.5% uplift. EWL 2/3/16

ESU	Population	Code	Assessment Unit	2012 Standardized Limiting Factor	LF Weight	Low Bookend	Original 2018 Estimate	Updated 2018 Estimate	High 2018 Bookend	Original 2033 Estimate	High 2033 Bookend	LF Weight and Bookends Comments	Estimates Comments
Snake River Steelhead	Salmon River upper mainstem	UMS2	Mainstem Upper Salmon River	8.1: Water Quality: Temperature	25.00%	51	51	62	51		80		2015: Expert Panel assessed that improvements for this limiting factor equals the sum of improvements to riparian vegetation (Limiting Factor 4.1) and flow (limiting factor 9.2). Therefore, 0.5%+10.5%=11%. EWL 2/4/16
Snake River Steelhead	Salmon River upper mainstem	UMS2	Mainstem Upper Salmon River	9.2: Water Quantity: Decreased Water Quantity	25.00%	80	80	90.5	80		90		2015:Expert Panel added (UMS3) tributary flow projects: Pole Creek 12 cfs permanent, Pole Creek 2012-2014 5-6 cfs lease, Beaver Creek. 5.9 cfs 20 year lease. These projects were added to database as benefit to mainstem (also for LF 8.1). Did not include SPC fish screen project. Project benefits were assessed by calculating the sum of average annual flow benefit of leases in 2012 through 2015, plus the sum of permanent or long-term (e.g., 20 year) leases and relativized (the denominator) over all estimated water right diversion (210 cfs; from Morgan Case, IDWR diversions). Therefore, the uplift to this limiting factor = 10.5%. EWL 2/3/16
Snake River Steelhead	Salmon River upper mainstem	UMS3	Upper Salmon River Tributaries	1.1: Habitat Quantity: Anthropogenic Barriers	10.00%	55	60	60.4	60		100		2015:Expert Panel evaluated two diversion projects and the amount of upstream habitat now available (10 miles) relative to total stream miles used by steelhead in the assessment unit (the denominator) derived from Streamnet = 184.5 mi. Therefore 10/184.5 = 5.4% uplift. EWL 2/3/16

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Snake River Steelhead	Salmon River upper mainstem	UMS3	Upper Salmon River Tributaries	2.3: Injury and Mortality: Mechanical Injury	10.00%	75	75	79	75		100		2015:Expert Panel considered the design flow of the one project in the Assessment Unit (=15.3 cfs) relative to the sum of irrigation withdrawals including Salmon River = 386 cfs (the denominator: Morgan Case -IDFG) . In the future, limit consideration to tributaries. (remove mainstem Salmon river) . Therefore 15.3/386= 4% uplift. EWL 2/3/16
Snake River Steelhead	Salmon River upper mainstem	UMS3	Upper Salmon River Tributaries	4.1: Riparian Condition: Riparian Vegetation	20.00%	40	40	40.1	41		70		2015:Expert Panel adjusted the miles of improvement from vegetation projects based on how they are functioning now. The realized improved habitat in miles (0.1625) was made relative to total stream miles used by steelhead (the denominator; Streamnet) = 184.5 mi. Therefore the uplift for this limiting factor = 0.1%. EWL 2/3/16
Snake River Steelhead	Salmon River upper mainstem	UMS3	Upper Salmon River Tributaries	7.2: Sediment Conditions: Increased Sediment Quantity	15.00%	50	50.1	50.1	50.2		60		2015:Expert Panel used the same rationale for this limiting factor as with 4.1 (riparian vegetation) assuming that stream bank stabilization following vegetation establishment will reduce erosion and therefore sedimentation.Expert Panel adjusted the miles of improvement from vegetation projects based on how they are functioning now. The realized improved habitat in miles (0.1625) was made relative to total stream miles used by steelhead (the denominator; Streamnet) = 184.5 mi. Therefore the uplift for this limiting factor = 0.1%. EWL 2/3/16

ESU	Population	Code	Assessment Unit	2012 Standardized Limiting Factor	LF Weight	Low Bookend	Original 2018 Estimate	Updated 2018 Estimate	High 2018 Bookend	Original 2033 Estimate	High 2033 Bookend	LF Weight and Bookends Comments	Estimates Comments
Snake River Steelhead	Salmon River upper mainstem	UMS3	Upper Salmon River Tributaries	8.1: Water Quality: Temperature	10.00%	31	31.5	36.8	32		55		2015: Expert Panel assumes the benefit to this limiting factor (temperature) equals the sum of improvements to riparian vegetation (limiting factor 4.1) and flow (limiting factor 9.2). Therefore, in this assessment unit, improvement to temperature is: 0.1%+5.7% = 5.8%. EWL 2/3/16
Snake River Steelhead	Salmon River upper mainstem	UMS3	Upper Salmon River Tributaries	9.2: Water Quantity: Decreased Water Quantity	35.00%	23	23	28.7	30		75		2015:Expert Panel assessed benefits of water leases (in cfs) by summing average annual flow benefit of leases in 2012 through 2015, plus the sum of permanent or long-term (e.g., 20 year) leases. Assessment of overall improvement occurred by dividing water leases by estimated water right diversions across the entire Assessment Unit (=the Denominator = 386 cfs; from Morgan Case, IDWR diversions). Did not include fish screen projects. Uplift calculation for this limiting factor = 5.7%. EWL 2/3/16
Snake River Steelhead	Salmon River upper mainstem	UMS4	West Fork Yankee Fork	5.2: Peripheral and Transitional Habitats: Floodplain Condition	40.00%	97	97	97		98	98	Expanded Expert Panel including the YF ID Team made up this round as compared to a small subset in Fall 2011 (conversion to standardized Limiting Factors) and Sp/Summer 2012 ExPanel meetings. Changed low bookend; Most of Ass Unit is "wilderness" with very little area disturbed that can be restored	2015: No actions were undertaken during the 2012-2015 period that would benefit this limiting factor, therefore there was no change to the low bookend. Evaluate West Fork Yankee Fork Habitat Enhancement Project in lookforward. EWL 2/3/16.

ESU	Population	Code	Assessment Unit	2012 Standardized Limiting Factor	LF Weight	Low Bookend	Original 2018 Estimate	Updated 2018 Estimate	High 2018 Bookend	Original 2033 Estimate	High 2033 Bookend	LF Weight and Bookends Comments	Estimates Comments
Snake River Steelhead	Salmon River upper mainstem	UMS4	West Fork Yankee Fork	6.1: Channel Structure and Form: Bed and Channel Form	40.00%	97	97	97		98	98	Expanded Expert Panel including the YF ID Team made up this round as compared to a small subset in Fall 2011 (conversion to standardized Limiting Factors) and Sp/Summer 2012 ExPanel meetings. Changed low bookend; Most of Ass Unit is "wilderness" with very little area disturbed that can be restored	2015: No actions were undertaken during the 2012-2015 period that would benefit this limiting factor, therefore there was no change to the low bookend. Evaluate West Fork Yankee Fork Habitat Enhancement Project in lookforward. EWL 2/3/16.
Snake River Steelhead	Salmon River upper mainstem	UMS4	West Fork Yankee Fork	6.2: Channel Structure and Form: Instream Structural Complexity	20.00%	97	97	97		98	98	Expanded Expert Panel including the YF ID Team made up this round as compared to a small subset in Fall 2011 (conversion to standardized Limiting Factors) and Sp/Summer 2012 ExPanel meetings. Changed low bookend; Most of Ass Unit is "wilderness" with very little area disturbed that can be restored	2015: No actions were undertaken during the 2012-2015 period that would benefit this limiting factor, therefore there was no change to the low bookend. Evaluate West Fork Yankee Fork Habitat Enhancement Project in lookforward. EWL 2/3/16.
Snake River Steelhead	Salmon River upper mainstem	UMS5	Yankee Fork	1.1: Habitat Quantity: Anthropogenic Barriers	5.00%	85	85	85		95	100	Currently, tribs w/ barriers include Cearley, Jordan and Ramey, Silver and Jerrys Creeks. Improving these get to 95%.	2015: No actions were undertaken during the 2012-2015 period that would benefit this limiting factor, therefore there was no change to the low bookend. EWL 2/3/16.

ESU	Population	Code	Assessme nt Unit	2012 Standardized Limiting Factor	LF Weight	Low Bookend	Original 2018 Estimate	Updated 2018 Estimate	High 2018 Bookend	Original 2033 Estimate	High 2033 Bookend	LF Weight and Bookends Comments	Estimates Comments
Snake River Steelhead	Salmon River upper mainstem	UMS5	Yankee Fork	4.2: Riparian Condition: LWD Recruitment	20.00%	40	40	40.1		55	65	Expanded Expert Panel including the YF ID Team made up this round as compared to a small subset in Fall 2011 (conversion to standardized Limiting Factors) and Sp/Summer 2012 ExPanel meetings. Switched Riparian condition for LWD Recruitment; Historical info suggest that riparian habitat was was not extensive in the mainstem Yankee Fork. Adjusted low bookend down to 35	2015: Expert Panel considered steelhead improvements similar to Chinook, but used a different "denominator". Expert Panel considered four projects, their miles of treatment, and the % improvement realized for each. Expert Panel Unit = 57.2 mi. but they also discussed using NOAA's Intrinsic Potential "green line" and "yellow line" segment mapping: approximately 19.5 miles using measuring tool - plus adding 5 mi for tributaries; they decided to use the intrinsic potential calculation and rounded up to 25 mi as denominator. The Expert Panel discussed that 4.1 is not a limiting factor for this assessment unit, defined and contrasted the limiting factors and referenced baseline conditions re: riparian large wood. They questioned where are we at now, compared to Proper Functioning Condition. Does LWD placed in water count? Is the focus on ability of riparian zone to produce large wood in the future? Willows and alder will not benefit this Limiting Factor directly, but riparian plantings and other project

ESU	Population	Code	Assessment Unit	2012 Standardized Limiting Factor	LF Weight	Low Bookend	Original 2018 Estimate	Updated 2018 Estimate	High 2018 Bookend	Original 2033 Estimate	High 2033 Bookend	LF Weight and Bookends Comments	Estimates Comments
Snake River Steelhead	Salmon River upper mainstem	UMS5	Yankee Fork	5.2: Peripheral and Transitional Habitats: Floodplain Condition	25.00%	50	60	72.1		65	80	Expanded Expert Panel including the YF ID Team made up this round as compared to a small subset in Fall 2011 (conversion to standardized Limiting Factors) and Sp/Summer 2012 ExPanel meetings. Changed low bookend from 20 to 50 percent because 2/3 of historic Chinook production comes from areas outside of dredge reach and there are still some impacts that occur in non dredged areas. Recognizing Jordan Ck. Impacts	2015:Expert Panel carried over projects and current function values from YFC3, but used total steelhead stream miles in the Assessment Unit (from Streamnet) to estimate benefits to Steelhead for this Limiting Factor. They considered four projects, adjusted for current functional % improvement status (ranged from 5% to 90%). Structural changes are realized now, and vegetative growth will continue. A total of 8.9 mi were treated - adjusted for function over the 30 stream miles in the assessment unit (based on NOAA's Intrinsic Potential - mapped "green line" and "yellow line" segments) results in a 22.1% uplift. EWL 2/4/16
Snake River Steelhead	Salmon River upper mainstem	UMS5	Yankee Fork	6.1: Channel Structure and Form: Bed and Channel Form	20.00%	50	60	76.2		65	80	Expanded Expert Panel including the YF ID Team made up this round as compared to a small subset in Fall 2011 (conversion to standardized Limiting Factors) and Sp/Summer 2012 ExPanel meetings. Changed low bookend from 20 to 50 percent because 2/3 of historic Chinook production comes from areas outside of dredge reach and there are still some impacts that occur in non dredged areas. Recognizing Jordan Ck. Impacts	2015:Expert Panel carried over projects and current function values from YFC3, but used total steelhead stream miles in the Assessment Unit (from Streamnet) to estimate benefits to Steelhead for this Limiting Factor. They duplicated rationale to Limiting Factor 5.2. 8.9 miles were treated in 4 projects over 30 miles (NOAA's intrinsic potential for the denominator). However, current realized functional benefits may be different. Wood structures function soon after construction, but stream channel form continues to change. Percentages range from 70% to 90% function. Thus, the improvement to this Limiting Factor is 7.86 miles/30 miles*100= 26.2%. EWL 2/4/16

ESU	Population	Code	Assessme nt Unit	2012 Standardized Limiting Factor	LF Weight	Low Bookend	Original 2018 Estimate	Updated 2018 Estimate	High 2018 Bookend	Original 2033 Estimate	High 2033 Bookend	LF Weight and Bookends Comments	Estimates Comments
Snake River Steelhead	Salmon River upper mainstem	UMS5	Yankee Fork	6.2: Channel Structure and Form: Instream Structural Complexity	25.00%	50	65	77.5		70	85	Expanded Expert Panel including the YF ID Team made up this round as compared to a small subset in Fall 2011 (conversion to standardized Limiting Factors) and Sp/Summer 2012 ExPanel meetings. Changed low bookend from 20 to 50 percent because 2/3 of historic Chinook production comes from areas outside of dredge reach and there are still some impacts that occur in non dredged areas. Recognizing Jordan Ck. Impacts	2015:Expert Panel carried over projects and current function values from YFC3, but used total steelhead stream miles in the Assessment Unit (from Streamnet) to estimate benefits to Steelhead for this Limiting Factor. The Expert Panel considered four projects that were pro-rated based on current realized functional benefits. Structural modifications function soon after construction, but stream complexity will continue to change. Denominator was based on NOAAs intrinsic potential = 30 mi. Percentages range from 80% to 95% function; Thus, the improvement to this Limiting Factor is 8.255 miles/30 miles *100=27.5%. EWL 2/4/16

ESU	Population	Code	Assessme nt Unit	2012 Standardized Limiting Factor	LF Weight	Low Bookend	Original 2018 Estimate	Updated 2018 Estimate	High 2018 Bookend	Original 2033 Estimate	High 2033 Bookend	LF Weight and Bookends Comments	Estimates Comments
Snake River Steelhead	Salmon River upper mainstem	UMS5	Yankee Fork	7.1: Sediment Conditions: Decreased Sediment Quantity	5.00%	50	55	72.2		60	70	Expanded Expert Panel including the YF ID Team made up this round as compared to a small subset in Fall 2011 (conversion to standardized Limiting Factors) and Sp/Summer 2012 ExPanel meetings. Changed low bookend from 20 to 50 percent because 2/3 of historic Chinook production comes from areas outside of dredge reach and there are still some impacts that occur in non dredged areas. Recognizing Jordan Ck. Impacts; Changed LF 7.2 to 7.1 due to much better description of conditions and how LF applies - lack of sediment that provides good spawning habitat rather than high fines in gravels.	2015:Expert Panel carried over projects and current function values from YFC3, but used total steelhead stream miles in the Assessment Unit (from Streamnet) to estimate benefits to Steelhead for this Limiting Factor. The Expert Panel considered four projects that were adjusted for current functional benefits Discussed dredge mining effects on Limiting Factor. Instream LWD and rock projects improve reach's ability to capture and retain (recruit) spawning gravel, as well as direct improvement of substrate by adding gravels. Project functional % ranged from 20% to 80% and 8.9 mi treated. The Expert Panel used NOAA's Intrinsic Potential for the Denominator =30. Thus, improvements to this Limiting Factor is 6.67 miles/30 miles*100=22.2%. EWL 2/4/16