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	Big Sheep Creek	BSC1	Lower Big Sheep and Little Sheep Creeks	1.1: Habitat Quantity: Anthropogenic Barriers	5.00%	85	85.5	100	90	85.5	90	Little empirical evidence of chinook use in Little Sheep Creek. Camp Creek not documented Chinook stream. Approx. 1/2 - 1mile improved Chinook access.	Although NOAA considers this population functionally extirpated, hatchery Chinook outplants use this tributary. The Buhler Irrigation and Fish Passage project completed in 2012 was not evaluated by the previous expert panel. The action evaluated addressed the only known barrier in the assessment unit. Because the action moved the uplift beyond 100% the panel speculated whether the low bookend was initially too high. The project addressed a 3-ft drop and opened 10.5 miles of habitat extending into BSC2. The denominator was set at 22.2 miles (Streamnet). No other barriers are known above this location. Because there "could be an unknown barrier upstream, the panel prorated benefits by life stage and the extent the barrier each life stage. Little Sheep Creek was considered only juvenile habitat. But Chinook have been observed spawning above the location of the barrier, so benefits to both adults and juveniles were considered. This translated to a 23.6% uplift. Later the panel revised this estimate based on the rationale that the
Snake River Spring/Summer Chinook	Big Sheep Creek	BSC1	Lower Big Sheep and Little Sheep Creeks	4.1: Riparian Condition: Riparian Vegetation	15.00%	50	50	50	60	50	75	Primarily private land.	EP LB 2015: No actions, no change. - MAH.4.5.2016. No actions applicable to this limiting factor were performed within 2012-2015 period in this assessment unit. Therefore, there is no change in function percentage. Comments entered RM 6/7/2016.
Snake River Spring/Summer Chinook	Big Sheep Creek	BSC1	Lower Big Sheep and Little Sheep Creeks	6.2: Channel Structure and Form: Instream Structural Complexity	5.00%	50.1	50.1	50.1	55	50	60		EP LB 2015: No actions, no change. - MAH.4.5.2016. No actions applicable to this LF performed within 2012-2015 period in this AU. No change in function percentage. Comments entered RM on 5/25/2016

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	Big Sheep Creek	BSC1	Lower Big Sheep and Little Sheep Creeks	7.2: Sediment Conditions: Increased Sediment Quantity	5.00%	50	50	50	75	50	85		EP LB 2015: No actions, no change. - MAH.4.5.2016. No actions applicable to this limiting factor were performed within 2012-2015 period in this assessment unit. Therefore, there is no change in function percentage. Comments entered RM 6/7/2016.
Snake River Spring/Summer Chinook	Big Sheep Creek	BSC1	Lower Big Sheep and Little Sheep Creeks	8.1: Water Quality: Temperature	15.00%	50	50	50	65	50	75		EP LB 2015: No actions, no change. - MAH.4.5.2016. No actions applicable to this limiting factor were performed within 2012-2015 period in this assessment unit. Therefore, there is no change in function percentage. Comments entered RM 6/7/2016.
Snake River Spring/Summer Chinook	Big Sheep Creek	BSC1	Lower Big Sheep and Little Sheep Creeks	8.2: Water Quality: Oxygen	5.00%	80	80	80	90	80	90	feedlot in low end of system approx. 1/2 mile	EP LB 2015: No actions, no change. - MAH.4.5.2016. No actions applicable to this limiting factor were performed within 2012-2015 period in this assessment unit. Therefore, there is no change in function percentage. Comments entered RM 6/3/2016.
Snake River Spring/Summer Chinook	Big Sheep Creek	BSC1	Lower Big Sheep and Little Sheep Creeks	9.2: Water Quantity: Decreased Water Quantity	50.00%	30	30	30	80	30	80	Irrigation diversions; 90 cfs flows for a couple of months	EP LB 2015: No actions, no change. - MAH.4.5.2016. No actions applicable to this limiting factor were performed within 2012-2015 period in this assessment unit. Therefore, there is no change in function percentage. Comments entered RM 6/7/2016.

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	Big Sheep Creek	BSC2	Upper Big Sheep Creek	1.1: Habitat Quantity: Anthropogenic Barriers	16.66%	95	95	100	100	95	100		The Buhler Irrigation and Fish Passage project addressed the only barrier in this AU. Buhler Irrigation and Fish Passage project discussed for assessment unit BSC1 also benefited BSC2. Denominator used was 18.8 Chinook miles per Streamnet, but the panel discussed habitat use (natural versus hatchery outplants). Panel initially assumed that this was a full juvenile barrier, but then adjusted proration to 33% as a partial barrier. This yields a 33% uplift. Comments entered RM 6/7/2016. Panel should confirm that this note matches the rationale applied elsewhere regarding full/partial barrier and uplift.
Snake River Spring/Summer Chinook	Big Sheep Creek	BSC2	Upper Big Sheep Creek	6.2: Channel Structure and Form: Instream Structural Complexity	16.66%	80	80	80	82	80	90		EP LB 2015: No actions, no change. - MAH.4.5.2016. No actions applicable to this limiting factor were performed within 2012-2015 period in this assessment unit. Therefore, there is no change in function percentage. Comments entered RM 6/7/2016.
Snake River Spring/Summer Chinook	Big Sheep Creek	BSC2	Upper Big Sheep Creek	7.2: Sediment Conditions: Increased Sediment Quantity	16.66%	50	50	50	65	50	75		EP LB 2015: No actions, no change. - MAH.4.5.2016. No actions applicable to this limiting factor were performed within 2012-2015 period in this assessment unit. Therefore, there is no change in function percentage. Comments entered RM 6/7/2016.
Snake River Spring/Summer Chinook	Big Sheep Creek	BSC2	Upper Big Sheep Creek	8.1: Water Quality: Temperature	16.68%	60	60	60	62	60	65		EP LB 2015: No actions, no change. - MAH.4.5.2016. No actions applicable to this limiting factor were performed within 2012-2015 period in this assessment unit. Therefore, there is no change in function percentage. Comments entered RM 6/7/2016.

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	Big Sheep Creek	BSC2	Upper Big Sheep Creek	8.2: Water Quality: Oxygen	16.66%	75	75	75	80	75	85		EP LB 2015: No actions, no change. - MAH.4.5.2016. No actions applicable to this limiting factor were performed within 2012-2015 period in this assessment unit. Therefore, there is no change in function percentage. Comments entered RM 6/7/2016.
Snake River Spring/Summer Chinook	Big Sheep Creek	BSC2	Upper Big Sheep Creek	9.2: Water Quantity: Decreased Water Quantity	16.68%	50	50	50	80	50	85		EP LB 2015: No actions, no change. - MAH.4.5.2016. No actions applicable to this limiting factor were performed within 2012-2015 period in this assessment unit. Therefore, there is no change in function percentage. Comments entered RM 6/7/2016.
Snake River Spring/Summer Chinook	Big Sheep Creek	BSC3	Big Sheep Creek Tributaries	1.1: Habitat Quantity: Anthropogenic Barriers	16.70%	90	95	99.6	100	95	100	The low bookend was increased from 60 to 95 on 11/16/2012.	2012: No more known barriers after Lick Ck culvert. In 2016 the expert panel evaluated the Buhler Irrigation and Fish Passage project and benefits to assessment unit BSC1 and BSC3. The panel decided that benefits depend on how far juvenile Chinook migrate upstream. The panel adjusted the proration to account for the fact that most rearing habitat value is downstream. Panel also considered how much of the observed rearing is from hatchery outplants rather than naturally spawned fish. There is a barrier known in this assessment unit near the campground at Lick Creek confluence. Streamnet mileage is 6.8 miles for Chinook; removed last 0.3 mile of Lick Creek, so 6.5 miles treated. Panel prorated improvement at 10%, resulting in 9.6% uplift. The panel included a note to re-examine the low bookend during look forward. Comments entered RM 6/7/2016.

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	Big Sheep Creek	BSC3	Big Sheep Creek Tributaries	5.2: Peripheral and Transitional Habitats: Floodplain Condition	16.66%	95	95	95	100	95	100		EP LB 2015: No actions, no change. - MAH.4.5.2016. No actions applicable to this limiting factor were performed within 2012-2015 period in this assessment unit. Therefore, there is no change in function percentage. Comments entered RM 6/7/2016.
Snake River Spring/Summer Chinook	Big Sheep Creek	BSC3	Big Sheep Creek Tributaries	6.1: Channel Structure and Form: Bed and Channel Form	16.66%	75	75	75	77	75	80		EP LB 2015: No actions, no change. - MAH.4.5.2016. No actions applicable to this limiting factor were performed within 2012-2015 period in this assessment unit. Therefore, there is no change in function percentage. Comments entered RM 6/7/2016.
Snake River Spring/Summer Chinook	Big Sheep Creek	BSC3	Big Sheep Creek Tributaries	6.2: Channel Structure and Form: Instream Structural Complexity	16.66%	85.05	85.05	85.05	90	85.05	95		EP LB 2015: No actions, no change. - MAH.4.5.2016. No actions applicable to this limiting factor were performed within 2012-2015 period in this assessment unit. Therefore, there is no change in function percentage. Comments entered RM 6/7/2016.
Snake River Spring/Summer Chinook	Big Sheep Creek	BSC3	Big Sheep Creek Tributaries	7.2: Sediment Conditions: Increased Sediment Quantity	16.66%	50.25	50.25	50.25	65	50.35	75		EP LB 2015: No actions, no change. - MAH.4.5.2016. No actions applicable to this limiting factor were performed within 2012-2015 period in this assessment unit. Therefore, there is no change in function percentage. Comments entered RM 6/7/2016.
Snake River Spring/Summer Chinook	Big Sheep Creek	BSC3	Big Sheep Creek Tributaries	8.2: Water Quality: Oxygen	16.66%	80.1	80.1	80.1	85	80.1	90		EP LB 2015: No actions, no change. - MAH.4.5.2016. No actions applicable to this limiting factor were performed within 2012-2015 period in this assessment unit. Therefore, there is no change in function percentage. Comments entered RM 6/7/2016.

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	Imnaha River mainstem	IRC1	Lower Imnaha Mainstem	7.2: Sediment Conditions: Increased Sediment Quantity	25.00%	80.05	80.05	80.25	85	80.05	90		Marr project: Avoided riprap by bioengineering 350 feet of formely eroding bank: logs, sticks, cattle exclusion. Planted vegetation. Log deflector structure, but maintained side channel. Project expected to affect sediment conditions up to 5 miles downstream, but is more likely measurable within 1 mile only. Denominator was set at 36.3 miles based on Streamnet, resulting in 0.2% uplift.
Snake River Spring/Summer Chinook	Imnaha River mainstem	IRC1	Lower Imnaha Mainstem	8.1: Water Quality: Temperature	25.00%	75	75	75	77	75	80		2016: No actions during the 2012-2015 timeframe. Marr project is not yet affecting water quality. No change in function. Comments entered RM 5/31/2016.
Snake River Spring/Summer Chinook	Imnaha River mainstem	IRC1	Lower Imnaha Mainstem	8.2: Water Quality: Oxygen	25.00%	70	70	70	80	70	85		EP LB 2015: No actions, no change. - MAH.4.5.2016. No actions applicable to this limiting factor were performed within 2012-2015 period in this assessment unit. Therefore, there is no change in function percentage. Comments entered RM 5/31/2016.
Snake River Spring/Summer Chinook	Imnaha River mainstem	IRC1	Lower Imnaha Mainstem	9.2: Water Quantity: Decreased Water Quantity	25.00%	85	85	85	90	85	90		EP LB 2015: No actions, no change. - MAH.4.5.2016. No actions applicable to this limiting factor were performed within 2012-2015 period in this assessment unit. Therefore, there is no change in function percentage. Comments entered RM 5/31/2016.
Snake River Spring/Summer Chinook	Imnaha River mainstem	IRC2	Cow, Lightening & Horse Cr.	6.1: Channel Structure and Form: Bed and Channel Form	25.00%								EP LB 2015: No actions, no change. - MAH.4.5.2016. No actions applicable to this limiting factor were performed within 2012-2015 period in this assessment unit. Therefore, there is no change in function percentage. Comments entered RM 5/31/2016

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	Imnaha River mainstem	IRC2	Cow, Lightening & Horse Cr.	6.2: Channel Structure and Form: Instream Structural Complexity	25.00%								EP LB 2015: No actions, no change. - MAH.4.5.2016. No actions applicable to this limiting factor were performed within 2012-2015 period in this assessment unit. Therefore, there is no change in function percentage. Comments entered RM 5/31/2016.
Snake River Spring/Summer Chinook	Imnaha River mainstem	IRC2	Cow, Lightening & Horse Cr.	7.2: Sediment Conditions: Increased Sediment Quantity	25.00%								EP LB 2015: No actions, no change. - MAH.4.5.2016. No actions applicable to this limiting factor were performed within 2012-2015 period in this assessment unit. Therefore, there is no change in function percentage. Comments entered RM 5/31/2016.
Snake River Spring/Summer Chinook	Imnaha River mainstem	IRC2	Cow, Lightening & Horse Cr.	8.1: Water Quality: Temperature	25.00%								EP LB 2015: No actions, no change. - MAH.4.5.2016. No actions applicable to this limiting factor were performed within 2012-2015 period in this assessment unit. Therefore, there is no change in function percentage. Comments entered RM 5/31/2016.
Snake River Spring/Summer Chinook	Imnaha River mainstem	IRC3	Upper Imnaha River Mainstem	1.1: Habitat Quantity: Anthropogenic Barriers	20.00%	75	75	75	100	75	100		EP LB 2015: No actions, no change. - MAH.4.5.2016. No actions applicable to this limiting factor were performed within 2012-2015 period in this assessment unit. Therefore, there is no change in function percentage. Comments entered RM 5/31/2016.
Snake River Spring/Summer Chinook	Imnaha River mainstem	IRC3	Upper Imnaha River Mainstem	6.2: Channel Structure and Form: Instream Structural Complexity	20.00%	85	85	85	86	85	90		EP LB 2015: No actions, no change. - MAH.4.5.2016. No actions applicable to this limiting factor were performed within 2012-2015 period in this assessment unit. Therefore, there is no change in function percentage. Comments entered RM 5/31/2016.
Snake River Spring/Summer Chinook	Imnaha River mainstem	IRC3	Upper Imnaha River Mainstem	7.2: Sediment Conditions: Increased Sediment Quantity	20.00%	80	80	80	82	80	85		EP LB 2015: No actions, no change. - MAH.4.5.2016. No actions applicable to this limiting factor were performed within 2012-2015 period in this assessment unit. Therefore, there is no change in function percentage. Comments entered RM 5/31/2016.

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	Imnaha River mainstem	IRC3	Upper Imnaha River Mainstem	8.1: Water Quality: Temperature	20.00%	80	80	80	82	80	85		EP LB 2015: No actions, no change. -MAH.4.5.2016. No actions applicable to this limiting factor were performed within 2012-2015 period in this assessment unit. Therefore, there is no change in function percentage. Comments entered RM 5/31/2016.
Snake River Spring/Summer Chinook	Imnaha River mainstem	IRC3	Upper Imnaha River Mainstem	8.2: Water Quality: Oxygen	20.00%	90	90	90	95	90	96		EP LB 2015: No actions, no change. -MAH.4.5.2016. No actions applicable to this limiting factor were performed within 2012-2015 period in this assessment unit. Therefore, there is no change in function percentage. Commented entered RM 5/31/2016.
Snake River Spring/Summer Chinook	Imnaha River mainstem	IRC4	Upper Imnaha River Tribs.	1.1: Habitat Quantity: Anthropogenic Barriers	10.00%	80	80	80	100	90	100	Raised low bookend from 60	2012: Grouse Ck. rearing only for Chinook; total from 3 project about 3 miles improved access. / EP LB 2015: No actions, no change. -MAH.4.5.2016. No actions applicable to this limiting factor were performed within 2012-2015 period in this assessment unit. Therefore, there is no change in function percentage. Comments entered 5/31/2016.
Snake River Spring/Summer Chinook	Imnaha River mainstem	IRC4	Upper Imnaha River Tribs.	4.1: Riparian Condition: Riparian Vegetation	20.00%	60	60	60	62	60	65		EP LB 2015: No actions, no change. -MAH.4.5.2016. No actions applicable to this limiting factor were performed within 2012-2015 period in this assessment unit. Therefore, there is no change in function percentage. Comments entered RM 5/31/2016.
Snake River Spring/Summer Chinook	Imnaha River mainstem	IRC4	Upper Imnaha River Tribs.	6.1: Channel Structure and Form: Bed and Channel Form	10.00%	80	80	80	85	80	90		EP LB 2015: No actions, no change. -MAH.4.5.2016. No actions applicable to this limiting factor were performed within 2012-2015 period in this assessment unit. Therefore, there is no change in function percentage. Comments entered RM 5/31/2016.

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	Imnaha River mainstem	IRC4	Upper Imnaha River Tribs.	6.2: Channel Structure and Form: Instream Structural Complexity	10.00%	80	80	80	82	80	85		EP LB 2015: No actions, no change. - MAH.4.5.2016. No actions applicable to this limiting factor were performed within 2012-2015 period in this assessment unit. Therefore, there is no change in function percentage. Comments entered RM 5/31/2016.
Snake River Spring/Summer Chinook	Imnaha River mainstem	IRC4	Upper Imnaha River Tribs.	7.2: Sediment Conditions: Increased Sediment Quantity	20.00%	80	80	80	85	80	90		EP LB 2015: No actions, no change. - MAH.4.5.2016. No actions applicable to this limiting factor were performed within 2012-2015 period in this assessment unit. Therefore, there is no change in function percentage. Comments entered RM 5/31/2016.
Snake River Spring/Summer Chinook	Imnaha River mainstem	IRC4	Upper Imnaha River Tribs.	8.1: Water Quality: Temperature	20.00%	80	80	80	82	80	85		EP LB 2015: No actions, no change. - MAH.4.5.2016. No actions applicable to this limiting factor were performed within 2012-2015 period in this assessment unit. Therefore, there is no change in function percentage. Comments entered RM 5/31/2016.
Snake River Spring/Summer Chinook	Imnaha River mainstem	IRC4	Upper Imnaha River Tribs.	8.2: Water Quality: Oxygen	0.00%	75	75	75	80	75	85		EP LB 2015: No actions, no change. - MAH.4.5.2016. No actions applicable to this limiting factor were performed within 2012-2015 period in this assessment unit. Therefore, there is no change in function percentage. Comments entered RM 5/31/2016.
Snake River Spring/Summer Chinook	Imnaha River mainstem	IRC4	Upper Imnaha River Tribs.	9.1: Water Quantity: Increased Water Quantity	0.00%	70	70	70	72	70	75		EP LB 2015: No actions, no change. - MAH.4.5.2016. No actions applicable to this limiting factor were performed within 2012-2015 period in this assessment unit. Therefore, there is no change in function percentage. Comments entered RM 5/31/2016.
Snake River Spring/Summer Chinook	Imnaha River mainstem	IRC4	Upper Imnaha River Tribs.	9.2: Water Quantity: Decreased Water Quantity	10.00%	80	80	80	85	80	90		EP LB 2015: No actions, no change. - MAH.4.5.2016. No actions applicable to this limiting factor were performed within 2012-2015 period in this assessment unit. Therefore, there is no change in function percentage. Comments entered RM 5/31/2016.

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	Lookingglass Creek	LGC1	Lookingglass Creek	1.1: Habitat Quantity: Anthropogenic Barriers	40.00%	70	70	70	100	70	100		EP LB 2015: No actions, no change. - MAH.4.5.2016. No actions applicable to this limiting factor were performed within 2012-2015 period in this assessment unit. Therefore, there is no change in function percentage. Comments entered RM 5/31/2016.
Snake River Spring/Summer Chinook	Lookingglass Creek	LGC1	Lookingglass Creek	6.2: Channel Structure and Form: Instream Structural Complexity	60.00%	80	80	80	85	80	90		EP LB 2015: No actions, no change. - MAH.4.5.2016. No actions applicable to this limiting factor were performed within 2012-2015 period in this assessment unit. Therefore, there is no change in function percentage. Comments entered RM 5/31/2016.
Snake River Spring/Summer Chinook	Minam River	MRC1	Lower Minam River, mouth to Couger Creek	6.2: Channel Structure and Form: Instream Structural Complexity	50.00%								
Snake River Spring/Summer Chinook	Minam River	MRC1	Lower Minam River, mouth to Couger Creek	7.2: Sediment Conditions: Increased Sediment Quantity	50.00%								
Snake River Spring/Summer Chinook	Minam River	MRC2	Lower Minam River, Couger Creek to Little Minam River	6.2: Channel Structure and Form: Instream Structural Complexity	100.00%								
Snake River Spring/Summer Chinook	Minam River	MRC3	Lower Minam River, Little Minam River to headwaters	6.2: Channel Structure and Form: Instream Structural Complexity	100.00%								

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	Minam River	MRC4	Little Minam River, mouth to headwaters	6.2: Channel Structure and Form: Instream Structural Complexity	100.00%								
Snake River Spring/Summer Chinook	Lostine River	WLC1	Lower Wallowa River (Mouth to Minam R. & Howard Cr.)	6.2: Channel Structure and Form: Instream Structural Complexity	25.00%							No bookend values established for this limiting factor. Comment entered RM 6/7/2016.	No actions applicable to this limiting factor were performed within 2012-2015 period in this assessment unit. Therefore, there is no change in function percentage. Comments entered RM 6/7/2016.
Snake River Spring/Summer Chinook	Lostine River	WLC1	Lower Wallowa River (Mouth to Minam R. & Howard Cr.)	7.2: Sediment Conditions: Increased Sediment Quantity	25.00%							No bookend values established for this limiting factor. Comment entered RM 6/7/2016.	No actions applicable to this limiting factor were performed within 2012-2015 period in this assessment unit. Therefore, there is no change in function percentage. Comments entered 6/7/2016.
Snake River Spring/Summer Chinook	Lostine River	WLC1	Lower Wallowa River (Mouth to Minam R. & Howard Cr.)	8.1: Water Quality: Temperature	25.00%							No bookends established for this limiting factor. Comment entered RM 6/7/2016.	No actions applicable to this limiting factor were performed within 2012-2015 period in this assessment unit. Therefore, there is no change in function percentage. Comments entered RM 6/7/2016.
Snake River Spring/Summer Chinook	Lostine River	WLC1	Lower Wallowa River (Mouth to Minam R. & Howard Cr.)	9.2: Water Quantity: Decreased Water Quantity	25.00%							No bookends established for this limiting factor. Comment entered RM 6/7/2016.	No actions applicable to this limiting factor were performed within 2012-2015 period in this assessment unit. Therefore, there is no change in function percentage. Comments entered RM 6/7/2016.

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	Lostine River	WLC2	Middle Wallowa River (Minam R. to Dry Cr. And Deer Cr.)	6.2: Channel Structure and Form: Instream Structural Complexity	33.33%							No bookend values established for this limiting factor. Comment entered RM 6/7/2016.	No actions applicable to this limiting factor were performed within 2012-2015 period in this assessment unit. Therefore, there is no change in function percentage. Comments entered RM 6/7/2016.
Snake River Spring/Summer Chinook	Lostine River	WLC2	Middle Wallowa River (Minam R. to Dry Cr. And Deer Cr.)	7.2: Sediment Conditions: Increased Sediment Quantity	33.33%							No bookend values established for this limiting factor. Comment entered 6/7/2016.	No actions applicable to this limiting factor were performed within 2012-2015 period in this assessment unit. Therefore, there is no change in function percentage. Comments entered RM 6/7/2016.
Snake River Spring/Summer Chinook	Lostine River	WLC2	Middle Wallowa River (Minam R. to Dry Cr. And Deer Cr.)	8.1: Water Quality: Temperature	33.34%							No bookend values established for this limiting factor. Comment entered RM 6/7/2016.	No actions applicable to this limiting factor were performed within 2012-2015 period in this assessment unit. Therefore, there is no change in function percentage. Comments entered RM 6/7/2016.

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	Lostine River	WLC3	Upper Wallowas River (Dry Cr. To Wallowas Lake)	1.1: Habitat Quantity: Anthropogenic Barriers	5.00%	91	92	95.1	100	92	100		2012: Only Lower Alder considered for estimate Calculation spreadsheet contains 2 actions: Trout Creek/Alpine Meadows project (spring-fed cool water - removed small irrigation push-up dam and pump pool, which was a seasonal barrier, but not to Chinook; project opened 2 miles of channel to Chinook) and the Cross Canal (seasonal check log: mid-July onward through irrigation season, now replaced by roughened channel; 15 miles of upstream habitat affected). Panel prorated based on life stage/timing and degree of blockage. But Streamnet Chinook extent does not extend up to Trout Creek site (so prorated to 0% for limiting factor 1.1). Cross Canal: location is low in system and affected many fish, but was not a complete barrier and was seasonal (placed log and mounded substrate up against in) - thus, 10% proration. Four or five other barriers also exist. Panel calculated a 4.1 % uplift. Comments entered RM 5/31/2016.
Snake River Spring/Summer Chinook	Lostine River	WLC3	Upper Wallowas River (Dry Cr. To Wallowas Lake)	4.1: Riparian Condition: Riparian Vegetation	10.00%	40.25	40.25	40.28	45	40.75	60		2012: 6 Ranch Project 2 benefits. In 2016 the expert panel evaluated the Six Ranch Project that was implemented in 2015. The action treated 0.38 miles. The panel discussed methods of prorating based on riparian growth average in the Beechie paper. No major benefit expected till 30 years out. Alternately, assigning 1% per year, assuming that it takes 100 years to reach riparian shade properly functioning condition and linear growth yields a 3% proration and 0.03% uplift. Comments entered RM 6/7/2016.

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	Lostine River	WLC3	Upper Wallowas River (Dry Cr. To Wallowas Lake)	6.1: Channel Structure and Form: Bed and Channel Form	15.00%	40	40.5	40.8	65	40.75	80		2012: 6 Ranch benefits. 2016:Six Ranch project: Panel discussed degree of new sinuosity versus constraints from railroad and maturation time re: percent of properly functioning condition by 2018. Now able to access floodplain, but is wood structure constraining plan form dynamics? Now set up for channel processes to work at next flood. Improvement prorated to 75% in calculation spreadsheet, resulting in 0.8 % uplift. Comments entered RM 6/2/2016.
Snake River Spring/Summer Chinook	Lostine River	WLC3	Upper Wallowas River (Dry Cr. To Wallowas Lake)	6.2: Channel Structure and Form: Instream Structural Complexity	25.00%	40.3	40.3	40.8	65	50.4	80		2012: 30 mile reach channelized. In 2016 the expert panel evaluated the Six Ranch Project that included wood loading along 0.38 mile. Previously had almost no rearing value. Panel used Minam large wood loading reference condition of 27 pieces per 100 m. Post-implementation 67 pieces per 100 m were recorded. The panel determined that this far exceeded properly functioning condition. The treatment affect also increased pools and riffles. Because 50% of the logs were put in place for bank stability rather than instream structure/cover, the improvement was prorated at 50%. The panel prorated the cross-canal grade control and channel roughening rock and at 0% because the treatment was intended for passage rather than instream structure. Overall result was a 0.5% uplift. Comments entered RM 6/7/2016.

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	Lostine River	WLC3	Upper Wallowas River (Dry Cr. To Wallowas Lake)	7.2: Sediment Conditions: Increased Sediment Quantity	20.00%	50.1	50.2	50.8	60	50.2	75		In 2012 the 6-Ranch Project 2 was evaluated for benefits. In 2016 it was determined that one goal of projects to address this limiting factor was to restore natural sediment transport processes. The calculation spreadsheet includes two projects: Six Ranch (which addressed bank sedimentation and substrate embeddedness within the project footprint) and Cross-Canal (which had less benefit than the Six Ranch - length treated was 0.9 mile to result in less sediment moving through now than before and a function of the timing of cross-log placement during a time when major sediments were not moving. Therefore little benefit was concluded. Improvements were prorated based on the percentage of properly functioning condition achieved to 2018 period, taking into account upstream sources and on-site improvements as a function of riparian vegetation maturation (60% and 30%). Based on this the expert panel estimated a 0.7% uplift. Comments entered RM 6/2/2016.
Snake River Spring/Summer Chinook	Lostine River	WLC3	Upper Wallowas River (Dry Cr. To Wallowas Lake)	8.1: Water Quality: Temperature	10.00%	85.1	85.1	85.1	87	85.1	90		In 2016 the panel determined that there were no measurable benefits to this limiting factor from flow acquisition actions. Comments entered RM 6/3/2016.
Snake River Spring/Summer Chinook	Lostine River	WLC3	Upper Wallowas River (Dry Cr. To Wallowas Lake)	8.2: Water Quality: Oxygen	0.00%	70	70	70	80	70	85		EP LB 2015: No actions, no change. - MAH.4.5.2016 No measurable benefits to this limiting factor from the flow acquisition projects evaluated. Comments entered RM 6/3/2016.

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	Lostine River	WLC3	Upper Wallowas River (Dry Cr. To Wallowas Lake)	9.2: Water Quantity: Decreased Water Quantity	15.00%	80.1	80.6	80.6	85	80.6	90		In 2016 the expert panel evaluated the Trout Creek Project that includes a permanent transfer of 1 cfs back to the stream during irrigation season (verifiable by pump data). Using the average baseflow as the denominator (150 cfs in Aug-Sep) yields a 0.5% uplift. The calculation spreadsheet includes flow benefits per year for the period of assessment. No flow benefit is expected from the Cross Canal Project. Comments entered RM 6/7/2016.
Snake River Spring/Summer Chinook	Lostine River	WLC4	Hurricane Creek	1.1: Habitat Quantity: Anthropogenic Barriers	15.00%	50	50	50	100	50	100		EP LB 2015: No actions, no change. -MAH.4.5.2016. No actions applicable to this limiting factor were performed within 2012-2015 period in this assessment unit. Therefore, there is no change in function percentage. Comments entered RM 6/3/2016.
Snake River Spring/Summer Chinook	Lostine River	WLC4	Hurricane Creek	4.1: Riparian Condition: Riparian Vegetation	15.00%	30	30	30	35	38	60		2012: Hurricane Ck/Tippet Project applies. / EP LB 2015: No actions, no change. -MAH.4.5.2016 No actions applicable to this limiting factor were performed within 2012-2015 period in this assessment unit. Therefore, there is no change in function percentage. Comments entered RM 6/3/2016.
Snake River Spring/Summer Chinook	Lostine River	WLC4	Hurricane Creek	5.2: Peripheral and Transitional Habitats: Floodplain Condition	15.00%	30	30	30	50	30	60		EP LB 2015: No actions, no change. -MAH.4.5.2016. No actions applicable to this limiting factor were performed within 2012-2015 period in this assessment unit. Therefore, there is no change in function percentage. Comments entered RM 6/3/2016.
Snake River Spring/Summer Chinook	Lostine River	WLC4	Hurricane Creek	6.2: Channel Structure and Form: Instream Structural Complexity	15.00%	30	30	30	50	38	60		2012: 1 of 6 miles improved. EP LB 2015: No actions, no change. -MAH.4.5.2016. No actions applicable to this limiting factor were performed within 2012-2015 period in this assessment unit. Therefore, there is no change in function percentage. Comments entered RM 6/3/2016.

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	Lostine River	WLC4	Hurricane Creek	7.2: Sediment Conditions: Increased Sediment Quantity	4.00%	60	60	60	70	63	80		2012: Hurricane Ck/Tippet project applies - bank stabilization./ EP LB 2015: No actions, no change. -MAH.4.5.2016. No actions applicable to this limiting factor were performed within 2012-2015 period in this assessment unit. Therefore, there is no change in function percentage. Comments entered RM 6/3/2016.
Snake River Spring/Summer Chinook	Lostine River	WLC4	Hurricane Creek	8.1: Water Quality: Temperature	15.00%	70	70	70	72	70	75		EP LB 2015: No actions, no change. -MAH.4.5.2016. No actions applicable to this limiting factor were performed within 2012-2015 period in this assessment unit. Therefore, there is no change in function percentage. Comments entered RM 6/3/2016.
Snake River Spring/Summer Chinook	Lostine River	WLC4	Hurricane Creek	8.2: Water Quality: Oxygen	1.00%	70	70	70	80	70	80		EP LB 2015: No actions, no change. -MAH.4.5.2016. No actions applicable to this limiting factor were performed within 2012-2015 period in this assessment unit. Therefore, there is no change in function percentage. Comments entered RM 6/3/2016.
Snake River Spring/Summer Chinook	Lostine River	WLC4	Hurricane Creek	9.2: Water Quantity: Decreased Water Quantity	20.00%	40	40	40	90	40	95		EP LB 2015: No actions, no change. -MAH.4.5.2016. No actions applicable to this limiting factor were performed within 2012-2015 period in this assessment unit. Therefore, there is no change in function percentage. Comments entered RM 6/3/2016.
Snake River Spring/Summer Chinook	Lostine River	WLC5	Prairie Creek	1.1: Habitat Quantity: Anthropogenic Barriers	14.28%							Bookend values for this limiting factor have not been established. Comment entered RM 6/7/2016.	No actions applicable to this limiting factor were performed within 2012-2015 period in this assessment unit. Therefore, there is no change in function percentage. Comments entered RM 6/7/2016.
Snake River Spring/Summer Chinook	Lostine River	WLC5	Prairie Creek	4.1: Riparian Condition: Riparian Vegetation	14.28%							Bookend values for this limiting factor have not been established. Comment entered RM 6/7/2015.	No actions applicable to this limiting factor were performed within 2012-2015 period in this assessment unit. Therefore, there is no change in function percentage. Comments entered RM 6/7/2016.

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	Lostine River	WLC5	Prairie Creek	7.2: Sediment Conditions: Increased Sediment Quantity	14.30%							Bookend values for this limiting factor have not been established. Comment entered RM 6/7/2016.	No actions applicable to this limiting factor were performed within 2012-2015 period in this assessment unit. Therefore, there is no change in function percentage. Comments entered RM 6/7/2016.
Snake River Spring/Summer Chinook	Lostine River	WLC5	Prairie Creek	8.1: Water Quality: Temperature	14.28%							Bookend values for this limiting factor have not been established. Comment entered RM 6/7/2016.	No actions applicable to this limiting factor were performed within 2012-2015 period in this assessment unit. Therefore, there is no change in function percentage. Comments entered RM 6/7/2016.
Snake River Spring/Summer Chinook	Lostine River	WLC5	Prairie Creek	8.2: Water Quality: Oxygen	14.28%							Bookend values for this limiting factor have not been established. Comment entered RM 6/7/2016.	No actions applicable to this limiting factor were performed within 2012-2015 period in this assessment unit. Therefore, there is no change in function percentage. Comments entered RM 6/7/2016.
Snake River Spring/Summer Chinook	Lostine River	WLC5	Prairie Creek	9.1: Water Quantity: Increased Water Quantity	14.28%							Bookend values for this limiting factor have not been established. Comment entered RM 6/7/2016.	No actions applicable to this limiting factor were performed within 2012-2015 period in this assessment unit. Therefore, there is no change in function percentage. Comments entered RM 6/7/2016.
Snake River Spring/Summer Chinook	Lostine River	WLC5	Prairie Creek	9.2: Water Quantity: Decreased Water Quantity	14.30%							Bookend values for this limiting factor have not been established. Comment entered RM 6/7/2016.	No actions applicable to this limiting factor were performed within 2012-2015 period in this assessment unit. Therefore, there is no change in function percentage. Comments entered RM 6/7/2016.
Snake River Spring/Summer Chinook	Lostine River	WLC6	Bear Creek	1.1: Habitat Quantity: Anthropogenic Barriers	10.00%	60	60	60	85	65	85	Old City of Wallowa irrigation diversion; seasonal juvenile & some adult barrier; Gobel diversion - partial barrier; another at upper Diamond Lane	EP LB 2015: No actions, no change. - MAH.4.5.2016. No actions applicable to this limiting factor were performed within 2012-2015 period in this assessment unit. Therefore, there is no change in function percentage. Comments entered RM 6/3/2016.

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	Lostine River	WLC6	Bear Creek	6.2: Channel Structure and Form: Instream Structural Complexity	20.00%	40	40	40	70	40	80	bottom 5 miles channelized & incised, not much wood, lots of rock	EP LB 2015: No actions, no change. - MAH.4.5.2016. No actions applicable to this limiting factor were performed within 2012-2015 period in this assessment unit. Therefore, there is no change in function percentage. Comments entered RM 6/3/2016.
Snake River Spring/Summer Chinook	Lostine River	WLC6	Bear Creek	7.2: Sediment Conditions: Increased Sediment Quantity	4.00%	70	70	70	75	70.05	80	pre-Dock Creek.	2012: City of wallowa diversion. / EP LB 2015: No actions, no change. - MAH.4.5.2016. No actions applicable to this limiting factor were performed within 2012-2015 period in this assessment unit. Therefore, there is no change in function percentage. Comments entered RM 6/3/2016.
Snake River Spring/Summer Chinook	Lostine River	WLC6	Bear Creek	8.1: Water Quality: Temperature	10.00%	50	50	50	60	50	70		EP LB 2015: No actions, no change. - MAH.4.5.2016. No actions applicable to this limiting factor were performed within 2012-2015 period in this assessment unit. Therefore, there is no change in function percentage. Comments entered RM 6/3/2016.
Snake River Spring/Summer Chinook	Lostine River	WLC6	Bear Creek	8.2: Water Quality: Oxygen	1.00%	80	80	80	80	80	80		EP LB 2015: No actions, no change. - MAH.4.5.2016
Snake River Spring/Summer Chinook	Lostine River	WLC6	Bear Creek	9.2: Water Quantity: Decreased Water Quantity	55.00%	25	25	25	70	25	70	mid-late irrigation season functionally dewaters lower 5 miles; abt 12-15 miles above	EP LB 2015: No actions, no change. - MAH.4.5.2016. No actions applicable to this limiting factor are expected within the 2013-2018 period in this assessment unit. Therefore, no change in function percentage is expected. Comments entered RM 6/3/2016.

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	Lostine River	WLC7	Lower Lostine River (Mouth to Silver Cr.)	1.1: Habitat Quantity: Anthropogenic Barriers	15.00%	85	95	100	100	95	100		2012: Partial barrier - adult chinook pass, significant juvenile barrier especially during summer; important rearing & spawning area. Flow is only known remaining barrier The 2016 calculation spreadsheet contains all the fish passage actions and habitat accessed, the uplift which was prorated for each life stage that benefits and based on the extent of the blockage for that life stage. Some were partial barriers to adults and juveniles (e.g., both low-flow and high-flow velocity barriers). Project benefits were adjust for the mileage extent of habitat for each life stage in the assessment unit and were adjusted to avoid double-counting. Streamnet shows 14.1 Chinook miles, which was used as the denominator. There are additional partial barriers upstream of City of Lostine diversion. Lostine minimum flow agreement affects the entire area. Intent of flow projects was to help pass adults. Combined this amounts to 3 miles effected with the upper extent reaching to RM 5. Telemetry data show delays at site, but not blockage.

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	Lostine River	WLC7	Lower Lostine River (Mouth to Silver Cr.)	6.2: Channel Structure and Form: Instream Structural Complexity	30.00%	57	57	57.1	60	57	65		2012: 257 acres in wlc7 & wlc3; estimate 200 ac. in WLC 7; est 2 stream miles; no credit for protection - benefits will be added if active restoration occurs. In 2016 the expert panel reviewed the City of Lostine project that built roughened channel and grade break; boulder pods and a small number (10 pieces) increased complexity. Emphasis of that action was on passage, so channel complexity was a secondary benefit. Improvement prorated to 15%, yielding 0.1% uplift. Comments entered RM 6/7/2016.
Snake River Spring/Summer Chinook	Lostine River	WLC7	Lower Lostine River (Mouth to Silver Cr.)	7.2: Sediment Conditions: Increased Sediment Quantity	10.00%	50	50	50	65	50	70		No actions applicable to this limiting factor were performed within 2012-2015 period in this assessment unit. Therefore, there is no change in function percentage. Comments entered RM 5/31/2016.

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	Lostine River	WLC7	Lower Lostine River (Mouth to Silver Cr.)	8.1: Water Quality: Temperature	10.00%	77	77	78.2	77	77	80		2016: Expert Panel had a very difficult time agreeing on a methodology to quantify the benefit to temperature. They all agree the benefit is not zero. Panel considered effect of limiting factor 9.2 flow projects on temperature and concluded that Minimum Flow Agreement provided measurable benefit, but not other projects. Water in this area (above Cross-Country Canal) is cooler than in main river. Panel discussed fish occupancy in reach affected by project. Major spawning is upstream of this area, so no benefit there. Contributes at RM 5. Contributes 15 cfs of 14 degree water into 80 cfs (Lostine River) at 17-20 degrees C at RM 5.5. Reach was previously dry in mid-August to mid-September. Wallowa River mainstem is too big to see benefits downstream. Panel prorated benefit in calculation spreadsheet for each reach (RM 0-5.5 and RM 5.5-9). Panel examined water temperature logger data showing extent of downstream effects (3 degree difference). Project started in 2005, but minimum flow increased in 2015. Discussion of additional water mass effect on heat
Snake River Spring/Summer Chinook	Lostine River	WLC7	Lower Lostine River (Mouth to Silver Cr.)	8.2: Water Quality: Oxygen	0.00%	75	75	75	80	75	90		EP LB 2015: No actions, no change. - MAH.4.5.2016. No actions applicable to this limiting factor were performed within 2012-2015 period in this assessment unit. Therefore, there is no change in function percentage. Comments entered RM 6/7/2016.

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	Lostine River	WLC7	Lower Lostine River (Mouth to Silver Cr.)	9.2: Water Quantity: Decreased Water Quantity	35.00%	50	50	62.5	80	50	80		2012: Improvement from lease already accounted for in 2010-12 period. Comment From the 2012 lookforward:Lostine minimum flow agreement and permanent agreement not to divert (two separate projects but the first being the annual lease and the second beign the permanent acquisition of water). Acounted for also in the lookback. In 2016 the expert panel evaluated three flow projects that are included in the calculation spreadsheet. Carlsen (BPA-funded staff time): 1 cfs, but only biologically relevant during fish presence period. 2012-2018 benefits not counted in previous panels, so counted here (May 2016). 2.22 cfs early season May - July rate for 90 days, and less 0.73 cfs (1/3) later in the season (Aug -Sept: 60 days). For fish, the later portion is more critical, but in some years, late July is important, depending on fish migration/holding timing. Denominator: natural (without irrigation) baseflow estimated as 35 cfs. Restoration target in Recovery Plan is 25 cfs, but properly functioning condition is higher. Panel
Snake River Spring/Summer Chinook	Lostine River	WLC8	Upper Lostine River (Silver Cr. To Headwaters)	7.2: Sediment Conditions: Increased Sediment Quantity	33.40%							Bookend values not established for this limiting factor. Comment entered RM 6/7/2016.	No actions applicable to this limiting factor were performed within 2012-2015 period in this assessment unit. Therefore, there is no change in function percentage. Comments entered RM 6/7/2016.
Snake River Spring/Summer Chinook	Lostine River	WLC8	Upper Lostine River (Silver Cr. To Headwaters)	8.1: Water Quality: Temperature	33.30%							Bookend values not established for this limiting factor. Comment entered RM 6/7/2016.	No actions applicable to this limiting factor were performed within 2012-2015 period in this assessment unit. Therefore, there is no change in function percentage. Comments entered RM 6/7/2016.

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	Lostine River	WLC8	Upper Lostine River (Silver Cr. To Headwaters)	8.2: Water Quality: Oxygen	33.30%							Bookend values not established for this limiting factor. Comment entered RM 6/7/2016.	No actions applicable to this limiting factor were performed within 2012-2015 period in this assessment unit. Therefore, there is no change in function percentage. Comments entered RM 6/7/2016.
Snake River Spring/Summer Chinook	Wenaha River	WRC1	Lower Wenaha River	6.2: Channel Structure and Form: Instream Structural Complexity	50.00%								
Snake River Spring/Summer Chinook	Wenaha River	WRC1	Lower Wenaha River	8.1: Water Quality: Temperature	50.00%								
Snake River Spring/Summer Chinook	Wenaha River	WRC2	Lower Wenaha River Tributaries	8.1: Water Quality: Temperature	100.00%								