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 Chinook.

ESU	Population	Code	Assessment Unit	2012 Standardized Limiting Factor	LF Weight	Low Bookend	Original 2018 Estimate	Updated 2018 Estimate	High 2018 Bookend	Original 2033 Estimate	High 2033 Bookend	LF Weight and Bookends Comments	Estimates Comments
Snake River Spring/Summer Chinook	Catherine Creek	CCC1	Indian Creek	1.1: Habitat Quantity: Anthropogenic Barriers	5.00%	75	75	75	100	75	100	number of existing structures	2012 EP: Camp Cr Culvert & EF Indian Ck Culvert projects located in steelhead habitat so no benefits estimated for Chinook. / 2015 EP LB: No chinook actions in this AU. No change.
Snake River Spring/Summer Chinook	Catherine Creek	CCC1	Indian Creek	4.1: Riparian Condition: Riparian Vegetation	10.00%	65	65	65	75	65	85		2012 EP: Little Indian Ck. projects not located in CCC1 - no benefits estimated. NF Clark Ck not part of Chinook population. Not enough project information about USFS Riparian Mtnce & Thinning to estimate benefits at this time./ 2015 EP LB: No chinook actions in this AU. No change.
Snake River Spring/Summer Chinook	Catherine Creek	CCC1	Indian Creek	4.2: Riparian Condition: LWD Recruitment	10.00%	65	65	65	65	65	70		2015 EP LB: No chinook actions in this AU. No change.
Snake River Spring/Summer Chinook	Catherine Creek	CCC1	Indian Creek	6.1: Channel Structure and Form: Bed and Channel Form	15.00%	65	65	65	70	65	75	change based on improving river processes	2015 EP LB: No chinook actions in this AU. No change.
Snake River Spring/Summer Chinook	Catherine Creek	CCC1	Indian Creek	6.2: Channel Structure and Form: Instream Structural Complexity	20.00%	65	65	65	75	65	85		2012 EP: Little Indian Ck. project not located in CCC1 - no benefits estimated. / 2015 EP LB: No chinook actions in this AU. No change.
Snake River Spring/Summer Chinook	Catherine Creek	CCC1	Indian Creek	7.2: Sediment Conditions: Increased Sediment Quantity	10.00%	55	55	55	65	55	75		2012 EP: NF Clark Ck. not included in Chinook population - no benefits estimated. / 2015 EP LB: No chinook actions in this AU. No change.
Snake River Spring/Summer Chinook	Catherine Creek	CCC1	Indian Creek	8.1: Water Quality: Temperature	20.00%	60	60	60	60	60	65	benefits accrue from channel complexity actions	2015 EP LB: No chinook actions in this AU. No change.

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Snake River Spring/Summer Chinook	Catherine Creek	CCC1	Indian Creek	9.2: Water Quantity: Decreased Water Quantity	10.00%	50	50	50	55	50	55		2015 EP LB: No chinook actions in this AU. No change.
Snake River Spring/Summer Chinook	Catherine Creek	CCC2A	Lower Catherine Creek (Mouth of Indian Ck to State Ditch Diversion)	1.1: Habitat Quantity: Anthropogenic Barriers	5.00%	90	90	90	95	91	95	lower Willow Cr diversions; marginal Chinook habitat.	2012 EP: Passage issues above Huber project. / 2015 EP LB: No chinook actions in this AU. No change.
Snake River Spring/Summer Chinook	Catherine Creek	CCC2A	Lower Catherine Creek (Mouth of Indian Ck to State Ditch Diversion)	2.1: Injury and Mortality: Predation	0.00%							small mouth bass; invasive spp noted, but impacts unknown	
Snake River Spring/Summer Chinook	Catherine Creek	CCC2A	Lower Catherine Creek (Mouth of Indian Ck to State Ditch Diversion)	3.3: Food: Altered Prey Species Composition and Diversity	0.00%							altered food web- carp, panfish impacts unknown	

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Snake River Spring/Summer Chinook	Catherine Creek	CCC2A	Lower Catherine Creek (Mouth of Indian Ck to State Ditch Diversion)	4.1: Riparian Condition: Riparian Vegetation	10.00%	45	45	45	50	46	60		2012 EP: ONLY 1.2 RIPARIAN MILES TREATED FROM WEST LEVEE SETBACK PROJECT CONSIDERED FOR ESTIMATE AT 2012 WORKSHOP. / 2015 EP LB: No chinook actions in this AU. No change. McKenzie Project not considered in estimate - in marginal Chinook habitat. Some upstream/downstream benefits. Primary improvements from West Levee Project.
Snake River Spring/Summer Chinook	Catherine Creek	CCC2A	Lower Catherine Creek (Mouth of Indian Ck to State Ditch Diversion)	4.2: Riparian Condition: LWD Recruitment	10.00%	45	45	45	45.1	45.2	50		2012 EP: WEST LEVEE PROJECT LARGE WOOD STRUCTURES & RIPARIAN PLANTING CONSIDERED IN ESTIMATE. MCKENZIE PROJECT BENEFITS STEELHEAD ONLY. / 2015 EP LB: No chinook actions in this AU. No change.
Snake River Spring/Summer Chinook	Catherine Creek	CCC2A	Lower Catherine Creek (Mouth of Indian Ck to State Ditch Diversion)	5.1: Peripheral and Transitional Habitats: Side Channel and Wetland Conditions	10.00%	20	20	20	35	21	40	High percentage levies; many oxbows have been truncated	2015 EP LB: No chinook actions in this AU. No change.
Snake River Spring/Summer Chinook	Catherine Creek	CCC2A	Lower Catherine Creek (Mouth of Indian Ck to State Ditch Diversion)	5.2: Peripheral and Transitional Habitats: Floodplain Condition	10.00%	20	20	20	30	21	35	many oxbows have been truncated	2015 EP LB: No chinook actions in this AU. No change.

ESU	Population	Code	Assessment Unit	2012 Standardized Limiting Factor	LF Weight	Low Bookend	Original 2018 Estimate	Updated 2018 Estimate	High 2018 Bookend	Original 2033 Estimate	High 2033 Bookend	LF Weight and Bookends Comments	Estimates Comments
Snake River Spring/Summer Chinook	Catherine Creek	CCC2A	Lower Catherine Creek (Mouth of Indian Ck to State Ditch Diversion)	6.1: Channel Structure and Form: Bed and Channel Form	10.00%	40	40	40	50	40.1	55	many oxbows have been truncated	2015 EP LB: No chinook actions in this AU. No change.
Snake River Spring/Summer Chinook	Catherine Creek	CCC2A	Lower Catherine Creek (Mouth of Indian Ck to State Ditch Diversion)	6.2: Channel Structure and Form: Instream Structural Complexity	15.00%	25	25	25	35	30	40	REACH LENGTH >14 MILES (20 mi including Willow)	2012 EP: ESTIMATE BASED ON WEST LEVEE SETBACK PROJECT; DRY CREEK PROJECT NOT CONSIDERED IN 2012 WORKSHOP ESTIMATE. / 2015 EP LB: No chinook actions in this AU. No change.
Snake River Spring/Summer Chinook	Catherine Creek	CCC2A	Lower Catherine Creek (Mouth of Indian Ck to State Ditch Diversion)	7.2: Sediment Conditions: Increased Sediment Quantity	5.00%	60	60	60	65	62	65	more of a non-point issue, many uncontrolled contributions, but bank erosion issue also contributes	2012 EP: ESTIMATE BASED ON WEST LEVEE SETBACK PROJECT; DRY CREEK PROJECT NOT CONSIDERED IN 2012 WORKSHOP ESTIMATE. / 2015 EP LB: No chinook actions in this AU. No change.
Snake River Spring/Summer Chinook	Catherine Creek	CCC2A	Lower Catherine Creek (Mouth of Indian Ck to State Ditch Diversion)	8.1: Water Quality: Temperature	10.00%	40	40	40	40	40	45	thermal barrier for adult passage; combination of other LFs over time will be needed to affect a chance in temp	2012 EP: ONLY WEST LEVEE PROJECT CONSIDERED FOR 2012 WORKSHOP ESTIMATE. DRY CREEK PROJECT NOT INCLUDED IN ESTIMATE AT THAT TIME & no temperature effects expected from water transactions. / 2015 EP LB: No chinook actions in this AU. No change.

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Snake River Spring/Summer Chinook	Catherine Creek	CCC2A	Lower Catherine Creek (Mouth of Indian Ck to State Ditch Diversion)	8.2: Water Quality: Oxygen	5.00%	40	40	40	45	40	45	Links to flow & temp	2015 EP LB: No chinook actions in this AU. No change.
Snake River Spring/Summer Chinook	Catherine Creek	CCC2A	Lower Catherine Creek (Mouth of Indian Ck to State Ditch Diversion)	9.2: Water Quantity: Decreased Water Quantity	10.00%	40	40	40	45	40	45	m/s migration corridor; refugia @ mouths of tribs	2012 EP: Estimate assumes 3 cfs water transactions are not protected. Greater benefits if water is protected./ 2015 EP LB: No chinook actions in this AU. No change.
Snake River Spring/Summer Chinook	Catherine Creek	CCC2B	Lower Catherine Creek (State Ditch Diversion to old Grande Ronde River confluence)	1.1: Habitat Quantity: Anthropogenic Barriers	5.00%	90	90	90	100	90	100	Elmer	small diversions remain; Mill Cr. not a Chinook stream so no benefits. Mill Crk Project is located in CCC2b but benefits occur in CCC2C.

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Snake River Spring/Summer Chinook	Catherine Creek	CCC2B	Lower Catherine Creek (State Ditch Diversion to old Grande Ronde River confluence)	2.1: Injury and Mortality: Predation	0.00%							small mouth bass; invasive spp noted, but impacts unknown	
Snake River Spring/Summer Chinook	Catherine Creek	CCC2B	Lower Catherine Creek (State Ditch Diversion to old Grande Ronde River confluence)	3.3: Food: Altered Prey Species Composition and Diversity	0.00%							altered food web- carp, panfish impacts unknown	
Snake River Spring/Summer Chinook	Catherine Creek	CCC2B	Lower Catherine Creek (State Ditch Diversion to old Grande Ronde River confluence)	4.1: Riparian Condition: Riparian Vegetation	10.00%	45	45	45	50	45.2	60		LITTLE EFFECT FROM WATER TRANSACTION PROJECTS; ESTIMATE BASED MOSTLY ON BOYD PROJECT

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Snake River Spring/Summer Chinook	Catherine Creek	CCC2B	Lower Catherine Creek (State Ditch Diversion to old Grande Ronde River confluence)	4.2: Riparian Condition: LWD Recruitment	10.00%	45	45	45	45.1	45.2	50		
Snake River Spring/Summer Chinook	Catherine Creek	CCC2B	Lower Catherine Creek (State Ditch Diversion to old Grande Ronde River confluence)	5.1: Peripheral and Transitional Habitats: Side Channel and Wetland Conditions	10.00%	20	20	20	35	21	40	<25 percentage levies; many oxbows have been truncated	Estimate based on approx. 0.5 miles side channel enhancement from Wilson Wetland Project.
Snake River Spring/Summer Chinook	Catherine Creek	CCC2B	Lower Catherine Creek (State Ditch Diversion to old Grande Ronde River confluence)	5.2: Peripheral and Transitional Habitats: Floodplain Condition	10.00%	40	40	40	50	41	55	many oxbows have been truncated	

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Snake River Spring/Summer Chinook	Catherine Creek	CCC2B	Lower Catherine Creek (State Ditch Diversion to old Grande Ronde River confluence)	6.1: Channel Structure and Form: Bed and Channel Form	10.00%	40	40	40	50	40.1	55	many oxbows have been truncated	
Snake River Spring/Summer Chinook	Catherine Creek	CCC2B	Lower Catherine Creek (State Ditch Diversion to old Grande Ronde River confluence)	6.2: Channel Structure and Form: Instream Structural Complexity	15.00%	25	25	25	35	28	40		Estimate based on treatment of 0.75 miles in 15-20 MILES of reach needing treatment.
Snake River Spring/Summer Chinook	Catherine Creek	CCC2B	Lower Catherine Creek (State Ditch Diversion to old Grande Ronde River confluence)	7.2: Sediment Conditions: Increased Sediment Quantity	5.00%	50	50	50	55	50.1	55	more of a non-point issue, many uncontrolled contributions, but bank erosion issue also contributes	

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Snake River Spring/Summer Chinook	Catherine Creek	CCC2B	Lower Catherine Creek (State Ditch Diversion to old Grande Ronde River confluence)	8.1: Water Quality: Temperature	10.00%	40	40	40	40	40	45	thermal barrier for adult passage; combination of other LFs over time will be needed to affect a change in temp	Estimate showing no improvement based on EP judgement that 3 CFS is not enough water to make a difference yet. If more water is secured over time then increments would be expected to improve temperature. EP LB 2015: Benefits from actions not enough water and solar radiation too high. Existing temperatures exceed 20 detg between 81% and 100% days(20-22 deg C) so flow increases are insuffucient to cause uplift. No uplift
Snake River Spring/Summer Chinook	Catherine Creek	CCC2B	Lower Catherine Creek (State Ditch Diversion to old Grande Ronde River confluence)	8.2: Water Quality: Oxygen	5.00%	40	40	40	45	40	45	Links to flow & temp	
Snake River Spring/Summer Chinook	Catherine Creek	CCC2B	Lower Catherine Creek (State Ditch Diversion to old Grande Ronde River confluence)	9.2: Water Quantity: Decreased Water Quantity	10.00%	30	30	31.9	35	35	35	m/s migration corridor; refugia @ mouths of tribs	EP LB 2015: Davis to Mouth 0.76 cfs. = 1.9% uplift. CHK don't rear in this area in summer due to lack of suitable habitat, lack of access, temperatures, and lack of flow durring period when this water is added, but other ecological benefits to stream from this water. Currently dominated by non-natives and non-salmonids, but they are thought to have reared here in summer historically, so it's potential rearing. Threshold of benefit from incremental flow additions. Not there yet, but with enough water, would eventally see occupancy benefits. Need to track inremental improvement in flow going forward. See SH discussion.

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Snake River Spring/Summer Chinook	Catherine Creek	CCC2C	Lower Catherine Creek (old Grande Ronde River confluence to Pyles Cr)	1.1: Habitat Quantity: Anthropogenic Barriers	5.00%	80	80	80.8	95	90	95	undersized culvert on Ladd Cr, @ RM 1; numerous passage issues in Gekeler's Slough & Little Cr diversions	2012 EP: Estimate includes effects of Mill Ck Project, which is located in CCC2B but Mill Ck travels back into CCC2C upstream from diversion. Little Cr. diversions partially block juvenile access to about 3.4 miles (from mouth to Hwy) - each diversion abt. 1/2 mile apart. / 2015 EP LB: EP examined steelhead actions in equivalent AU, and adjusted as applicable to chinook. Chinook only use mainstem for winter rearing. The Little Cr. Diversion project benefited passage for juvenile Chinook, improving 1.5 miles of access. Question of whether fish are arriving via irrigation infrastructure? Not overwintering in Little Cr, but use is not well understood here. Low densities seen. Prorated to 10% function.Calculations based on 18.3 Chinook miles per Streamnet, resulting in a 0.8% improvement.
Snake River Spring/Summer Chinook	Catherine Creek	CCC2C	Lower Catherine Creek (old Grande Ronde River confluence to Pyles Cr)	2.1: Injury and Mortality: Predation	0.00%							small mouth bass; invasive spp noted, but impacts unknown	
Snake River Spring/Summer Chinook	Catherine Creek	CCC2C	Lower Catherine Creek (old Grande Ronde River confluence to Pyles Cr)	3.2: Food: Food-Competition	0.00%							altered food web- carp, panfish impacts unknown	

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Snake River Spring/Summer Chinook	Catherine Creek	CCC2C	Lower Catherine Creek (old Grande Ronde River confluence to Pyles Cr)	4.1: Riparian Condition: Riparian Vegetation	10.00%	45	45	45	50	45.1	60		2012 EP: Conservative estimates due to uncertainty of implementation timing; AU is large area & these projects don't address everything. / 2015 EP LB: Panel estimated a 0% improvement prorate factor for 0.25 miles treated for 1 project, as the vegetation has not matured enough to uplift LF 4.1 or 4.2. 0% uplift.
Snake River Spring/Summer Chinook	Catherine Creek	CCC2C	Lower Catherine Creek (old Grande Ronde River confluence to Pyles Cr)	4.2: Riparian Condition: LWD Recruitment	10.00%	45	45	45	45	45.1	50		2012 EP: Estimate considers projects under LF 4.1 that would provide some recruitment improvements in the longer term. / 2015 EP LB: Panel estimated a 0% improvement prorate factor for 0.25 miles treated for 1 project, as the vegetation has not matured enough to uplift LF 4.1 or 4.2. 0% uplift.
Snake River Spring/Summer Chinook	Catherine Creek	CCC2C	Lower Catherine Creek (old Grande Ronde River confluence to Pyles Cr)	5.1: Peripheral and Transitional Habitats: Side Channel and Wetland Conditions	10.00%	40	40.5	40.7	50	40.5	55	>75 percentage levies from Pyles to Godley Ln; many oxbows have been truncated	2015 EP LB: Panel estimated a 50% improvement prorate factor for 0.25 miles treated for the CC Baum project over 0.25 mile, with a total estimated 18.3 miles of chinook stream miles = 0.7% uplift.
Snake River Spring/Summer Chinook	Catherine Creek	CCC2C	Lower Catherine Creek (old Grande Ronde River confluence to Pyles Cr)	5.2: Peripheral and Transitional Habitats: Floodplain Condition	10.00%	40	40	40.7	50	40.1	55	many oxbows have been truncated	2015 EP LB: Panel estimated a 50% improvement prorate factor for 0.25 miles treated for the CC Baum project over 0.25 mile, with a total estimated 18.3 miles of chinook stream miles = 0.7% uplift.

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Snake River Spring/Summer Chinook	Catherine Creek	CCC2C	Lower Catherine Creek (old Grande Ronde River confluence to Pyles Cr)	6.1: Channel Structure and Form: Bed and Channel Form	10.00%	40	40	40.1	50	40.1	55	many oxbows have been truncated	2015 EP LB: Panel estimated a 5% improvement prorate factor for 0.25 miles treated for the CC Baum project for LF 6.1 and 6.2, with a total estimated 18.3 miles of chinook stream miles = 0.1% uplift.
Snake River Spring/Summer Chinook	Catherine Creek	CCC2C	Lower Catherine Creek (old Grande Ronde River confluence to Pyles Cr)	6.2: Channel Structure and Form: Instream Structural Complexity	10.00%	25	25	25.1	35	30	40		2015 EP LB: Panel estimated a 5% improvement prorate factor for 0.25 miles treated for the CC Baum project for LF 6.1 and 6.2, with a total estimated 18.3 miles of chinook stream miles = 0.10% uplift.
Snake River Spring/Summer Chinook	Catherine Creek	CCC2C	Lower Catherine Creek (old Grande Ronde River confluence to Pyles Cr)	7.2: Sediment Conditions: Increased Sediment Quantity	5.00%	50	50	50	55	50.2	55	more of a non-point issue, many uncontrolled contributions, but bank erosion issue also contributes	2015 EP LB: No actions, no change.
Snake River Spring/Summer Chinook	Catherine Creek	CCC2C	Lower Catherine Creek (old Grande Ronde River confluence to Pyles Cr)	8.1: Water Quality: Temperature	10.00%	40	40	40	40.1	41	45	thermal barrier for adult passage; combination of other LFs over time will be needed to affect a change in temp	2015 EP LB: No measurable benefits from actions listed in LF 9.2 (which are compiled into annual totals in LF8.1 "All Leases Combined") because not enough water and solar radiation too high. Temperature readings show above lethal for rearing. Not enough flow to significantly affect this LF. 20-22 deg C. A few cfs is not enough to decrease temps measurably, especially given backwater from Davis Dam. No % change.

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Snake River Spring/Summer Chinook	Catherine Creek	CCC2C	Lower Catherine Creek (old Grande Ronde River confluence to Pyles Cr)	8.2: Water Quality: Oxygen	0.00%	40	40	40	45	40	45	Links to flow & temp; decreasing concern progressing upstream-flow most important in this reach	2015 EP LB: No actions, no change.
Snake River Spring/Summer Chinook	Catherine Creek	CCC2C	Lower Catherine Creek (old Grande Ronde River confluence to Pyles Cr)	9.2: Water Quantity: Decreased Water Quantity	20.00%	30	30	32.5	35	35	35	Overwinter habitat and m/s migration corridor; refugia @ mouths of tribs	2012 EP: Conservative estimate - assumes 3 cfs from water transactions. / 2015 EP LB: 14 leases total between 2012-2015. Average of leases was 2.8025 cfs annually, but that volume was weighted based on locations of leases and an overall steelhead presence of 36 miles. Discussion: But is that water usable (due to temperature and LH timing re: migration seasons)? Davis Dam consultation considered other ecological benefits of flow, even when temps are high. Used to have leakage, but no longer, so basline has changed. Discussion of thresholds: at what point does flow augmentation benefit fish? At what point is it inhabitable by fish? Not a 1:1 linear relationship. Depends on channel cross-section and temperature regime. Also considered location in reach of flow addition. Flow additions are during critical summer months. Check basin flow data for denominator. The weighted average of 0.76 cfs annually, based on release location and timing, was divided by the determined baseline of an estimated 30 cfs baseflow to get 2.5% uplift. -(MAH 2/3/2016)

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Snake River Spring/Summer Chinook	Catherine Creek	CCC3A	Middle Catherine Creek (Pyles Cr. To Swackhammer Diversion)	1.1: Habitat Quantity: Anthropogenic Barriers	2.00%	95	95	95	100	97	100	increased from 80 partial juvenile barrier at mouth of Pyles Ck	2012 EP: 10th street diversion doesn't pass juveniles. / 2015 EP LB: No actions, no change.
Snake River Spring/Summer Chinook	Catherine Creek	CCC3A	Middle Catherine Creek (Pyles Cr. To Swackhammer Diversion)	4.1: Riparian Condition: Riparian Vegetation	6.50%	45	45	45	47	48	60		2012 EP: Estimate based on abt. 3.5 miles riparian treatment./ 2015 EP LB: 16 acres, 0.75 miles treated. Total steelhead/chinook stream use (aka denominator for calculations) is 3.7 miles. Using Beechie cite re: 5+ years growth needed for effectiveness. = 0% prorated improvement factor, so no change at this time.
Snake River Spring/Summer Chinook	Catherine Creek	CCC3A	Middle Catherine Creek (Pyles Cr. To Swackhammer Diversion)	4.2: Riparian Condition: LWD Recruitment	6.50%	45	45	45	45.1	46.5	60		2012 EP: Estimate considers that improvements from LF 4.1 projects. / 2015 EP LB: 16 acres, 0.75 miles treated. Total steelhead/chinook stream use (aka denominator for calculations) is 3.7 miles. Using Beechie cite re: 5+ years growth needed for effectiveness. = 0% prorated improvement factor, so no change at this time.

ESU	Population	Code	Assessment Unit	2012 Standardized Limiting Factor	LF Weight	Low Bookend	Original 2018 Estimate	Updated 2018 Estimate	High 2018 Bookend	Original 2033 Estimate	High 2033 Bookend	LF Weight and Bookends Comments	Estimates Comments
Snake River Spring/Summer Chinook	Catherine Creek	CCC3A	Middle Catherine Creek (Pyles Cr. To Swackhammer Diversion)	5.1: Peripheral and Transitional Habitats: Side Channel and Wetland Conditions	10.00%	20	20	22.2	30	30	35	Potential upstream of Union (confined and semi-confined reaches); less below Union (unconfined)	2012 EP: CC-37, 38 & 39 PROJECTS PROVIDE CHANNEL ADDITION AND WETLAND CONNECTION; / 2015 EP LB: 0.75 miles treated over an estimated steelhead/chinook use of 3.7 miles. EP used an 11% peripheral habitat ratio as the 11% function improvement prorating value. Snorkel survey of the mainstem looked good, but 442 ft side channel has been blocked off by sediments recently at base flows, so no summer rearing, Project was designed for high flow refuge, not perennial availability, per se. Needs more water to get full benefit. EP discussed that ideal for this channel type may have had more side channel than what was built; perhaps 1:1 mainstem to peripheral. 442 ft of new peripheral/3960 ft existing. So within treatment area: now at approx 11% of PFC. Some geomorphic change expected to continue. Total uplift based on 0.75miles treated, 11% prorate factor, and 3.7 mile Streamnet denominator= 2.2%.

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Snake River Spring/Summer Chinook	Catherine Creek	CCC3A	Middle Catherine Creek (Pyles Cr. To Swackhammer Diversion)	5.2: Peripheral and Transitional Habitats: Floodplain Condition	10.00%	20	20	25.1	30	30	35		2012 EP: Implementation planned for CC 37 in 2012, CC 36 in 2014, 38 & 39 in 2015/16. / 2015 EP LB: See LF 5.1 rationale as well. Included entire 0.75 mi of bank slope treatment, changes in entrenchment ratios (have CHaMP W/D ratio data, but it's more focused on area within active channel). Designed with main channel oversized due to flood concerns, which reduced floodplain connection. That is the rational for a smaller 25% Improvement factor. Should have been a B Channel, but built as a C (more entrenched). Remote sensing showed "moderate" flooding potential. Historic would have had extensive floodplain connection with many beaver dams. EP decided to use a 25% of prorating factor; = 5.1% change over AU.

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Snake River Spring/Summer Chinook	Catherine Creek	CCC3A	Middle Catherine Creek (Pyles Cr. To Swackhammer Diversion)	6.1: Channel Structure and Form: Bed and Channel Form	10.00%	40	45	48.1	45	50	50	33% of channel within Union ; 67%: downstream of Union; channelized throughout reach	2015 EP LB: See also LF 5.1 rationale. Included entire 0.75 mi of bank slope treatment, changes in entrenchment ratios (have CHaMP W/D ratio data, but it's more focused on area within active channel). Designed to be slightly oversized due to flooding concerns, so not as close to Principal Functioning Condition (PFC) as it might have been. Could have been a B Channel, but built as a C (more entrenched). Remote sensing showed "moderate" flooding potential. Historic would have had extensive floodplain connection with many beaver dams. Sinuosity and W/D ratio from Champ, design criteria, and historic reference to arrive at 40% prorate factor. Design sinuosity = 1.1-1.45. historic baseline was 2.2-2.4. W/D reduced from 22.6 to 18.6 at bankfull. Used 40% of PFC in 0.75 miles from a total streamnet steelhead/chinook use of 3.7 stream miles = 8.1% change over AU.

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Snake River Spring/Summer Chinook	Catherine Creek	CCC3A	Middle Catherine Creek (Pyles Cr. To Swackhammer Diversion)	6.2: Channel Structure and Form: Instream Structural Complexity	10.00%	45	45	50.1	65	60	80		2015 EP LB:13 wood complexes, 81 key members. Champ data says LWD piece frequency went from 13.4 (pre-project) to 14 (post) pieces per 100 meters in bankfull channel. Compared 14 logs (50 % were buried and were not providing complexity) per 100 meters to target value of 18 pieces per 100 m for Minam River. Many of the structures do not mimic natural wood accumulations. Discussion of purpose and function of structures (bank stabilization vs. fish habitat: not the same function if buried in bank, and do not mimic natural wood accumulation that would provide interstitial volume and velocity refuge). 64.7 included embedded logs/cribs. Fish research shows less fish response to embedded structures. About half were instream, but CHaMP sites were in higher density part of project. Based on Minam reference of 18 pcs/100m. If use 14pcs/100m for entire reach, adjusted to 25% of Principal functioning condition (PFC). 25% of PFC in 0.75 miles from a total streamnet steelhead/chinook use of 3.7 stream miles = 5.1% uplift.
Snake River Spring/Summer Chinook	Catherine Creek	CCC3A	Middle Catherine Creek (Pyles Cr. To Swackhammer Diversion)	7.2: Sediment Conditions: Increased Sediment Quantity	10.00%	40	42.5	45.7	45	53.4	50		2015 EP LB: Bank stabilization/layback work: 1125 linear ft treated (28% of 0.75 mile project length). Also added gravel. CHaMP data D50 and pool tail change indicates more fine sediment now, and more boulders. Using 28% of 0.75 mile project length divided by 3.7 total steelhead/chinook use = 5.7% uplift.

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Snake River Spring/Summer Chinook	Catherine Creek	CCC3A	Middle Catherine Creek (Pyles Cr. To Swackhammer Diversion)	8.1: Water Quality: Temperature	15.00%	20	20	20	41	23	42	lower third temp limited;	2012 EP: Estimate considers benefits from CC-44 & other upstream projects plus conservative assumption of 3 cfs for upstream water transactions. / 2015 EP LB: Percent summer days (July 20-Aug31st) are 100% exceedence of 20 deg C (precludes spawning). Background temps are too hot for flow increases to have measurable effect. 0% uplift at this time.
Snake River Spring/Summer Chinook	Catherine Creek	CCC3A	Middle Catherine Creek (Pyles Cr. To Swackhammer Diversion)	8.2: Water Quality: Oxygen	0.00%							Associated w/flow/temp; non-point sources need more info to quantify	
Snake River Spring/Summer Chinook	Catherine Creek	CCC3A	Middle Catherine Creek (Pyles Cr. To Swackhammer Diversion)	8.4: Water Quality: Turbidity	0.00%							Point discharge between RM 38-39; need more info to quantify impact	

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Snake River Spring/Summer Chinook	Catherine Creek	CCC3A	Middle Catherine Creek (Pyles Cr. To Swackhammer Diversion)	9.2: Water Quantity: Decreased Water Quantity	20.00%	20	20	25	50	40	55	Many Diversions in this reach, base flow is about 5 cfs	2012 EP: Conservative estimate based on 3 cfs./ 2015 EP LB: Several projects were moved from UGS10A to 9b. For 10A: Malberg lease 0.26 cfs (Prescott ditch: 100% of AU reach); Sheehy (DS from town: 80% of AU reach) lease 0.53 cfs; Malberg Split lease 0.19; D. Ricker 0.34 (100% of AU), DRLT lease 0.31 (RM 44-12: 100% of AU); LC lease 0.38 (at Godley Ditch at Union: 80% of AU); DS .012 (at Godley Ditch at Union: 80% of AU); Southern Cross Forbearance 1.08 (100% of AU); Glenn Smith Full 0.22 (100% of AU). Considered flow locations (river miles from Reach Assessment) in relation to reach length and dam (e.g., between Piles and Swackhammer), and weighted accordingly. Flow measured at 10th Street. Calculated total: 1.5 cfs avg annual flow benefit. Baseflow of 25 cfs at 95% exceedance based on flow record, but ODFW (Oregon Method IFIM) in-stream net benefit analysis used 30 cfs baseflow. EP determined to use 30 cfs as baseflow denominator. The average net total of annual leases was 1.64 cfs, which resulted in 1.5 cfs weighted to the location of lease compared to the total AU reach. Total uplift was calculated using weighted 1.5

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Snake River Spring/Summer Chinook	Catherine Creek	CCC3B	Middle Catherine Creek (Swackhammer Diversion to N. & S Forks)	1.1: Habitat Quantity: Anthropogenic Barriers	2.00%	95	98	100	100	98	100	one diversion structure ~ rm 41 impedes juvenile movement; reach is summer/winter rearing & spawning habitat	2012 EP: 5 pushup dams/diversions are barriers, especially during low flow; 6 water right holders; only 1 remaining known barrier (private pushup) after this project. / 2015 EP LB: 2015 EP LB: See AU UGS10B, which was then adjusted based on chinook benefit using similar considerations. The CC44 project included 10.5 miles of new/improved access of a total 14.4 chinook streamnet miles. Barrier to juvenile upstream migration depended on seasonal push-up dam timing (June-Sept). Downstream migration was seen before project. Prorated as 10% functional value. Calculated total uplift= 7.3% (102.3%, inputted as 100%) Note for Look Forward: Low Bookend is too high according to EP, as 3 other barrier still to be done including Kinsley. Upcoming review of passage at state ditch downstream of CC44.
Snake River Spring/Summer Chinook	Catherine Creek	CCC3B	Middle Catherine Creek (Swackhammer Diversion to N. & S Forks)	4.1: Riparian Condition: Riparian Vegetation	6.50%	60	60	60	65	61.9	75		2012 EP: Hall Ranch & CC44 projects would address about 1/2 of reach. Slow growth makes 2018 Hi bookend difficult to achieve. / 2015 EP LB: Vegetation still too new to uplift. No change at this time.
Snake River Spring/Summer Chinook	Catherine Creek	CCC3B	Middle Catherine Creek (Swackhammer Diversion to N. & S Forks)	4.2: Riparian Condition: LWD Recruitment	6.50%	60	60	60	60	61	70		2012 EP: Estimate considers long term recruitment improvement from 4.1 LF projects. / 2015 EP LB: No measurable improvements to riparian condition yet. No change at this time.

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Snake River Spring/Summer Chinook	Catherine Creek	CCC3B	Middle Catherine Creek (Swackhammer Diversion to N. & S Forks)	5.1: Peripheral and Transitional Habitats: Side Channel and Wetland Conditions	15.00%	65	66	71.3	70	66	75	lower 4 miles channel anthropogenically altered; naturally constrained upstream	2012 EP: Estimate based on CC44 project - 5.5 miles restoration potential. Little benefit from water transactions until channels are formed. / 2015 EP LB: Rated value based on current % of PFC rather than using portion of total length treated. CC44 project has multiple phases. Side channel work was constrained by landowner. Fish use of Side Channel #3 was seen immediately. Phase 1: 862 ft treated, currently at 5% of PFC. Phase 2: 5961 (1.13 mi) treated, 50% of PFC. Phase 3 rated at 50% current function (0.66 mi treated: 60% of channel length). This is a more forested reach. Historic imagery indicated many beaver and side channels. Total prorated functional change=0.16 miles x 5% plus 1.79 miles x 50% divided by 14.4 total Chinook streamnet miles = 6.3% uplift.
Snake River Spring/Summer Chinook	Catherine Creek	CCC3B	Middle Catherine Creek (Swackhammer Diversion to N. & S Forks)	5.2: Peripheral and Transitional Habitats: Floodplain Condition	10.00%	65	65	65.5	70	66	75	lower 4 miles channel anthropogenically altered; naturally constrained upstream	2012 EP: Conservative estimate due to uncertain designs, etc. / 2015 EP LB: Rated value based on current % of PFC rather than using portion of total length treated. Phase 1 (0%), Phase 2 enhanced already low spots in floodplain (0%), Phase 3: oversized for landowner concern, so only activated at higher flows, which reduces biological value, but side channels increase floodplain complexity (10%). Total calculated uplift: Phase III only, 0.66 miles x 10% / 14.4 miles = 0.5%.

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Snake River Spring/Summer Chinook	Catherine Creek	CCC3B	Middle Catherine Creek (Swackhammer Diversion to N. & S Forks)	6.1: Channel Structure and Form: Bed and Channel Form	10.00%	60	62	63.6	70	63	75		2012 EP: Conservative estimates due to uncertain designs, etc. / EP LB 2015: Rated value based on current % of PFC or portion of total length treated. Phase 1: bank stability and gravel sorting 850 ft spread over almost 2 miles (8%). Phase 2, including roughened channel (10%). Phase 3: 1.1 sinuosity vs 1.4 (small improvement), 65 ft down to 50 ft wide (PFC woudl be 42 ft), improvement in w:d ratio, pool improvements (60%). Total calculated uplift: 3.6%
Snake River Spring/Summer Chinook	Catherine Creek	CCC3B	Middle Catherine Creek (Swackhammer Diversion to N. & S Forks)	6.2: Channel Structure and Form: Instream Structural Complexity	15.00%	60	65	66.9	70	65	75		2012 EP: 7 of 9 miles treated; conservative estimate due to uncertainty of design. / 2015 EP LB: CC44 projects had well-above reference condition of 27 LWD pieces per 100 m. 1772 pieces of wood in phase 1, although some structures were bank stabilization only. EP considered life stage use relative to placement of wood in main or side channel. 886 pieces of large wood used. Combined all 3 phases of CC44 equals approximately 2 miles treated, with a 50% prorated improvement factor divided by 14.4 total streamnet miles = 6.9 % uplift
Snake River Spring/Summer Chinook	Catherine Creek	CCC3B	Middle Catherine Creek (Swackhammer Diversion to N. & S Forks)	7.2: Sediment Conditions: Increased Sediment Quantity	5.00%	60	61	68.6	65	78.4	75		2012 EP: conservative estimate due to uncertain designs./ 2015 EP LB: See also UGS10B, same conditions as considered for chinook. Rated values based on current % of PFC. CC44 projects: Phase 1 bank stability work (100% of length stabilized). Phase 2: 60% of project length stabilized. Phase 3: 60% of project length stabilized. Sediment problems are roughly equally distributed throughout reach. Uplift =8.6%

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Snake River Spring/Summer Chinook	Catherine Creek	CCC3B	Middle Catherine Creek (Swackhammer Diversion to N. & S Forks)	8.1: Water Quality: Temperature	10.00%	60	60	60	65	61	75	upper 2/3 in good condition	2015 EP LB: Background temps are too hot for flow increases to have a measurable effect at this time. Input water is not cold enough. No uplift.
Snake River Spring/Summer Chinook	Catherine Creek	CCC3B	Middle Catherine Creek (Swackhammer Diversion to N. & S Forks)	9.2: Water Quantity: Decreased Water Quantity	20.00%	40	40	42.8	50	50	50	30 cfs baseflow Aug-Sep; 10 cfs of this diverted	2012 EP: CC-44 Project indirectly addresses this LF but not considered in estimate. Assume 3 cfs permanent lease/acquired for estimate. (10% imp based on 3 of 30 cfs) / 2015 EP LB: 4 Projects for an average lease of 0.8375 cfs annually. 100% prorate factor, divided by 30 cfs (ODFW instream flow target) = 2.8% uplift
Snake River Spring/Summer Chinook	Catherine Creek	CCC4	Lower & Middle Catherine Cr. Tributaries	4.1: Riparian Condition: Riparian Vegetation	20.00%	45	45	45	50	45	70		2015 EP LB: No chinook actions in this AU. No change.
Snake River Spring/Summer Chinook	Catherine Creek	CCC4	Lower & Middle Catherine Cr. Tributaries	4.2: Riparian Condition: LWD Recruitment	5.00%	45	45	45	50	45	70		2015 EP LB: No chinook actions in this AU. No change.
Snake River Spring/Summer Chinook	Catherine Creek	CCC4	Lower & Middle Catherine Cr. Tributaries	6.2: Channel Structure and Form: Instream Structural Complexity	30.00%	45	45	45	65	45	70		2015 EP LB: No chinook actions in this AU. No change.
Snake River Spring/Summer Chinook	Catherine Creek	CCC4	Lower & Middle Catherine Cr. Tributaries	7.2: Sediment Conditions: Increased Sediment Quantity	15.00%	60	60	60	65	60	70		2015 EP LB: No chinook actions in this AU. No change.

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Snake River Spring/Summer Chinook	Catherine Creek	CCC4	Lower & Middle Catherine Cr. Tributaries	8.1: Water Quality: Temperature	15.00%	50	50	50	52	50	60		2015 EP LB: No chinook actions in this AU. No change.
Snake River Spring/Summer Chinook	Catherine Creek	CCC4	Lower & Middle Catherine Cr. Tributaries	9.2: Water Quantity: Decreased Water Quantity	15.00%	40	40	40	41	40	41	minimal withdrawals on L. Cath (timber harvest, grazing)	2015 EP LB: No chinook actions in this AU. No change.
Snake River Spring/Summer Chinook	Catherine Creek	CCC5	N. & S. Forks Catherine Cr.	1.1: Habitat Quantity: Anthropogenic Barriers	5.00%	95	95	98.4	100	100	100		2012 EP: Estimate assumes 2 miles improved access from N FK Catherine Ck Ford Project; last remaining barrier for Chinook. / 2015 LB EP: See steelhead AU equivalent for notes on weighting. Partial barrier for ~ 2 months of the year (July to end of October; dependent on flow), although not much spawning seen in upstream areas. Rearing is limited in this AU. Used 2 miles as benefit from NF Cath Cr. Ford. Total streamnet chinook use is 14.7mi. =3.4% uplift
Snake River Spring/Summer Chinook	Catherine Creek	CCC5	N. & S. Forks Catherine Cr.	4.1: Riparian Condition: Riparian Vegetation	10.00%	80	80	80	90	87.5	95		2012 EP: Not enough info about USFS Project to estimate benefits at 2012 EP Workshop. / 2015 LB EP: Too early to see functional uplift. No change in %
Snake River Spring/Summer Chinook	Catherine Creek	CCC5	N. & S. Forks Catherine Cr.	4.2: Riparian Condition: LWD Recruitment	10.00%	80	80	80	90	83.7	95		2015 LB EP: Too early to see functional uplift. No change in %

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Snake River Spring/Summer Chinook	Catherine Creek	CCC5	N. & S. Forks Catherine Cr.	6.2: Channel Structure and Form: Instream Structural Complexity	30.00%	80	80	89.2	90	80	95		2015 EP LB: Added 4.5 mile SF Cath Cr. road decommision action to chinook for LFs 6.2 & 7.2. This is an important area compared to rest of AU stream miles: one of the few unconfined reaches per River Styles valley assessment. SF CC Riparian planting added instream structures. Added 8 pieces per 100m, increasing the average LWD frequency over 27 pieces per 100m. A 30% prorated improvement factor was used for 4.5 miles, divided by 14.7 total streamnet chinook miles for this AU = 9.2% uplift
Snake River Spring/Summer Chinook	Catherine Creek	CCC5	N. & S. Forks Catherine Cr.	7.2: Sediment Conditions: Increased Sediment Quantity	25.00%	70	70	85.3	85	100	95		2012 EP: NOT ENOUGH PROJECT INFO TO ESTIMATE BENEFITS AT 2012 WORKSHOP / 2015 EP LB: Added 4.5 mile SF Cath Cr. road decommision action to chinook for LFs 6.2 & 7.2. This is an important area compared to rest of AU stream miles: one of the few unconfined reaches per River Styles valley assessment. Collins Cr. diversion is still a major sediment problem (greater than 15% issue). Prorate factor: 50% pf 4.5 miles divided by 14.7 streamnet chinook miles in AU = 15.3% total uplift Note for EP Look Forward: Need to adjust bookend downward in next Look Forward.
Snake River Spring/Summer Chinook	Catherine Creek	CCC5	N. & S. Forks Catherine Cr.	8.1: Water Quality: Temperature	10.00%	80	80	80	90	80	95		2015 EP LB: No change. Temp is properly functioning
Snake River Spring/Summer Chinook	Catherine Creek	CCC5	N. & S. Forks Catherine Cr.	9.2: Water Quantity: Decreased Water Quantity	10.00%	85	85	85	90	85	90		2012 EP: NOT ENOUGH PROJECT INFO TO ESTIMATE BENEFITS AT 2012 WORKSHOP. / 2015 LB EP: No actions, no change.

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Snake River Spring/Summer Chinook	Grande Ronde River upper mainstem	UGC1A	Middle GR Mainstem (Five-Points Cr)	1.1: Habitat Quantity: Anthropogenic Barriers	40.00%	20	20	100	95	20	95	barrier a couple miles u/s from mouth just inside USFS boundary	LB EP 2015* (*Re-visited during Look Forward EP on 3/8/16): Panel determined the push up dam that was removed in 2015 was the only barrier to Chinook passage in this AU. Therefore, panel agreed on an 11 mile denominator and 100% weighting = 90.9% uplift. Considering low bookend was 20%, this LF now increased to 100%. LF1.1 will be removed as a Limiting Factor in the look forward. -MAH.3.8.2016
Snake River Spring/Summer Chinook	Grande Ronde River upper mainstem	UGC1A	Middle GR Mainstem (Five-Points Cr)	4.1: Riparian Condition: Riparian Vegetation	10.00%	75	75	75	75	75	80		EP LB 2015: No actions, no change. -MAH.4.5.2016
Snake River Spring/Summer Chinook	Grande Ronde River upper mainstem	UGC1A	Middle GR Mainstem (Five-Points Cr)	4.2: Riparian Condition: LWD Recruitment	10.00%	75	75	75	75	75	80		EP LB 2015: No actions, no change. -MAH.4.5.2016
Snake River Spring/Summer Chinook	Grande Ronde River upper mainstem	UGC1A	Middle GR Mainstem (Five-Points Cr)	6.1: Channel Structure and Form: Bed and Channel Form	5.00%	70	70	70	75	70.1	85	Pelican Ck and lower Five Points conditions worse than remainder of Five Points	EP LB 2015: No actions, no change. -MAH.4.5.2016
Snake River Spring/Summer Chinook	Grande Ronde River upper mainstem	UGC1A	Middle GR Mainstem (Five-Points Cr)	6.2: Channel Structure and Form: Instream Structural Complexity	10.00%	70	70	70.7	75	70	85	Remote area- bed and channel form OK	LB EP 2015* (*Considered during the Look Forward EP to include diversion dam removal): Panel re-reviewed the barrier removal for this Limiting factor. 0.5 miles over 11 miles chinook use x 65% proration factor = 0.7% uplift. -MAH3.8.2016
Snake River Spring/Summer Chinook	Grande Ronde River upper mainstem	UGC1A	Middle GR Mainstem (Five-Points Cr)	7.2: Sediment Conditions: Increased Sediment Quantity	5.00%	70	70	70	75	70	85	Travel MgmtPlan to manage ATV use	EP LB 2015: No actions, no change. -MAH.4.5.2016
Snake River Spring/Summer Chinook	Grande Ronde River upper mainstem	UGC1A	Middle GR Mainstem (Five-Points Cr)	8.1: Water Quality: Temperature	15.00%	80	80	80	80	80	85		EP LB 2015: No actions, no change. -MAH.4.5.2016

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Snake River Spring/Summer Chinook	Grande Ronde River upper mainstem	UGC1A	Middle GR Mainstem (Five-Points Cr)	9.2: Water Quantity: Decreased Water Quantity	5.00%	80	80	80	80	80	85	Forest mgmt/succession conditions	EP LB 2015: No actions, no change. -MAH.4.5.2016
Snake River Spring/Summer Chinook	Grande Ronde River upper mainstem	UGC1B	Middle GR Mainstem (Mouth of State Ditch to Five-Points Cr)-excludes Five-Points Ck	1.1: Habitat Quantity: Anthropogenic Barriers	5.00%	85	85	85	100	86	100	Riverside Park/Spruce St Bridge, trib through tunnel@ Perry	EP LB 2015: No actions, no change. -MAH.4.5.2016
Snake River Spring/Summer Chinook	Grande Ronde River upper mainstem	UGC1B	Middle GR Mainstem (Mouth of State Ditch to Five-Points Cr)-excludes Five-Points Ck	4.1: Riparian Condition: Riparian Vegetation	10.00%	45	45	45	55	50	60		2012: Estimate based on about 4.5 MI riparian planting./ EP LB 2015: No actions, no change. -MAH.4.5.2016
Snake River Spring/Summer Chinook	Grande Ronde River upper mainstem	UGC1B	Middle GR Mainstem (Mouth of State Ditch to Five-Points Cr)-excludes Five-Points Ck	4.2: Riparian Condition: LWD Recruitment	10.00%	45	45	45	55	46	60		2012: The 2033 estimate based on long term recruitment improvements from Greenway, Nilson, & Gooderham projects listed in LF 4.1. / EP LB 2015: No actions, no change. -MAH.4.5.2016

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Snake River Spring/Summer Chinook	Grande Ronde River upper mainstem	UGC1B	Middle GR Mainstem (Mouth of State Ditch to Five-Points Cr)-excludes Five-Points Ck	6.1: Channel Structure and Form: Bed and Channel Form	10.00%	30	30	30	35	40	40		2012: Estimate considers Greenway, Nilson, & Gooderham projects - ABT 4 miles treatment of 19 miles in AU. / EP LB 2015: No actions, no change. - MAH.4.5.2016
Snake River Spring/Summer Chinook	Grande Ronde River upper mainstem	UGC1B	Middle GR Mainstem (Mouth of State Ditch to Five-Points Cr)-excludes Five-Points Ck	6.2: Channel Structure and Form: Instream Structural Complexity	10.00%	30	30	30	35	35	40		EP LB 2015: No actions, no change. - MAH.4.5.2016
Snake River Spring/Summer Chinook	Grande Ronde River upper mainstem	UGC1B	Middle GR Mainstem (Mouth of State Ditch to Five-Points Cr)-excludes Five-Points Ck	7.2: Sediment Conditions: Increased Sediment Quantity	5.00%	30	30	30	32	35	35		2012: Estimate considers Voetz, Gooderham & Nilson & Greenway projects. / EP LB 2015: No actions, no change. -MAH.4.5.2016

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Snake River Spring/Summer Chinook	Grande Ronde River upper mainstem	UGC1B	Middle GR Mainstem (Mouth of State Ditch to Five-Points Cr)-excludes Five-Points Ck	8.1: Water Quality: Temperature	30.00%	30	30	30	31	30	32		2012: Water in reach is too warm to estimate benefits from water transaction project at this time./ EP LB 2015: No actions, no change. -MAH.4.5.2016
Snake River Spring/Summer Chinook	Grande Ronde River upper mainstem	UGC1B	Middle GR Mainstem (Mouth of State Ditch to Five-Points Cr)-excludes Five-Points Ck	9.2: Water Quantity: Decreased Water Quantity	20.00%	30	30	30	40	40	40	base flow less than 20 cfs	2012: Assumes Voelz provides 0.5 cfs w/ 1863 water right and 3 cfs from FWT project./ EP LB 2015: No actions, no change. -MAH.4.5.2016
Snake River Spring/Summer Chinook	Grande Ronde River upper mainstem	UGC2	Middle GR Mainstem (Five-Points Cr. To Meadow Cr.)	1.1: Habitat Quantity: Anthropogenic Barriers	1.00%	95	95	95	100	95	100	Whiskey Ck culvert (small effect for ck?)	2012 EP: Jordan, Lowe, Whiskey Cr diversion projects located in this AU but don't apply to Chinook. / 2015 EP LB: No action, no change. -MAH 2/10/16
Snake River Spring/Summer Chinook	Grande Ronde River upper mainstem	UGC2	Middle GR Mainstem (Five-Points Cr. To Meadow Cr.)	4.1: Riparian Condition: Riparian Vegetation	12.00%	50	50	50	60	55	70		2012 EP: Estimate considers improvements from listed projects and Rock Ck Fish Habitat Enhancement & Lowe Ranch projects. / 2015 EP LB: No action, no change. -MAH 2/10/16

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Snake River Spring/Summer Chinook	Grande Ronde River upper mainstem	UGC2	Middle GR Mainstem (Five-Points Cr. To Meadow Cr.)	4.2: Riparian Condition: LWD Recruitment	12.00%	50	50	50	60	50.3	70		2015 EP LB: No action, no change. -MAH 2/10/16
Snake River Spring/Summer Chinook	Grande Ronde River upper mainstem	UGC2	Middle GR Mainstem (Five-Points Cr. To Meadow Cr.)	6.1: Channel Structure and Form: Bed and Channel Form	10.00%	50	50	50	60	53	70		2012 EP: Estimate based on total of abt. 6 miles improved channel, floodplain connectivity, morphology. / 2015 EP LB: No action, no change. -MAH 2/10/16
Snake River Spring/Summer Chinook	Grande Ronde River upper mainstem	UGC2	Middle GR Mainstem (Five-Points Cr. To Meadow Cr.)	6.2: Channel Structure and Form: Instream Structural Complexity	15.00%	50	50	50	60	56	70		2012 EP: Estimate considers about 20 miles total improved complexity (does not include USFS LGR Project). / 2015 EP LB: No action, no change. -MAH 2/10/16
Snake River Spring/Summer Chinook	Grande Ronde River upper mainstem	UGC2	Middle GR Mainstem (Five-Points Cr. To Meadow Cr.)	7.2: Sediment Conditions: Increased Sediment Quantity	10.00%	70	70	70	75	75	80		2012 EP: Rock Ck is main sediment producer. / 2015 EP LB: No action, no change. -MAH 2/10/16

ESU	Population	Code	Assessment Unit	2012 Standardized Limiting Factor	LF Weight	Low Bookend	Original 2018 Estimate	Updated 2018 Estimate	High 2018 Bookend	Original 2033 Estimate	High 2033 Bookend	LF Weight and Bookends Comments	Estimates Comments
Snake River Spring/Summer Chinook	Grande Ronde River upper mainstem	UGC2	Middle GR Mainstem (Five-Points Cr. To Meadow Cr.)	8.1: Water Quality: Temperature	20.00%	40	40	40	41	41	45		2012 EP: Estimate considers improvements from projects listed under other UGC2 LFs. Per 2015 EP LB: See LF 9.2 flow change. EP: consider Feb 2015 Freshwater Trust report on temperature: 1 measure 0.3 mi DS of reservoir, effects not detectable in mainstem. July-Oct of that year: some bumps in flow, but not attributable to Beaver Cr? Stocastic weather. But CHaMP showed no change at avg August flows. Note that Beaver Cr/reservoir water is not all that much cooelr than stream water vecause the reserv is shallow. July 31, 12.5 deg went down to 12.1 deg cel. So local benefit in tributary, but limited temperature benefits to MS from this flow addition. Limited fish occupancy in this reach in summer. / 2015 LB EP: Zero temperature benefit from the 3 leases from 2013-15. - MAH 1/11/2016

ESU	Population	Code	Assessment Unit	2012 Standardized Limiting Factor	LF Weight	Low Bookend	Original 2018 Estimate	Updated 2018 Estimate	High 2018 Bookend	Original 2033 Estimate	High 2033 Bookend	LF Weight and Bookends Comments	Estimates Comments
Snake River Spring/Summer Chinook	Grande Ronde River upper mainstem	UGC2	Middle GR Mainstem (Five-Points Cr. To Meadow Cr.)	9.2: Water Quantity: Decreased Water Quantity	20.00%	50	50	50	51	51	52	some small diversions; general watershed conditions/function impacted by timber harvest/veg mgmt/lack of fire/natural succession stages	2012 EP: Conservative estimate based on 3 cfs permanent acquisition. / Per 2015 EP LB: One project, Beaver Cr water releases from City of LaGrande reservoir (3.5 cfs) (Lease started in 2013, 7 year lease for 150 acre-feet, release timing is experminental/adaptive, released over 1-2 mo periods). EP discussed flow benefits re: location (biological significance of flow improvements depend on where they are; not all reaches have equal value.). Denominator: 25 cfs avg base flow (OWRD - MS staff gage near Ferry). See EP table: 2.625 cfs avg annual flow benefit = 10.5% change, but adjusting for flow augmentation period (e.g. in 2014, August only; 2013 release was in October). Base flow period is July-Sept (1/3 of critical period is affected); = 3.5% uplift, but MS river showed little to no signal in CHaMP (within gage error tolerance), limited monitoring data available, so adjust down to 0% change. in mainstem (but note that it did benefit Beaver Creek itself). -MAH 1/11/16
Snake River Spring/Summer Chinook	Grande Ronde River upper mainstem	UGC3A	Beaver Creek	1.1: Habitat Quantity: Anthropogenic Barriers	10.00%	75	75	75	90	75	90	La Grande reservoir + a couple diversions u/s and d/s of reservoir	2012 EP: Little Beaver Ck high in system & not a Chinook stream. / 2015 EP LB: No action, no change. -MAH 2/10/16
Snake River Spring/Summer Chinook	Grande Ronde River upper mainstem	UGC3A	Beaver Creek	3.3: Food: Altered Prey Species Composition and Diversity	0.00%	20	20	20				PLACEHOLDER: invasive spp- brook trout	2015 EP LB: No action, no change. -MAH 2/10/16. (Put a 20 in for low bookend (was blank) and 20 (was zero) for "2018 Updated" to correct HQI calculation Jude - 2-4-2016)
Snake River Spring/Summer Chinook	Grande Ronde River upper mainstem	UGC3A	Beaver Creek	4.1: Riparian Condition: Riparian Vegetation	10.00%	65	65	65	70	65.1	80	reluctance to include LW on private property	2012 EP: Estimate considers Lowe Ranch - small portion of Beaver Cr. so minimal benefits. / 2015 EP LB: No actions. No change. -MAH 2/10/2016

ESU	Population	Code	Assessment Unit	2012 Standardized Limiting Factor	LF Weight	Low Bookend	Original 2018 Estimate	Updated 2018 Estimate	High 2018 Bookend	Original 2033 Estimate	High 2033 Bookend	LF Weight and Bookends Comments	Estimates Comments
Snake River Spring/Summer Chinook	Grande Ronde River upper mainstem	UGC3A	Beaver Creek	4.2: Riparian Condition: LWD Recruitment	25.00%	65	65	65	70	65.1	80	riparian disturbance on 5 mi of private property; USFS property in confined reaches	2012 EP: Estimate considers Lowe Ranch Project - small portion of Beaver Cr. so provides some improvement. / 2015 EP LB: No actions. No change. -MAH 2/10/2016
Snake River Spring/Summer Chinook	Grande Ronde River upper mainstem	UGC3A	Beaver Creek	6.2: Channel Structure and Form: Instream Structural Complexity	25.00%	65	65	65	75	65.1	85		2012 EP: Estimate considers Lowe Ranch Project - small portion of Beaver Ck so provides some improvement. / 2015 EP LB: No actions. No change. -MAH 2/10/2016
Snake River Spring/Summer Chinook	Grande Ronde River upper mainstem	UGC3A	Beaver Creek	7.2: Sediment Conditions: Increased Sediment Quantity	15.00%	75	75	75	75	75	80	most roads closed	2012 EP: Lowe Ranch Project - only small portion in Beaver Cr. so no improvement estimated. / 2015 EP LB: No actions. No change. -MAH 2/10/2016

ESU	Population	Code	Assessment Unit	2012 Standardized Limiting Factor	LF Weight	Low Bookend	Original 2018 Estimate	Updated 2018 Estimate	High 2018 Bookend	Original 2033 Estimate	High 2033 Bookend	LF Weight and Bookends Comments	Estimates Comments
Snake River Spring/Summer Chinook	Grande Ronde River upper mainstem	UGC3A	Beaver Creek	8.1: Water Quality: Temperature	15.00%	75	75	75	75	75	80	good upstream; not bad below	2012 EP: Lowe Ranch - only small portion in Beaver Cr so no improvement estimated. // 2015 EP LB: The UGC2 discussion of mainstem effects from Beaver Cr. flow releases from City of LaGrande Reservoir (3.5 cfs) (Lease started in 2013, 7 year lease for 150 acre-feet, release timing is experimental/adaptive, released over 1-2 mo periods, sometimes in Aug, but released in Oct one year). Beaver Cr. utilization: lower half only (first 2-3 mi). Amount of use unknown, due to no access to lower half. It may be an undervalued stream, though, based on landowner opinion and observations when access was granted. Habitat is decent, despite cattle grazing impacts. Upstream section downstream of reservoir; city tries to release additional flow from bottom of dam to support summer baseflow, even when there was no inflow to reservoir, per their SOP. Evaporation loss in reservoir. Freshwater trust has relevant data: 0.54% (0.5 deg C) 12.4 to 12.1 on July 31st decrease in water temp less than 1 mi downstream of reservoir. No measurable uplift to this LF, no change -MAH 1/11/2016
Snake River Spring/Summer Chinook	Grande Ronde River upper mainstem	UGC3B	Fly Creek	4.1: Riparian Condition: Riparian Vegetation	15.00%	65	65	65	65	65	70		EP LB 2015: No actions, no change. -MAH.4.5.2016
Snake River Spring/Summer Chinook	Grande Ronde River upper mainstem	UGC3B	Fly Creek	4.2: Riparian Condition: LWD Recruitment	20.00%	65	65	65	70	65	75		EP LB 2015: No actions, no change. -MAH.4.5.2016

ESU	Population	Code	Assessment Unit	2012 Standardized Limiting Factor	LF Weight	Low Bookend	Original 2018 Estimate	Updated 2018 Estimate	High 2018 Bookend	Original 2033 Estimate	High 2033 Bookend	LF Weight and Bookends Comments	Estimates Comments
Snake River Spring/Summer Chinook	Grande Ronde River upper mainstem	UGC3B	Fly Creek	6.2: Channel Structure and Form: Instream Structural Complexity	20.00%	75	75	75	80	75	85	USFS added wood to lower 4 miles	EP LB 2015: No actions, no change. -MAH.4.5.2016
Snake River Spring/Summer Chinook	Grande Ronde River upper mainstem	UGC3B	Fly Creek	7.2: Sediment Conditions: Increased Sediment Quantity	15.00%	40	40	40	55	40	70	Fly meadows- related riparian/streambank condition	EP LB 2015: No actions, no change. -MAH.4.5.2016
Snake River Spring/Summer Chinook	Grande Ronde River upper mainstem	UGC3B	Fly Creek	8.1: Water Quality: Temperature	30.00%	45	45	45	46	45	50		EP LB 2015: No actions, no change. -MAH.4.5.2016
Snake River Spring/Summer Chinook	Grande Ronde River upper mainstem	UGC4	Meadow Cr. and Tributaries	1.1: Habitat Quantity: Anthropogenic Barriers	1.00%	98	98	98	100	100	100	one culvert high in system; may have limited effect for juvenile chinook (?)	2012 EP: Juvenile chinook in lower portion of basin; limited Chinook use otherwise. / 2015 EP LB: No Actions in database. However, discussion over watershed included Dark Canyon culvert was fixed, funded GR Model watershed (USFS for details), not within Chinook distribution/range, so not a chinook benefit (but benefited steelhead in the analogous AU). During Look Forward: Adjust chinook bookend because of Chinook distribution - the AU should be 100%: no barriers left). -MAH 1/11/16
Snake River Spring/Summer Chinook	Grande Ronde River upper mainstem	UGC4	Meadow Cr. and Tributaries	4.1: Riparian Condition: Riparian Vegetation	10.00%	60	60	60	70	60	80		2012 EP: Not enough info on USFS Riparian Thinning project to estimate improvements at 2012 EP workshop. / 2015 EP LB: 1 Project in database: Meadow Cr LWD and Planting Project (7.25 mi treated 2013-2014 planting, heavy browsing pressure, only half caged as experiment) in Starkey Exp Forest, but above most current chinook use (only 1 or 2 seen in this area), and above Streamnet distribution. EP: No Change for Chinook. -MAH 1/11/2016

ESU	Population	Code	Assessment Unit	2012 Standardized Limiting Factor	LF Weight	Low Bookend	Original 2018 Estimate	Updated 2018 Estimate	High 2018 Bookend	Original 2033 Estimate	High 2033 Bookend	LF Weight and Bookends Comments	Estimates Comments
Snake River Spring/Summer Chinook	Grande Ronde River upper mainstem	UGC4	Meadow Cr. and Tributaries	4.2: Riparian Condition: LWD Recruitment	10.00%	60	60	60	70	60	80		2015 EP LB: No change, same considerations as LF 4.1. -MAH 1/11/2016
Snake River Spring/Summer Chinook	Grande Ronde River upper mainstem	UGC4	Meadow Cr. and Tributaries	6.1: Channel Structure and Form: Bed and Channel Form	10.00%	65	65	65	80	65	85		2015 EP LB: 1 Project in database: Meadow Cr LWD and Planting Project: past panel had hoped that Chinook would move up higher to take advantage of hab changes, but not many (1 fish only) seen in this reach since. EP: No change for Chinook.-MAH 1/11/16
Snake River Spring/Summer Chinook	Grande Ronde River upper mainstem	UGC4	Meadow Cr. and Tributaries	6.2: Channel Structure and Form: Instream Structural Complexity	20.00%	65	65	65	80	70	85		2015 EP LB: No change, same considerations as LF 6.1. -MAH 1/11/16
Snake River Spring/Summer Chinook	Grande Ronde River upper mainstem	UGC4	Meadow Cr. and Tributaries	7.2: Sediment Conditions: Increased Sediment Quantity	20.00%	60	60	60	70	60	80		2012 EP: Not enough info available on USFS projects to estimate improvements at 2012 EP Workshop. / EP LB 2015: 1 Project in database: Meadow Cr LWD and Planting Project (7.25 mi treated 2013-2014 planting, heavy browsing pressure, only half caged as experiment) in Starkey Exp Forest, but above most current Chinook use (only 1 or 2 seen in this area), and above Streamnet distribution. CHaMP showed no DS benefit. No uplift. -MAH 1/11/16
Snake River Spring/Summer Chinook	Grande Ronde River upper mainstem	UGC4	Meadow Cr. and Tributaries	8.1: Water Quality: Temperature	24.00%	40	40	40	45	40	50	still high	2015 EP LB: Determined to be upstream of Chinook use. Also, not enough riparian vegetation growth to benefit temperature LF at this time. -MAH 1/11/16
Snake River Spring/Summer Chinook	Grande Ronde River upper mainstem	UGC4	Meadow Cr. and Tributaries	9.2: Water Quantity: Decreased Water Quantity	5.00%	60	60	60	65	60	75		2015 EP LB: No actions. No change. -MAH 2/10/2016

ESU	Population	Code	Assessment Unit	2012 Standardized Limiting Factor	LF Weight	Low Bookend	Original 2018 Estimate	Updated 2018 Estimate	High 2018 Bookend	Original 2033 Estimate	High 2033 Bookend	LF Weight and Bookends Comments	Estimates Comments
Snake River Spring/Summer Chinook	Grande Ronde River upper mainstem	UGC5	UGR Mainstream (Meadow Cr. To Sheep Cr.)	1.1: Habitat Quantity: Anthropogenic Barriers	10.00%	85	85	85	95	85	95	CTUIR weir changed protocol to improve passage	2015 EP LB: No actions. No change. -MAH 1/11/2016
Snake River Spring/Summer Chinook	Grande Ronde River upper mainstem	UGC5	UGR Mainstream (Meadow Cr. To Sheep Cr.)	4.1: Riparian Condition: Riparian Vegetation	10.00%	65	65	65.2	70	69.4	80		2015 EP LB: See EP's table: 2 projects. This is within CHK zone. Chosen metric: stream miles 2 mi of veg planting and fencing in 2012; 1 mi planting (pod fencing in specific areas only, not overall streamside fencing) and LWD. Veg is not mature yet. Also, some of these areas were already in decent shape, with mature veg. Not all was bare. Adjust % function based on veg growth status, as well as location of projects re: effective benefits. Use LWD recruitement potential as surrogate for baseline riparian condition? But LowBook already considered these baseline conditions. Were these plantings done in the right locations? Yes. Denominator: use fish bearing length: 11.1 mi, but can use 14.4 for channel structure LFs. Used CHaMP data and maps. 0.2% uplift. -MAH 1/11/2016
Snake River Spring/Summer Chinook	Grande Ronde River upper mainstem	UGC5	UGR Mainstream (Meadow Cr. To Sheep Cr.)	4.2: Riparian Condition: LWD Recruitment	10.00%	65	65	65	65	67.1	70		2012: Estimate considers Starkey Project for 2033 improvement. 2015 EP LB: No impact yet, due to minimal plant growth. No uplift at this time. -MAH 1/11/2016

ESU	Population	Code	Assessment Unit	2012 Standardized Limiting Factor	LF Weight	Low Bookend	Original 2018 Estimate	Updated 2018 Estimate	High 2018 Bookend	Original 2033 Estimate	High 2033 Bookend	LF Weight and Bookends Comments	Estimates Comments
Snake River Spring/Summer Chinook	Grande Ronde River upper mainstem	UGC5	UGR Mainstream (Meadow Cr. To Sheep Cr.)	6.2: Channel Structure and Form: Instream Structural Complexity	20.00%	70	70	70.3	75	72	80	USFS work 2010-12	2015 EP LB: UGR Small Wood and Pods (8 miles treated per database). Funded via GRMWS. This was a follow-up (adding racking material) to prior (2010-2011) larger project. Project summary report: CHaMP sites don't always match projects locations, so questions re: whether wood was added where it was most needed. Also consider USFS LWD actions funded by BPA? Or were they before period? Simple metric: # LWD pieces before and after. Denominator: 14.4 miles. 8 mi length looks like it includes US tailings area actions too.; should be 5 miles within this AU. Remaining 3 miles should be in US AU (UGC 7). Change this in database. Racking materials were limbs that are smaller than 10 cm diam LWD definition. How to calculate % habitat change to instream complexity from smaller material? Primarily benefits juv fish. as increased cover/complexity. Based on sensitivity/model analysis of CHaMP data, pool creation from large channel-forming wood is primary benefit (but not only benefit). -MH 1/11/16
Snake River Spring/Summer Chinook	Grande Ronde River upper mainstem	UGC5	UGR Mainstream (Meadow Cr. To Sheep Cr.)	7.2: Sediment Conditions: Increased Sediment Quantity	10.00%	65	65	65	70	67	80		2015 EP LB: 1 projects in database: UGR Fence 2012 (1 mi): plant protection (prev. project) only, so no sediment benefit. From Beachie (2002): response time for plantings is 5-20 years. No % change. -MAH 1/11/2016
Snake River Spring/Summer Chinook	Grande Ronde River upper mainstem	UGC5	UGR Mainstream (Meadow Cr. To Sheep Cr.)	8.1: Water Quality: Temperature	25.00%	50	50	50	52	51	55	temp wt should be higher than structure	2015 EP LB: Discussion of planting locations re: spatial distribution of benefits. From Beachie (2002): response time for plantings is 5-20 years. No functional change yet. -MAH 1/11/2016

ESU	Population	Code	Assessment Unit	2012 Standardized Limiting Factor	LF Weight	Low Bookend	Original 2018 Estimate	Updated 2018 Estimate	High 2018 Bookend	Original 2033 Estimate	High 2033 Bookend	LF Weight and Bookends Comments	Estimates Comments
Snake River Spring/Summer Chinook	Grande Ronde River upper mainstem	UGC5	UGR Mainstream (Meadow Cr. To Sheep Cr.)	9.2: Water Quantity: Decreased Water Quantity	15.00%	70	70	70	75	70	75	no irrigation withdrawals mix of USFS/private lands	2012 EP: Note: benefits from Aquifer Storage project to be determined; not estimated at 2012 EP Workshop. / 2015 EP LB: No action. No change. -MAH 1/11/2016
Snake River Spring/Summer Chinook	Grande Ronde River upper mainstem	UGC6	UGR Mainstem (Sheep Cr. To Meadowbrook Cr.)	4.1: Riparian Condition: Riparian Vegetation	20.00%	50	50	50	60	50	80		2012: Aquifer Storage Project implementation too late in cycle to improve riparian condition. / EP LB 2015: No actions, no change. -MAH.4.5.2016
Snake River Spring/Summer Chinook	Grande Ronde River upper mainstem	UGC6	UGR Mainstem (Sheep Cr. To Meadowbrook Cr.)	4.2: Riparian Condition: LWD Recruitment	4.00%	50	50	50	60	50	80		EP LB 2015: No actions, no change. -MAH.4.5.2016
Snake River Spring/Summer Chinook	Grande Ronde River upper mainstem	UGC6	UGR Mainstem (Sheep Cr. To Meadowbrook Cr.)	6.2: Channel Structure and Form: Instream Structural Complexity	24.00%	50	50	50	60	50	80		EP LB 2015: No actions, no change. -MAH.4.5.2016
Snake River Spring/Summer Chinook	Grande Ronde River upper mainstem	UGC6	UGR Mainstem (Sheep Cr. To Meadowbrook Cr.)	7.2: Sediment Conditions: Increased Sediment Quantity	24.00%	30	30	30	45	30	80		EP LB 2015: No actions, no change. -MAH.4.5.2016
Snake River Spring/Summer Chinook	Grande Ronde River upper mainstem	UGC6	UGR Mainstem (Sheep Cr. To Meadowbrook Cr.)	8.1: Water Quality: Temperature	24.00%	30	35	30	35	35	70		2012: Assumes Aquifer project implemented by 2018, estimates conservative due to early stages of project design. / EP LB 2015: No actions, no change. -MAH.4.5.2016

ESU	Population	Code	Assessment Unit	2012 Standardized Limiting Factor	LF Weight	Low Bookend	Original 2018 Estimate	Updated 2018 Estimate	High 2018 Bookend	Original 2033 Estimate	High 2033 Bookend	LF Weight and Bookends Comments	Estimates Comments
Snake River Spring/Summer Chinook	Grande Ronde River upper mainstem	UGC6	UGR Mainstem (Sheep Cr. To Meadowbrook Cr.)	9.2: Water Quantity: Decreased Water Quantity	4.00%	75	75	75	80	76	80	changed high bookends (from 76/77) in 6/20/2012 workshop due to emerging water opportunities. Base flow approx. 20 cfs	2012: Assumes Aquifer project by 2018; Estimate assumes 3 cfs (early project design stage). / EP LB 2015: No actions, no change. -MAH.4.5.2016
Snake River Spring/Summer Chinook	Grande Ronde River upper mainstem	UGC7	UGR & Tribs. (Meadowbrook Cr. To E. Fk.; Clear Cr. & E.Fk.)	4.1: Riparian Condition: Riparian Vegetation	30.00%	75	75	75	85	79.8	95		2015 EP LB: reviewed CHaMP GIS data. LWD Recruitment layer as proxy for general riparian condition. Denominator: 6.2 mi. from Streamnet. Action: Small Wood and Pods Project (3 mile portion from NF US to Tanner Gulch). No change in function within this time frame = 0% change. -MAH 1/11/16
Snake River Spring/Summer Chinook	Grande Ronde River upper mainstem	UGC7	UGR & Tribs. (Meadowbrook Cr. To E. Fk.; Clear Cr. & E.Fk.)	4.2: Riparian Condition: LWD Recruitment	30.00%	75	75	75	85	77.4	95		2015 EP LB: reviewed CHaMP GIS data, LWD Recruitment layer as proxy for general riparian condition. Denominator: 6.2 mi. from Streamnet. Action: Small Wood and Pods Project (3 mile portion from NF US to Tanner Gulch). No change in function within this time frame = 0% change. - MAH 1/11/16
Snake River Spring/Summer Chinook	Grande Ronde River upper mainstem	UGC7	UGR & Tribs. (Meadowbrook Cr. To E. Fk.; Clear Cr. & E.Fk.)	6.2: Channel Structure and Form: Instream Structural Complexity	20.00%	85	85	85.5	90	85	95		2015 EP LB: 3 miles treated with racking wood. See adjacent AU (UGC5). EP's calculations with proration determined a 0.5% uplift. -MAH 1/11/2016
Snake River Spring/Summer Chinook	Grande Ronde River upper mainstem	UGC7	UGR & Tribs. (Meadowbrook Cr. To E. Fk.; Clear Cr. & E.Fk.)	7.2: Sediment Conditions: Increased Sediment Quantity	20.00%	60	60	60	80	64.8	90	New TMP & significant rd. work will reduce sediments.	2015 EP LB: Action did not significantly impact LF. No change. -MAH 1/11/2016

ESU	Population	Code	Assessment Unit	2012 Standardized Limiting Factor	LF Weight	Low Bookend	Original 2018 Estimate	Updated 2018 Estimate	High 2018 Bookend	Original 2033 Estimate	High 2033 Bookend	LF Weight and Bookends Comments	Estimates Comments
Snake River Spring/Summer Chinook	Grande Ronde River upper mainstem	UGC8	Sheep Cr. & Chicken Cr.	4.1: Riparian Condition: Riparian Vegetation	10.00%	50	50	50	60	53.2	80		2012 EP: Vey Mdws & Chicken Cr projects not considered in estimate. / EP LB 2015: 3 miles treated in 2014/2015, was "pretty bare to start with". Plantings are young, so no credit in this time period yet. No functional uplift yet. - MAH 1/11/2016
Snake River Spring/Summer Chinook	Grande Ronde River upper mainstem	UGC8	Sheep Cr. & Chicken Cr.	4.2: Riparian Condition: LWD Recruitment	10.00%	60	60	60	75	61.6	80	Per Paul B. - significant opportunities for LWD recruitement.	2012 EP: Vey Mdws not considered in estimate./ 2015 EP LB: 3 miles treated in 2014/2015 was "pretty bare to start with". Plantings are young, so no credit in this time period yet. No functional uplift yet. -MAH 1/11/2016
Snake River Spring/Summer Chinook	Grande Ronde River upper mainstem	UGC8	Sheep Cr. & Chicken Cr.	6.2: Channel Structure and Form: Instream Structural Complexity	20.00%	50	50	54.9	60	60	80		2015 EP LB: Used Level 2 survey data re: # of wood pieces. 2 wood projects: Sheep Cr. (2.5 mi, 27 structures, avg of 7 pieces 192 pieces from completion report = 68 pc per mile=5pc/100m) and Chicken Cr. (2 mi, 13 struct, avg. 9 pc LWD each and 15 small, 117 pcs total= 4pc/100m) treated. Note that project length does not provide treatment intensity. Similar to USFS Meadow Cr. project, which showed pools scoured within 1 year. Sheep and Chicken come off of north-facing slopes. HabRate target for summer parr rearing: 20 pc/100m. This reference condition is similar to 20.17 pc/100m counted in Chinook Domain in Minam (inc. Little Minam). See EP's table, functional % of each project prorated as compared to target (25% [5/20] and 20% [4pc/100m = 20%] of PFC). Using only Little Minam (size is more appropriate for comparison) number of 27 pc/ 100m= 19% and 15%. CHK miles in Streamnet = 15.6 mi. = 6.6% uplift. Revised to 4.9% uplift using Little Minam wood density as reference for function. -MAH 2/10/16

ESU	Population	Code	Assessment Unit	2012 Standardized Limiting Factor	LF Weight	Low Bookend	Original 2018 Estimate	Updated 2018 Estimate	High 2018 Bookend	Original 2033 Estimate	High 2033 Bookend	LF Weight and Bookends Comments	Estimates Comments
Snake River Spring/Summer Chinook	Grande Ronde River upper mainstem	UGC8	Sheep Cr. & Chicken Cr.	7.2: Sediment Conditions: Increased Sediment Quantity	30.00%	30	30	30	45	33.1	80	Paul B. - fine sediment primarily a road issue. UGC8 has roads w/in riparian area & along stream that will be removed under the new TMP.	2012 EP: Not enough known about USFS Sheep Cr road decommissioning project for estimate to be made at 2012 EP workshop. / 2015 EP LB: These projects did not benefit this LF within this period. CHaMP surveys showed no reduction in sedimentation here. No USFS road decommissioning in period. No change in %. -MAH 2/10/16
Snake River Spring/Summer Chinook	Grande Ronde River upper mainstem	UGC8	Sheep Cr. & Chicken Cr.	8.1: Water Quality: Temperature	30.00%	70	70	70	75	70	80	Check w/CRITFC for thermographs. high meadow area (4100')-limited support for riparian veg ~25C (Vance) Per Paul B. - UGC8 has roads w/in riparian area & along stream that will be removed under the new TMP. Area wiil be planted and will address high water temp.	2015 EP LB: No actions in database; so no temp benefit seen from projects in this AU. -MAH 1/11/16
Snake River Spring/Summer Chinook	Grande Ronde River upper mainstem	UGC9	Limber Jim & Tribs. & Meadowbrook Cr.	4.1: Riparian Condition: Riparian Vegetation	10.00%	50	50	50	55	55	60		2012 EP: Project addresses almost all of impaired Chinook habitat in this AU. / 2015 EP LB: No actions. No change. -MAH 1/12/16
Snake River Spring/Summer Chinook	Grande Ronde River upper mainstem	UGC9	Limber Jim & Tribs. & Meadowbrook Cr.	4.2: Riparian Condition: LWD Recruitment	10.00%	60	60	60	75	65	80	Per Paul B. - significant LWD opportunities.	2015 EP LB: No actions. No change. -MAH 1/12/16
Snake River Spring/Summer Chinook	Grande Ronde River upper mainstem	UGC9	Limber Jim & Tribs. & Meadowbrook Cr.	6.2: Channel Structure and Form: Instream Structural Complexity	20.00%	60	60	60	65	70	70		2015 EP LB: No actions. No change. -MAH 1/12/16

ESU	Population	Code	Assessment Unit	2012 Standardized Limiting Factor	LF Weight	Low Bookend	Original 2018 Estimate	Updated 2018 Estimate	High 2018 Bookend	Original 2033 Estimate	High 2033 Bookend	LF Weight and Bookends Comments	Estimates Comments
Snake River Spring/Summer Chinook	Grande Ronde River upper mainstem	UGC9	Limber Jim & Tribs. & Meadowbrook Cr.	7.2: Sediment Conditions: Increased Sediment Quantity	30.00%	55	55	55	65	58	80	Fine sediments primarily from road system. No USFS grazing allotments in UGC9. Increase to 2033 High Bookend reflects potential from recently approved USFS Travel Management Plan.	2015 EP LB: No actions. No change. -MAH 1/12/16
Snake River Spring/Summer Chinook	Grande Ronde River upper mainstem	UGC9	Limber Jim & Tribs. & Meadowbrook Cr.	8.1: Water Quality: Temperature	30.00%	75	75	75	80	76	85	Reassess bookends in next cycle - UGR not temperature limited.	2012 EP: Estimate considers improvements from Limber Jim project. / 2015 EP LB: No actions. No change. -MAH 1/12/16