#### 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	Assessme nt Unit	-	LF Weight	Low Bookend	2018		High 2018 Bookend		-	LF Weight and Bookends Comments	Estimates Comments
	East Fork Salmon River	Bayhorse Creek	1.1: Habitat Quantity: Anthropogeni c 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
	East Fork Salmon River	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
	East Fork Salmon River	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
	East Fork Salmon River	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
	East Fork Salmon River	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

ESU	Population	Code	Assessme nt Unit	-	LF Weight	Low Bookend	Original 2018 Estimate	Updated 2018 Estimate	High 2018 Bookend		-	LF Weight and Bookends Comments	Estimates Comments
Snake River Steelhead		EFS2	Challis Creek	1.1: Habitat Quantity: Anthropogeni c 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: Anthropogeni c 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

 Population		Assessme nt Unit	Factor	LF Weight		Original 2018 Estimate	Estimate	High 2018	Estimate	Bookend	LF Weight and Bookends Comments	Estimates Comments
East Fork Salmon River	EFS3	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
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
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
East Fork Salmon River	EFS4	EF Salmon Tributarie s		0.00%								No actions were undertaken during the 2012-2015 period that result in improvement for this Limiting Factor. EWL 2/1/16
East Fork Salmon River	EFS4		2.3: Injury and Mortality: Mechanical Injury	20.00%	70	70	70		75	90		2012: 3 diversions on Road Ck reamining; 2015:No actions were undertaken during the 2012-2015 period that result in improvement for this Limiting Factor. EWL 2/1/16
East Fork Salmon River	EFS4	EF Salmon Tributarie s		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
East Fork Salmon River	EFS5	Garden Creek	1.1: Habitat Quantity: Anthropogeni c 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

				2012									
				Standardized			-	Updated		Original			
ESU	Population	Code	Assessme nt Unit	-	LF Weight	Low Bookend	2018 Estimate	2018 Estimate	High 2018 Bookend		-	LF Weight and Bookends Comments	Estimates Comments
	East Fork	EFS5		2.3: Injury and		20	20	62		20	60		2015: Improvement was calculated
	Salmon			Mortality:		-							based on the flow design of the screen.
Steelhead	River			, Mechanical									One screen had a total flow design of
				Injury									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	East Fork	EFS5	Garden	4.1: Riparian	20.00%	35	35	35		35	50		2015: No actions were undertaken
River	Salmon			Condition:									during 2012-2015 to address this
Steelhead	River			Riparian									limiting factor. Therefore there was no
				Vegetation									improvement. EWL 2/2/16
Snake	East Fork	EFS5	Garden	7.2: Sediment	10.00%	60	60	60		60	75		2015: No actions were undertaken
River	Salmon		Creek	Conditions:									during 2012-2015 to address this
Steelhead	River			Increased									limiting factor. Therefore there was no
				Sediment									improvement. EWL 2/2/16
				Quantity									
Snake	East Fork	EFS5	Garden	9.2: Water	40.00%	20	25	26.1		25	50		2012: Garden Ck. project to add abt 3
River	Salmon		Creek	Quantity:									cfs
Steelhead	River			Decreased									2015: Garden creek permanently
				Water									added 1.6 cfs. Relative to the
				Quantity									summation of diversions according to
													Morgan Case (IDWR; 26.4 cfs) the uplift
													was 6.1%. EWL 2/2/16
Snake	East Fork	EFS6	Herd	1.1: Habitat	10.00%	71	71	71		75	80	high bookend reflects	2015: No actions were undertaken
	Salmon		Creek	Quantity:									during 2012-2015 to address this
Steelhead	River			Anthropogeni									limiting factor. Therefore there was no
				c Barriers									improvement. EWL 2/2/16
		EFS6	Herd	4.1: Riparian	40.00%	60	60	60		60	80		2015: No actions were undertaken
	Salmon			Condition:									during 2012-2015 to address this
Steelhead	River			Riparian									limiting factor. Therefore there was no
				Vegetation									improvement. EWL 2/2/16
		EFS6	Herd	7.2: Sediment	30.00%	70	70	70		70	80		2015: No actions were undertaken
	Salmon			Conditions:									during 2012-2015 to address this
Steelhead	River			Increased									limiting factor. Therefore there was no
				Sediment									improvement. EWL 2/2/16
				Quantity									

ESU	Population	Code	Assessme	2012 Standardized Limiting Factor	LF Weight	Low Bookend	Original 2018 Estimate	Updated 2018 Estimate	High 2018		-	LF Weight and Bookends Comments	Estimates Comments
Snake	East Fork	EFS6	Herd	9.2: Water	-	65	65	65		70	80		2012: 8 cfs potential HC-3 pipeline
	Salmon			Quantity:									from Lake Ck. 2015: No actions were
Steelhead	River			Decreased									undertaken during 2012-2015 to
				Water									address this limiting factor. Therefore
				Quantity									there was no improvement. EWL
													2/2/16
Snake	East Fork	EFS7	Mainstem	4.1: Riparian	15.00%	25	25	27.02		25	35		2012: Remember to update 2015 look-
River	Salmon		Salmon	Condition:									back w/any 12-mi reach
Steelhead	River		River	Riparian									easements/projects implemented after
				Vegetation									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	East Fork	EFS7	Mainstem		30.00%	60	60	60		60	80		2012: Remember to update 2015 look-
	Salmon			Peripheral									back w/any 12-mi reach
Steelhead	River		River	and									easements/projects implemented after
				Transitional									2012. 2015: No actions were
				Habitats:									undertaken during 2012-2015 to
				Floodplain									address this limiting factor. Therefore
				Condition									there was no improvement. EWL
Craka	East Fork	EFS7	Mainatana	6.1: Channel	30.00%	60	60	60		60	80		2/2/16 2012: Remember to update 2015 look-
	Salmon	EF37	Salmon	Structure and		00	60	60		60	80		back w/any 12-mi reach
Steelhead			River	Form: Bed									easements/projects implemented after
Steemeau	NIVEI		River	and Channel									2012. 2015: No actions were
				Form									undertaken during 2012-2015 to
				1 OI III									address this limiting factor. Therefore
													there was no improvement. EWL
													2/2/16
Snake	East Fork	EFS7	Mainstem	7.2: Sediment	10.00%	50	50	50		50	85		2012: Remember to update 2015 look-
	Salmon	_		Conditions:		-				-			back w/any 12-mi reach
Steelhead				Increased									easements/projects implemented after
				Sediment									2012. 2015: No actions were
				Quantity									undertaken during 2012-2015 to
													address this limiting factor. Therefore
													there was no improvement. EWL
			1										2/2/16

ESU	Population	Code	Assessme	2012 Standardized Limiting Factor	LF Weight	Low Bookend	Original 2018 Estimate	Updated 2018 Estimate	High 2018 Bookend		-	LF Weight and Bookends Comments	Estimates Comments
Snake	-	EFS7		8.1: Water	15.00%	50	50	50	Dookenu	50	60	Comments	2012: Remember to update 2015 look-
	Salmon			Quality:	15.0070	50	50	50		50			back w/any 12-mi reach
Steelhead			River	Temperature									easements/projects implemented after
Steemedu	NIV CI			remperature									2012. 2015: No actions were
													undertaken during 2012-2015 to
													address this limiting factor. Therefore
													there was no improvement. EWL
													2/2/16
Snake	East Fork	EFS8	Morgan	2.3: Injury and	20.00%	50	50	50		50	80		2015: No actions were undertaken
	Salmon	2100		Mortality:	20.0070	50	50	50		50			during 2012-2015 to address this
Steelhead			Creek	Mechanical									limiting factor. Therefore there was no
Steemedu				Injury									improvement. EWL 2/2/16
				injury									
Snake	East Fork	EFS8	Morgan	4.1: Riparian	20.00%	60	60	60		60	75		2015: No actions were undertaken
	Salmon		-	Condition:									during 2012-2015 to address this
Steelhead				Riparian									limiting factor. Therefore there was no
				Vegetation									improvement. EWL 2/2/16
Snake	East Fork	EFS8	Morgan	7.2: Sediment	10.00%	20	20	20		20	25		2015: No actions were undertaken
River	Salmon			Conditions:									during 2012-2015 to address this
Steelhead	River			Increased									limiting factor. Therefore there was no
				Sediment									improvement. EWL 2/2/16
				Quantity									
Snake	East Fork	EFS8		8.1: Water	10.00%	60	60	61.8		60	70		2015: Expert Panel summed the
River	Salmon			Quality:									riparian vegetation benefit (4.1=0) and
Steelhead	River			Temperature									the flow benefit (9.2=1.8) for an uplift
													estimate of 1.8% for this limiting
													factor. EWL 2/2/16
Snake	East Fork	EFS8	Morgan	9.2: Water	40.00%	35	35	36.8		35	85		2015: Beneficial actions (the
River	Salmon		Creek	Quantity:									numerator) were calculated (in cfs) as
Steelhead	River			Decreased									the sum of the average annual flow
				Water									benefit of leases in 2012 through 2015,
				Quantity									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

ESU	Population	Code	Assessme	-	LF Weight	Low	Original 2018 Estimate	Updated 2018 Estimate	High 2018 Bookend		-	LF Weight and Bookends Comments	Estimates Comments
Snake	-	EFS9	Salmon	9.2: Water	100.00%	30	30	32.2		30	60		2015: One action Lyon (
River	Salmon		River	Quantity:									permanent) was conside
Steelhead	River		Tributarie	Decreased									improvement over a tot
			s	Water									of diversions equaling 1
				Quantity									Morgan Case IDWR). = 2
													EWL 2/2/16
Snake	Lemhi River	LRS1	Carmen,	1.1: Habitat	10.00%	30	45	52.1		45	90		2012: 5.5 mi total acces
River			Bohannon	Quantity:									diversions
Steelhead			, Wimpey,	Anthropogeni									2015:Expert Panel consi
			and	c Barriers									projects, but gave no cre
			Kenney										barrier project. Other p
			Creeks										discussed and Sue (Soui
													SCC-13 projects were re
													there was no Steelhead
													Discussed miles of steell
													for each project. Steelhe
													generally longer than for
													any given project. Total
													8.85 mi out of 40 mi for
													improvement. EWL 2/2
Snake	Lemhi River	LRS1	Carmen,	2.3: Injury and	15.00%	30	45	61		45	90		2012:also includes 7 acc
River			Bohannon	Mortality:									close proportion to acce
Steelhead			, Wimpey,	Mechanical									2015:Expert Panel consi
			and	Injury									Chinook projects within
			Kenney										Assessment Unit, and ac
			Creeks										Bohannon screen, which
													the range of Chinook. S
													removed because it is or
													Assessment Unit ( it's or
													3 AU). Uplift Metrics inc
													screen design flow in cfs
													= 49.7 cfs out of 160 cfs
													Surface Water/Groundw
													Donato, 1998; page 11)
													EWL 2/2/16

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n Cr. 2.6 cfs
idered for
total summation
g 118 cfs (as per
= 2.2% uplift.
cess fixes 7/21
nsidered 7
credit to Kenny
r projects were
ouix?) Lane and
removed because
ad benefit.
eelhead benefit
lhead benefit is
for Chinook for
tal treatment =
for a 22.1%
2/2/16
access projects;
ccess projects
nsidered all
nin the
added the Lower
nich was outside
. STC -03 was
s outside the
on Tower Cr., LRS
included the
cfs. for 6 projects
cfs (from Lemhi
dwater Report;
.1) = 31% uplift.
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ESU	Population	Code	Assessme	-	LF Weight	Low Bookend	Original 2018 Estimate	Updated 2018 Estimate	High 2018 Bookend		-	LF Weight and Bookends Comments	Estimates Comments
Snake River Steelhead	Lemhi River		Carmen, Bohannon , Wimpey,	4.1: Riparian Condition:	-	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	Bohannon , Wimpey, and	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	, Wimpey, and	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	Bohannon	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	Bohannon , Wimpey, and	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

				2012 Standardized			Original	Updated		Original			
			Assessme	Limiting		Low	2018	-	High 2018	-	High 2033	LF Weight and Bookends	
ESU	Population	Code	nt Unit	Factor	LF Weight	Bookend	Estimate	Estimate	Bookend	Estimate	Bookend	Comments	Estimates Comments
Snake River Steelhead	Lemhi River		Salmon	1.1: Habitat Quantity: Anthropogeni c 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		Salmon	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

ESU	Population		Assessme	-	LF Weight	Low Bookend	2018	Updated 2018 Estimate	High 2018 Bookend		-	LF Weight and Bookends Comments	Estimates Comments
	Lemhi River				15.00%	35	35	35.1	Dookend	38	40		2015: Same projects co
River				Condition:									Chinook (this Assessme
Steelhead			and Lemhi	Riparian									discussed by the Expert
				Vegetation									Chinook) as well as the
			Hayden										that resulting from the
			Creek										the stage they are in. T
													Streamnet steelhead m
													Chinook = 107.8 miles,
													number used for the de
													The Expert Panel consid
													of the total stream mile
													but given the % improv
													project, there was only
													in conditions. So they
													of the area by 0.31% in
													an estimate of 0.07% ir
													this limiting factor. The
													decided to round up to
													2/2/16
Snake	Lemhi River	1052	Mainstem	5 2.	10.00%	20	20.5	20.7		21	30		2012: 3.22 miles side cl
River	Lemminiver	LINJZ		Peripheral	10.00%	20	20.5	20.7		21	30		enhancement.
Steelhead			and Lemhi										2015:As in Chinook dise
Steemeau				Transitional									several project. Used St
				Habitats:									steelhead miles as Den
				Floodplain									miles. Treated miles=0
				Condition									total stream miles=107
													EWL 2/2/16
	Lemhi River	LRS2			8.00%	40	40	40.8		42	60		2012: Riparian & flood
River				Structure and									also contribute.
Steelhead				Form: Bed									2015: Duplicated treatr
			Rivers and	and Channel									calculations as per Chin
			Hayden	Form									Streamnet steelhead m
			Creek										Denominator= 107.8 m
													miles=0.91 for a relativ
												1	of 0.8%. EWL 2/2/16

considered as in nent Unit was ert Panel after he % improvement he projects given They used miles instead of s, and that is the denominator. sidered that 22% iles were treated, ovement of each nly a 0.31% change y multiplied 22% improvement for improvement for he Expert Panel to 0.1%. EWL

# channel

discussion, added d Streamnet enominator= 107.8 =0.77 relative to 07.8=0.7% uplift.

## odplain LF projects

atment ninook but used miles as miles. Treated tive improvement

ESU	Population	Code	Assessme nt Unit	2012 Standardized Limiting Factor	LF Weight	Low Bookend	2018		High 2018 Bookend		-	LF Weight and Bookends Comments	Estimates Comments
Snake River Steelhead	Lemhi River		Salmon and Lemhi Rivers and		-	30	30.5	30.8		31	35		2012: Projects addressi this AU considered for t 2015:Expert Panel discu steelhead mirrored that (added, changed, and ro project(s) as per Chinoc Tyler were removed. Bu miles were considered Streamnet Steelehead r miles for an 0.8% impro- sediment condition. EW
Snake River Steelhead	Lemhi River	LRS2	Salmon	8.1: Water Quality: Temperature	10.00%	28	29	35.8		30	45		2012: Projects addressi this AU considered for t 2015:Expert Panel cons upstream tributaries. T benefits to Limiting fact vegetation)=0.07 and 9 for an uplift estimate = 2/2/16
Snake River Steelhead	Lemhi River	LRS2	Salmon	9.2: Water Quantity: Decreased Water Quantity	40.00%	23.5	24.5	31.2		24.5	30		2012: Upstream flow pr also considered for this 2015:Expert Panel calcu of the average annual fi leases in 2012 through sum of permanent or lo 20 year) leases (in cfs). calculated based on tot (2012-2015) relative to water right diversions fi (from Donato 1998, pag But then, like with Chin estimated water right di the Lemhi to 750 cfs wh flow from other Assessi considered. Therefore 57.72cfs/750cfs*100 = EWL 2/2/16

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ssing other LF;'s in
r this estimate.
scussion for
hat for Chinook.
 removed
ook). Hayden and
But, treatment
ed relative to
ad miles = 107.8
provement in
EWL 2/2/16
ssing other LF's in
r this estimate
nsidered
The summed the
actor 4.1 (riparian
d 9.2 (flow) =7.7
e = 7.8%. EWL
projects (LRS1)
nis estimate.
lculated the sum
I flow benefit of
sh 2015, plus the
long-term (e.g.,
). The uplift was
total leased water
to the estimated
s from the Lemhi
bage 11 =650 cfs),
inook, modified
t diversion from
when tributary
ssment Units were
re
) = 7.7% uplift.
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ESU	Population	Code	Assessme nt Unit	-	LF Weight	Low Bookend	Original 2018 Estimate		High 2018 Bookend		-	LF Weight and Bookends Comments	Estimates Comments
Snake River Steelhead	Lemhi River	LRS3	Other Salmon and Lemhi River seasonally and disconnec ted tributarie s	Quantity: Anthropogeni c Barriers	20.00%	20	25	39.9		25	50		2012:steelhead use mo chinook 2015: Ten fish passage considered for this Asso Pratt project benefits w zero. The Expert Panel Streamnet mileage. Ins use Streamnet Chinook multiplied by 3 (to refle Steelhead distribution) tributaries are not in th Unit) = 140 miles for th Total treatment miles w 20.3, however during C projects were identified been accounted for dur Panel meeting. The Upl subsequently modified reflect 7 projects not p considered. The project to the calculation work review. Based on those miles treated, uplift wa 19.9%-EWL 2/2/16
Snake River Steelhead	Lemhi River	LRS3			15.00%	20	21	21.9		21	50		2012:whole lot more ne screened 2015: The Expert Panel screen design flows as a three projects in this As equaling 15.25 cfs Wh Panel considered using withdrawls, adjusted by tributaries in this AU as denominator, they read on using LRS3 (950 cfs of the mainstem - from Do minus 4 tributaries: Car Bohanon =20, Wimpy = for a total cfs of 790. T relative improvement r mechanical injury = 15.25/790*100=1.9%.

#### nore tribs than

ge actions were sessment Unit. were assessed as el chose not use nstead, they used ok 60 mi flect larger n), minus 40 mi (3 the Assessment the denominator. were assessed as gQA/QC, several ied as having not luring the Expert Jplift was ed on 1.8.16, to previously ects were added rksheet for se additional river vas modified to

## need to be

hel considered the as metrics for Assessment Unit While the Expert ng LRC1 cfs I by EP for as the eached consensus fs diversions from Donato 1998 -Carmen =100, y =25, Kenny =15) Therefore, the at regarding

EWL 2/2/16

<mark>ESU</mark> Snake River Steelhead	Population Lemhi River		Assessme nt Unit Other	Factor 4.1: Riparian Condition: Riparian Vegetation	LF Weight 5.00%	Low Bookend 80	2018	Updated 2018 Estimate 80.5	High 2018 Bookend		Bookend 90	changed from 40/65, 8/8/12	Estimates Comments 2012: ~ 2 mi total 2015: Considerations m actions; a total of 4 pro- treatment miles of 4.6 m Pratt Creek Ranch durin Expert Panel calculated improvement by Increa Streamnet Chinook mile (LRC1) by a factor of 3, excluded tributaries (40 have their own assessm for a total (denominato 4.6/140*100=0.5% uplit 4.6 mi/140 mi = 0.5%
Snake River Steelhead	Lemhi River	LRS3	Salmon and Lemhi River seasonally	Transitional Habitats: Floodplain	5.00%	75	75.2	75.6		75.5	80		2012: included riparian channel complexity LF p 2015: Expert Panel com projects for this AU; Lor Springs, Lee Creek Fence = 1.4 mi treated. Expert calculated relative impr Increasing the Streamn miles = 60 for (LRC1) by minus the three exclud (40 miles, these have th assessment unit (LRS-1) (denominator) of 140 m 1.4 /140 mi; = 0.6% upl

s mirrored Chinook rojects for total .6 miles. Consider ring Lookforward. ed relative easing the niles = 60 for 3, minus the three 40 miles, these sment unit (LRS-1) tor) of 140 miles. plift. EWL 2/2/16 an, bed/channel, F projects onsidered two Lower Little ncing (Big 8 Mile) ert Panel nprovement by nnet Chinook by a factor of 3, uded tributaries their own -1) for a total ) miles. Therefore, plift. EWL 2/2/16

ESU	Population	Code	Assessme	-	LF Weight	Low	2018	Updated 2018 Estimate	High 2018 Bookend		-	LF Weight and Bookends Comments	Estimates Comments
Snake River Steelhead	Lemhi River		Other Salmon and Lemhi	6.1: Channel Structure and Form: Bed and Channel	5.00%	75	75.3	76.9			80	established 8/8/12	2012: included riparian, condition, complexity L 2015: Expert Panel cons of 3 projects: Lower Litt Creek Fencing (Big 8 Mi Springs Channel Comple treated. The Expert Par relative improvement b Streamnet Chinook mile (LRC1) by a factor of 3, excluded tributaries (40 have their own assessm for a total (denominato Therefore, 2.6 /140 mi; EWL 2/2/16
Snake River Steelhead	Lemhi River	LRS3	Salmon and Lemhi River seasonally	Structure and Form: Instream Structural Complexity	5.00%	75	75.3	76.9		75.5	80		2012: included riparian, condition, and bed/cha projects 2015: 2015: Expert Pan benefits of 3 projects: L Springs, Lee Creek Fenc Lower Little Springs Cha Complexity = 2.6 mi tre Expert Panel calculated improvement by Increa Streamnet Chinook mile (LRC1) by a factor of 3, excluded tributaries (40 have their own assessm for a total (denominato Therefore, 2.6 /140 mi; EWL 2/2/16

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an,floodplain
/ LF projects
onsidered benefits
ittle Springs, Lee
Mile), Lower Little
plexity = 2.6 mi
anel calculated
t by Increasing the
niles = 60 for
3, minus the three
40 miles, these
sment unit (LRS-1)
tor) of 140 miles.
ni; = 1.9% uplift.
an, floodplain
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anel considered
: Lower Little
ncing (Big 8 Mile),
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reated. The
ed relative
easing the
niles = 60 for
3, minus the three
40 miles, these
sment unit (LRS-1)
tor) of 140 miles.
ni; = 1.9% uplift.
```

				2012									
				Standardized			Original	Updated		Original			
			Assessme	Limiting		Low	2018	2018	High 2018	2033	High 2033	LF Weight and Bookends	
ESU	Population	Code	nt Unit	Factor	LF Weight	Bookend	Estimate	Estimate	Bookend	Estimate	Bookend	Comments	Estimates Comments
Snake River Steelhead	Lemhi River	LRS3	Salmon and Lemhi	Sediment	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	Salmon	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	Salmon	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 withdrawls, 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

Shake River River Steelhead River Steelhead Ri	ESU Por	opulation	Code	Assessme nt Unit	2012 Standardized Limiting Factor	LF Weight	Low Bookend	2018	High 2018 Bookend	-	LF Weight and Bookends Comments	Estimates Comments
Steelhead har bownstre Anthropogeni am Of Big Ck Ck Ck Ck Ck Ck Ck Ck Ck Ck Ck Ck Ck						-						2012:17.2 mi total-30 m
am Of Big c Barriers Ck Ck Ck Ck Ck Ck Ck Ck Ck Ck	River Riv	ver		oi	Quantity:						of connectivity to tribs.	ladder project already ir
Ck Ck Ck Ck Ck Ck Ck Ck Ck Ck Ck Ck Ck C	Steelhead			Downstre	Anthropogeni							completed projects; hat
Lane.Fall C considered 2015: Sim Chinook (f stream mi major con mouth to' occupied, habitat for distance w measure t sinuosity f profession upstream removal o divided by QA It was headgate				am Of Big	c Barriers							affects different life hist
Considered 2015: Sim Chinook (f stream mi stream mi major con mouth to including a currently distance w measure t sinuosity f profession upstream removal o divided by QA it was headgate				Ck								stages.Most barriers in S
2015: Sim Chinook (f stream mi stream mi major currently occupied, habitat for distance distance measure t sinuosity f profession upstream removed o divide a currently occupied, habitat for distance di												Lane.Fall Ck/Little Morg
Chinok (f stream mi stream mi stream mi stream mi currently of ccuried, habitat for distance w measure t sinuosity f profession upstream removal o divided by QAit was headgate												considered in this 5% es
stream mi stream mi major con mouth to including a currently occupied, habitat for grofession upstream removal o divided by QA it was headgate												2015: Similar to calculat
stream mi major con mouth to including a currently occupied, habitat for distance w measure t sinuosity f profession upstream removal o divided by QA it was headgate												Chinook (PRC1) PRS1 to
major con mouth to including a currently occupied, habitat for distance w measure t sinuosity profession upstream removal o divided by QA it was headgate												stream miles include an
mouth to including a currently o occupied, habitat for distance w measure t sinuosity f profession upstream removal o divided by QA it was headgate												stream miles in Pahsime
including a currently of occupied, habitat for distance w measure t sinuosity f profession upstream removal o divided by QA it was headgate												major connected tributa
Currently of occupied, habitat for distance w measure t sinuosity f profession upstream removal o divided by QA it was headgate												mouth to the mouth of
Image: Second												including all known sprir
habitat for distance w measure t sinuosity f profession upstream removal o divided by QA it was headgate												currently occupied, seas
distance w measure t sinuosity f profession upstream removal o divided by QA it was headgate												occupied, or potentially
Image: Second												habitat for steelhead.Str
sinuosity f profession upstream removal o divided by QA it was headgate												distance was calculated
profession upstream removal o divided by QA it was headgate												measure tool in Google
upstream removal o divided by QA it was headgate												sinuosity factor was add
removal o divided by QA it was headgate												professional judgment. I
divided by QA it was headgate												upstream habitat now a
QA it was headgate												removal of barriers was
headgate												divided by total stream
												QA it was recognized that
												headgate project was no
initial Expe												initial Expert Panel look
considerat												consideration. 1.8.16, ad

) mi from hatchery y included in other natchery project istory in Sulphur & Fury organ projects not estimate. lations for total steelhead an estimate of meroi River and utaries from the of Big Creek, and oring channels in easonally lly accessible .Straightline ed using the le Earth and a ndded using nt. Miles of v accessible after vas summed and m miles. \*\*During that P-16 not included in okback , added P-16

ESU	Population	Code	Assessme nt Unit	-	LF Weight	Low	2018	Updated 2018 Estimate	High 2018 Bookend		-	LF Weight and Bookends Comments	Estimates Comments
Snake River Steelhead	Pahsimeroi River	PRS1	oi	2.3: Injury and Mortality: Mechanical Injury	15.00%	65	65.25	73		75	100		2015: Expert Panel decid assessment for Steelhea factors would be exactly that accomplished for C verified the design flow and summed the cfs for improvement valude. T explained that all divers screened, so they consid screened agreement val the best way to measure (cumulative screened flo Assessment Unit (mains AU tributaries). This wa denominator in the calc uplift. Thus for the four actions:23.24/291 = 8% 2/3/16

ecided the nead limiting ctly the same as r Chinook. They w for each action for treatment . The Expert Panel ersions are nsidered the value of 291 cfs as ure total flow l flow) for the instem portion+ was the alculation of bur 8% uplift. EWL

ESU	Population	Code	Assessme nt Unit	-	LF Weight	Low Bookend	2018	Updated 2018 Estimate	High 2018 Bookend		-	LF Weight and Bookends Comments	Estimates Comments
Snake		PRS1	Pahsimer	4.1: Riparian	10.00%	50	50	52.1		55	70	Steelhead habitat - lack	2012: 14.5 mi riparian e
River	River		oi	Condition:								of connectivity to tribs.	Estimate does not consi
Steelhead			Downstre	Riparian									include in 2015 look bac
			am Of Big	Vegetation									implemented.
			Ck										2015:Expert Panel deter
													assessment for Steelhea
													exactly the same as for
													of treatment were adjus
													the functional value of t
													date. Expert Panel discu
													Creek Ranch Conservation
													and the value of the exc
													value. They decided to k
													project in (2.5 mi). Some
													reported values for both
													stream (e.g., 2013 Sulfu
													projects the Expert Pane
													divide the reported num
													because the uplift is rela
													stream length not riparia
													length. Fencing was con
													beneficial unless it was i
													recently that benefits co
													realized at all. Hoffman
													redundant with Stockwa
													(.64 mi), so Hoffman wa
													from calculation. The Ex
													included riparian benefit

n enhancement. nsider P-13 back if it is termined that the nead would be or Chinook. Miles ljusted to consider f the project to scussed the Trout ation Easement exclusion fencing o keep that me projects oth sides of the lfur). For those anel decided to umber by 2 elative to total arian fence onsidered as installed so could not be an projects were water SWCD/TNC was removed Expert Panel efits from a

ESU	Population	Assessme	-	LF Weight	Low	2018		High 2018 Bookend		-	LF Weight and Bookends Comments	Estimates Comments
	Pahsimeroi River	oi Downstre am Of Big	6.1: Channel Structure and Form: Bed and Channel Form	5.00%	50	50.5	52.9		55		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
	Pahsimeroi River	oi Downstre am Of Big	7.1: Sediment Conditions: Decreased Sediment Quantity	0.00%	20	20	21.5				Make sure spreadsheet breaks is Big Creek (NOT Big Springs Ck)	

ESU	Population	Code	Assessme	-	LF Weight	Low Bookend	2018		High 2018 Bookend		-	LF Weight and Bookends Comments	Estimates Comments
Snake	Pahsimeroi			7.2: Sediment		20	20.5	21.5		21	50		2012: Estimate consider
River	River		oi	Conditions:									listed under Riparian LF;
Steelhead			Downstre	Increased									contributes sediment lo
			am Of Big	Sediment									2015:Expert Panel decid
			Ck	Quantity									calculations for steelhea
													exactly the same as that
													Chinook. Expert Panel u
													rationale as riparian veg
													estimate improvements
													Carried forward, establi
													improves stream bank s
													reduces erosion potenti
													sedimentation. Miles of
													vegetation (limiting fact
													(verified by the Panel) w
													account for current fund
													(recognizing that vegeta
													takes time). Trout Cree
													received a zero improve
													because it is already in e
													condition. Two projects
													added: Big Creek Conse
													Easement-TNC and Page
													After adjustment for %
													treatment miles were su
													total of 0.9545 miles ov
													stream miles in the Asse
													which was derived from

ders projects LF; PRS3 loads to this AU. cided the nead would be hat used for l used same egetation to nts to sediment. blished vegetation k stabilization, ntial thus stream of riparian actor 4.1) projects ) were adjusted to unctionality etative growth eek Ranch ovement value n excellent cts were later servation age Mill Creek. % function, e summed for a over the total ssessment Unit, om summing

ESU	Population	Code	Assessme nt Unit	2012 Standardized Limiting Factor	LF Weight	Low Bookend	2018		High 2018 Bookend		-	LF Weight and Bookends Comments	Estimates Comments
Snake River Steelhead	Pahsimeroi River		Pahsimer oi	8.1: Water Quality: Temperature	5.00%	40	40.5	55.3		41	60		2012:Estimate consider under Riparian & Decre Quantity LF. Most of be Sulphur Cr.to main Pahs 2015:The Expert Panel of estimates for steelhead exactly the same as that from Chinook. They eva benefits toward this lim (temperature) by summ uplift from riparian vego projects = 2.1% and flow projects=13.2%. Theref for Limiting Factor 8.1= 2/3/16
Snake River Steelhead	Pahsimeroi River	PRS1	oi	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 that actually gain water estimate. 2015:Expert Panel decid evaluation of benefits for would be exactly the sa they considered for Chin not consider screen pro they do not believer the benefit from them. The in cfs and determined if permanent or annual. I Assessment Unit, all lea permanent and the cfs summed=38.37cfs. Imp this limiting factor was of relative to total flow 29 Cumulative Screened Flo Therefore, 38.37/291*1 uplift. EWL 2/3/16

lers projects listed reased Water benefit from hsimeroi. el decided that the ad would be hat accomplished evaluated project imiting factor nming the realized egetation (4.1) ow (9.2) refore, the uplift 1=15.3%. EWL are only projects er; conservative cided that s for steelhead same as what hinook. They did project because there is a flow hey verified flow l if the lease is . In this eases are fs were simply nprovement for as determined 291 cfs; IDFG Flow Value). \*100=13.2%

ESU	Population		Assessme	-	LF Weight	Low	2018	Updated 2018 Estimate	High 2018 Bookend		-	LF Weight and Bookends Comments	Estimates Comments
Snake River Steelhead	Pahsimeroi River	PRS2	Salmon River and			65		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	River		River and	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 withdrawls (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

				2012 Standardized Limiting		Low	Original 2018	Updated 2018	High 2018	Original 2033	High 2033	LF Weight and Bookends	
ESU	Population	Code	nt Unit	Factor	LF Weight	Bookend	Estimate	Estimate	Bookend	Estimate	Bookend	Comments	Estimates Comments
		PRS2		4.1: Riparian	20.00%	70	70	70.6		70	80		2015:Miles of treatment were adjusted
	River			Condition:									to consider the functional value of the
Steelhead			Tributarie										project to date. For example, the two
			S	Vegetation									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	Pahsimeroi	PRS2	Salmon	8.1: Water	10.00%	33	33	35.6		33	33		2015:The Expert Panel evaluated
River	River		River and	Quality:									project benefits toward this limiting
Steelhead			Tributarie	Temperature									factor (temperature) by summing the
			s										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
	Pahsimeroi	PRS2		9.2: Water	30.00%	65	65	67		65	75		2015:The Expert Panel validated flow
	River		River and										amounts (cfs), lease type, and lease
Steelhead			Tributarie	Decreased									locations. The improvement value (in
			S	Water									cfs) was calculated as the sum of the
				Quantity									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	Assessme	2012 Standardized Limiting Factor	LF Weight	Low Bookend	Original 2018 Estimate	Updated 2018 Estimate	High 2018 Bookend		-	LF Weight and Bookends Comments	Estimates Comments
Snake River Steelhead	Pahsimeroi River		Pahsimer oi Upstream	1.1: Habitat Quantity: Anthropogeni c 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 benefit Chinook. Sink system - r runoff/flow regime influ water and access any gi 2015:The Expert Panel of projects benefit information benefits for this limiting but relative to a different length calculation (the of They measured the app distance of high intrinsion (steelhead) streams wit Assessment Unit using at layer (89 miles). The Exp noted that some Assess maps confuse PRS2 and barrier projects were ull considered in the impro- calculation: 13.2/89*10 EWL 2/3/16
Snake River Steelhead	Pahsimeroi River	PRS3	oi Upstream	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 Diversion listed under P Pines is only 1 diversion 2015: No actions were e the 2012-2015 period fo factor in this assessmen Therefore there was no low bookend. EWL 2/3,

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fits only - not for
- natural
fluences available
given year.
el used PRC2
mation to assess
ing factor in PRS3,
rent total stream
e denominator).
pproximate
nsic potential
vithin the
g a NOAA data
Expert Panel
essment Unit
nd PRS3. Four
ultimately
provement
100 14.8% uplift.
The Pines Screen
r PRC2 LF 2.3.This
on out of many.
e executed during
for this limiting
ent unit.
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no change to the /3/16

ESU	Population	Code	Assessme	-	LF Weight	Low	Original 2018 Estimate		High 2018 Bookend		-	LF Weight and Bookends Comments	Estimates Comments
Snake River Steelhead	Pahsimeroi River	PRS3	oi Upstream	4.1: Riparian Condition: Riparian Vegetation	10.00%	20	20	20.1		28		tribs that chinook don't use	2012:Estimate considers projects listed under Der Quantity LF. 2015: Actions were the s but relative to a different stream length (the deno 2015: Improvements fro were considered. The m riparian habitat was adju account for the current s improvements, recogniz vegetation needs time to meet the ultimate goal of Once adjusted, the treat were summed (0.08) and the total length of streat Assessment Unit (89 mil approximate distance of potential of steelhead st NOAA). Therefore, 0.8/3 uplift. EWL 2/3/16

lers benefits from Decreased Water ne same as PRC2, rent overall enominator). from two projects e miles of treated adjusted to nt function of the nizing that e to establish and al of the action. eatment miles and divided by eam miles in the miles; Measured e of high intrinsic d streams -.8/89\*100=0.1%

ESU	Population	Code	Assessme	2012 Standardized Limiting Factor	LF Weight	Low Bookend	2018		High 2018 Bookend		-	LF Weight and Bookends Comments	Estimates Comments
Snake	Pahsimeroi		Pahsimer	7.2: Sediment	10.00%	20	20	20.1		21	50	Different wts and	2012: Estimate consider
River	River		oi	Conditions:								bookends for steelhead	under Decreased Water
Steelhead			Upstream	Increased								due to steelhead use of	2015: Expert Panel used
			Of Big Ck	Sediment								tribs that chinook don't	as riparian vegetation to
				Quantity								use	improvements to sedim
													forward, established veg
													improves stream bank s
													reduces erosion potenti
													sedimentation. Miles of
													vegetation (limiting fact
													were adjusted to accour
													functionality (recognizin
													vegetative growth takes
													were the same as PRC2,
													a different overall stream
													denominator). Improve
													two projects were consi
													miles of treated riparian
													adjusted to account for
													function of the improve
													recognizing that vegetat
													to establish and meet th
													of the action. Once adju
													treatment miles were su
													and divided by the total
													stream miles in the Asse
													(89 miles; Measured ap
													distance of high intrinsio

ders projects ter Quantity LF. sed same rationale n to estimate iment. Carried vegetation k stabilization, ntial thus stream of riparian actor 4.1) projects ount for current zing that kes time). Actions C2, but relative to eam length (the ovements from nsidered. The ian habitat was or the current vements, tation needs time t the ultimate goal djusted, the e summed (0.08) tal length of ssessment Unit approximate nsic potential of

ESU	Population	Code	Assessme	2012 Standardized Limiting Factor	LF Weight		Original 2018 Estimate	Updated 2018 Estimate	High 2018 Bookend		-	LF Weight and Bookends Comments	Estimates Comments
Snake River Steelhead	Pahsimeroi River	PRS3	oi 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	River upper	UMS2	Upper	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	River upper	UMS2	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

Population		Assessme nt Unit	Factor	LF Weight		Original 2018 Estimate	Updated 2018 Estimate	High 2018 Bookend	Bookend	LF Weight and Bookends Comments	Estimates Comments
Salmon River upper mainstem	UMS2		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
Salmon River upper mainstem	UMS2	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
River upper	UMS3		Quantity: Anthropogeni	10.00%	55	60	60.4	60	100		2015:Expert Panel evaluated two diversion projects and the amound 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

ESU	Population	Code	Assessme	-	LF Weight	Low Bookend	2018	Updated 2018 Estimate	High 2018 Bookend	-	LF Weight and Bookends Comments	Estimates Comments
Snake	Salmon River upper	UMS3	Upper	2.3: Injury and Mortality:	J	75	75	79	75	100		2015:Expert Panel cons design flow of the one p
	mainstem		River Tributarie s	Mechanical								Assessment Unit (=15.3 the sum of irrigation wi including Salmon River denominator: Morgan ( the future, limit conside tributaries. (remove ma river). Therefore 15.3/
	Salmon River upper mainstem	UMS3	Salmon River	4.1: Riparian Condition: Riparian Vegetation	20.00%	40	40	40.1	41	70		EWL 2/3/16 2015:Expert Panel adjust of improvement from v projects based on how f functioning now. The re- improved habitat in mil made relative to total s used by steelhead (the Streamnet) = 184.5 mi. uplift for this limiting fa EWL 2/3/16
	Salmon River upper mainstem	UMS3		7.2: Sediment Conditions: Increased Sediment Quantity	15.00%	50	50.1	50.1	50.2	60		2015:Expert Panel used rationale for this limitin 4.1 (riparian vegetation stream bank stabilization vegetation establishme erosion and therefore sedimentation.Expert P the miles of improveme vegetation projects bas are functioning now. Th improved habitat in mil made relative to total s used by steelhead (the Streamnet) = 184.5 mi. uplift for this limiting fa EWL 2/3/16

nsidered the e project in the 5.3 cfs) relative to withdrawls er = 386 cfs (the n Case -IDFG) . In ideration to mainstem Salmon 3/386= 4% uplift.

justed the miles n vegetation w they are realized niles (0.1625) was I stream miles the denominator; ni. Therefore the factor = 0.1%.

ed the same ting factor as with on) assuming that tion following nent will reduce

t Panel adjusted ment from ased on how they The realized niles (0.1625) was I stream miles the denominator; ni. Therefore the factor = 0.1%.

<b>ESU</b> Snake	Population Salmon	Code UMS3	Assessme nt Unit Upper	2012 Standardized Limiting Factor 8.1: Water	LF Weight	Low Bookend 31	Original 2018 Estimate 31.5	Updated 2018 Estimate 36.8	High 2018 Bookend		-	LF Weight and Bookends Comments	Estimates Comments 2015: Expert Panel assu
River Steelhead	River upper mainstem		Salmon River Tributarie s	Quality: Temperature									to this limiting factor (te equals the sum of impro- riparian vegetation (lim and flow (limiting factor Therefore, in this assess improvement to tempe 0.1%+5.7% = 5.8%. EW
Snake River Steelhead	Salmon River upper mainstem	UMS3	Upper Salmon River Tributarie s	9.2: Water Quantity: Decreased Water Quantity	35.00%	23	23	28.7	30		75		2015:Expert Panel asses water leases (in cfs) by s average annual flow ber 2012 through 2015, plu permanent or long-tern leases. Assessment of o improvement occurred water leases by estimat diversions across the en Assessment Unit (=the I 386 cfs; from Morgan C diversions). Did not inc projects. Uplift calculati limiting factor = 5.7%. E
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	subset in Fall 2011 (conversion to	would benefit this limiti therefore there was no low bookend. Evaluate Yankee Fork Habitat Enl Project in lookforward.

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ssumes the benefit
(temperature)
provements to
imiting factor 4.1)
tor 9.2).
essment unit,
perature is:
WL 2/3/16
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ssessed benefits of by summing benefit of leases in plus the sum of erm (e.g., 20 year) of overall ed by dividing nated water right e entire ne Denominator = n Case, IDWR include fish screen lation for this 6. EWL 2/3/16

ere undertaken 5 period that miting factor, no change to the ate West Fork Enhancement rd. EWL 2/3/16.

ESU	Population	Code	Assessme	2012 Standardized Limiting Factor	LF Weight	Low Bookend	Original 2018 Estimate		High 2018 Bookend		-	LF Weight and Bookends Comments	Estimates Comments
Snake River Steelhead	Salmon River upper mainstem	UMS4	Yankee	6.1: Channel Structure and Form: Bed and Channel Form		97	97	97		98	98	made up this round as compared to a small subset in Fall 2011 (conversion to	2015: No actions were during the 2012-2015 p would benefit this limiti therefore there was no low bookend. Evaluate Yankee Fork Habitat Enl Project in lookforward.
Snake River Steelhead	Salmon River upper mainstem	UMS4	Yankee Fork	6.2: Channel Structure and Form: Instream Structural Complexity		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	2015: No actions were during the 2012-2015 p would benefit this limiti therefore there was no low bookend. Evaluate Yankee Fork Habitat Enl Project in lookforward.
Snake River Steelhead	Salmon River upper mainstem	UMS5	Yankee Fork	1.1: Habitat Quantity: Anthropogeni c Barriers		85	85	85		95	100	Currently, tribs w/ barriers include Cearley, Jordan and Ramey, Silver and Jerrys Creeks.	2015: No actions were during the 2012-2015 p would benefit this limit therefore there was no low bookend. EWL 2/3

re undertaken 5 period that hiting factor, no change to the te West Fork Enhancement d. EWL 2/3/16.
re undertaken 5 period that hiting factor, no change to the te West Fork Enhancement d. EWL 2/3/16.
re undertaken 5 period that
hiting factor, no change to the 2/3/16.

ESU	Population	Code	Assessme nt Unit	2012 Standardized Limiting Factor	LF Weight	Low Bookend	2018		High 2018 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	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 cons steelhead improvement Chinook, but used a diff "denominator". Expert I considered four project: treatment, and the % im realized for each. Expert 57.2 mi. but they also di NOAA's Intrisic Potentia and "yellow line" segme approximately 19.5 mile measuring tool - plus ad tributaries; they decided intrinsic potential calcul rounded up to 25 mi as The Expert Panel discus: not a limiting factor for unit, defined and contra limiting factors and refe conditions re: riparian la They questioned where compared to Proper Fur Condition. Does LWD pl count? Is the focus on a zone to produce large w future? Willows and ald benefit this Limiting Fac riparian plantings and o

onsidered ents similar to lifferent rt Panel ects, their miles of improvement ert Panel Unit = o discussed using tial "green line" ment mapping: niles using adding 5 mi for ded to use the culation and as denominator. ussed that 4.1 is or this assessment trasted the eferenced baseline n large wood. re are we at now, Functioning placed in water n ability of riparian e wood in the alder will not actor directly, but d other project

				2012 Standardized			Original	Updated		Original			
			Assessme	-		Low	2018		High 2018		-	LF Weight and Bookends	
	<b>Population</b>			Factor	LF Weight		Estimate		Bookend			Comments	Estimates Comments
Snake		UMS5		5.2:	25.00%	50	60	72.1		65	80	Expanded Expert Panel	2015:Expert Panel carried over projects
	River upper			Peripheral								, s	and current function values from YFC3,
Steelhead	mainstem			and								made up this round as	but used total steelhead stream miles
				Transitional								compared to a small	in the Assessment Unit (from
				Habitats:								subset in Fall 2011	Streamnet) to estimate benefits to
				Floodplain								(conversion to	Steelhead for this Limiting Factor. They
				Condition								standardized Limiting	considered four projects, adjusted for
												Factors) and Sp/Summer	current functional % improvement
												2012 ExPanel meetings.	status (ranged from 5% to 90%).
												Changed low bookend	Structural changes are realized now,
												from 20 to 50 percent	and vegetative growth will continue. A
												because 2/3 of historic	total of 8.9 mi were treated - adjusted
											1	Chinook production	for function over the 30 stream miles
												comes from areas	in the assessment unit (based on
												outside of dredge reach	NOAA's Intrinsic Potential - mapped
												and there are still some	"green line" and "yellow line"
												· ·	segments) results in a 22.1% uplift.
												dredged areas.	EWL 2/4/16
												Recognizing Jordan Ck.	
												Impacts	
Snake		UMS5		6.1: Channel	20.00%	50	60	76.2		65		Expanded Expert Panel	2015:Expert Panel carried over projects
	River upper			Structure and							1	-	and current function values from YFC3,
Steelhead	mainstem			Form: Bed								made up this round as	but used total steelhead stream miles
				and Channel								compared to a small	in the Assessment Unit (from
				Form								subset in Fall 2011	Streamnet) to estimate benefits to
												(conversion to	Steelhead for this Limiting Factor. They
												standardized Limiting	duplicated rationale to Limiting Factor
												, ,	5.2. 8.9 miles were treated in 4
												2012 ExPanel meetings.	projects over 30 miles (NOAA's intrinsic
												Changed low bookend	potential for the denominator).
												from 20 to 50 percent	However, current realized functional
												because 2/3 of historic	benefits may be different. Wood
												Chinook production	structures function soon after
												comes from areas	construction, but stream channel form
												outside of dredge reach	continues to change. Percentages
												and there are still some	range from 70% to 90% function. Thus,
												l .	the improvement to this Limiting
												dredged areas.	Factor is 7.86 miles/30 miles*100=
												Recognizing Jordan Ck.	26.2%. EWL 2/4/16
												Impacts	

ESU	Population	Code	Assessme nt Unit	-	LF Weight	Low	Original 2018 Estimate	Updated 2018 Estimate	High 2018 Bookend		-	LF Weight and Bookends Comments	Estimates Comments
Snake	Salmon	UMS5	Yankee		25.00%	50	65	77.5		70	85		2015:Expert Panel carrie
River	River upper		Fork	Structure and								including the YF ID Team	and current function val
Steelhead	mainstem			Form:								made up this round as	but used total steelhead
				Instream								compared to a small	in the Assessment Unit
				Structural								subset in Fall 2011	Streamnet) to estimate
				Complexity								(conversion to	Steelhead for this Limiti
												standardized Limiting	Expert Panel considered
												Factors) and Sp/Summer	that were pro-rated bas
												2012 ExPanel meetings.	realized functional bene
												Changed low bookend	modifications function s
												from 20 to 50 percent	construction, but stream
												because 2/3 of historic	will continue to change.
												Chinook production	was based on NOAAs in
												comes from areas	= 30 mi. Percentages ra
												outside of dredge reach	to 95% function; Thus, t
												and there are still some	improvement to this Lin
												impacts that occur in non	8.255 miles/30 miles *1
												dredged areas.	EWL 2/4/16
												Recognizing Jordan Ck.	
												Impacts	

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rried over projects
values from YFC3,
ead stream miles
it (from
te benefits to
niting Factor. The
red four projects
based on current
enefits. Structural
n soon after
eam complexity
ge. Denominator
intrinsic potential
range from 80%
, the
Limiting Factor is
*100=27.5%.
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ESU	Population	Code	Assessme nt Unit	2012 Standardized Limiting Factor	LF Weight	Low Bookend	Original 2018 Estimate	Updated 2018 Estimate	High 2018 Bookend		-	LF Weight and Bookends Comments	Estimates Comments
	Salmon River upper mainstem	UMS5	Yankee Fork	7.1: Sediment Conditions: Decreased Sediment Quantity	5.00%	50	55	72.2		60	70	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	2015:Expert Panel carrie and current function val but used total steelhead in the Assessment Unit ( Streamnet) to estimate Steelhead for this Limiti Expert Panel considered that were adjusted for of functional benefits Discu- mining effects on Limitin Instream LWD and rock improve reach's ability to retain (recruit) spawning as direct improvement of adding gravels. Project for ranged from 20% to 809 treated. The Expert Panel Intrinsic Potential for the =30. Thus, improvement Limiting Factor is 6.67 m miles*100=22.2%. EWL

rried over projects values from YFC3, ead stream miles it (from te benefits to niting Factor. The red four projects r current iscussed dredge iting Factor. ck projects to capture and ning gravel, as well nt of substrate by ct functional % 30% and 8.9 mi anel used NOAA's the Denominator ents to this 7 miles/30 VL 2/4/16