NOTES:

This workbook contains **habitat functions** data downloaded directly from the Taurus database. Functions include those documented during the **Look Forward** process covering the **2016-2018** work window for Chinook.

ESU	Population	Code	Assessme	2012	LF Weight	Low	Original	Updated	High 2018	Original	High 2033	LF Weight and	Estimates Comments
			nt Unit	Standardized		Bookend	2018	2018	Bookend	2033	Bookend	Bookends	
				Limiting Factor			Estimate	Estimate		Estimate		Comments	
Upper	Entiat River	ERC1	Lower	2.3: Injury and	5.00%	80	95	100	100	100	100		2 ARRA, 3 Ecology, 3 Below K
Columbia			Entiat	Mortality:									consolidation screens were c
Spring				Mechanical									cycle, but are evaluated here
Chinook				Injury									screen LF in the 09-12 cycle
													2016: This one screen replac
													Screens in the assessment un
													Expert Pariel decided to use t
													improvement to 2018 and 20
													8.23.16
Upper	Entiat River	ERC1	Lower	3.1: Food:	5.00%	40	40	40	50	40	50		nutrient project scoping unde
Columbia			Entiat	Altered									benefits tbd in 2015 look bac
Spring				Primary									2016: No action are anticipat
Chinook				Productivity									therefore no change to low b
Upper	Entiat River	ERC1	Lower	4.1: Riparian	15.00%	25.1	25.1	25.1	30	25.1	35		Planting planned by CCD- ber
Columbia			Entiat	Condition:									2016: No action are anticipat
Spring				Riparian									therefore no change to low b
Chinook				Vegetation									
Upper	Entiat River	ERC1	Lower	5.1: Peripheral	0.00%	11.8	11.8	11.8	15	11.8	15		0% LF weight - therefore, side
Columbia			Entiat	and									considered under LF 6.2 instr
Spring				I ransitional									2016: No action are anticipat
Спіпоок				Habitats: Side									therefore no change to low b
				Conditions									
Upper	Entiat River	ERC1	Lower	5.2: Peripheral	15.00%	80.2	80.2	80.2	85	80.2	85	Not a lot of	2016: No action are anticipat
Columbia		-	Entiat	and								opportunity but	therefore no change to low b
Spring				Transitional								extrememly	
Chinook				Habitats:								high benefit and	
				Floodplain								priority as	
				Condition								refuge and	
												rearing areas	
												are rare in this	
												portion of the	
												watershed	
Upper	Entiat River	ERC1	Lower	6.1: Channel	10.00%	70.4	70.4	70.4	72	70.8	72	although there	2016: No action are anticipat
Columbia			Entiat	Structure and								may not be a lot	therefore no change to low b
Spring				Form: Bed and								of opportunity	estimate
Chinook				Channel Form								for making	
												changes, it is	
												still high priority	
1	1	1	1	1	1	1	1	1	1	1	1	1	1

Keystone/HD-KW
completed in the 09-12
e because there was no
cement will address all
nit. Therefore, the
the difference
ookends to estimate
033 = 20%. EWW
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ted through 2018.
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le channels are
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ted through 2018,
bookend.
ted through 2018.
bookend. or 2033

ESU	Population	Code	Assessme	2012	LF Weight	Low	Original	Updated	High 2018	Original	High 2033	LF Weight and	Estimates Comments
	1		nt Unit	Standardized		Bookend	2018	2018	Bookend	2033	Bookend	Bookends	
				Limiting Factor			Estimate	Estimate		Estimate		Comments	
				_									
Upper	Entiat River	ERC1	Lower	6.2: Channel	25.00%	31.8	31.8	31.8	50	31.8	70	This LF includes	7 total projects from Entiat RA. Also include these
Columbia			Entiat	Structure and								side channels	3 projects that were not in the 2012 look forward
Spring				Form: Instream									project list but were brought forward at the May
Chinook				Structural									2012 EP workshop:
				Complexity									- 0.8-2.3 boulder cluster
													- Foreman side channel
													- Entiat fish hatchery
													All 7 projects include some LWD, ELJs - based on L Entiat RA
													All 7 projects represent about 1/2 of opportunities
													2016: No action are anticipated through 2018, therefore no change to low bookend.
Upper	Entiat River	ERC1	Lower	7.2: Sediment	15.00%	23	23	23	50	23	50		effects of actions for other LFs can affect change in
Columbia			Entiat	Conditions:									sediment HF tbd in 2015
Spring				Increased									2016: No action are anticipated through 2018,
Chinook				Sediment									therefore no change to low bookend.
				Quantity									
Upper	Entiat River	ERC1	Lower	9.2: Water	10.00%	50	50	50.5	55	50.5	55		2016: Roaring Creek diversion replacement with
Columbia			Entiat	Quantity:									well: 1 cfs 2017-2018 (average of 0.7 cfs/year
Spring				Decreased									through 2018). Project will have major effect of
Chinook				Water Quantity	,								Roaring Creek (dewatered to watered), but less of
													an effect to entire assessment unit. Thus 0.7 cfs
													relative to 130 cfs, which is lowest annual mean
													daily flow for the 1996-2015 period of record =
													0.5% improvement. EWW 8.23.16
Upper	Entiat River	ERC2	Mad River	1.1: Habitat	20.00%	98	98	98	100	98	100		2016: No actions are anticipated through 2018,
Columbia				Quantity:									therefore no change from low bookend.
Spring				Anthropogenic									
Chinook	<b>F D</b> .	50.00		Barriers	20.000/	40	4.0		50	40			
Upper	Entiat River	ERC2	Mad River	3.1: Food:	20.00%	40	40	40	50	40	50		2016: No actions are anticipated through 2018,
Columbia				Altered									therefore no change from low bookend.
Spring				Primary									
Chinook		50.00		Productivity	20.00%	70	70	70	75	70	00		
Opper	Entiat River	EKC2	Iviad River	4.1: Kiparian	20.00%	10	/0	/0	/5	10	80		2016: NO actions are anticipated through 2018,
Columbia				Condition:									Ineretore no change from IOW bookend.
Spring				Riparian									
Chinook			1	Vegetation	1	1			1	1		1	

A. Also include these
e 2012 look forward
forward at the May
VD, ELJs - based on L
1/2 of opportunities
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ookend.
replacement with
e of 0.7 cfs/year
ave major effect of
watered). but less of
t unit. Thus 0.7 cfs
owest annual mean
period of record =
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ESU	Population	Code	Assessme nt Unit	2012 Standardized	LF Weight	Low Bookend	Original 2018	Updated 2018	High 2018 Bookend	Original 2033	High 2033 Bookend	LF Weight and Bookends	Estimates Comments
				Limiting Factor			Estimate	Estimate		Estimate		Comments	
Upper Columbia Spring Chinook	Entiat River	ERC2	Mad River	6.1: Channel Structure and Form: Bed and Channel Form	20.00%	90	90	90	92	90	92		2016: No actions are anticipa therefore no change from lov
Upper Columbia Spring Chinook	Entiat River	ERC2	Mad River	6.2: Channel Structure and Form: Instream Structural Complexity	0.00%	91	91	94.3	97	94.3	99		2016: One project will treat 0 improvements will be fully re 2033). Relative to the 9.1 ste stream miles in the assessme 3.3% improvement in 2018 an 8.24.16
Upper Columbia Spring Chinook	Entiat River	ERC2	Mad River	7.2: Sediment Conditions: Increased Sediment Quantity	20.00%	23	23	23	50	23	50	coarser bed material than lower Ent; road decommissionin g could have high impact on sediment loading	2016: No actions are anticipa therefore no change from lov
Upper Columbia Spring Chinook	Entiat River	ERC3A	Middle Entiat	1.1: Habitat Quantity: Anthropogenic Barriers	5.00%	95	95	95	100	95	100		2016: No actions are anticipa therefore no change from lov
Upper Columbia Spring Chinook	Entiat River	ERC3A	Middle Entiat	3.1: Food: Altered Primary Productivity	10.00%	40	40	40	50	40	55		2016: No actions are anticipa therefore no change from lov
Upper Columbia Spring Chinook	Entiat River	ERC3A	Middle Entiat	4.1: Riparian Condition: Riparian Vegetation	15.00%	60.2	60.2	60.2	65	61.9	70		0.7 to 2033 2016: Two projects will treat Prorated to reflect progress t and 2033 (respectively) = 1% 2033. Thus, the realized effe miles = .0051 in 2018 and 0.0 to the 11.6 steelhead bearing assessment unit, there will be 2018 and 0.7% improvement 8.24.16
Upper Columbia Spring Chinook	Entiat River	ERC3A	Middle Entiat	5.2: Peripheral and Transitional Habitats: Floodplain Condition	35.00%	68.2	68.2	91.4	70	91.4	70		2016: Two projects will treat The projects will fully meet o PFC by 2018 (and 2033). Rela steelhead bearing stream mil unit (from Streamnet) there w improvement in both 2018 an 8.24.16

ated through 2018, w bookend
D.3 stream miles and ealized by 2018 (and eelhead bearing ent unit, there will be a and 2033. EWW
ited through 2018, w bookend
ated through 2018, w bookend
ited through 2018, w bookend
0.36 stream miles. toward PFC in 2018 in 2018 and 16% in ectively treated stream 0816 in 2033. Relative g stream miles in the e 0% improvement in t in 2033. EWW
2.69 stream miles. bjectives and achieve ative to the 11.6 les in the assessment will be a 23.2% nd 2033. EWW

ESU	Population	Code	Assessme	2012	LF Weight	Low	Original	Updated	High 2018	Original	High 2033	LF Weight and	Estimates Comments
			nt Unit	Standardized		Bookend	2018	2018	Bookend	2033	Bookend	Bookends	
				Limiting Factor			Estimate	Estimate		Estimate		Comments	
Upper	Entiat River	ERC3A	Middle	6.1: Channel	5.00%	93.4	97	98.7	99	98.7	99		includes Dillwater (describred
Columbia			Entiat	Structure and									lower Tyee levee removal/30
Spring				Form: Bed and									remainder of change
Chinook				Channel Form									2016: Two projects will fully e
													stream miles. Expect to excee
													functioning condition for woo
													channel form. 67 structures in
													F. Mostly changing pool/riffle
													determined that projects will
													of properly functioning condi
													The difference between 1009
													Area D is 20% of total assessr
													6.6% = 1.3%. 6.6%-1.3% = 5.3
													2018 and 2033. Note: Panel of
													bookend based on percentag
													that is incised/channelized/la
													decided to leave bookend at
Upper	Entiat River	ERC3A	Middle	6.2: Channel	25.00%	40.4	40.4	64	50	64	60		remaining change to high boo
Columbia			Entiat	Structure and									3C
Spring				Form: Instream									
Chinook				Structural									2016: Three projects will trea
				Complexity									Prorated to reflect progress t
													and 2033 respectively, thus t
													stream miles in both years is
													Relative to the 11.6 Chinook
													in the assessment unit, there
													improvement in 2018 and 20
					/					 			
Upper	Entiat River	ERC3A	Middle	7.2: Sediment	5.00%	75	75	75	82	75	85		possible benefits from riparia
Columbia			Entiat	Conditions:									USFS road decommissioning a
Spring				Increased									2016: No actions are anticipa
Chinook				Sediment									therefore no change from lov
	5 D'	50.000		Quantity	0.000/								
Upper	Entiat River	ERC3B	Upper	1.1: Habitat	0.00%	93	93	93	99	93	99		2016: No actions are anticipa
Columbia			Middle	Quantity:									therefore no change from lov
Spring			Entiat	Anthropogenic									
Chinook				Barriers									
Upper	Entiat River	ERC3B	Upper	3.1: Food:	45.00%	40	40	40	50	40	55		2016: No actions are anticipa
Columbia			Middle	Altered									therefore no change from lov
Spring			Entiat	Primary									
Chinook				Productivity			1						

ed in LF 6.2) C would provide effectively treat 2.69 ed properly od loading and in ABC and 36 in E and e ratio. Panel address/get to 100% dition in all but area D. % and 93.4% = 6.6%. sment unit. 20% of .3% improvement in discussed low ge of assessment unit acking wood and t 93.4%.EWW 8.24.16 okends attributed to at 2.94 stream miles. toward PFC in 2018 the effectively treated s 2.74 stream miles. bearing stream miles will be a 23.6% 033. EWW 8.24.16 an projects tbd affects this LF ated through 2018, w bookend ated through 2018, w bookend ated through 2018, w bookend

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
Upper Columbia Spring Chinook	Entiat River	ERC3B	Upper Middle Entiat	4.1: Riparian Condition: Riparian Vegetation	0.00%	80	80	80	85	80	90		2016: No actions are anticipa therefore no change from lov
Upper Columbia Spring Chinook	Entiat River	ERC3B	Upper Middle Entiat	6.2: Channel Structure and Form: Instream Structural Complexity	55.00%	80	80	89.6	90	89.6	90	Do not expect increased benefit after 2018 from added LWM	2016: Two projects will treat These projects will fully meet (and 2033). Relative to the 8 stream miles in the assessme 9.6% improvement by 2018 a 8.24.16
Upper Columbia Spring Chinook	Entiat River	ERC3B	Upper Middle Entiat	7.2: Sediment Conditions: Increased Sediment Quantity	0.00%	23	23	23	30	23	30		2016: No actions are anticipa therefore no change from lov
Upper Columbia Spring Chinook	Methow River	MEC1	Beaver / Bear Creek	1.1: Habitat Quantity: Anthropogenic Barriers	10.00%	95.6	95.6	99.1	90	90	90	Cambell diversion	2016: Three projects will trea however two of the projects Chinook distribution, so no in attributed from those. One p distribution will treat 6.7 stre prorated 5% because it is a pa stream miles treated. Relativ bearing stream miles in the a will be a 3.5% improvement.
Upper Columbia Spring Chinook	Methow River	MEC1	Beaver / Bear Creek	2.3: Injury and Mortality: Mechanical Injury	5.00%	82.7	82.7	82.7	95	90	95	Are being addressed	replace 4 brush screens w/ dr 5 2016: No actions anticipated therefore no change to low b
Upper Columbia Spring Chinook	Methow River	MEC1	Beaver / Bear Creek	4.1: Riparian Condition: Riparian Vegetation	20.00%	70.8	70.8	70.8	75	80	80	Good until you get to the WDFW property (if you are considering stream margin and not floodplain vegetation).	Estimate based on enhancem acres, 1.7 riparian mi, and 3.2 2016: No actions anticipated therefore no change to low b
Upper Columbia Spring Chinook	Methow River	MEC1	Beaver / Bear Creek	6.1: Channel Structure and Form: Bed and Channel Form	10.00%	67.4	67.4	67.4	80	70	80		Estimate based on 1.29 mi ch enhanced 2016: No actions anticipated therefore no change to low b

ted through 2018, / bookend
0.8 stream miles. PFC goals by 2018 3 Chinook bearing nt unit, there will be a nd 2033. EWW
ted through 2018, / bookend
at 11.2 stream miles, are outside of provement value roject within Chinook am miles and is artial barrier = 0.335 e to the 9.45 Chinook ssessment unit, there EWW 8.24.16
um screens + Battie =
through 2018, ookend. ent of 32.65 riparian wetland acres through 2018, ookend.
annel added of
through 2018, ookend.

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
Upper Columbia Spring Chinook	Methow River	MEC1	Beaver / Bear Creek	6.2: Channel Structure and Form: Instream Structural Complexity	10.00%	74.3	74.3	74.3	80	75	80		Estimate based on 6.2 miles i 2016: No actions anticipated therefore no change to low b
Upper Columbia Spring Chinook	Methow River	MEC1	Beaver / Bear Creek	7.2: Sediment Conditions: Increased Sediment Quantity	15.00%	55	55	55	65	56	75		Not enough project informati decommissioning in estimate 2015 workshop as "look back 2016: No actions anticipated therefore no change to low b
Upper Columbia Spring Chinook	Methow River	MEC1	Beaver / Bear Creek	8.1: Water Quality: Temperature	5.00%	43.5	43.5	43.5	55	45	55		2016: No actions anticipated therefore no change to low b
Upper Columbia Spring Chinook	Methow River	MEC1	Beaver / Bear Creek	9.2: Water Quantity: Decreased Water Quantity	25.00%	73.9	73.9	73.9	80	75	80	Cambell diversion; maybe others (?)	Estimate based on 550 ac-ft ( stream reach about 25% of total diversions 2016: No actions anticipated therefore no change to low b
Upper Columbia Spring Chinook	Methow River	MEC2	Early Winters Creek	3.1: Food: Altered Primary Productivity	16.00%	75	75	75	85	75	85	Early Winters and Lost River Combined in 09 EP	2016: No actions anticipated therefore no change to low b
Upper Columbia Spring Chinook	Methow River	MEC2	Early Winters Creek	4.1: Riparian Condition: Riparian Vegetation	17.00%	90	90	90	92	90	95	Place with the riparian condition problem is the campground	2016: No actions anticipated therefore no change to low b
Upper Columbia Spring Chinook	Methow River	MEC2	Early Winters Creek	6.1: Channel Structure and Form: Bed and Channel Form	17.00%	90	90	91.1	95	90	95	From campground down has been incised.	2016: Included a 6.2 objective because although it is a comp over a very small area. 0.1 st and prorated 50% because th remaining that interferes with processes. Thus 0.05 stream effectively treated across the stream miles in the assessme improvement. EWW 8.24.16

nproved complexity. through 2018, pokend.
on to include Rd - can be included in ' if appropriate through 2018, pokend.
through 2018, bokend.
2 cfs); 16.5 miles through 2018, pokend.
through 2018, bokend.
through 2018, bokend.
e project here lexity project, it is ream miles treated ere is a bridge habitat forming miles will be 4.5 Chinook bearing ht unit = 1.1%

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
Upper Columbia Spring Chinook	Methow River	MEC2	Early Winters Creek	6.2: Channel Structure and Form: Instream Structural Complexity	0.00%	75	75	75	93		93		2016: All the benefits for one po "credited" to limiting factor 6.1 0% weighting for this limiting fa
Upper Columbia Spring Chinook	Methow River	MEC2	Early Winters Creek	7.2: Sediment Conditions: Increased Sediment Quantity	25.00%	75	75	76.1	80	75	80		2016: One project will treat 0.1 was prorated 50% due to a rem will impede progress toward PF to the 4.5 Chinook bearing strea assessment unit, there will be a improvement. EWW 8.24.16
Upper Columbia Spring Chinook	Methow River	MEC2	Early Winters Creek	9.2: Water Quantity: Decreased Water Quantity	25.00%	75	75	75	85	75.2	85	Early Winters and Lost River Combined in 09 EP ; Early Winters Irrigation (16cfs?) right across from the campground	2016: No actions anticipated th therefore no change to low boc
Upper Columbia Spring Chinook	Methow River	MEC4A	Gold Creek	1.1: Habitat Quantity: Anthropogenic Barriers	10.00%	95	95	95	100	95	100	May be a partial barrier but don't know for sure. No barriers on USFS	2016: No actions anticipated th therefore no change to low boc
Upper Columbia Spring Chinook	Methow River	MEC4A	Gold Creek	4.1: Riparian Condition: Riparian Vegetation	10.00%	75	75	75	80	75.1	85	Riparian mostly functioning (for being in a canyon) - biggest problems in flats and road footprint	2016: No actions anticipated th therefore no change to low boc
Upper Columbia Spring Chinook	Methow River	MEC4A	Gold Creek	5.2: Peripheral and Transitional Habitats: Floodplain Condition	20.00%	45	45	45	50	45	50	Not much floodplain naturally - not much could do.	2016: No actions anticipated th therefore no change to low boc

r one project was ctor 6.1 because there is hiting factor. EWW 8.24.16
eat 0.1 stream miles, but o a remaining bridge that ward PFC to 2018. Relative ng stream miles in the will be a 1.1% 24.16
ated through 2018, ow bookend

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
Upper Columbia Spring Chinook	Methow River	MEC4A	Gold Creek	6.1: Channel Structure and Form: Bed and Channel Form	30.00%	70	70	70	75	70	80		2016: No actions anticipated through 2018, therefore no change to low bookend
Upper Columbia Spring Chinook	Methow River	MEC4A	Gold Creek	6.2: Channel Structure and Form: Instream Structural Complexity	25.00%	45	45	45	60	45.1	75		2016: No actions anticipated through 2018, therefore no change to low bookend
Upper Columbia Spring Chinook	Methow River	MEC4A	Gold Creek	9.2: Water Quantity: Decreased Water Quantity	5.00%	90	90	90	90.5	90.5	90.5	May be a partial barrier but don't know for sure. No barriers on USFS	2016: No actions anticipated through 2018, therefore no change to low bookend
Upper Columbia Spring Chinook	Methow River	MEC4B	Libby Creek	1.1: Habitat Quantity: Anthropogenic Barriers	5.00%	95	95	95	100	95	100		2016: No actions anticipated through 2018, therefore no change to low bookend
Upper Columbia Spring Chinook	Methow River	MEC4B	Libby Creek	4.1: Riparian Condition: Riparian Vegetation	35.00%	75	75	75	77	75.3	80	Confluence to border of WDFW property (~RM 1.5?) opportunities for fencing and revegetation. Evaluated for the entire watershed.	2016: No actions anticipated through 2018, therefore no change to low bookend
Upper Columbia Spring Chinook	Methow River	MEC4B	Libby Creek	6.1: Channel Structure and Form: Bed and Channel Form	25.00%	60	60	60	75	60.1	75	Mouth to ~RM4 focus of this EC	2016: No actions anticipated through 2018, therefore no change to low bookend
Upper Columbia Spring Chinook	Methow River	MEC4B	Libby Creek	6.2: Channel Structure and Form: Instream Structural Complexity	25.00%	45	45	45	60	45.1	75		2016: No actions anticipated through 2018, therefore no change to low bookend

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ESU	Population	Code	Assessme	2012	LF Weight	Low	Original	Updated	High 2018	Original	High 2033	LF Weight and	Estimates Comments
			nt Unit	Standardized Limiting Factor		Bookend	2018 Estimate	2018 Estimate	Bookend	2033 Estimate	Bookend	Bookends Comments	
Upper Columbia Spring Chinook	Methow River	MEC4B	Libby Creek	9.2: Water Quantity: Decreased Water Quantity	10.00%	75	75	75	80	75.2	80	Diversions probably not migration barriers.	2016: No actions anticipated through 2018, therefore no change to low bookend
Upper Columbia Spring Chinook	Methow River	MEC5	Lower Chewuch	1.1: Habitat Quantity: Anthropogenic Barriers	5.00%	85	85	85	98	85	98		2016: No actions anticipated through 2018, therefore no change to low bookend
Upper Columbia Spring Chinook	Methow River	MEC5	Lower Chewuch	3.1: Food: Altered Primary Productivity	5.00%	75	75	75	85	75	85		2016: No actions anticipated through 2018, therefore no change to low bookend
Upper Columbia Spring Chinook	Methow River	MEC5	Lower Chewuch	4.1: Riparian Condition: Riparian Vegetation	15.00%	55.5	55.5	55.5	65	58	75	Riparian and floodplain combined in 09 EP, used lower chewuch values	Estimate assumes approx. 35 acres riparian improvement. Remaining effects from grazing, roads, recreation 2016: No actions anticipated through 2018, therefore no change to low bookend
Upper Columbia Spring Chinook	Methow River	MEC5	Lower Chewuch	5.1: Peripheral and Transitional Habitats: Side Channel and Wetland Conditions	25.00%	66.5	66.5	72.6	70	57	70	Most sidechannels in the lower have been cutoff, filled, and developed	Unlisted future opportunities would provide majority of actions needed to reach high bookend; 10/4/12: I disagree with this comment: Some side channels may have been filled by deposition of fine sediment mainly as a natural process; not many, if any, have been developed or filled in by people 2016: two projects, 0.7 miles treated, but each project was prorated (=0.6 total stream miles) to reflect realized change across 9.8 side channel miles (Bureau of Reclamation Tributary Assessment Geodatabase). Therefore, 0.6/9.8=6.1%. EWW 8.25.16

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
Upper Columbia Spring Chinook	Methow River	MEC5	Lower Chewuch	6.1: Channel Structure and Form: Bed and Channel Form	2.50%	77.1	77.1	83.1	90	77	90		Relocations in 8-mile or 20-m benefits (not Cub or Boulder Improvements apply to tribs, shape 2016: Two projects treated 4 Prorated to reflect progress t 1.35 stream miles were effect Relative to the 22.4 Chinook in the assessment unit, there improvement. FWW 8.25.16
Upper Columbia Spring Chinook	Methow River	MEC5	Lower Chewuch	6.2: Channel Structure and Form: Instream Structural Complexity	15.00%	79.4	79.4	82.7	80	70	80		Estimate based on 5 treatme abt. 8 stream miles improved 2016: Two projects treated 4 Prorated to reflect progress t effectively treated miles = 0.7 22.4 Chinook bearing stream assessment unit, there will be improvement. EWW 8.25.16
Upper Columbia Spring Chinook	Methow River	MEC5	Lower Chewuch	7.2: Sediment Conditions: Increased Sediment Quantity	20.00%	50	50	50	52	50.3	55	High bookend assumes some riparian improvement	Beaver Project would slightly sediments. 2016: No actions anticipated therefore no change to low b
Upper Columbia Spring Chinook	Methow River	MEC5	Lower Chewuch	8.1: Water Quality: Temperature	2.50%	40	40	40	60	44	60		Estimate also considers proje Riparian and 6.2 Instream Co 10-mile & 8-mile ranches (11 2016: No actions anticipated therefore no change to low b
Upper Columbia Spring Chinook	Methow River	MEC5	Lower Chewuch	9.2: Water Quantity: Decreased Water Quantity	10.00%	80	80	80	90	85	90	Used 09 EP Lower Chewuch value	Estimate doesn't consider the included in Actions list. Changes from fall to spring di Perrygin Lake improves condi chinook/steelhead. Secure 10 of 40 cfs diverted 2016: No actions anticipated therefore no change to low b

nile would provide
- above barriers).
, mainstem in good
4.5 stream miles.
toward PFC by 2018,
ctively treated.
will be a 6%
5 will be a 070
ent areas w/ total of
d complexity.
4.5 stream miles.
toward PFC by 2018,
75. Relative to the
n miles in the
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y decrease road
l through 2016,
bookend.
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omplexity - Pete's Ck,
L.75-13+ and 13-15.5)
l through 2016,
bookend.
e Fulton pipe project
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liversion to refill
litions fo
l through 2016,
bookend.

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
Upper Columbia Spring Chinook	Methow River	MEC6A	Lower Methow	4.1: Riparian Condition: Riparian Vegetation	25.00%	80	80	80	82	81	85		10/4/12: Riparian Conditions in the Lower metho have not been formally assessed so this is actuall an unknown. 2016: No actions anticipated through 2016, therefore no change to low bookend.
Upper Columbia Spring Chinook	Methow River	MEC6A	Lower Methow	5.1: Peripheral and Transitional Habitats: Side Channel and Wetland Conditions	20.00%	80	80	80	81	80	81	Riparian and floodplain combined in 09 EP; Casey - I don't think there are any sidechannels that are cut off due to human features, but maybe????	10/4/12: This has not been assessed so is actuall an unknown - there appear to be a few off chanr areas that may have been lost to small push up levees. 2016: No actions anticipated through 2016, therefore no change to low bookend.
Upper Columbia Spring Chinook	Methow River	MEC6A	Lower Methow	6.1: Channel Structure and Form: Bed and Channel Form	25.00%	80	80	80	81	81	81		Beaver actions are outside the anadromous zone estimate based on Judd project. 2016: No actions anticipated through 2016, therefore no change to low bookend.
Upper Columbia Spring Chinook	Methow River	MEC6A	Lower Methow	6.2: Channel Structure and Form: Instream Structural Complexity	25.00%	75	75	75	80	76	80	lower methow likely has less wood than it did historically and we know that a lot of juvenile salmonids rear in canyon habitat in other areas (Tumwater)	10/4/12: Has not been assessed and so is an unknown - large wood sources from uspream and riparian areas is likley lower than historic conditions 2016: No actions anticipated through 2016, therefore no change to low bookend.
Upper Columbia Spring Chinook	Methow River	MEC6A	Lower Methow	9.2: Water Quantity: Decreased Water Quantity	5.00%	93	93	93	93	93	93		10/4/12: Needs further assessment. Low booker is way to high. The lower Methow is likely flow impaired. Diversion rate from all tribs upstream over 140cfs…Base flow condition at Pateros is around 480 cfs - this is nearly a 30% diversion rate… 2016: No actions anticipated through 2016, therefore no change to low bookend.

s Comments
Riparian Conditions in the Lower methow been formally assessed so this is actually own.
actions anticipated through 2016,
e no change to low bookend.
wn - there appear to be a few off channel t may have been lost to small push up
actions anticipated through 2016,
e no change to low bookend.
based on ludd project
actions anticipated through 2016
a no change to low bookend
Has not been assessed and so is an
- large wood sources from uspream and
areas is likley lower than historic
actions anticipated through 2016.
e no change to low bookend.
Needs further assessment. Low bookend
high. The lower Methow is likely flow
. Diversion rate from all tribs upstream is
cfs…Base flow condition at Pateros is
80 cfs - this is nearly a 30% diversion
actions anticipated through 2016
e no change to low bookend.
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ESU	Population	Code	Assessme nt Unit	e 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
Upper Columbia Spring Chinook	Methow River	MEC6B	Black Canyon	1.1: Habitat Quantity: Anthropogenic Barriers	20.00%	90	90	90	100	90	100	1 culvert remaining (higher up)	2016: No actions anticipated therefore no change to low b
Upper Columbia Spring Chinook	Methow River	MEC6B	Black Canyon	4.1: Riparian Condition: Riparian Vegetation	0.00%	80	80	80	81	80	81		2016: No actions anticipated therefore no change to low b
Upper Columbia Spring Chinook	Methow River	MEC6B	Black Canyon	6.2: Channel Structure and Form: Instream Structural Complexity	0.00%	93	93	93	93	93	93		2016: No actions anticipated therefore no change to low b
Upper Columbia Spring Chinook	Methow River	MEC6B	Black Canyon	7.2: Sediment Conditions: Increased Sediment Quantity	45.00%	65	65	65	70	65.1	75	Managed for timber harvest and grazing. Roads and recreation.	2016: No actions anticipated therefore no change to low b
Upper Columbia Spring Chinook	Methow River	MEC6B	Black Canyon	9.2: Water Quantity: Decreased Water Quantity	35.00%	70	70	70	75	70.2	75		2016: No actions anticipated therefore no change to low b
Upper Columbia Spring Chinook	Methow River	MEC7	Lower Twisp	1.1: Habitat Quantity: Anthropogenic Barriers	5.00%	60	60	76.9	95	95	95		2016: One Project will elimina during Chinook migration. Thi is a partial barrier (assigned 2 2.275 effectively treated streat the 13.5 Chinook bearing streat assessment unit, there will be 8.25.16
Upper Columbia Spring Chinook	Methow River	MEC7	Lower Twisp	2.3: Injury and Mortality: Mechanical Injury	0.00%								10/4/12:MVID West push up and stranding of redds and in consider adding this LF to 20 2016: While MVID West Proje push-up dam, this limiting fac so the expert panel opted to improvement value. EWW 8.
Upper Columbia Spring Chinook	Methow River	MEC7	Lower Twisp	3.1: Food: Altered Primary Productivity	8.00%	75	75	75	85	75	85		2016: No actions anticipated therefore no change to low b

through 2016, ookend.
through 2016, ookend.
through 2016, ookend.
through 2016, ookend.
through 2016, ookend.
ate a push-up dam s 9.1 mile treatment 5% proration), = am miles. Relative to am miles in the a 16.9% uplift. EWW
dam, dewatereing dividuals. EP to 16 Look Forward ect will eliminate a tor is weighted zero, give it no 25.16 through 2018, pokend.

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
Upper Columbia Spring Chinook	Methow River	MEC7	Lower Twisp	4.1: Riparian Condition: Riparian Vegetation	10.00%	64.3	64.3	64.8	64	75	75	Used lower twisp values, riparian and floodplain combined in 09 EP	Estimate based on 43 acres p improvements. 2016: Four projects will treat Prorated to account for veget time and progress toward PFC treatment area = 0.0623 streat the 13.5 Chinook bearing streat assessment unit, there will be improvement. EWW 8.25.16
Upper Columbia Spring Chinook	Methow River	MEC7	Lower Twisp	5.1: Peripheral and Transitional Habitats: Side Channel and Wetland Conditions	15.00%	51.7	60	60.2	60	60	60	(below Buttermilk Creek)	10% improvement estimate k side channel & wetland enhan list plus MVID-West RM 4.6 p Coulee Side Channel & Elbow projects. 2016: Four projects will treat and will be fully effective tow 2018. Relative to the 15.5 Ch miles in the assessment unit ( Assessment), there will be a & FWW 8.25.16
Upper Columbia Spring Chinook	Methow River	MEC7	Lower Twisp	6.1: Channel Structure and Form: Bed and Channel Form	15.00%	50	51	58	60	51	60		Bridge Ck beaver relocation e improvement estimate includ 4.6 project 2016: Five projects will treat 2 Prorated to reflect progress to the effective treatment area miles. Relative to the 13.5 Ch miles in the assessment unit, improvement. EWW 8.25.16
Upper Columbia Spring Chinook	Methow River	MEC7	Lower Twisp	6.2: Channel Structure and Form: Instream Structural Complexity	10.00%	52.1	55	61.7	60	55	60	(below Buttermilk Creek)	Estimate based on 3 stream n improved complexity 2016: Four projects will treat Prorated to adjust for effect t complexity and intensity of tr effectively treated stream mi to the 13.5 Chinook bearing s assessment unit, there will be improvement. EWW 8.26.16

## lanned riparian

t 2.11 stream miles. Stative growth through FC, the effective eam miles. Relative to eam miles in the e a 0.5%

based on 0.97 miles incement per Actions project & Elbow v Coulee Right

t 1.31 stream miles vard meeting PFC by hinook bearing stream (2008 Tributary 8.5% improvement.

estimate of 0.1%; 1% des MVID-West RM

2.66 stream miles. toward PFC in 2018, will be 1.074 stream chinook bearing stream , there will be a 8.0%

miles & 20 acres

t 2.71 stream miles. to structural reatment by 2018, the iles = 1.2955. Relative stream miles in the e a 9.6%

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
Upper Columbia Spring Chinook	Methow River	MEC7	Lower Twisp	8.1: Water Quality: Temperature	7.00%	25.5	25.5	26	40	30	40		Estimate also includes major from projects in 9.2 & 5.1 LF 2016: Recognizing the tempe increased flow, the Expert Pa flow improvements as a prox to temperature. Prorated 5% proportional flow improveme assessment unit, there will be improvement. EWW 8.26.16
Upper Columbia Spring Chinook	Methow River	MEC7	Lower Twisp	9.2: Water Quantity: Decreased Water Quantity	30.00%	42.3	42.3	52.8	75	67	75	EP CHANGED BOOKENDS FROM 60 TO 75 AT 6/28/12 WORKSHOP BASED ON NEW POTENTIAL	Estimate based on 3400 ac-ft diverted almost 50% from 40 2016: Three permanent wate increase flow by 13.8 cfs/yea to the 43 cfs in the assessme based on affected stream mil a 10.5% improvement. EWW Water transaction obtained t Poorman + Devaney also incl
Upper Columbia Spring Chinook	Methow River	MEC8A	Middle Methow	1.1: Habitat Quantity: Anthropogenic Barriers	2.00%	85	85	85.8	98	90	98		Total improved access from E Projects = 1 mile. remaining barriers on Bear Cl to habitat w/ low intrinsic po 2016: One barrier removal pr push up dam (full barrier) and miles. Relative to the 25.2 Ch miles in the assessment unit, improvement. EWW 8.26.16

flow improvements actions. erature benefits of anel used prorated xy for improvements % to reflect ents across the e a 0.5%

t/yr (15 cfs of 33 cfs to to 100 = 65%) er acquisitions will ar (average). Relative ent unit and prorated iles (33%), there will be V 8.26.16 thru TU for CBWTP.

ude screens.

Bear Cr. & Barkley

k. would open access otential

project will remove a nd open 0.19 stream hinook bearing stream c, there will be a 0.8%

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
Upper Columbia Spring Chinook	Methow River	MEC8A	Middle Methow	2.3: Injury and Mortality: Mechanical Injury	8.00%	81.5	95	95	95	95	95	LF added during 6/28/2012 workshop	No project listed, but estimat opportunity to eliminate heav maintenance of push-up dam accessibility to intake at Barkl Collaboration among WDFW Reclamation & YN. Projects listed would address
													Other projects would improve 2016: This screen project is the in the assessment unit, there fill the gap between the low a 13.5%. EWW 8.26.16
Upper Columbia Spring Chinook	Methow River	MEC8A	Middle Methow	4.1: Riparian Condition: Riparian Vegetation	15.00%	48.9	48.9	49.1	50	55	55	Riparian and floodplain combined in 09 EP, 09 EP LB 45 increased to 48 in 2012 EP	Estimates based on planned 7 improved. 2016: Three projects will trea Prorated to reflect progress t the effectively treated stream Relative to the 25.2 Chinook I in the assessment unit, there
Upper Columbia Spring Chinook	Methow River	MEC8A	Middle Methow	5.1: Peripheral and Transitional Habitats: Side Channel and Wetland Conditions	25.00%	63	65	67	70	68	70		Estimate considers total of ap improvement Estimate includes projects sho Riparian LF - 3R, Barkley, WDI Whitefish, (Sugar Levee, Witt listed under this 5.1 LF 2016: Two projects will treat miles. Prorated to reflect proj 2018 = 0.792. Relative to the in the assessment unit (BOR t there will be a 4% improvement
Upper Columbia Spring Chinook	Methow River	MEC8A	Middle Methow	6.1: Channel Structure and Form: Bed and Channel Form	10.00%	51.8	51.8	53.1	70	55	70	Focus of much of M2 work	Estimate considers actions lis except Silver. Silver can be ac workshop as look back action 2016: One project will treat 0 Prorated to reflect progress t 0.34 stream miles. Relative to bearing stream miles in the as will be a 1.3% improvement.

te based on wy equipment ns & eliminate fish dey diversion. screen shop/TU/

all known issues. The from 95-100%. The last known screen fore replacing it will and high bookends =

## 75 acres riparian

at 1.38 stream miles. toward PFC by 2018/, m miles = 0.0414. bearing stream miles e will be a 0.2%

pprox. 5 miles channel

hown under 4.1 DFW Floodplain, te Risley?) + projects

t 1.13 side channel ogress toward PFC by e 20 side channel miles tributary assessment), nent. EWW 8.26.16

sted under LF4.1 & 5.1 added in 2015 ns if occur. 0.85 stream miles. toward PFC in 2018 = to the 25.2 Chinook assessment unit, there . EWW 8.26.16

ESU	Population	Code	Assessme	2012	LF Weight	Low	Original	Updated	High 2018	Original	High 2033	LF Weight and	Estimates Comments
			nt Unit	Standardized		Bookend	2018	2018	Bookend	2033	Bookend	Bookends	
				Limiting Factor			Estimate	Estimate		Estimate		Comments	
Upper Columbia Spring Chinook	Methow River	MEC8A	Middle Methow	6.2: Channel Structure and Form: Instream Structural Complexity	25.00%	54.2	54.2	55.5	70	60	70		Estimate considers about 4.0 improved complexity, install structres for Lewisia & 12 for 50-60% treats 1/2 of reach co remaining 60-70% to be treat the RA to be completed.
													2016: One project will treat 0 Prorated to reflect progress t 0.34 stream miles. Relative to bearing stream miles in the a will be a 1.3% improvement.
Upper Columbia Spring Chinook	Methow River	MEC8A	Middle Methow	8.1: Water Quality: Temperature	5.00%	77.2	77.2	77.3	85	77	85		Estimate also includes 4.1, 5. except Silver. Silver actions of part of 2015 workshop "look Does not include Barkley or N actions indentified in RA as ac potential - other 1/2 covered 2016: Recognizing that increa water temperature, the pane as a proxy for temperature in prorate by percent of the asso impacted by the flow benefits the assessment unit. EWW 8
Upper Columbia Spring Chinook	Methow River	MEC8A	Middle Methow	9.2: Water Quantity: Decreased Water Quantity	10.00%	75	75.2	76.6	85	75.2	85	This is look at the cumulative effect to this reach of water savings upstream.	Estimate only includes consid Creek project 100 af/yr metri upstream areas have no effect downstream 2016: Two permanent acquis based on the % of stream in a affected and averaged = 4.1 of the 250 cfs in the assessment Gauge Mean Daily Lowest Ba there will be a 1.6% improver 8 26 16
Upper Columbia Spring Chinook	Methow River	MEC8B	Upper- Middle Methow	1.1: Habitat Quantity: Anthropogenic Barriers	5.00%	85	85	85	85	85	85	Foghorn	2016: No actions anticipated therefore no change to low b

05 stream miles of 118 structures (8 r Silver Reach).

overed by existing RA; ted by actions from

0.85 stream miles. toward PFC in 2018 = to the 25.2 Chinook assessment unit, there . EWW 8.26.16

5.1, & 9.2 LF actions can be considered as c back". estimates.

MVID - considers those achieving 1/2 of d by next RA. ased flow improves el used flow benefits mprovements (2%) sessment unit streams ts (5%)=0.1% across 8.26.16

deration from Bear ics. Beavers in ct on flow

sitions were prorated assessment unit cfs/year. Relative to t unit (USGS Winthrop aseflow (1911-2016)), ment to flow. EWW

through 2018, bookend.

ESU	Population	Code	Assessme	2012	LF Weight	Low	Original	Updated	High 2018	Original	High 2033	LF Weight and	Estimates Comments
	-		nt Unit	Standardized		Bookend	2018	2018	Bookend	2033	Bookend	Bookends	
				Limiting Factor			Estimate	Estimate		Estimate		Comments	
Upper	Methow	MEC8B	Upper-	3.1: Food:	5.00%	75	75	75	85	76	85		estimate based on Hancock nutrient treatment
Columbia	River		Middle	Altered									plan;
Spring			Methow	Primary									2016: No actions anticipated through 2018,
Chinook				Productivity									therefore no change to low bookend.
Upper	Methow	MEC8B	Upper-	4.1: Riparian	10.00%	60	60	60	62	60.2	65		Estimate based on WDW Fender Mill & Big Valley
Columbia	River		Middle	Condition:									project described in LF 5.1
Spring			Methow	Riparian									2016: No actions anticipated through 2018,
Chinook				Vegetation									therefore no change to low bookend.
Upper	Methow	MEC8B	Upper-	5.1: Peripheral	15.00%	68.4	68.4	69.1	80	80	80	progress from	estimate based on planned Fender Mill , Big Valley
Columbia	River		Middle	and								80% bookend to	& Heath/Big Valley RIGHT projects (FWS w/ BPA
Spring			Methow	Transitional								100% would be	cost share)
Chinook				Habitats: Side								based on	2016: One project will treat 0.2 side channel miles.
				Channel and								actions around	Prorated 50% to reflect progress toward PFC b y
				Wetland								hatchery &	2018, the realized improvements will be over 0.1
				Conditions								Winthrop	side channel miles. Relative to the 15.1 side
													channel miles in the assessment unit (from BOR
													tributary assessment project), there will be a 0.7%
													improvement. EWW 8.26.16
Upper	Methow	MEC8B	Upper-	6.1: Channel	23.00%	65	67	73.3	75	70	75		Estimate based on WDFW Fender Mill, Blg Valley,
Columbia	River		Middle	Structure and									& Heath/Big Valley RIGHT projects
Spring			Methow	Form: Bed and									2016: One project will fully treat 0.9 stream miles
Chinook				Channel Form									by 2018. Relative to the 10.8 Chinook bearing
													stream miles in the assessment unit, there will be
													8.3% improvement. EWW 8.26.16
Upper	Methow	MEC8B	Upper-	6.2: Channel	22.00%	65	67	73.3	75	70	75		Estimate based on Big Valley, Heath/BIg Valley
Columbia	River		Middle	Structure and									RIGHT & WDFW Fender Mill projects
Spring			Methow	Form: Instream									2016: One project will fully treat 0.9 stream miles
Chinook				Structural									by 2018. Relative to the 10.8 Chinook bearing
				Complexity									stream miles in the assessment unit, there will be
													8.3% improvement. EWW 8.26.16
Upper	Methow	MEC8B	Upper-	9.2: Water	20.00%	80	80	80	85	80	85	Foghorn	No effect unless beaver reintro occurs in Hancock
Columbia	River		Middle	Quantity:									2016: No actions anticipated by 2018, therefore no
Spring			Methow	Decreased									change to low bookend.
Chinook				Water Quantity									
Upper	Methow	MEC9	Upper	4.1: Riparian	10.00%	90	90	90	92	90	95	Early recovery	2016: No actions anticipated through 2018,
Columbia	River		Chewuch	Condition:								from burning	therefore no change to low bookend.
Spring				Riparian									
Chinook				Vegetation									
Upper	Methow	MEC9	Upper	6.1: Channel	5.00%	90	90	90	93	90	95		2016: No actions anticipated through 2018,
Columbia	River		Chewuch	Structure and									therefore no change to low bookend.
Spring				Form: Bed and									
Chinook				Channel Form									

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
Upper Columbia Spring Chinook	Methow River	MEC9	Upper Chewuch	6.2: Channel Structure and Form: Instream Structural Complexity	70.00%	80	80	80	85	80	90		2016: No actions anticipated therefore no change to low b
Upper Columbia Spring Chinook	Methow River	MEC9	Upper Chewuch	7.2: Sediment Conditions: Increased Sediment Quantity	15.00%	90	90	90	92	90	95	Sediment condition is mostly natural	2016: No actions anticipated therefore no change to low b
Upper Columbia Spring Chinook	Methow River	MEC10A	Upper Methow	1.1: Habitat Quantity: Anthropogenic Barriers	5.00%	75	75	75	90	75	90		2016: No actions anticipated therefore no change to low b
Upper Columbia Spring Chinook	Methow River	MEC10A	Upper Methow	3.1: Food: Altered Primary Productivity	5.00%	75	75	75	85	75	85	Water quality in 09 EP no values	2016: No actions anticipated therefore no change to low b
Upper Columbia Spring Chinook	Methow River	MEC10A	Upper Methow	4.1: Riparian Condition: Riparian Vegetation	10.00%	70	70	70	72	70.5	75	From Weeman up to Mazama (associated with development); includes Goat Creek	2016: No actions anticipated therefore no change to low b
Upper Columbia Spring Chinook	Methow River	MEC10A	Upper Methow	5.1: Peripheral and Transitional Habitats: Side Channel and Wetland Conditions	10.00%	60	60	60	75	65	75	Heath Ranch. Some opportunity between Goat Creek and Lost River.; includes Goat Creek	2016: No actions anticipated therefore no change to low b

through ookend.	2018,	
through ookend.	2018,	

ESU	Population	Code	Assessme	2012 Standardized	LF Weight	Low	Original	Updated	High 2018	Original	High 2033	LF Weight and	Estimates Comments
				Limiting Factor		воокепа	Estimate	Estimate	воокепа	Estimate	воокепа	Comments	
Upper Columbia Spring Chinook	Methow River	MEC10A	Upper Methow	6.1: Channel Structure and Form: Bed and Channel Form	15.00%	75	75	75	85	77	85	Localized evere incisions, channel straightening. Most actions would occur from Lost River down to Weeman Bridge; includes Goat Creek	Same benefit for Chinook & s 2016: No actions anticipated therefore no change to low b
Upper Columbia Spring Chinook	Methow River	MEC10A	Upper Methow	6.2: Channel Structure and Form: Instream Structural Complexity	10.00%	75	75	75	85	77	85	Most actions would occur from Lost River down to Weeman Bridge.; includes Goat,Creek	2016: No actions anticipated therefore no change to low b
Upper Columbia Spring Chinook	Methow River	MEC10A	Upper Methow	7.2: Sediment Conditions: Increased Sediment Quantity	5.00%	85	85	85	85	85	85	Goat creek off of White Face Mountain. Not an issue in the main channel.	minimal impact from beaver 1 2016: No actions anticipated therefore no change to low b
Upper Columbia Spring Chinook	Methow River	MEC10A	Upper Methow	9.1: Water Quantity: Increased Water Quantity	0.00%								2016: No actions anticipated therefore no change to low b

teelhead through 2018, ookend.	
through 2018, ookend.	
reintroduction through 2018, ookend.	
through 2018, ookend.	

ESU	Population	Code	Assessme	2012	LF Weight	Low	Original	Updated	High 2018	Original	High 2033	LF Weight and	Estimates Comments
			nt Unit	Standardized		Bookend	2018	2018	Bookend	2033	Bookend	Bookends	
				Limiting Factor			Estimate	Estimate		Estimate		Comments	
				_									
Upper	Methow	MEC10A	Upper	9.2: Water	40.00%	30	30	30	40	30.5	40	Dry in most	most beaver reintro in Goat (
Columbia	River		Methow	Quantity:								years from Early	2016: No actions anticipated
Spring				Decreased								Winters down	therefore no change to low b
Chinook				Water Quantity	,							to Weeman. In	
												dry years from	
												just below Lost	
												River. Not	
												entirely	
												anthropogenic -	
												is a losing reach	
												and would go	
												dry in some	
												, vears anyway.	
												Not lethal at the	
												AU scale - fish	
												get above, live,	
												and leave in	
												spite of sections	
												that go dry.;	
												includes Wolf	
												Creek	
Upper	Methow	MEC10B	Lost River	1.1: Habitat	0.00%	75	75	75	98		98		2016: No actions anticipated
Columbia	River			Quantity:									therefore no change to low b
Spring				Anthropogenic									
Chinook				Barriers									
Upper	Methow	MEC10B	Lost River	3.1: Food:	20.00%	75	75	75	85	75	85	Used same	2016: No actions anticipated
Columbia	River			Altered								values as Early	therefore no change to low b
Spring				Primary								Winters	
Chinook				Productivity									
Upper	Methow	MEC10B	Lost River	4.1: Riparian	25.00%	85	85	85	87	85	90	Lost river	2016: No actions anticipated
Columbia	River			Condition:								combined with	therefore no change to low b
Spring				Riparian								early winters in	
Chinook				Vegetation								09 EP	
Upper	Methow	MEC10B	Lost River	5.2: Peripheral	30.00%	85	85	85	85	85	85	Evaluated for	2016: No actions anticipated
Columbia	River			and								watershed	therefore no change to low b
Spring				Transitional									
Chinook				Habitats:									
				Floodplain									
				Condition									

k (bull trout stream) through 2018, pokend.
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ESU	Population	Code	Assessme	2012	LF Weight Low		Original	Updated	High 2018	Original	High 2033	LF Weight and	Estimates Comments
			nt Unit	Standardized Limiting Factor		Bookend	2018 Estimate	2018 Estimate	Bookend	2033 Estimate	Bookend	Bookends Comments	
Upper Columbia Spring Chinook	Methow River	MEC10B	Lost River	6.1: Channel Structure and Form: Bed and Channel Form	25.00%	85	85	85	85	85	85	Sugar Dike ~RM1.5(?); Evaluated from watershed perspective (LBE would be lower if look at %	2016: No actions anticipated therefore no change to low b
Upper Columbia Spring Chinook	Methow River	MEC10B	Lost River	6.2: Channel Structure and Form: Instream Structural Complexity	0.00%	60	60	60	90		90		2016: No actions anticipated therefore no change to low b
Upper Columbia Spring Chinook	Methow River	MEC10B	Lost River	9.1: Water Quantity: Increased Water Quantity	0.00%								2016: No actions anticipated therefore no change to low b
Upper Columbia Spring Chinook	Methow River	MEC11	Upper Twisp	1.1: Habitat Quantity: Anthropogenic Barriers	0.00%	93	93	93	94	93	96		2016: No actions anticipated therefore no change to low b
Upper Columbia Spring Chinook	Methow River	MEC11	Upper Twisp	3.1: Food: Altered Primary Productivity	20.00%	75	75	75	85	77	85		YN - implement nutrient enha assessment. Low initial estim potential benefits 2016: No actions anticipated therefore no change to low b
Upper Columbia Spring Chinook	Methow River	MEC11	Upper Twisp	4.1: Riparian Condition: Riparian Vegetation	15.00%	85	85	85	88	85	92		release upstream from distur 2016: No actions anticipated therefore no change to low b
Upper Columbia Spring Chinook	Methow River	MEC11	Upper Twisp	5.1: Peripheral and Transitional Habitats: Side Channel and Wetland Conditions	15.00%	85	85	85	88	85	92		2016: No actions anticipated therefore no change to low b
Upper Columbia Spring Chinook	Methow River	MEC11	Upper Twisp	6.1: Channel Structure and Form: Bed and Channel Form	20.00%	90	90	90	93	90	95		2016: No actions anticipated therefore no change to low b



ESU	Population	Code	Assessme nt Unit	e 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
Upper Columbia Spring Chinook	Methow River	MEC11	Upper Twisp	6.2: Channel Structure and Form: Instream Structural Complexity	20.00%	92.5	92.5	92.5	95	93	95		2016: No actions anticipated therefore no change to low b
Upper Columbia Spring Chinook	Methow River	MEC11	Upper Twisp	7.2: Sediment Conditions: Increased Sediment Quantity	10.00%	90	90	90	95	90.5	95		Beaver release more likely in tribs are sediment source; sm 2016: No actions anticipated therefore no change to low b
Upper Columbia Spring Chinook	Methow River	MEC11	Upper Twisp	9.1: Water Quantity: Increased Water Quantity	0.00%								2016: No actions anticipated therefore no change to low b
Upper Columbia Spring Chinook	Methow River	MEC12	Wolf Creek	2.3: Injury and Mortality: Mechanical Injury	10.00%	75	75	75	90	90	90	ADDED LF DURING 6/28/12 WORKSHOP need to evaluate status of screens in Wolf Ck Chinook utilize downstream habitat - need screen survey for lower reach	fix Wolf Ck ID screen (in wilde 2016: No actions anticipated therefore no change to low b
Upper Columbia Spring Chinook	Methow River	MEC12	Wolf Creek	4.1: Riparian Condition: Riparian Vegetation	15.00%	80	80	80	82	80	85	Lower 2 miles; RM 0-2.5	2016: No actions anticipated therefore no change to low b
Upper Columbia Spring Chinook	Methow River	MEC12	Wolf Creek	5.1: Peripheral and Transitional Habitats: Side Channel and Wetland Conditions	10.00%	75	75	75	80	75	80	Lower 2 miles; RM 0-2.5	2016: No actions anticipated therefore no change to low b

ipated through 2018, o low bookend.	
ikely in tribs (Buttermilk Ck) - irce; small % of issue ipated through 2018, o low bookend.	
ipated through 2018, o low bookend.	
in wilderness) tipated through 2018, o low bookend.	
ipated through 2018, o low bookend.	
ipated through 2018, o low bookend.	

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
Upper Columbia Spring Chinook	Methow River	MEC12	Wolf Creek	6.2: Channel Structure and Form: Instream Structural Complexity	35.00%	75	75	75	80	75	80	Focus on low 3- 4 miles	2016: No actions anticipated th therefore no change to low boo
Upper Columbia Spring Chinook	Methow River	MEC12	Wolf Creek	9.2: Water Quantity: Decreased Water Quantity	30.00%	65	65	65	70	70	70	Wolf Creek Irrigation Diversion; Biddle Ponds(?)	2016: No actions anticipated th therefore no change to low boo
Upper Columbia Spring Chinook	Wenatchee River	WEC1	Chiwawa	1.1: Habitat Quantity: Anthropogenic Barriers	10.00%	98	98	98	99	98	99		2016: No actions anticipated th therefore no change to low boo
Upper Columbia Spring Chinook	Wenatchee River	WEC1	Chiwawa	3.1: Food: Altered Primary Productivity	60.00%	50	50	50	75	50	80	Not a lot of data. The gap between the low and high bookends reflects an assumed improvement(?)	2016: No actions anticipated th therefore no change to low boo
Upper Columbia Spring Chinook	Wenatchee River	WEC1	Chiwawa	4.1: Riparian Condition: Riparian Vegetation	15.00%	90	90	90	92	90	95		2016: No actions anticipated th therefore no change to low boo
Upper Columbia Spring Chinook	Wenatchee River	WEC1	Chiwawa	5.2: Peripheral and Transitional Habitats: Floodplain Condition	15.00%	95	95	95	97	95	97		2016: No actions anticipated th therefore no change to low boo
Upper Columbia Spring Chinook	Wenatchee River	WEC1	Chiwawa	6.2: Channel Structure and Form: Instream Structural Complexity	0.00%	93	93	93	94	93	95		2016: No actions anticipated th therefore no change to low boo

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d through 2018, bookend.

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
Upper Columbia Spring Chinook	Wenatchee River	WEC1	Chiwawa	7.2: Sediment Conditions: Increased Sediment Ouantity	0.00%	29	29	29	29	29	29		2016: No actions anticipated therefore no change to low b
Upper Columbia Spring Chinook	Wenatchee River	WEC2	Chumstick	1.1: Habitat Quantity: Anthropogenic Barriers	8.00%	80	80	80	95	85	95	Mainstem Chumstick is close, but barriers on tributaries and Merry Canyon	distributions similar for juven distribution greater for spawn 2016: No actions anticipated therefore no change to low b
Upper Columbia Spring Chinook	Wenatchee River	WEC2	Chumstick	4.1: Riparian Condition: Riparian Vegetation	14.00%	60	60	60	65	60	80		2016: No actions anticipated therefore no change to low b
Upper Columbia Spring Chinook	Wenatchee River	WEC2	Chumstick	5.1: Peripheral and Transitional Habitats: Side Channel and Wetland Conditions	5.00%	55	55	55	60	55	60		2016: No actions anticipated therefore no change to low b
Upper Columbia Spring Chinook	Wenatchee River	WEC2	Chumstick	6.2: Channel Structure and Form: Instream Structural Complexity	5.00%	55	55	55	60	55	60		2016: No actions anticipated therefore no change to low b
Upper Columbia Spring Chinook	Wenatchee River	WEC2	Chumstick	7.2: Sediment Conditions: Increased Sediment Quantity	20.00%	60	60	60	75	60	75		bookends remnant of last cyc 2013 + 2016: No actions anticipated therefore no change to low b
Upper Columbia Spring Chinook	Wenatchee River	WEC2	Chumstick	8.1: Water Quality: Temperature	20.00%	75.1	75.1	75.1	77	75	85	Reflects growth of Populus species, but not reconnection of floodplain, etc.	2016: No actions anticipated therefore no change to low b

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les, steelhead ing hrough 2018, bokend.
hrough 2018, bokend.
hrough 2018, bokend.
hrough 2018, bokend.
le- not a LF form hrough 2018, bokend.
hrough 2018, bokend.

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
Upper Columbia Spring Chinook	Wenatchee River	WEC2	Chumstick	9.2: Water Quantity: Decreased Water Quantity	28.00%	52	52	52	90	50	90		water quantity project metric 2016: No actions anticipated therefore no change to low b
Upper Columbia Spring Chinook	Wenatchee River	WEC3	Icicle	1.1: Habitat Quantity: Anthropogenic Barriers	35.00%	70	70	70	90	70	90	Look at relative AU weight for Icicle - evidence no historic passage above boulder field	45% change applied to steelh low bookend changed from 5 existing condition for Chinool 2016: No actions anticipated therefore no change to low b
Upper Columbia Spring Chinook	Wenatchee River	WEC3	Icicle	2.3: Injury and Mortality: Mechanical Injury	5.00%	50	50	50	90	50	90	Reflects screening of 2 out of four diversions. Would still be some mechanical injury associated with irrigation.	2016: No actions anticipated therefore no change to low b
Upper Columbia Spring Chinook	Wenatchee River	WEC3	lcicle	4.1: Riparian Condition: Riparian Vegetation	10.00%	75	75	75	77	75	80	Averages conditions across Icicle (Lower is much worse than Upper)	2016: No actions anticipated therefore no change to low b
Upper Columbia Spring Chinook	Wenatchee River	WEC3	lcicle	6.2: Channel Structure and Form: Instream Structural Complexity	15.00%	21	21	21	21	21	21		2016: No actions anticipated therefore no change to low b
Upper Columbia Spring Chinook	Wenatchee River	WEC3	Icicle	7.2: Sediment Conditions: Increased Sediment Quantity	10.00%	70	70	70	75	70	76	Conditions here improving naturally over time.	2016: No actions anticipated therefore no change to low b

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ead only- 5 to represent	
hrough 2018, bokend.	
hrough 2018, ookend.	
hrough 2018, bokend.	
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hrough 2018, ookend.	

ESU Population		Code	Assessme	2012	LF Weight	Low	Original	Updated	ed High 2018 Original		High 2033	LF Weight and	Estimates Comments	
			nt Unit	Standardized Limiting Factor		Bookend	2018 Estimate	2018 Estimate	Bookend	2033 Estimate	Bookend	Bookends Comments		
Upper Columbia Spring Chinook	Wenatchee River	WEC3	lcicle	9.2: Water Quantity: Decreased Water Quantity	25.00%	55	55	55	65	55	65		2016: No actions anticipated through 2018, therefore no change to low bookend.	
Upper Columbia Spring Chinook	Wenatchee River	WEC4	Little Wenatche e	3.1: Food: Altered Primary Productivity	25.00%	55	55	55	85	55	90		2016: No actions anticipated through 2018, therefore no change to low bookend.	
Upper Columbia Spring Chinook	Wenatchee River	WEC4	Little Wenatche e	4.1: Riparian Condition: Riparian Vegetation	20.00%	85	85	85	85	85	90	Action is to allow natural improvements	2016: No actions anticipated through 2018, therefore no change to low bookend.	
Upper Columbia Spring Chinook	Wenatchee River	WEC4	Little Wenatche e	5.2: Peripheral and Transitional Habitats: Floodplain Condition	30.00%	90	90	90	95	90	95	Berm at the gravel pits	2016: No actions anticipated through 2018, therefore no change to low bookend.	
Upper Columbia Spring Chinook	Wenatchee River	WEC4	Little Wenatche e	6.2: Channel Structure and Form: Instream Structural Complexity	0.00%	97	97	97	98	97	99		2016: No actions anticipated through 2018, therefore no change to low bookend.	
Upper Columbia Spring Chinook	Wenatchee River	WEC4	Little Wenatche e	7.2: Sediment Conditions: Increased Sediment Quantity	25.00%	75	75	75	85	75	90		2016: No actions anticipated through 2018, therefore no change to low bookend.	
Upper Columbia Spring Chinook	Wenatchee River	WEC5	Lower Wenatche e	1.1: Habitat Quantity: Anthropogenic Barriers	0.00%	98	98	98	99	98	99		2016: No actions anticipated through 2018, therefore no change to low bookend.	
Upper Columbia Spring Chinook	Wenatchee River	WEC5	Lower Wenatche e	4.1: Riparian Condition: Riparian Vegetation	10.00%	45	45	45	45	45	50		2016: No actions anticipated through 2018, therefore no change to low bookend.	

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
Upper Columbia Spring Chinook	Wenatchee River	WEC5	Lower Wenatche e	5.1: Peripheral and Transitional Habitats: Side Channel and Wetland Conditions	25.00%	65.5	65.5	65.5	80	66	80		includes lower Wenatchee in: (under LF 6.2) 2016: No actions anticipated therefore no change to low b
Upper Columbia Spring Chinook	Wenatchee River	WEC5	Lower Wenatche e	6.1: Channel Structure and Form: Bed and Channel Form	20.00%	60	60	60	65	60	65		2016: No actions anticipated therefore no change to low b
Upper Columbia Spring Chinook	Wenatchee River	WEC5	Lower Wenatche e	6.2: Channel Structure and Form: Instream Structural Complexity	10.00%	60	60	60	65	60.1	70		2016: No actions anticipated therefore no change to low b
Upper Columbia Spring Chinook	Wenatchee River	WEC5	Lower Wenatche e	8.1: Water Quality: Temperature	15.00%	65.1	65.1	65.1	70	65	70		2016: No actions anticipated therefore no change to low b
Upper Columbia Spring Chinook	Wenatchee River	WEC5	Lower Wenatche e	9.2: Water Quantity: Decreased Water Quantity	20.00%	55.2	55.2	55.2	65	51	65		more benefit for steelhead ju 2016: No actions anticipated therefore no change to low b
Upper Columbia Spring Chinook	Wenatchee River	WEC6	Mission	1.1: Habitat Quantity: Anthropogenic Barriers	10.00%	82	82	82	85	82	85		2016: No actions anticipated therefore no change to low b

tream flow project
through 2018, ookend.
through 2018, ookend.
through 2018, ookend.
through 2018, ookend.
veniles (2%) through 2018, ookend.
through 2018, ookend.

ESU	Population	Code	Assessme 2012		LF Weight Low		Original	Updated	d High 2018 Origin		High 2033	3 LF Weight and	Estimates Comments
			nt Unit	Standardized		Bookend	2018	2018	Bookend	2033	Bookend	Bookends	
				Limiting Factor			Estimate	Estimate		Estimate		Comments	
Upper	Wenatchee	WEC6	Mission	4.1: Riparian	10.00%	60	60	60	65	60	70	Most projects	2016: No actions anticipated
Columbia	River			Condition:								should be	therefore no change to low b
Spring				Riparian								delayed until	
Chinook				Vegetation								flow and water	
												quality are	
												addressed;	
												Japanese	
												knotweek	
												removal;	
												Restoration	
												opportunisticall	
												y between	
												Cashmere and	
												the USFS	
												boundary.	
Upper	Wenatchee	WEC6	Mission	5.1: Peripheral	15.00%	25	25	25	25	25	25	Assess and	2016: No actions anticipated
Columbia	River			and								reduce road	therefore no change to low b
Spring				Transitional								impacts….	
Chinook				Habitats: Side									
				Channel and									
				Wetland									
				Conditions									
Upper	Wenatchee	WEC6	Mission	6.1: Channel	10.00%	40	40	40	45	40	45	Lower 6 miles +	2016: No actions anticipated
Columbia	River			Structure and								FS Road	therefore no change to low b
Spring				Form: Bed and									
Chinook				Channel Form									
Upper	Wenatchee	WEC6	Mission	6.2: Channel	15.00%	50	50	50	55	50	55	Worth adding	2016: No actions anticipated
Columbia	River			Structure and								complexity at	therefore no change to low b
Spring				Form: Instream								the price of	
Chinook				Structural								riparian?.	
				Complexity									
Upper	Wenatchee	WEC6	Mission	7.2: Sediment	10.00%	40	40	40	45	40	50	Assess and	2016: No actions anticipated
Columbia	River			Conditions:								reduce road	therefore no change to low b
Spring	_			Increased								impacts….	
Chinook				Sediment									
				Quantity									
Upper	Wenatchee	WEC6	Mission	8.1: Water	10.00%	35	35	35	45	35	45	Mostly a	2016: No actions anticipated
Columbia	River			Quality:								product of flow	therefore no change to low b
Spring				Temperature								Esp. the lower 4	
Chinook												miles	

d through 2018, bookend.
d through 2018, bookend.

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
Upper Columbia Spring Chinook	Wenatchee River	WEC6	Mission	9.2: Water Quantity: Decreased Water Quantity	20.00%	30	30	30	60	30	60		2016: No actions anticipated therefore no change to low b
Upper Columbia Spring Chinook	Wenatchee River	WEC7	Nason	1.1: Habitat Quantity: Anthropogenic Barriers	0.00%	93	93	93	98	93	98		2016: No actions, therefore n bookend
Upper Columbia Spring Chinook	Wenatchee River	WEC7	Nason	3.1: Food: Altered Primary Productivity	10.00%	60	60	60	80	60	85		2016: No actions, therefore n bookend
Upper Columbia Spring Chinook	Wenatchee River	WEC7	Nason	4.1: Riparian Condition: Riparian Vegetation	10.00%	50.04	50.04	50.08	55	52	60	Includes recruitment of LWM	2016: One project will treat 0 prorated to reflect vegetative 2018 yields improvement are to the 15.8 Chinook bearing s assessment unit, there will be improvement. EWW 8.26.16
Upper Columbia Spring Chinook	Wenatchee River	WEC7	Nason	5.1: Peripheral and Transitional Habitats: Side Channel and Wetland Conditions	25.00%	73	73	74.6	80	80	80	Increase LWD complexes; reconnect side channel habitat; 1.1, 1.2, and 1.3 scored together	includes completion of 4 Nase (LWP, N1, 2 UWP projects) + (Coulter/RR) 2016: Two projects will treat miles, and progress toward P 2018. Relative to the 10.7 sid the assessment unit (From Re there will be a 1.6% improver
Upper Columbia Spring Chinook	Wenatchee River	WEC7	Nason	6.1: Channel Structure and Form: Bed and Channel Form	20.00%	61.8	63	64.6	65	63	65		2016:One project will treat 0. will be 100% toward PFC by 2 15.8 Chinook bearing stream assessment unit, there will be improvement. EWW 8.26.16
Upper Columbia Spring Chinook	Wenatchee River	WEC7	Nason	6.2: Channel Structure and Form: Instream Structural Complexity	20.00%	53.2	54	58.1	55	58	60		2016: Two projects will treat the progress toward PFC will Relative to the 15.8 Chinook I in the assessment unit, there improvement. EWW 8.26.16

through 2018, ookend.
o change to low
o change to low
.59 stream miles, but growth through a =0.0059. Relative tream miles in the a 0.04%
on planned actions 2 access actions
0.169 side channel FC will be 100% by le channel miles in each Assessment), nent. EWW 8.26.16 45 stream miles and 018. Relative to the miles in the
e a 2.8% 0.78 stream miles and be 100% by 2018.
will be a 4.9%

ESU	Population	Code	Assessme	2012 Standardized	LF Weight	Low	Original	Updated	High 2018 Bookend	Original	High 2033 Bookend	LF Weight and	Estimates Comments
				Limiting Factor		bookend	Estimate	Estimate	bookenu	Estimate	bookenu	Comments	
Upper Columbia Spring Chinook	Wenatchee River	WEC7	Nason	7.2: Sediment Conditions: Increased Sediment Quantity	15.00%	65	65	65	70	65	75	May be short- term increases in sediment from opening up side channels. Increased sediment in Lower Nason	2016: No actions anticipated therefore the is no change to
Upper Columbia Spring Chinook	Wenatchee River	WEC7	Nason	8.1: Water Quality: Temperature	0.00%	80	80	80	80	80	80		2016: No actions anticipated therefore the is no change to
Upper Columbia Spring Chinook	Wenatchee River	WEC8	Peshastin	1.1: Habitat Quantity: Anthropogenic Barriers	5.00%	70.2	70.2	70.2	85	70	85		2016: No actions anticipated therefore the is no change to
Upper Columbia Spring Chinook	Wenatchee River	WEC8	Peshastin	4.1: Riparian Condition: Riparian Vegetation	10.00%	60	60	60	65	60	70		2016: No actions anticipated therefore the is no change to
Upper Columbia Spring Chinook	Wenatchee River	WEC8	Peshastin	5.1: Peripheral and Transitional Habitats: Side Channel and Wetland Conditions	20.00%	26.2	26.2	26.2	30	26	30		include 6.2 LF action here 2016: No actions anticipated therefore the is no change to
Upper Columbia Spring Chinook	Wenatchee River	WEC8	Peshastin	6.1: Channel Structure and Form: Bed and Channel Form	15.00%	35	35	35	50	35	50	Bank hardening and incision all along the orchards	2016: No actions anticipated therefore the is no change to
Upper Columbia Spring Chinook	Wenatchee River	WEC8	Peshastin	6.2: Channel Structure and Form: Instream Structural Complexity	15.00%	55.5	55.5	55.5	75	56	75		2016: No actions anticipated therefore the is no change to
Upper Columbia Spring Chinook	Wenatchee River	WEC8	Peshastin	8.1: Water Quality: Temperature	0.00%	98	98	98	99	98	99		2016: No actions anticipated therefore the is no change to



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
Upper Columbia Spring Chinook	Wenatchee River	WEC8	Peshastin	9.2: Water Quantity: Decreased Water Quantity	35.00%	20	20	20	80	20	80		2016: No actions anticipated therefore the is no change to
Upper Columbia Spring Chinook	Wenatchee River	WEC9A	Middle Wenatche e	1.1: Habitat Quantity: Anthropogenic Barriers	50.00%	95	95	95	95	95	95		2016: No actions anticipated therefore the is no change to
Upper Columbia Spring Chinook	Wenatchee River	WEC9A	Middle Wenatche e	6.1: Channel Structure and Form: Bed and Channel Form	50.00%	85	85	85	85	85	85		2016: No actions anticipated therefore the is no change to
Upper Columbia Spring Chinook	Wenatchee River	WEC9A	Middle Wenatche e	6.2: Channel Structure and Form: Instream Structural Complexity	0.00%								2016: No actions anticipated therefore the is no change to
Upper Columbia Spring Chinook	Wenatchee River	WEC9B	Upper Wenatche e	1.1: Habitat Quantity: Anthropogenic Barriers	0.00%	95	95	95	98	95	98		2016: No actions anticipated therefore the is no change to
Upper Columbia Spring Chinook	Wenatchee River	WEC9B	Upper Wenatche e	4.1: Riparian Condition: Riparian Vegetation	33.00%	80.02	80.02	80.02	82	81	85		2016: No actions anticipated therefore the is no change to
Upper Columbia Spring Chinook	Wenatchee River	WEC9B	Upper Wenatche e	5.1: Peripheral and Transitional Habitats: Side Channel and Wetland Conditions	34.00%	70	70	75.6	90	85	90		low bookend changed from 9 2016: One project will treat ( and will reach 100% PFC by 2 3.55 side channel miles (Upp Assessment), there will be a EWW 8.26.16
Upper Columbia Spring Chinook	Wenatchee River	WEC9B	Upper Wenatche e	6.2: Channel Structure and Form: Instream Structural Complexity	33.00%	60.7	60.7	60.7	80	70	85		refer to LF 5.1 action descrip 2033 value constrained by so consideraitons/recreational o 2016: No actions anticipated therefore no change to low b



bookend.

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
Upper Columbia Spring Chinook	Wenatchee River	WEC10	White	3.1: Food: Altered Primary Productivity	20.00%	70	70	70	75	70	75		2016: No actions anticipated therefore no change to low b
Upper Columbia Spring Chinook	Wenatchee River	WEC10	White	4.1: Riparian Condition: Riparian Vegetation	25.00%	85	85	85	90	85	95		2016: No actions anticipated therefore no change to low b
Upper Columbia Spring Chinook	Wenatchee River	WEC10	White	5.1: Peripheral and Transitional Habitats: Side Channel and Wetland Conditions	25.00%	90	90	90	95	90	95		2016: No actions anticipated therefore no change to low b
Upper Columbia Spring Chinook	Wenatchee River	WEC10	White	6.2: Channel Structure and Form: Instream Structural Complexity	30.00%	94.2	94.2	94.2	90	87	95		addresses majority of impact 2016: No actions anticipated therefore no change to low b

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