NOTES:

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

| ESU | Populatio | Code | Assessment | 2012 Standardi zed Limiting Factor | LF Weight | Low | Original 2018 Estimate | Updated 2018 Estimate | High 2018 Bookend | | - | LF Weight and Bookends Comments | Estimates Comments |
|-----------------------------|-----------------|-------|--|--|-----------|-----|------------------------------|-----------------------------|----------------------|----|-----|---|--|
| Snake River Steelhead | Lochsa River | LASIA | Upper Lochsa Tributaries - Postoffice to Parachute | 1.1: Habitat Quantity: | _ | 85 | 85 | 85.6 | | 95 | 100 | Level of certainty = 2; Sources = 5, 7 | 2012:Actions are on USFS may be a few remaining, b of opportunity is on privat (checker board). Installed structures (circa 1990) are barriers in several streams will be complete by 2012. addressing in 2013 and un 2015: 2016 Expert Panel a full barrier project that wa during the 2012-2015 time it opened 0.5 miles of stre but was prorated for only rearing use (50%). Uplift v calculated relative to fish of in the Assessment Unit: Ex modified values from Streat which indicated 33 miles o Based on local knowledge, following river miles were the fish distribution estimat of Badger Creek, 2 miles 12 Waw'aalamnima, 0.5 mile and 1 mile in Upper Doe. fish use in the Assessment miles. Therefore 0.25 (0.5 /41=0.6% benefit. EWL 3. |

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| ESU | Populatio | | Assessment Unit | - | LF Weight | Low | 2018 | | High 2018 Bookend | | - | LF Weight and Bookends Comments | Estimates Comments |
|-----------------------------|-----------------|-------|--|------------------------|-----------|-----|------|------|----------------------|----|---|---|---|
| Snake | Lochsa | | Upper | | | 66 | 66 | 66.2 | 70 | 68 | | Level of certainty = 3; | 2012:LF weight due to past timber |
| Snake River Steelhead | Lochsa River | LASIA | Lochsa Tributaries - Postoffice to | Riparian Condition: | | 66 | 66 | 66.2 | 70 | 68 | | Level of certainty = 3; Sources = 5, 6 (Due to past timber harvest) | 2012:LF weight due to past timber harvest and fire activities. Currently inventorying installed log weirs and wood in all streams. Plan to address installed weirs for passage and install wood in all streams as appropriate, starting in 2013. 2015:The 108 Road Relocation Waw'aalamnima 2015 project was undertaken because the road was impinging on floodplain, causing road failure. Road was relocated to upland, and large wood was added to floodplain. 670 feet (0.13 miles) of stream impacted. Expect 50% function by 2018, resulting in 0.2% uplift (0.13/2=0.06/41=0.2%). EWL 3.7.16 |
| Snake River Steelhead | Lochsa River | LAS1A | Upper Lochsa Tributaries - Postoffice to Parachute Creeks | Channel Structure | 30.00% | 70 | 70 | 70.2 | 77 | 70 | | Level of certainty = 4; Sources = 5, 6 | 2012;Installation of wood addressed in LF 4.2 will address this LF. 2015: Expert Panel used same rationale as for limiting factor 4.2:The 108 Road Relocation Waw'aalamnima 2015 project was undertaken because the road was impinging on floodplain, causing road failure. Road was relocated to upland, and large wood was added to floodplain. 670 feet (0.13 miles) of stream impacted. Expect 50% function by 2018, resulting in 0.2% uplift (0.13/2=0.06/41=0.2%). EWL 3.7.16 |

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| ESU | Populatio n | Code | Assessment | - | LF Weight | Low Bookend | 2018 | | High 2018 Bookend | | - | LF Weight and Bookends Comments | Estimates Comments |
|-----------------------------|-----------------|-------|--|-----------------------------------|-----------|----------------|------|------|----------------------|----|----|---|---|
| Snake River Steelhead | River | LAS1A | Postoffice to Parachute Creeks | Increased Sediment Quantity | | 62 | 62 | 63.5 | | 64 | 77 | Level of certainty = 3; Sources = 5, 6 | 2012: Use LiDAR data to dete extent of existing road netwo to decommission roads base data. 2015: Nine projects were eva and weighted by landscape p (e.g., 90% for streamside roa total possible benefit (accour other human sediment source Planting was associated with decommissioning projects. Ex Panel revised their origninal with additional project inforr include mid-slope weed cont (knapweed) actions associated road project, but assigned a l weight relative to other effor Panel assumed that road dra improvement projects reduce sediment contributions down even if located upland. Soil a culvert project was not prope compacted at construction, s was less benefit assigned that was initially discussed (Panel weight accordingly. Planting helped, but overall had neglig benefit. From 1996 to 2011: |
| Snake River Steelhead | Lochsa River | LAS1A | Lochsa Tributaries - Postoffice to | · · | 15.00% | 80 | 80 | 80 | 88 | 82 | 90 | Level of certainty = 3; Sources = 1, 6 (Doesn't meet state standards, highly functional) | 2012: Benefits from Riparian wood installation (LF 4.2) wil impact this LF. 2015: The Expert Panel asses planting activities will have h measureable benefit, therefo is no change to the low book 3.7.16 |

) determine network. Plan based on that

evaluated ape position e roads) and ccounting for sources). with road cts. Expert ninal estimate nformation to control ociated with ed a lower efforts. Expert d drainage educe downstream, Soil at deep fill properly ion, so there d than what Panel adjusted nting projects negligible 011: lots of

arian actions; ?) will indirectly

assessed that ave had no erefore, there bookend. EWL

| | | | | 2012 | | | | | | | | | |
|-----------|-----------|-------|--------------|-----------|-----------|---------|----------|----------|-----------|----------|-----------|---------------------------|---|
| | | | | Standardi | | | | | | | | | |
| | | | | zed | | | Original | Updated | | Original | | | |
| | Populatio | | Assessment | Limiting | | | 2018 | 2018 | High 2018 | - | High 2033 | LF Weight and Bookends | |
| ESU | n | Code | Unit | Factor | LF Weight | Bookend | Estimate | Estimate | Bookend | Estimate | Bookend | Comments | Estimates Comments |
| Snake | Lochsa | LAS2A | Lower Colt | 1.1: | 5.00% | 65 | 65 | 65.6 | 100 | 66 | 100 | Level of certainty = 3; | 2012: Opportunity to address this LF |
| River | River | | Killed Creek | Habitat | | | | | | | | Sources = 5, 7 (Walton | on checkerboard/private lands. |
| Steelhead | | | | Quantity: | | | | | | | | Creek fish weir and water | 2015: One project (Alkire Creek Culvert |
| | | | | Anthropo | | | | | | | | intake) | Replacement) occurred in this |
| | | | | genic | | | | | | | | | Assessment Unit to address barriers. |
| | | | | Barriers | | | | | | | | | The full barrier removal opened 0.5 |
| | | | | | | | | | | | | | miles of upstream habitat, but was |
| | | | | | | | | | | | | | prorated 50% because it was a barrier |
| | | | | | | | | | | | | | for juveniles only. Relative to the 40.7 miles of stream with fish in the |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | Assessment Unit (30.2 steelhead miles per Streamnet. Plus, 2 miles on Cabin |
| | | | | | | | | | | | | | Creek, 2.5 miles on Beaver Creek, 1 |
| | | | | | | | | | | | | | mile on Alkire, 2 miles on Walton, and |
| | | | | | | | | | | | | | 3 miles on Savage, the Expert Panel |
| | | | | | | | | | | | | | added based on their knowledge of |
| | | | | | | | | | | | | | fish in the area). Therefore |
| | | | | | | | | | | | | | (0.5/2)/40.7=0.6% change. EWL 3.7.16 |
| | | | | | | | | | | | | | |
| Snake | | LAS2A | Lower Colt | 7.2: | 80.00% | 55 | 55 | 55.5 | 70 | 60 | 72 | Level of certainty = 5; | 2012: Opportunity to address this LF |
| | River | | Killed Creek | | | | | | | | | | on checkerboard/private lands. LiDAR |
| Steelhead | | | | Condition | | | | | | | | | data will be use to identify projects in |
| | | | | s: | | | | | | | | | the future. |
| | | | | Increased | | | | | | | | | 2015: Studies show that upland |
| | | | | Sediment | | | | | | | | | knotweed increases sediment |
| | | | | Quantity | | | | | | | | | yield/input to streams when converted from bunchgrass, so controlling weed |
| | | | | | | | | | | | | | benefits this limiting factor. But this |
| | | | | | | | | | | | | | treatment was measured in acres, not |
| | | | | | | | | | | | | | stream miles. Expert Panel weighted |
| | | | | | | | | | | | | | the treatment by type of landscape |
| | | | | | | | | | | | | | position, and scale of potential benefit |
| | | | | | | | | | | | | | to all fish bearing streams in the |
| | | | | | | | | | | | | | assessment unit (40.7 miles). With |
| | | | | | | | | | | | | | weightings and including an additional |
| | | | | | | | | | | | | | project, total stream miles affected = |
| | | | | | | | | | | | | | 0.2215. Relative to fish bearing |
| | | | | | | | | | | | | | streams in the entire Assessment Unit, |
| | | | | | | | | | | | | | project mprovements resulted in |
| | | | | | | | | | | | | | 0.5%. EWL |

| | Populatio | | Assessment | - | | Low | 2018 | Updated 2018 | High 2018 | | - | LF Weight and Bookends | |
|-----------------------------|-----------------|-------|----------------------------|--|-----------|-----|----------|-----------------|-----------|------|----|---|---|
| | | Code | Unit | | LF Weight | | Estimate | Estimate | Bookend | | | Comments | Estimates Comments |
| | Lochsa River | LAS2A | Lower Colt Killed Creek | 8.1: Water Quality: Temperat ure | 15.00% | 70 | 70 | 70 | 80 | 70.5 | | Level of certainty = 3; Sources = 2, 6 (Doesn't meet state standards) | 2012:benefits from sediment projects 2015: There were no actions to address this limiting factor, therefore, no change from low bookend. EWL 3.7.16 |
| Snake River Steelhead | Lochsa River | LAS2B | Big Sand Creek | 8.1: Water Quality: Temperat ure | 100.00% | 95 | 95 | 95 | 95 | 95 | 95 | | 2012: No actions; wilderness No actions during 2012-2015 for this limiting factor, therefore no change to low bookend. EWL 3.7.16 |
| | Lochsa River | LAS3A | Crooked Fork | | 5.00% | 65 | 65 | 65 | 100 | 70 | | Level of certainty = 3; Sources = 5, 7 | 2012:There are currently 12 known passage barriers in this AU. 3 will be replaced in 2013. 2015:Three Pack bridge projects occurred during 2012-2015, however, these were not barriers to steelhead (there is a natural barrier near the mouth of Pack Creek that blocks passage upstream). Therefore, there was no change from the low bookend. EWL 3.7.16 |
| | Lochsa River | LAS3A | Crooked Fork | 4.2: Riparian Condition: LWD Recruitme nt | | 50 | 50 | 50 | 55 | 50 | | Level of certainty = 4; Sources = 5, 6 | 2012: No projects currently planned. 2015: No actions were undertaken during the 2012-2015 timeframe, therefore there was no change from the Low Bookend. EWL 3.7.16 |
| | Lochsa River | LAS3A | Crooked Fork | | 35.00% | 45 | 45 | 45 | 50 | 45 | | Level of certainty = 4; Sources = 5, 6 | 2012: No projects currently planned. 2015: No actions were undertaken during the 2012-2015 timeframe, therefore there was no change from the Low Bookend. EWL 3.7.16 |

| | Populatio | | Assessment | _ | | Low | 2018 | Updated 2018 | High 2018 | | - | LF Weight and Bookends | |
|-----------------------------|-----------------|-------|-----------------|--|-----------|-----|------|-----------------|-----------|----|----|--|--|
| ESU | | Code | Unit | | LF Weight | | | | Bookend | | | Comments | Estimates Comments |
| Snake River Steelhead | Lochsa River | LAS3A | Crooked Fork | 7.2: Sediment Condition s: Increased Sediment Quantity | 20.00% | 45 | 45 | 53.1 | 70 | 55 | 75 | Level of certainty = 3; Sources = 5, 6 | 2012: Most of the problem land; some actions propose land. Weed treatment and planting on decommission address this LF. 2015: Studies show that unknotweed increases sedime yield/input to streams whe from bunchgrass, so contre benefits this limiting facto accounted for landscape pe upland road v riparian road realization of potential ben action. Weed control was 1% of miles treated from the possible. Panel added a pre 2 of the meetings and the changed from 5.8% to 8.19 calculation was derived the the weighted stream miles (2.7) and dividing by total stream miles in the Assess =33.4; calculated using Stree modified with local knowled use). Therefore 2.7/33.4* Improvement for this limit EWL 3.7.16 |
| Snake River Steelhead | Lochsa River | LAS3A | Crooked Fork | 8.1: Water Quality: Temperat ure | 5.00% | 50 | 50 | 50 | 55 | 51 | | Level of certainty = 3; Sources = 3 (Doesn't meet state standards) | 2012: Benefits from sedim 2015: Expert Panel determ measureable benefit from project listed for this limiti from the cumulative effect projects listed under limiti 7.2. Therefore, there was from the Low Bookend. Ev |

em on private osed on USFS nd tree oned roads will upland iment when converted ntrolling weed tor. Weightings e position (e.g., oad) and penefit from as valued at n total benefit project on day ne uplift .1%. The through adding les affected al fish bearing essment Unit Streamnet and wledge of fish 4*100 = 8.1% niting factor. iment projects rmined no

rmined no om the one niting factor or ects from the niting factor as no change EWL 3.7.16

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| | Populatio | | Assessment | | | | - | - | High 2018 | - | High 2033 | LF Weight and Bookends | |
| | - | Code | | - | LF Weight | | | | - | | - | Comments | Estimates Comments |
| | Lochsa | LAS3B | | 1.1: | 5.00% | 85 | 85 | 85 | | 85 | | Level of certainty = 2; | 2012:LiDAR data will be use to identify |
| River | River | | | Habitat | | | | | | | | Sources = 5, 7 | projects in the future. |
| Steelhead | | | Fork/Boulde | Quantity: | | | | | | | | | 2015: No actions were undertaken |
| | | | r Creek | Anthropo | | | | | | | | | during 2012-2015, therefore there was |
| | | | | genic | | | | | | | | | no change from Low Bookend. EWL |
| | | | | Barriers | | | | | | | | | 3.7.16 |
| Snake | Lochsa | LAS3B | Upper | | 95.00% | 70 | 70 | 70.6 | 80 | 70 | 82 | Level of certainty = 3; | 2012:LiDAR data will be use to identify |
| | River | | | Sediment | | | | | | | | Sources = 6 (Mostly from | projects in the future. Weed treatment |
| Steelhead | | | Fork/Boulde | Condition | | | | | | | | natural sources (fire)) | and tree planting on decommissioned |
| | | | r Creek | s: | | | | | | | | | roads will address this LF. |
| | | | | Increased | | | | | | | | | 2015:Two projects were undertaken |
| | | | | Sediment | | | | | | | | | and weighted by their position on the |
| | | | | Quantity | | | | | | | | | landscape (e.g., upland versus riparian) |
| | | | | | | | | | | | | | and the potential benefits that could |
| | | | | | | | | | | | | | be realized through 2018. The overall benefits of the actions were measured |
| | | | | | | | | | | | | | relative to all fish bearing stream miles |
| | | | | | | | | | | | | | in the Assessment Unit. The Expert |
| | | | | | | | | | | | | | Panel chose to use Streamnet mileage |
| | | | | | | | | | | | | | as a proxy for total fish bearing stream |
| | | | | | | | | | | | | | miles =19.3. Therefore 0.12/19.3*100 |
| | | | | | | | | | | | | | = 0.6% uplift. EWL 3.7.16 |
| | | | | | | | | | | | | | · |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |
| Snake | Lochsa | LAS6 | Lochsa | 4.1: | 60.00% | 85 | 85 | 85 | 87 | 85 | 90 | Level of certainty = 3; | 2012: The upper 30 miles of the Lochsa |
| | River | | Mainstem | Riparian | | | | | | | | Sources = 5, 6 | River mainstem is very simplified. This |
| Steelhead | | | | Condition: | | | | | | | | | is due in part to Hwy 12 preventing |
| | | | | Riparian | | | | | | | | | wood recruitment (as well as |
| | | | | Vegetatio | | | | | | | | | headwater streams (Crooked and |
| | | | | n | | | | | | | | | Brushy Forks) being heavily logged in |
| | | | | | | | | | | | | | the past. Therefore, we are beginning |
| | | | | | | | | | | | | | to investigate the installation of large |
| | | | | | | | | | | | | | wood into the mainstem Lochsa in this |
| | | | | | | | | | | | | | section. |
| | | | | | | | | | | | | | 2015: There were no actions |
| | | | | | | | | | | | | | undertaken during the 2012-2015 timeframe to address this limiting |
| | | | | | | | | | | | | | factor. Therefore, no change from Low |
| | | | | | | | | | | | | | bookend. EWL 3.7.16 |
| | | | | | | | | | | | | | DUONEIIU. LWL 3./.10 |

| ESU | Populatio n | Code | Assessment Unit | 2012 Standardi zed Limiting Factor | LF Weight | Low Bookend | Original 2018 Estimate | Updated 2018 Estimate | High 2018 Bookend | | - | LF Weight and Bookends Comments | Estimates Comments |
|-----------------------------|-----------------|------|--------------------|--|-----------|----------------|------------------------------|-----------------------------|----------------------|----|---|--|--|
| Snake River Steelhead | Lochsa River | LAS6 | Lochsa Mainstem | 7.2: Sediment Condition s: Increased Sediment Quantity | 35.00% | 75 | 75 | 76.7 | 90 | 78 | | Level of certainty = 3; Sources = 3, 5, 6 | 2012: benefits from action assessment units 2015: In addition to the inv treatment actions occurrin Assessment Unit (stream r adjusted by weightings for position and overall benefi 2018; =0.5% uplift), the Ex considered cumulative effe projects in all upstream as units (2.3%) with a 50% we factor applied. Thus, 0.5%+2.3%50%=1.7%. EW |
| Snake River Steelhead | Lochsa River | LAS6 | Lochsa Mainstem | 8.1: Water Quality: Temperat ure | 5.00% | 85 | 85 | 85 | 87 | 87 | | meet state standards; | 2012: Benefits from action AU. This LF will also be slig impacted by the potential of wood in the upper river 2015: No actions were und during the 2012-2015 time therefore there was not ch baseline. EWL 3.7.16 |

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| | Populatio | | Assessment | _ | | Low | Original 2018 | Updated 2018 | High 2018 | | - | LF Weight and Bookends | |
|-----------------------------|-----------------|------|--|---|--------|---------|------------------|-----------------|-----------|----|-----|---|--|
| ESU | n | Code | Unit | Factor | - | Bookend | Estimate | | Bookend | | | Comments | Estimates Comments |
| Snake River Steelhead | Lochsa River | LAS7 | Lower Lochsa (Deadman Creek to Pete King Creek) | 1.1: Habitat Quantity: Anthropo genic Barriers | 5.00% | 70 | 73 | 73.4 | 100 | 73 | 100 | Level of certainty = 2; Sources = 5, 7 | 2012: Found an additional passage barriers in Canyor 2012. Planning to remove barriers in future projects. comments in the "look for actions" spreadsheet. 2015:Deep Canyon culver barrier, which affected 5 r habitat, but upstream pipe benefit to 1 mile. Relative miles of all fish bearing str Assessment Unit : (Stream steelhead miles. Expert Pa mile (South Fork Canyon), Nut Creek and 2 miles on a (cutthroats only), 2 miles on mainstem, and removed 1 Wally, 2 miles on Canyon, miles on West Fork Deadm change to Streamnet num miles, which results in 29.4 total fishbearing miles. Th mile/29.4miles*100 = 3.45 improvement. EWL 3.7.16 |
| Snake River Steelhead | Lochsa River | LAS7 | Lower Lochsa (Deadman Creek to Pete King Creek) | 4.1: Riparian Condition: Riparian Vegetatio n | 25.00% | 70 | 70 | 70.2 | 80 | 71 | 82 | Level of certainty = 4; Sources = 3, 4, 5,6 | 2012: Accrued benefits fro decommissioning projects 2015: Miles of improveme Deep Canyon Road project weighted using 5-10% incr function per year (=0.06), relative to total fish bearir the Assessment Unit (29.4 resulting in 0.2% uplift. EV |
| Snake River Steelhead | Lochsa River | LAS7 | Lower Lochsa (Deadman Creek to Pete King Creek) | 6.2: Channel Structure and Form: Instream Structural Complexit Y | 25.00% | 70 | 70 | 70 | 80 | 71 | 82 | Level of certainty = 3; Sources = 1,3, 4, 5, 7 | 2012: Benefits from other address sediment 2015: No actions were und during 2012-2015 for this factor, therefore there wa from Low Bookend. EWL |

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amnet =30.9
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EWL 3.7.16
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| <mark>ESU</mark> Snake | | <mark>Code</mark> LAS7 | Assessment Unit Lower Lochsa | Factor | LF Weight 35.00% | Low | Original 2018 Estimate 50 | Estimate | High 2018 Bookend | Original 2033 Estimate 62 | Bookend 85 | LF Weight and Bookends Comments Level of certainty = 2; Sources = 2, 4, 5, 6 | Estimates Comments 2012: LiDAR will be utilized to determine extent and needs for this LF. In 2012 several more miles of road |
|-----------------------------|-----------------|---------------------------|---------------------------------------|--|---------------------|-----|------------------------------------|----------|----------------------|------------------------------------|---------------|---|--|
| Steemeau | | | Creek to Pete King Creek) | s: Increased Sediment Quantity | | | | | | | | | were found on the ground in the Bear Canyon area. 2015: For the 6 projects undertaken during the 2012-2015 timeframe, the Expert Panel weighted affected stream miles metric by landscape/slope position and possible benefit/other sediment sources remaining (much road work left to do). Relative improvement of 0.74 weighted miles over 29.4 fish bearing stream miles in the Assessment Unit is assessed at a 2.5% uplift. EWL 3.7.16. |
| Snake River Steelhead | Lochsa River | LAS7 | Lochsa (Deadman Creek to | 8.1: Water Quality: Temperat ure | 10.00% | 65 | 65 | 65 | 75 | 66 | | Level of certainty = 2; Sources = 1,3, 4, 5, 6 | 2012: Benefits from sediment projects 2015: No project undertaken during 2012-2015 timeframe for this limiting factor, therefore there was no change from the Low Bookend. EWL 3.7.16 |
| Snake River Steelhead | River | LAS8 | tributaries - Weir to Tick | Habitat Quantity: Anthropo | 5.00% | 85 | 85 | 85 | 100 | 90 | 100 | | 2012: LiDAR will be utilized to determine extent and needs for this LF. 2015: While two culvert replacements occurred during 2012-2015 timeframe, there is still one more barrier downstream. Therefore, no fish pass and there is no benefit realized from these activities. Therefore, there was no change from the Low Bookend. EWL 3.7.16 |

| | | | 2012 | | | | | | | | | |
|-----------|---|---|--|---|---|--|---|---|--|--|---|---|
| | | | | | | | | | | | | |
| | | | | | | Original | Undated | | Original | | | |
| Populatio | | | | | Low | - | - | | - | High 2033 | LF Weight and Bookends | |
| - | Code | | - | | | | | - | | - | - | Estimates Comments |
| Lochsa | LAS8 | | | - | | 85 | | | | | | 2012: Bimerick Meadows road-to-trail |
| River | | Lochsa | Riparian | | | | | | | | • | conversion project is planned for 2015 |
| d | | | · | | | | | | | | | (2 miles). Weir Creek trail construction |
| | | tributaries - | Riparian | | | | | | | | | (0.5 miles) and rehabilitation project |
| | | | | | | | | | | | | planned for 2013. |
| | | Creeks | n | | | | | | | | | 2015: Weir Creek Trail realignment |
| | | | | | | | | | | | | occurred as planned and the % |
| | | | | | | | | | | | | improvement was prorated, |
| | | | | | | | | | | | | recognizing that plants need time to |
| | | | | | | | | | | | | grow. Thus the realized improvements |
| | | | | | | | | | | | | by 2018 is expected to cover 0.13 river |
| | | | | | | | | | | | | miles, over a possible 57.7 fish bearing |
| | | | | | | | | | | | | stream miles. Thus |
| | | | | | | | | | | | | 0.13/57.7*100=0.2% improvement. |
| | | | | | | | | | | | | EWL 3.7.16 |
| | | | | | | | | | | | | |
| Lochsa | LAS8 | Middle | 7.2: | 35.00% | 85 | 85 | 85.6 | 95 | 88 | 95 | Level of certainty = 3; | 2012: Bimerick Meadows road-to-trail |
| River | | Lochsa | Sediment | | | | | | | | Sources = 3, 4, 5 | conversion project is planned for 2015 |
| d | | | Condition | | | | | | | | | (2 miles). LiDAR will be used to |
| | | | | | | | | | | | | determine extent and needs for other |
| | | | | | | | | | | | | road decommissioning projects in this |
| | | | | | | | | | | | | AU. |
| | | | Quantity | | | | | | | | | 2015: Indian Graves Culvert/Bridge |
| | | | | | | | | | | | | project included road improvement |
| | | | | | | | | | | | | actions, reducing failure and erosion |
| | | | | | | | | | | | | risk. Stream miles affected by road |
| | | | | | | | | | | | | improvements was weighted by |
| | | | | | | | | | | | | landscape/slope position and total benefit possible/remaining sediment |
| | | | | | | | | | | | | sources (0.32 miles). Relative to total |
| | | | | | | | | | | | | fish bearing stream miles in the |
| | | | | | | | | | | | | Assessment Unit (from Streamnet), the |
| | | | | | | | | | | | | Expert Panel determined a 0.6% |
| | | | | | | | | | | | | improvement. EWL 3.7.16 |
| Lochsa | 1458 | Middle | 8.1: | 30.00% | 95 | 95 | 95 | 95 | 95 | 95 | | 2012: Currently no projects planned |
| | 27,50 | | | 30.0070 | 55 | | 55 | | 55 | | | for this LF. |
| | | | | | | | | | | | | 2015: There were no actions |
| - | | | | | | | | | | | | undertaken during the 2012-2015 time |
| | | | | | | | | | | | | frame for this limiting factor, therefore |
| | | | | | | | | | | | | no change to low bookend. EWL |
| 1 | | 1 | | | | | | | | | | U |
| | d Lochsa River d Lochsa River d | nCodeLochsaLAS8RiverJLAS8RiverJLochsaLAS8RiverJJLochsaLochsaLAS8RiverJJLochsaLochsaLAS8RiverJLochsaLAS8RiverJLochsaLAS8RiverJLochsaLAS8RiverJ | nCodeUnitLochsaLAS8MiddleRiverLAS8North Face tributaries - Weir to Tick CreeksdLochsaNorth Face tributaries - Weir to Tick CreeksdLochsaLAS8Middle LochsadLochsaLAS8Middle LochsadLochsaLAS8Middle LochsadLochsaLAS8Middle LochsadLochsaLAS8Middle LochsadLochsaNorth Face tributaries - Weir to Tick CreeksdLochsaNorth Face tributaries - Weir to Tick CreeksdLochsaNorth Face tributaries - Weir to Tick Creeks | nCodeUnitFactorLochsaLAS8Middle4.1:RiverLAS8LochsaRiparianNorth FaceCondition: tributaries - Weir to TickRiparianWeir to TickVegetatio CreeksNorth FacedLochsaLAS8MiddlekiverLAS8Middle7.2:kiverLAS8MiddleSedimentdNorth FaceCondition: tributaries - RiverSedimentdLochsaLAS8MiddleSedimentdCreeksSedimentNorth FaceConditiongLochsaLAS8MiddleSedimentdLochsaLAS8MiddleSedimentdLochsaLAS8MiddleSedimentdLochsaLAS8MiddleSedimentdRiverLAS8MiddleSedimentdLochsaLAS8MiddleSedimentdRiverLAS8MiddleSedimentdLochsaLAS8MiddleSedimentdWeir to TickConditionTimeratdWeir to TickTemperatWaterdWeir to TickTemperatdWeir to TickUre | Populatio nCodeStandardi zed Limiting FactorFactorFWeightLochsa RiverLAS8Middle Lochsa North Face tributaries - 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Riparian Weir to Tick Creeks4.1: Riparian Weir to Tick Creeks30.00%858585.292dLochsa RiverLASSMiddle Lochsa Vegetatio Creeks7.2: Sediment Sediment Ountivity35.00%8585.695dLochsa RiverLASSMiddle Lochsa Creeks7.2: Sediment Ountivity35.00%858585.695dLochsa RiverLASSMiddle Lochsa Creeks7.2: Sediment Ountivity35.00%858585.695dLochsa RiverLASSMiddle Lochsa Creeks7.2: Sediment Ountivity35.00%858585.695dLochsa RiverLASSMiddle Lochsa7.2: Creeks35.00%858585.695dLochsa RiverLASSMiddle Lochsa7.2: Creeks30.00%858585.695dLochsa RiverLochsa RiverLochsa RiverMiddle Creeks8585859595dLochsa RiverLochsa RiverLochsa River81: Creeks30.00%95959595 | PopulatioAssessmentStandardi zed Hinting FactorLowOriginal LowUpdated 2018Designal EstimateOriginal 2018Original EstimateOriginal 2018Original EstimateOriginal EstimateOriginal 2018Original EstimateOriginal EstimateOriginal EstimateOriginal EstimateOriginal EstimatedLochsaLAS8Middle North Face Weir to Tick Creeks4.1: Riparian Weir to Tick Creeks30.00%8585.285.29287dLochsaLochsaMiddle River7.2: North Face Code35.00%8585.69588dLochsaLochsa River to Tick River to Tick River to Tick River to Tick River to Tick River7.2: North Face Lochsa35.00%8585.69588dLochsa RiverLochsa RiverMiddle Lochsa7.2: North Face Lochsa30.00%8585.69588dLochsa RiverLochsa North Face LochsaNorth Face Weiter30.00%95959595 | PopulatioAssessmentStandardiLowOriginalUpdatedUpdatedOriginal </td <td>Inchase Lochase Contrait Contrait</td> | Inchase Lochase Contrait Contrait |

| ESU | Populatio n | Assessment Unit | 2012 Standardi zed Limiting Factor | LF Weight | Low Bookend | Original 2018 Estimate | Updated 2018 Estimate | High 2018 Bookend | | - | LF Weight and Bookends Comments | Estimates Comments |
|-----------------------------|---|---|--|-----------|----------------|------------------------------|-----------------------------|----------------------|----|---|---|---|
| Snake River Steelhead | Lochsa River | Middle Lochsa South Face tributaries - Lottie to Robin Creeks | 8.1: Water Quality: Temperat ure | | 95 | 95 | 95 | | 95 | | meet state standards) | 2012: Wilderness/roadless projects planned for this A 2015: There were no actio undertaken during the 201 frame for this limiting facto no change to low bookend 3.7.16 |
| Snake River Steelhead | Clearwate r River lower mainstem | Big Canyon Creek | 4.1: Riparian Condition: Riparian Vegetatio n | | 45 | 45 | 45 | 50 | 45 | | Level of Certainty = 3. Conservative LF weight as linked to all other impacts. HIGH BOOKENDS: Short-term (2018) response to initial riparian plantings throughout invasive weed treatment reaches and fencing/off-site watering corridors. Long-term (2033) response to maturation of riparian plantings and natural revegetation of treatment areas. LF TARGET: Riparian buffer extending >=300' from floodplain with riparian vegetation having >75% similarity to potential natural community composition. EXTANT DATA: 2003-2006 NPT canopy cover and riparian width, density and composition data | |

| ss area- no AU. ions D12-2015 time ctor, therefore nd. EWL |
|---|
| ions D12-2015 time vas no change . 3.9.16 |
| |

| ESU | Populatio | Code | Assessment Unit | - | LF Weight | Low Bookend | Original 2018 Estimate | Updated 2018 Estimate | High 2018 Bookend | | - | LF Weight and Bookends Comments | Estimates Comments |
|-----------|-----------|------|--------------------|-----------|-----------|----------------|------------------------------|-----------------------------|----------------------|----|----|------------------------------------|----------------------------|
| Snake | Clearwate | | Big Canyon | 6.1: | 10.00% | 45 | 45 | 45 | 50 | 45 | 65 | Level of Certainty = 3. | 2015: There were no actio |
| River | r River | | Creek | Channel | | | | | | | | Unstable channel | undertaken during the 201 |
| Steelhead | | | | Structure | | | | | | | | conditions noted | frame, therefore, there wa |
| | mainstem | | | and Form: | | | | | | | | throughout 2003-2006 | from Low Bookend. EWL 3 |
| | | | | Bed and | | | | | | | | NPT surveys; particularly | |
| | | | | Channel | | | | | | | | throughout middle | |
| | | | | Form | | | | | | | | reaches of Big Canyon | |
| | | | | | | | | | | | | Creek. HIGH BOOKENDS: | |
| | | | | | | | | | | | | Short-term (2018) | |
| | | | | | | | | | | | | response to no-till, drain | |
| | | | | | | | | | | | | tile decommissioning, | |
| | | | | | | | | | | | | bank stabilization, | |
| | | | | | | | | | | | | wetland development and | |
| | | | | | | | | | | | | grassed waterways. Long- | |
| | | | | | | | | | | | | term (2033) response to | |
| | | | | | | | | | | | | riparian/upland growth, | |
| | | | | | | | | | | | | forest regeneration, | |
| | | | | | | | | | | | | fencing/off-site watering | |
| | | | | | | | | | | | | and beaver recolonization. LF | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | TARGET: Bank stability | |
| | | | | | | | | | | | | >90% for Rosgen C | |
| | | | | | | | | | | | | channel, >95% for A & B | |
| | | | | | | | | | | | | channel, 100% for E | |
| | | | | | | | | | | | | channel. Width:Depth | |
| | | | | | | | | | | | | ratio<10 for A channel, | |
| | | | | | | | | | | | | <20 for B channel, <40 for | |
| | | | | | | | | | | | | C channel and <7 for E | |

| ctions |
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| 2012-2015 time |
| was no change |
| VL 3.9.16 |
| |

| ESU | Populatio n | Code | Assessment | - | LF Weight | Low Bookend | Original 2018 Estimate | | High 2018 Bookend | | - | LF Weight and Bookends Comments | Estimates Comments |
|-----------------------------|----------------------|------|---------------------|---|-----------|----------------|------------------------------|----|----------------------|----|----|------------------------------------|--|
| Snake River Steelhead | Clearwate r River | | Big Canyon Creek | 6.2: Channel Structure and Form: Instream Structural Complexit Y | - | 45 | 45 | 45 | 50 | 45 | 65 | | 2015: There were no action undertaken during the 201 frame, therefore, there wa from Low Bookend. EWL 3 |

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|)12-2015 time |
| vas no change |
| . 3.9.16 |
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| ESU | Populatio n | Code | Assessment | - | LF Weight | Low Bookend | Original 2018 Estimate | Updated 2018 Estimate | High 2018 Bookend | | - | LF Weight and Bookends Comments | Estimates Comments |
|-----------------------------|----------------------|------|------------|--|-----------|----------------|------------------------------|-----------------------------|----------------------|----|----|---|--|
| Snake River Steelhead | Clearwate r River | | Big Canyon | 7.2: Sediment Condition s: Increased Sediment Quantity | - | 50 | 50 | 50 | | 50 | 65 | Level of Certainty = 3. Beyond effects of turbidity on juvenile and | 2015: There were no action undertaken during the 201 frame, therefore, there wa from Low Bookend. EWL 3 |

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| 012-2015 time |
| vas no change |
| . 3.9.16 |
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| ESU | Populatio n | Code | Assessment | - | LF Weight | Low Bookend | 2018 | Updated 2018 Estimate | High 2018 Bookend | | - | LF Weight and Bookends Comments | Estimates Comments |
|-----------------------------|---|------|---------------------|--|-----------|----------------|------|-----------------------------|----------------------|----|----|--|--|
| Snake River Steelhead | Clearwate r River lower mainstem | LCS1 | Big Canyon Creek | 8.1: Water Quality: Temperat ure | | 30 | 30 | 30 | 40 | 30 | 55 | Level of Certainty = 2. Instantaneous max in excess of 26°C recorded at multiple locations; 28.8°C recorded at mouth of Big Canyon Creek. HIGH BOOKENDS: Short-term (2018) response to drain-tile decommissioning, wetland development and education/enforcement coordination on illegal withdrawals. Long-term (2033) response to riparian growth and effects of hydrological stabilization actions on W:D ratios and pool habitat. LF TARGET: Water temperature <14°C. EXTANT DATA: 2003-2005 NPT thermograph data; BOR thermograph data | 2015: There were no action undertaken during the 201 frame, therefore, there wa from Low Bookend. EWL 3 |

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| 012-2015 time |
| vas no change |
| . 3.9.16 |
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| | Populatio n | Code | Assessment | - | LF Weight | Low Bookend | Original 2018 Estimate | | High 2018 Bookend | | - | LF Weight and Bookends Comments | Estimates Comments |
|-----------|----------------|------|------------|----------|-----------|----------------|------------------------------|----|----------------------|----|----|------------------------------------|----------------------------|
| Snake | Clearwate | LCS1 | Big Canyon | 8.7: | 2.00% | 85 | 85 | 85 | 90 | 85 | 90 | Level of Certainty = 5. | 2015: There were no action |
| River | r River | | Creek | Water | | | | | | | | Lack data, but anecdotes | undertaken during the 201 |
| Steelhead | lower | | | Quality: | | | | | | | | about Little Canyon Creek | frame, therefore, there wa |
| | mainstem | | | Toxic | | | | | | | | headwater sources | from Low Bookend. EWL 3 |
| | | | | Contamin | | | | | | | | common; supported | |
| | | | | ants | | | | | | | | through biological data in | |
| | | | | | | | | | | | | upper Little Canyon | |
| | | | | | | | | | | | | Creek. HIGH BOOKENDS: | |
| | | | | | | | | | | | | Short-term (2018) | |
| | | | | | | | | | | | | response to | |
| | | | | | | | | | | | | education/enforcement | |
| | | | | | | | | | | | | coordination, grassed | |
| | | | | | | | | | | | | waterways and wetland | |
| | | | | | | | | | | | | development. LF TARGET: | |
| | | | | | | | | | | | | Low levels of chemical | |
| | | | | | | | | | | | | contamination from | |
| | | | | | | | | | | | | agricultural, grazing, | |
| | | | | | | | | | | | | industrial and other | |
| | | | | | | | | | | | | sources, no excess | |
| | | | | | | | | | | | | nutrients. EXTANT | |
| | | | | | | | | | | | | DATA: 2003-2005 NPT | |
| | | | | | | | | | | | | diatom and | |
| | | | | | | | | | | | | macroinvertebrate data | |

| ESU | Populatio n | Code | Assessment | - | LF Weight | Low Bookend | Original 2018 Estimate | | High 2018 Bookend | | - | LF Weight and Bookends Comments | Estimates Comments |
|-----------------------------|---|------|------------|--|-----------|----------------|------------------------------|----|----------------------|----|----|------------------------------------|--|
| Snake River Steelhead | Clearwate r River lower mainstem | LCS1 | Creek | 9.1: Water Quantity: Increased Water Quantity | 8.00% | 50 | 50 | 50 | 55 | 50 | 70 | | 2015: There were no action undertaken during the 201 frame, therefore, there wa from Low Bookend. EWL 3 |

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| 012-2015 time |
| vas no change |
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| ESU | Populatio n | Assessment | - | LF Weight | Low | Original 2018 Estimate | Updated 2018 Estimate | High 2018 Bookend | | - | LF Weight and Bookends Comments | Estimates Comments |
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| Snake | Clearwate | | 9.2: | _ | 35 | 35 | 35 | | 35 | 55 | Level of Certainty = 2. | 2015: There were no action |
| River | r River | Creek | Water | | | | | | | | Low baseflow levels | undertaken during the 201 |
| Steelhead | lower | | Quantity: | | | | | | | | present within all | frame, therefore, there wa |
| | mainstem | | Decrease | | | | | | | | streams; intermittent | from Low Bookend. EWL 3 |
| | | | d Water | | | | | | | | reaches present on | |
| | | | Quantity | | | | | | | | mainstem Big Canyon and | |
| | | | | | | | | | | | Little Canyon creeks. | |
| | | | | | | | | | | | HIGH BOOKENDS: Short- | |
| | | | | | | | | | | | term (2018) response to | |
| | | | | | | | | | | | drain-tile | |
| | | | | | | | | | | | decommissioning, | |
| | | | | | | | | | | | wetland development and | |
| | | | | | | | | | | | education/enforcement | |
| | | | | | | | | | | | coordination on illegal | |
| | | | | | | | | | | | withdrawals. Long-term | |
| | | | | | | | | | | | (2033) response to | |
| | | | | | | | | | | | wetland maturation, | |
| | | | | | | | | | | | riparian/upland growth, | |
| | | | | | | | | | | | forest regeneration and | |
| | | | | | | | | | | | beaver recolonization. LF | |
| | | | | | | | | | | | TARGET: Discharge | |
| | | | | | | | | | | | volume and timing of | |
| | | | | | | | | | | | base flows comparable to | |
| | | | | | | | | | | | a watershed functioning | |
| | | | | | | | | | | | within its natural | |
| | | | | | | | | | | | disturbance regime. | |
| | | | | | | | | | | | EXTANT DATA: 2003-2006 | |
| | | | | | | | | | | | NPT discharge data | |

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| 012-2015 time |
| vas no change |
| . 3.9.16 |
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| ESU | Populatio n | Code | Assessment | - | LF Weight | Low | Original 2018 Estimate | Updated 2018 Estimate | High 2018 Bookend | | - | LF Weight and Bookends Comments | Estimates Comments |
|-----------|----------------|------|-------------|------------|-----------|-----|------------------------------|-----------------------------|----------------------|----|----|---|----------------------------|
| Snake | Clearwate | | | 4.1: | _ | 40 | 40 | 40 | 50 | 40 | 65 | Level of Certainty = 3 . | 2015: There were no action |
| River | r River | | Prairie | Riparian | | | | | | | | Conservative LF weight as | undertaken during the 201 |
| Steelhead | lower | | tributaries | Condition: | | | | | | | | linked to all other | frame, therefore, there wa |
| | mainstem | | | Riparian | | | | | | | | impacts. HIGH | from Low Bookend. EWL 3 |
| | | | | Vegetatio | | | | | | | | BOOKENDS: Prolonged | |
| | | | | n | | | | | | | | response to invasive | |
| | | | | | | | | | | | | weed treatments, | |
| | | | | | | | | | | | | maturation of riparian | |
| | | | | | | | | | | | | plantings and | |
| | | | | | | | | | | | | revegetation of | |
| | | | | | | | | | | | | fencing/off-site watering | |
| | | | | | | | | | | | | corridors. LF TARGET: | |
| | | | | | | | | | | | | Level of Certainty = 3. | |
| | | | | | | | | | | | | Conservative LF weight as | |
| | | | | | | | | | | | | linked to all other | |
| | | | | | | | | | | | | impacts. HIGH | |
| | | | | | | | | | | | | BOOKENDS: Prolonged | |
| | | | | | | | | | | | | response to invasive | |
| | | | | | | | | | | | | weed treatments, | |
| | | | | | | | | | | | | maturation of riparian | |
| | | | | | | | | | | | | plantings and | |
| | | | | | | | | | | | | revegetation of | |
| | | | | | | | | | | | | fencing/off-site watering corridors. LF TARGET: | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | Riparian buffer extending | |
| | | | | | | | | | | | | =300' from floodplain | |
| | | | | | | | | | | | | with riparian vegetation having >75% similarity to | |
| | | | | | | | | | | | | naving >/ 5% Similarity to | |

| ions |
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| 012-2015 time |
| vas no change |
| . 3.9.16 |
| |

| ESU | Populatio n | Code | Assessment Unit | - | LF Weight | Low | 2018 | Updated 2018 Estimate | High 2018 Bookend | | - | LF Weight and Bookends Comments | Estimates Comments |
|-----------|----------------|------|--------------------|-----------|-----------|-----|------|-----------------------------|----------------------|----|----|------------------------------------|----------------------------|
| Snake | Clearwate | | Camas | 6.1: | 10.00% | 40 | 40 | 40 | | 40 | 60 | Level of Certainty = 3. | 2015: There were no action |
| River | r River | | Prairie | Channel | | | | | | | | Unstable channel | undertaken during the 201 |
| Steelhead | | | tributaries | Structure | | | | | | | | conditions noted through | frame, therefore, there wa |
| | mainstem | | | and Form: | | | | | | | | 2008-2011 NPT datasets; | from Low Bookend. EWL 3 |
| | | | | Bed and | | | | | | | | particularly throughout | |
| | | | | Channel | | | | | | | | Cottonwood, Threemile | |
| | | | | Form | | | | | | | | and Butcher creeks. HIGH | |
| | | | | | | | | | | | | BOOKENDS: Short-term | |
| | | | | | | | | | | | | (2018) response to no-till, | |
| | | | | | | | | | | | | drain tile | |
| | | | | | | | | | | | | decommissioning, | |
| | | | | | | | | | | | | wetland development, | |
| | | | | | | | | | | | | bank stabilization and | |
| | | | | | | | | | | | | grassed waterways. Long- | |
| | | | | | | | | | | | | term (2033) response to | |
| | | | | | | | | | | | | wetland maturation, | |
| | | | | | | | | | | | | riparian/upland growth, | |
| | | | | | | | | | | | | forest regeneration, | |
| | | | | | | | | | | | | fencing/off-site watering | |
| | | | | | | | | | | | | and beaver | |
| | | | | | | | | | | | | recolonization. LF | |
| | | | | | | | | | | | | TARGET: Bank stability | |
| | | | | | | | | | | | | >90% for Rosgen C | |
| | | | | | | | | | | | | channel, >95% for A & B | |
| | | | | | | | | | | | | channel, 100% for E | |
| | | | | | | | | | | | | channel. Width:Depth | |
| | | | | | | | | | | | | ratio<10 for A channel, | |
| | | | | | | | | | | | | <20 for B channel, <40 for | |

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| 012-2015 time |
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| ESU | Populatio n | Code | | - | LF Weight | Low Bookend | Original 2018 Estimate | | High 2018 Bookend | | - | LF Weight and Bookends Comments | Estimates Comments |
|-----------------------------|----------------------|------|---------------------------------|---|-----------|----------------|------------------------------|----|----------------------|----|----|--|--|
| Snake River Steelhead | Clearwate r River | | Camas Prairie tributaries | 6.2: Channel Structure and Form: Instream Structural Complexit Y | 10.00% | 40 | 40 | 40 | 50 | 40 | 60 | Level of Certainty = 3. Relatively low channel/habitat | 2015: There were no action undertaken during the 201 frame, therefore, there wa from Low Bookend. EWL 3 |

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|)12-2015 time |
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| ESU | Populatio n | Code | Assessment Unit | | LF Weight | Low Bookend | 2018 | Updated 2018 Estimate | High 2018 Bookend | | - | LF Weight and Bookends Comments | Estimates Comments |
|-----------------------------|----------------|------|---------------------------------|---|-----------|----------------|------|-----------------------------|----------------------|----|----|--|---|
| Snake River Steelhead | | LCS2 | Camas Prairie tributaries | 7.2: Sediment Condition | 10.00% | 45 | 45 | 45 | 55 | 45 | 65 | Level of Certainty = 4. Beyond impacts of turbidity on juvenile and | 2015: There were no action undertaken during the 201 frame, therefore, there wa |
| | mainstem | | | s: Increased Sediment Quantity | | | | | | | | adult physiology, habitat impacts primarily localized within low gradient reaches due to high transport capacity of "flashy" systems. HIGH BOOKENDS: Short-term (2018) response to no-till, grassed waterways, wetland development, bank stabilization and fencing/off-site watering. Long-term (2033) response to riparian/upland growth and forest regeneration. LF TARGET: Cobble Embeddedness <20%. | from Low Bookend. EWL 3 |
| | | | | | | | | | | | | Surface fines (<6mm) =10% for A & B channels and =20% for C & E channels. EXTANT DATA: 2008-2011 NPT dominant substrate and pebble count data | |

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| ESU | Populatio n | Code | Assessment Unit | - | LF Weight | Low | 2018 | Updated 2018 Estimate | High 2018 Bookend | | - | LF Weight and Bookends Comments | Estimates Comments |
|-----------------------------|---|------|---------------------------------|--|-----------|-----|------|-----------------------------|----------------------|----|---|---|--------------------|
| Snake River Steelhead | Clearwate r River lower mainstem | LCS2 | Camas Prairie tributaries | 8.1: Water Quality: Temperat ure | | 25 | 25 | 25 | 30 | 25 | | Level of Certainty = 2. Water temperatures appear to exceed lethal levels throughout Cottonwood Creek; may be primary limitation to Lawyer Creek productivity. HIGH BOOKENDS: Short-term (2018) response to drain- tile decom, wetland development and education/enforcement coordination on illegal withdrawals. Long-term (2033) response to riparian growth and hydrological stabilization actions effect on W:D ratios and pool habitat. LF TARGET: Water temperature <14°C. EXTANT DATA: 2008-2011 NPT instantaneous and Water Resources | |

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| vas no change |
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| ESU | Populatio n | Code | Assessment | - | LF Weight | Low | Original 2018 Estimate | Updated 2018 Estimate | High 2018 Bookend | | - | LF Weight and Bookends Comments | Estimates Comments |
|-----------|----------------|------|-------------|-----------|-----------|-----|------------------------------|-----------------------------|----------------------|----|----|------------------------------------|----------------------------|
| Snake | Clearwate | | | 9.1: | 5.00% | 40 | 40 | 40 | | 40 | 60 | Level of Certainty = 5. | 2015: There were no action |
| River | r River | | Prairie | Water | | | | | | | | Beyond direct impacts to | undertaken during the 201 |
| Steelhead | lower | | tributaries | Quantity: | | | | | | | | redds, extremely "flashy" | frame, therefore, there wa |
| | mainstem | | | Increased | | | | | | | | spring events linked to all | from Low Bookend. EWL 3 |
| | | | | Water | | | | | | | | limiting factors; evidence | |
| | | | | Quantity | | | | | | | | of extremely disruptive | |
| | | | | | | | | | | | | flows within Cottonwood, | |
| | | | | | | | | | | | | Threemile and Butcher | |
| | | | | | | | | | | | | creeks. HIGH BOOKENDS: | |
| | | | | | | | | | | | | Short-term (2018) | |
| | | | | | | | | | | | | response to no-till, | |
| | | | | | | | | | | | | grassed waterways, drain | |
| | | | | | | | | | | | | tile decommissioning and | |
| | | | | | | | | | | | | wetland development. | |
| | | | | | | | | | | | | Long-term (2033) | |
| | | | | | | | | | | | | response to wetland | |
| | | | | | | | | | | | | maturation, | |
| | | | | | | | | | | | | riparian/upland growth | |
| | | | | | | | | | | | | and forest regeneration. | |
| | | | | | | | | | | | | LF TARGET: Discharge | |
| | | | | | | | | | | | | volume and timing of | |
| | | | | | | | | | | | | peak flows comparable to | |
| | | | | | | | | | | | | a watershed functioning | |
| | | | | | | | | | | | | within its natural | |
| | | | | | | | | | | | | disturbance regime. | |
| | | | | | | | | | | | | EXTANT DATA: 2008-2011 | |
| | | | | | | | | | | | | NPT BF to wetted width | |
| | | | | | | | | | | | | data | |

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| 012-2015 time |
| vas no change |
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| ESU | Populatio n | | - | LF Weight | Low | Original 2018 Estimate | Updated 2018 Estimate | High 2018 Bookend | | - | LF Weight and Bookends Comments | Estimates Comments |
|-----------|----------------|-------------|-----------|-----------|-----|------------------------------|-----------------------------|----------------------|----|----|------------------------------------|----------------------------|
| Snake | Clearwate | | 9.2: | | 30 | 30 | 30 | | 30 | 50 | Level of Certainty = 3. | 2015: There were no action |
| River | r River | Prairie | Water | | | | | | | | Low baseflow levels | undertaken during the 201 |
| Steelhead | lower | tributaries | Quantity: | | | | | | | | present throughout all | frame, therefore, there wa |
| | mainstem | | Decrease | | | | | | | | watersheds; significant | from Low Bookend. EWL 3 |
| | | | d Water | | | | | | | | portions of mainstem | |
| | | | Quantity | | | | | | | | Threemile and Butcher | |
| | | | | | | | | | | | creeks intermittent. HIGH | |
| | | | | | | | | | | | BOOKENDS: Short-term | |
| | | | | | | | | | | | (2018) response to drain- | |
| | | | | | | | | | | | tile decommissioning, | |
| | | | | | | | | | | | wetland development and | |
| | | | | | | | | | | | education/enforcement | |
| | | | | | | | | | | | coordination on illegal | |
| | | | | | | | | | | | withdrawals. Long-term | |
| | | | | | | | | | | | (2033) response to | |
| | | | | | | | | | | | riparian/upland growth, | |
| | | | | | | | | | | | wetland maturation, | |
| | | | | | | | | | | | forest regen and beaver | |
| | | | | | | | | | | | recolonization. LF | |
| | | | | | | | | | | | TARGET: Discharge | |
| | | | | | | | | | | | volume and timing of | |
| | | | | | | | | | | | base flows comparable to | |
| | | | | | | | | | | | a watershed functioning | |
| | | | | | | | | | | | within its natural | |
| | | | | | | | | | | | disturbance regime. | |
| | | | | | | | | | | | EXTANT DATA: 2008-2011 | |
| | | | | | | | | | | | NPT wetted width and | |
| | | | | | | | | | | | depth data | |

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| 012-2015 time |
| vas no change |
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| ESU | Populatio n | Code | Assessment Unit | - | LF Weight | Low Bookend | 2018 | Updated 2018 Estimate | High 2018 Bookend | | - | LF Weight and Bookends Comments | Estimates Comments |
|-----------|----------------|------|--------------------|-----------|-----------|----------------|------|-----------------------------|----------------------|----|----|------------------------------------|----------------------------|
| Snake | Clearwate | LCS3 | Clearwater | 1.1: | 10.00% | 65 | 65 | 65 | 95 | 65 | 95 | Level of Certainty = 4. | 2015: There were no actio |
| River | r River | | Mountain | Habitat | | | | | | | | Previous value | undertaken during the 201 |
| Steelhead | lower | | tributaries | Quantity: | | | | | | | | overinflated for original | frame, therefore, there wa |
| | mainstem | | | Anthropo | | | | | | | | AU. Data for new AU | from Low Bookend. EWL 3 |
| | | | | genic | | | | | | | | restricted to Tom Taha, | |
| | | | | Barriers | | | | | | | | Maggie, Sally Ann and Sill | |
| | | | | | | | | | | | | Creek; info for remainder | |
| | | | | | | | | | | | | of AU received from | |
| | | | | | | | | | | | | regional staff. HIGH | |
| | | | | | | | | | | | | BOOKENDS: Immediate | |
| | | | | | | | | | | | | response to replacement | |
| | | | | | | | | | | | | of fish passage barriers; | |
| | | | | | | | | | | | | <100% HB as potential for | |
| | | | | | | | | | | | | barrier(s) to be located | |
| | | | | | | | | | | | | upon uncooperative | |
| | | | | | | | | | | | | landowner parcel(s). LF | |
| | | | | | | | | | | | | TARGET: Full upstream | |
| | | | | | | | | | | | | and downstream passage | |
| | | | | | | | | | | | | for adult and juvenile fish | |
| | | | | | | | | | | | | at all flows. EXTANT | |
| | | | | | | | | | | | | DATA: 2008-2011 NPT | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | observations | |
| | | | | | | | | | | | | at all flows. E | XTANT 2011 NPT |

| ESU | Populatio n | Code | Assessment | _ | LF Weight | Low Bookend | Original 2018 Estimate | Updated 2018 Estimate | High 2018 Bookend | | - | LF Weight and Bookends Comments | Estimates Comments |
|-----------|----------------|------|-------------|------------|-----------|----------------|------------------------------|-----------------------------|----------------------|----|----|------------------------------------|----------------------------|
| Snake | Clearwate | LCS3 | Clearwater | 4.1: | 10.00% | 50 | 50 | 50 | 55 | 50 | 70 | Level of Certainty = 5. | 2015: There were no actio |
| River | r River | | Mountain | Riparian | | | | | | | | Data for revised AU | undertaken during the 201 |
| Steelhead | lower | | tributaries | Condition: | | | | | | | | restricted to Maggie and | frame, therefore, there wa |
| | mainstem | | | Riparian | | | | | | | | Sally Ann Creek; details | from Low Bookend. EWL 3 |
| | | | | Vegetatio | | | | | | | | for remainder of AU | |
| | | | | n | | | | | | | | received from regional | |
| | | | | | | | | | | | | staff. HIGH BOOKENDS: | |
| | | | | | | | | | | | | Prolonged response to | |
| | | | | | | | | | | | | maturation of riparian | |
| | | | | | | | | | | | | plantings and natural | |
| | | | | | | | | | | | | revegetation of | |
| | | | | | | | | | | | | fencing/off-site watering | |
| | | | | | | | | | | | | corridors and weed | |
| | | | | | | | | | | | | treatment reaches. LF | |
| | | | | | | | | | | | | TARGET: Riparian buffer | |
| | | | | | | | | | | | | extending =300' from | |
| | | | | | | | | | | | | floodplain with riparian | |
| | | | | | | | | | | | | vegetation having >75% | |
| | | | | | | | | | | | | similarity to potential | |
| | | | | | | | | | | | | natural community | |
| | | | | | | | | | | | | composition. EXTANT | |
| | | | | | | | | | | | | DATA: 2008-2011 NPT | |
| | | | | | | | | | | | | photos and canopy cover | |
| | | | | | | | | | | | | data | |

| ESU | Populatio n | Code | Assessment Unit | - | LF Weight | Low | Original 2018 Estimate | Updated 2018 Estimate | High 2018 Bookend | | - | LF Weight and Bookends Comments | Estimates Comments |
|-----------|----------------|------|--------------------|-----------|-----------|-----|------------------------------|-----------------------------|----------------------|----|----|------------------------------------|----------------------------|
| Snake | n Clearwate | | | 6.1: | | 45 | 45 | 45 | | 45 | 70 | Level of Certainty = 5. | 2015: There were no action |
| River | r River | 2000 | | Channel | 10.0070 | 10 | | 10 | 55 | 10 | | Data for revised AU | undertaken during the 201 |
| Steelhead | | | | Structure | | | | | | | | restricted to Maggie and | frame, therefore, there wa |
| | mainstem | | | and Form: | | | | | | | | Sally Ann Creek; details | from Low Bookend. EWL 3 |
| | | | | Bed and | | | | | | | | for remainder of AU | |
| | | | | Channel | | | | | | | | received from regional | |
| | | | | Form | | | | | | | | staff. HIGH BOOKENDS: | |
| | | | | | | | | | | | | Short-term (2018) | |
| | | | | | | | | | | | | response to levee | |
| | | | | | | | | | | | | removal, bank | |
| | | | | | | | | | | | | stabilization and wetland | |
| | | | | | | | | | | | | development. Long-term | |
| | | | | | | | | | | | | (2033) response to | |
| | | | | | | | | | | | | riparian/upland growth, | |
| | | | | | | | | | | | | forest regeneration and | |
| | | | | | | | | | | | | fencing/off-site watering. | |
| | | | | | | | | | | | | LF TARGET: Bank stability | |
| | | | | | | | | | | | | >90% for Rosgen C | |
| | | | | | | | | | | | | channel, >95% for A & B | |
| | | | | | | | | | | | | channel, 100% for E | |
| | | | | | | | | | | | | channel. Width:Depth | |
| | | | | | | | | | | | | ratio<10 for A channel, | |
| | | | | | | | | | | | | <20 for B channel, <40 for | |
| | | | | | | | | | | | | C channel and <7 for E | |
| | | | | | | | | | | | | channel. EXTANT DATA: | |
| | | | | | | | | | | | | 2008-2011 NPT undercut | |
| | | | | | | | | | | | | bank and wetted | |
| | | | | | | | | | | | | width/depth data | |

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| | Populatio n | | Assessment | | LF Weight | Low Bookend | Original 2018 Estimate | | High 2018 Bookend | | - | LF Weight and Bookends Comments | Estimates Comments |
|-----------|----------------|------|-------------|------------|-----------|----------------|------------------------------|----|----------------------|----|----|------------------------------------|----------------------------|
| Snake | Clearwate | LCS3 | Clearwater | 6.2: | 10.00% | 50 | 50 | 50 | 60 | 50 | 75 | Level of Certainty = 5. | 2015: There were no action |
| River | r River | | Mountain | Channel | | | | | | | | Data for revised AU | undertaken during the 201 |
| Steelhead | lower | | tributaries | Structure | | | | | | | | restricted to Maggie and | frame, therefore, there wa |
| | mainstem | | | and Form: | | | | | | | | Sally Ann Creek; details | from Low Bookend. EWL 3 |
| | | | | Instream | | | | | | | | for remainder of AU | |
| | | | | Structural | | | | | | | | received from regional | |
| | | | | Complexit | | | | | | | | staff. HIGH BOOKENDS: | |
| | | | | у | | | | | | | | Short-term (2018) | |
| | | | | | | | | | | | | response to levee | |
| | | | | | | | | | | | | removal and wetland | |
| | | | | | | | | | | | | development. Long-term | |
| | | | | | | | | | | | | (2033) response to | |
| | | | | | | | | | | | | riparian/upland growth, | |
| | | | | | | | | | | | | forest regeneration, LWD | |
| | | | | | | | | | | | | maturation/recruitment | |
| | | | | | | | | | | | | and fencing/off-site | |
| | | | | | | | | | | | | watering. LF TARGET: | |
| | | | | | | | | | | | | Potential natural values | |
| | | | | | | | | | | | | for pool frequency, pool | |
| | | | | | | | | | | | | quality and LWD quantity. | |
| | | | | | | | | | | | | EXTANT DATA: 2008-2011 | |
| | | | | | | | | | | | | NPT channel morphology | |
| | | | | | | | | | | | | data | |
| | | | | | | | | | | | | NPT channel morphology | |

| ESU | Populatio n | Code | Assessment Unit | - | LF Weight | Low Bookend | 2018 | Updated 2018 Estimate | High 2018 Bookend | | - | LF Weight and Bookends Comments | Estimates Comments |
|-----------|----------------|------|--------------------|-----------|-----------|----------------|------|-----------------------------|----------------------|----|----|------------------------------------|----------------------------|
| Snake | Clearwate | LCS3 | Clearwater | 7.2: | 15.00% | 40 | 40 | 40 | 45 | 40 | 60 | Level of Certainty = 5. | 2015: There were no action |
| River | r River | | Mountain | Sediment | | | | | | | | Data for revised AU | undertaken during the 201 |
| Steelhead | | | tributaries | Condition | | | | | | | | restricted to Maggie and | frame, therefore, there wa |
| | mainstem | | | s: | | | | | | | | Sally Ann Creek; details | from Low Bookend. EWL 3 |
| | | | | Increased | | | | | | | | for remainder of AU | |
| | | | | Sediment | | | | | | | | received from regional | |
| | | | | Quantity | | | | | | | | staff. HIGH BOOKENDS: | |
| | | | | | | | | | | | | Short-term (2018) | |
| | | | | | | | | | | | | response to wetland | |
| | | | | | | | | | | | | development, bank | |
| | | | | | | | | | | | | stabilization and | |
| | | | | | | | | | | | | fencing/off-site watering. | |
| | | | | | | | | | | | | Long-term (2033) | |
| | | | | | | | | | | | | response to | |
| | | | | | | | | | | | | riparian/upland growth, | |
| | | | | | | | | | | | | road decommissioning | |
| | | | | | | | | | | | | and forest regeneration. | |
| | | | | | | | | | | | | LF TARGET: Cobble | |
| | | | | | | | | | | | | Embeddedness <20%. | |
| | | | | | | | | | | | | Surface fines (<6mm) | |
| | | | | | | | | | | | | =10% for A & B channels | |
| | | | | | | | | | | | | and =20% for C & E | |
| | | | | | | | | | | | | channels. EXTANT DATA: | |
| | | | | | | | | | | | | 2008-2011 NPT dominant | |
| | | | | | | | | | | | | substrate and pebble | |
| | | | | | | | | | | | | count data | |

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| ESU | Populatio n | Code | Assessment Unit | | LF Weight | Low Bookend | 2018 | Updated 2018 Estimate | High 2018 Bookend | | - | LF Weight and Bookends Comments | Estimates Comments |
|-----------|----------------|------|--------------------|----------|-----------|----------------|------|-----------------------------|----------------------|----|----|------------------------------------|----------------------------|
| Snake | Clearwate | LCS3 | Clearwater | 8.1: | 15.00% | 40 | 40 | 40 | 45 | 40 | 60 | Level of Certainty = 5. | 2015: There were no actio |
| River | r River | | Mountain | Water | | | | | | | | Data for revised AU | undertaken during the 201 |
| Steelhead | lower | | tributaries | Quality: | | | | | | | | restricted to Maggie and | frame, therefore, there wa |
| | mainstem | | | Temperat | | | | | | | | Sally Ann Creek; details | from Low Bookend. EWL |
| | | | | ure | | | | | | | | for remainder of AU | |
| | | | | | | | | | | | | received from regional | |
| | | | | | | | | | | | | staff. HIGH BOOKENDS: | |
| | | | | | | | | | | | | Short-term (2018) | |
| | | | | | | | | | | | | response to wetland | |
| | | | | | | | | | | | | development and | |
| | | | | | | | | | | | | education / enforcement | |
| | | | | | | | | | | | | coordination on illegal | |
| | | | | | | | | | | | | withdrawals. Long-term | |
| | | | | | | | | | | | | (2033) response to | |
| | | | | | | | | | | | | riparian/upland growth | |
| | | | | | | | | | | | | and effects of levee | |
| | | | | | | | | | | | | removal/hydrological | |
| | | | | | | | | | | | | stabilization action on | |
| | | | | | | | | | | | | W:D ratios and pool | |
| | | | | | | | | | | | | habitat. LF TARGET: | |
| | | | | | | | | | | | | Water temperature | |
| | | | | | | | | | | | | <14ºC. EXTANT DATA: | |
| | | | | | | | | | | | | 2008-2011 NPT | |
| | | | | | | | | | | | | instantaneous data | |

| ESU | Populatio n | Code | Assessment Unit | - | LF Weight | Low Bookend | Original 2018 Estimate | Updated 2018 Estimate | High 2018 Bookend | | - | LF Weight and Bookends Comments | Estimates Comments |
|-----------|----------------|------|--------------------|-----------|-----------|----------------|------------------------------|-----------------------------|----------------------|----|----|------------------------------------|----------------------------|
| Snake | Clearwate | LCS3 | Clearwater | 9.1: | _ | 50 | 50 | 50 | 55 | 50 | 65 | Level of Certainty = 5. | 2015: There were no action |
| River | r River | | Mountain | Water | | | | | | | | Data for revised AU | undertaken during the 201 |
| Steelhead | lower | | tributaries | Quantity: | | | | | | | | restricted to Maggie and | frame, therefore, there wa |
| | mainstem | | | Increased | | | | | | | | Sally Ann Creek; details | from Low Bookend. EWL 3 |
| | | | | Water | | | | | | | | for remainder of AU | |
| | | | | Quantity | | | | | | | | received from regional | |
| | | | | | | | | | | | | staff. HIGH BOOKENDS: | |
| | | | | | | | | | | | | Short-term (2018) | |
| | | | | | | | | | | | | response to no-till, | |
| | | | | | | | | | | | | grassed waterways, and | |
| | | | | | | | | | | | | wetland development. | |
| | | | | | | | | | | | | Long-term (2033) | |
| | | | | | | | | | | | | response to wetland | |
| | | | | | | | | | | | | maturation, | |
| | | | | | | | | | | | | riparian/upland growth | |
| | | | | | | | | | | | | and forest regeneration. | |
| | | | | | | | | | | | | LF TARGET: Discharge | |
| | | | | | | | | | | | | volume and timing of | |
| | | | | | | | | | | | | peak flows comparable to | |
| | | | | | | | | | | | | a watershed functioning | |
| | | | | | | | | | | | | within its natural | |
| | | | | | | | | | | | | disturbance regime. | |
| | | | | | | | | | | | | EXTANT DATA: 2008-2011 | |
| | | | | | | | | | | | | NPT BF to wetted width | |
| | | | | | | | | | | | | data | |

| ESU | Populatio n | Code | Assessment Unit | - | LF Weight | Low Bookend | 2018 | Updated 2018 Estimate | High 2018 Bookend | | - | LF Weight and Bookends Comments | Estimates Comments |
|-----------|----------------|------|--------------------|-----------|-----------|----------------|------|-----------------------------|----------------------|----|----|------------------------------------|----------------------------|
| Snake | Clearwate | LCS3 | Clearwater | 9.2: | 15.00% | 40 | 40 | 40 | 45 | 40 | 55 | Level of Certainty = 5. | 2015: There were no action |
| River | r River | | Mountain | Water | | | | | | | | Data for revised AU | undertaken during the 201 |
| Steelhead | | | tributaries | Quantity: | | | | | | | | restricted to Maggie and | frame, therefore, there wa |
| | mainstem | | | Decrease | | | | | | | | Sally Ann Creek; details | from Low Bookend. EWL 3 |
| | | | | d Water | | | | | | | | for remainder of AU | |
| | | | | Quantity | | | | | | | | received from regional | |
| | | | | | | | | | | | | staff. HIGH BOOKENDS: | |
| | | | | | | | | | | | | Short-term (2018) | |
| | | | | | | | | | | | | response to wetland | |
| | | | | | | | | | | | | development and | |
| | | | | | | | | | | | | education / enforcement | |
| | | | | | | | | | | | | coordination on illegal | |
| | | | | | | | | | | | | withdrawals. Long-term | |
| | | | | | | | | | | | | (2033) response to | |
| | | | | | | | | | | | | riparian/upland growth, | |
| | | | | | | | | | | | | wetland maturation and | |
| | | | | | | | | | | | | forest regeneration. LF | |
| | | | | | | | | | | | | TARGET: Discharge | |
| | | | | | | | | | | | | volume and timing of | |
| | | | | | | | | | | | | base flows comparable to | |
| | | | | | | | | | | | | a watershed functioning | |
| | | | | | | | | | | | | within its natural | |
| | | | | | | | | | | | | disturbance regime. | |
| | | | | | | | | | | | | EXTANT DATA: 2008-2011 | |
| | | | | | | | | | | | | NPT wetted width and | |
| | | | | | | | | | | | | depth data | |

| ions |
|---------------|
| 012-2015 time |
| vas no change |
| . 3.9.16 |
| |

| F ESU r | Populatio n | Assessment Unit | - | LF Weight | Low Bookend | 2018 | Updated 2018 Estimate | High 2018 Bookend | | - | LF Weight and Bookends Comments | Estimates Comments |
|-------------|------------------------------|--------------------|---|-----------|----------------|------|-----------------------------|----------------------|----|----|---|--|
| | Clearwate | Lapwai | 1.1: | 10.00% | 60 | 60 | 60 | 95 | 60 | 95 | Level of Certainty = 1. | 2012: ESTIMATED IMPROV |
| Steelhead l | r River lower mainstem | Creek Basin | Habitat Quantity: Anthropo genic Barriers | | | | | | | | to 25% of productive channel as well as critical cool water refugia. HIGH BOOKENDS: Immediate response to replacement of fish passage barriers; <100% HB as potential for barrier(s) to be located upon uncooperative landowner parcel(s). LF TARGET: Full upstream and downstream passage | BASED ON LYNNE R. PROJE AREN'T YET LOADED INTO PROJECTS & ABT. 15 MILES ACCESSED (Jack Spur, Missi up berm, Sweetwater, Wel Bell, 8 of 232 barriers). NPT - no projects planned I continue working on the Le Orchards Irrigation District diversions that are the larg in the Lapwai Creek draina, 2015: Two culvert projects habitat, but there are barri including a full barrier. The benefits from these activiti reported. Therefore there change from the low booke 3.10.16 |

OVEMENT DJECTS THAT TO SYSTEM; 8 LES IMPROVED lission Cr, push Veb Cr, Tom

ed but will e Lewiston rict water argest barriers inage. ects opened arriers below, Therefore, no ivities were ere was no bokend. EWL

| ESU | Populatio n | Code | Assessment Unit | - | LF Weight | Low Bookend | Original 2018 Estimate | | High 2018 Bookend | | - | LF Weight and Bookends Comments | Estimates Comments |
|-----------|----------------|------|--------------------|------------|-----------|----------------|------------------------------|------|----------------------|----|----|------------------------------------|------------------------------|
| Snake | Clearwate | LCS4 | Lapwai | 4.1: | 15.00% | 35 | 35 | 36.4 | 55 | 45 | 65 | Level of Certainty = 3. | Estimate based on NPT pro |
| River | r River | | Creek Basin | Riparian | | | | | | | | Conservative LF weight as | 3.25 miles total of riparian |
| Steelhead | lower | | | Condition: | | | | | | | | linked to all other | restoration. |
| | mainstem | | | Riparian | | | | | | | | impacts. HIGH | Lynne R. projects to be cor |
| | | | | Vegetatio | | | | | | | | BOOKENDS: Short-term | "look back" at 2015 EP Wo |
| | | | | n | | | | | | | | (2018) response to initial | Plant Vegetation - 36 ripari |
| | | | | | | | | | | | | riparian plantings | wetland acres (in top 3 pric |
| | | | | | | | | | | | | throughout invasive weed | Restoration Plan); riparian |
| | | | | | | | | | | | | | livestock water developme |
| | | | | | | | | | | | | • | Restoration Plan says 2800 |
| | | | | | | | | | | | | corridors and removal of | acres need enhancement |
| | | | | | | | | | | | | RR prism, levees and 195 | 2015: No fewer10 riparian |
| | | | | | | | | | | | | pullouts. Long-term | planting, and weed control |
| | | | | | | | | | | | | (2033) response to | treated more than 31 strea |
| | | | | | | | | | | | | maturation of riparian | The Expert Panel adjusted |
| | | | | | | | | | | | | plantings and natural | treated miles for the purpo |
| | | | | | | | | | | | | revegetation of treatment | assigning benefit to 2018 b |
| | | | | | | | | | | | | | based on percent improver |
| | | | | | | | | | | | | | anticipated by estimating a |
| | | | | | | | | | | | | =300' from floodplain | growth to 2018 (ranges fro |
| | | | | | | | | | | | | with riparian vegetation | 30%). Value of weed contro |
| | | | | | | | | | | | | having >75% similarity to | spotted knotweed) was ac |
| | | | | | | | | | | | | potential natural | in weighting. Post-weightin |
| | | | | | | | | | | | | community composition. | Expert Panel estimated tha |
| | | | | | | | | | | | | EXTANT DATA: 2003-2006 | stream miles were improve |
| | | | | | | | | | | | | NPT canopy cover and | over the 75.5 stream miles |
| | | | | | | | | | | | | riparian width, density | steelhead are distributed in |
| | | | | | | | | | | | | and compositon data. | Assessment Unit (based on |
| | | | | | | | | | | | 1 | | |

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oroejcts only -
an tree/shrub
onsidered in
Vorkshop -
arian & 10
priority areas in
an fencing,
nents
800 riparian
an fencing,
rol projects,
ream miles.
ed those
rposes of
B by prorating
/ement
g annual
from 1% t0
trol (primarily
accounted for
nting, the
that 1.0781
oved. Taken
les where
d in the
on STreamnet
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| ESU | Populatio n | | Assessment Unit | - | LF Weight | Low Bookend | Original 2018 Estimate | | High 2018 Bookend | | - | LF Weight and Bookends Comments | Estimates Comments |
|-----------------------------|---|------|--------------------|---|-----------|----------------|------------------------------|------|----------------------|----|---|---|--|
| Snake River Steelhead | Clearwate r River lower mainstem | LCS4 | • | 6.1: Channel Structure and Form: Bed and Channel Form | 5.00% | 50 | 50 | 51.1 | 75 | 55 | | Level of Certainty = 2. Anthropogenic channel confinement particularly limiting in Lapwai and lower Mission creeks. HIGH BOOKENDS: Short- term (2018) response to removal of RR prism, levees and I95 pullouts. LF TARGET: Bank stability >90% for Rosgen C channel, >95% for A & B channel, 100% for E channel, 100% for E channel. Width:Depth ratio<10 for A channel, <20 for B channel, <40 for C channel and <7 for E channel. EXTANT DATA: 2003-2006 NPT reports, 2008 NPT assessment. These efforts will also affect LF 4.1, 6.2, 7.2, and 8.1. | 2012: ESTIMATE BASED ON PROJECTS - 4 major levees be set-back or removed. 2015: Two projects were a during 2012-2015. They w different so the Expert Part them separately. Sweetwa Levee project treated 0.1 r was adjusted by 75% recog it may take longer than to achieve goals. It's relative improvement over the Ass Unit was made relative to and state of treatable char reaches in Assessment Uni miles up to confluence), the improvement from this pro (0.075/21*100). The Rock project (0.7 miles treated) prorated 75% but because upstream of fish use and h restricted extent, improve made relative to 75.5- stree Therefore, the improvement Rock Creek Restoration is 0 (0.525/75.5*100). The rest the two actions is 1.1% impover the low booked. EWI |

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ON NPT
e systems to
e accomplished
/ were quite
Panel assessed
twater Creek
1 mile, which
cognizing that
to 2018 to fully
ve
Assessment
to the extent
hannel in
Jnit (=21 river
, thus, the
project= 0.4%
ck Creek
ed) was also
ıse it is
d had a more
vement was
tream miles.
ment from
is 0.7%
esulting sum of
improvement
WL 3.10.16.
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| ESU | Populatio n | Code | Assessment Unit | | LF Weight | Low Bookend | 2018 | Updated 2018 Estimate | High 2018 Bookend | | - | LF Weight and Bookends Comments | Estimates Comments |
|-----------|----------------|------|--------------------|------------|-----------|----------------|------|-----------------------------|----------------------|----|----|------------------------------------|------------------------------|
| Snake | Clearwate | LCS4 | Lapwai | 6.2: | | 40 | 40 | 40.3 | 50 | 45 | 60 | , | 2012:ESTIMATE BASED ON |
| River | r River | | Creek Basin | Channel | | | | | | | | Relatively low | NPT PROJECTS. 0.66 miles |
| Steelhead | | | | Structure | | | | | | | | channel/habitat | channel restroation on NP |
| | mainstem | | | and Form: | | | | | | | | complexity noted through | |
| | | | | Instream | | | | | | | | | additional benefits from 4 |
| | | | | Structural | | | | | | | | | systems to be addressed. |
| | | | | Complexit | | | | | | | | term (2018) response to | 2015: Three projects that i |
| | | | | У | | | | | | | | floodplain connectivity, | affected channel structure |
| | | | | | | | | | | | | no-till, drain tile | were considered. For exar |
| | | | | | | | | | | | | decommissioning, | Tom Beal Bridge bank stab |
| | | | | | | | | | | | | wetland development and | |
| | | | | | | | | | | | | , , | instream structure for 0.01 |
| | | | | | | | | | | | | term (2033) response to | (created pool where coho |
| | | | | | | | | | | | | riparian/upland growth, | seen), The Expert Panel ad |
| | | | | | | | | | | | | forest regeneration, | functional river miles of im |
| | | | | | | | | | | | | fencing/off-site watering, | by weighting based on ant |
| | | | | | | | | | | | | LWD | improvement to 2018. Eac |
| | | | | | | | | | | | | maturation/recruitment | was assessed relative to th |
| | | | | | | | | | | | | and beaver | length of all treatable char |
| | | | | | | | | | | | | recolonization. LF | Assessment Unit. Therefo |
| | | | | | | | | | | | | TARGET: Potential natural | 0.81 miles treated in the A |
| | | | | | | | | | | | | values for pool frequency, | Unit, only 0.17 stream mile |
| | | | | | | | | | | | | pool quality and LWD | affective improvements by |
| | | | | | | | | | | | | quantity. EXTANT DATA: | Considered over the 50.5 r |
| | | | | | | | | | | | | 2003-2006 NPT channel | Assessment Unit (the Expe |
| | | | | | | | | | | | | morphology data | subtracted 25 miles from t |
| | | | | | | | | | | | | | Streamnet database becau |
| | | | | | | | | | | | | | canyon and channel struct |
| | | | | | | | | | | | | | |

ON IDENTIFIED iles of stream NPT trust unit Creek); 4 major levee d.

at indirectly ire and form xample, the abilization ffected 0.01 river miles no has been adjusted the improvement inticipated Each project the potential nannels in the fore for the e Assessment niles will have by 2018. .5 miles in the pert Panel n the cause it is a ucture and

| ESU | Populatio n | Code | Assessment Unit | - | LF Weight | Low Bookend | 2018 | Updated 2018 Estimate | High 2018 Bookend | | - | LF Weight and Bookends Comments | Estimates Comments |
|-----------|----------------|------|--------------------|-----------|-----------|----------------|------|-----------------------------|----------------------|----|----|------------------------------------|--|
| Snake | Clearwate | LCS4 | Lapwai | 7.2: | 10.00% | 40 | 42 | 42.1 | 50 | 43 | 70 | Level of Certainty = 3. | 2012: Estimate based on N |
| River | r River | | Creek Basin | Sediment | | | | | | | | Beyond effects of | only - Small additional ben |
| Steelhead | lower | | | Condition | | | | | | | | turbidity on juvenile and | riparian restoration work |
| | mainstem | | | s: | | | | | | | | adult physiology, habitat | Lynne R. projects not yet lo |
| | | | | Increased | | | | | | | | impacts primarily | Taurus system & should be |
| | | | | Sediment | | | | | | | | localized within low | look back estimates at 201 |
| | | | | Quantity | | | | | | | | gradient reaches due to | workshop (WE 48 Tillage - |
| | | | | | | | | | | | | | WE 47 - Plant Veg 800 acre |
| | | | | | | | | | | | | "flashy" systems. HIGH | Improvements - 18 miles (3 |
| | | | | | | | | | | | | BOOKENDS: Short-term | riparian/70% upland); Upla |
| | | | | | | | | | | | | (2018) response to no-till, | Sediment Control Measure |
| | | | | | | | | | | | | grassed waterways, | waterways 3000 ft (immed |
| | | | | | | | | | | | | wetland development, | benefits), 25 gully erosion |
| | | | | | | | | | | | | bank stabilization and | 1100' streambank stabiliza |
| | | | | | | | | | | | | fencing/off-site watering. | 2015:The Expert Panel con |
| | | | | | | | | | | | | Long-term (2033) | riparian vegetation actions |
| | | | | | | | | | | | | response to | factor 4.1) as also improvir |
| | | | | | | | | | | | | riparian/upland growth, | sediment. One additional |
| | | | | | | | | | | | | forest regeneration and | added that was undertake |
| | | | | | | | | | | | | road decommissioning. LF | due to an erosion problem |
| | | | | | | | | | | | | TARGET: Cobble | Grade). The Expert Panel c |
| | | | | | | | | | | | | Embeddedness <20%. | length of downstream stre |
| | | | | | | | | | | | | Surface fines (<6mm) | benefited actions, and for |
| | | | | | | | | | | | | <=10% for A & B channels | projects considered proxim |
| | | | | | | | | | | | | and <=20% for C & E | but did not count knotwee |
| | | | | | | | | | | | | channels. EXTANT DATA: | projects. Projects were we |
| | | | | | | | | | | | | 2003-2006 NPT pebble | according to watershed/slo |
| | | | | | | | | | | | | count, surface fines, | and total benefit possible, |
| | | | | | | | | | | | | | line and a self or a set of a labor of |

n NPT projects penefits from k.. t loaded into be included in 2015 EP e - 5000 acres, cres, Rd s (30% pland ures - grass nediate on treatments, ization) considered the ons (limiting oving for al project was ken specifically em (Fountain l considered tream that for no till ximity to creek, veed/biocontrol weighted /slope position le , given other

| ESU | Populatio n | Code | Assessment Unit | 2012 Standardi zed Limiting Factor | LF Weight | Low Bookend | 2018 | Updated 2018 Estimate | High 2018 | | - | LF Weight and Bookends Comments | Estimates Comments |
|----------------|----------------------|------|-----------------------|--|-----------|----------------|------|-----------------------------|-----------|----|----|--|--|
| Snake River | Clearwate r River | LCS4 | Lapwai Creek Basin | 8.1: Water | 25.00% | 30 | 30 | 30.4 | 45 | 38 | 55 | Level of Certainty = 1. Instantaneous max in | 2012: NPT PROJECTS CONSIDER ONLY. Benefits from 3.25 miles |
| Steelhead | lower mainstem | | | Quality: Temperat ure | | | | | | | | excess of 26ºC recorded at multiple locations; 31.8ºC recorded at | riparian restoration, in addition benefits from influence on hypo flow from NPT trust unit 40 stre |
| | | | | | | | | | | | | mouth of Lapwai Creek. HIGH BOOKENDS: Short- term (2018) response to | restoraiton and 4 major levee so to be addressed. 2015: Weed treatment improve |
| | | | | | | | | | | | | drain-tile decommissioning, | temperature because native pla survival and growth improves, a |
| | | | | | | | | | | | | wetland development, education/enforcement | native plants have a greater sha potential. However, the weed |
| | | | | | | | | | | | | coordination on illegal withdrawals and decommissioning of LOID | treatment projects that occurre within this Assessment Unit we removed from consideration he |
| | | | | | | | | | | | | diversions. Long-term (2033) response to | avoid "double counting" with of vegetation actions in same sites |
| | | | | | | | | | | | | riparian growth and effects of hydrological | Expert Panel adjusted stream m treated by assessing a 1% weigh |
| | | | | | | | | | | | | stabilization actions on W:D ratios and pool habitat. LF TARGET: | factor to each project to accour progress toward shading throug 2018. Thus the 32.17 stream m |
| | | | | | | | | | | | | Water temperature <14ºC. EXTANT DATA: | treated, resulted in a realized ch of only 0.32 stream miles (after |
| | | | | | | | | | | | | 2003-2005 NPT thermograph data; BOR | weighting). Therefore, consider across the entire Assessment Up |
| | | | | | | | | | | | | thermograph data | projects resulted in a 0.4% improvement for this limiting fa |

NSIDERED 25 miles of addition to on hyporheic 40 stream levee systems

mproves ative plant roves, and iter shading weed occurred Jnit were tion here to with other ne sites. The ream miles 6 weighting account for through eam miles alized change s (after onsidered nent Unit the % iting factor

| ESU | Populatio n | Code | Assessment Unit | - | LF Weight | Low Bookend | 2018 | Updated 2018 Estimate | High 2018 Bookend | | - | LF Weight and Bookends Comments | Estimates Comments |
|-----------------------------|---|------|-----------------------|--|-----------|----------------|------|-----------------------------|----------------------|----|----|---|---|
| Snake River Steelhead | Clearwate r River lower mainstem | LCS4 | Lapwai Creek Basin | 8.7: Water Quality: Toxic Contamin ants | 2.00% | 80 | 80 | 80 | 85 | 80 | 90 | 195 and Culdesac trap range and anecdotal information re. residential | 2012: No projects planned 2015: No projects were un during 2012-2015 that add limiting factor, therefore tl change from the Low Book 3.10.16 |

ed undertaken address this e there was no pokend. EWL

| ESU | Populatio n | Code | | - | LF Weight | Low Bookend | 2018 | Updated 2018 Estimate | High 2018 Bookend | | - | LF Weight and Bookends Comments | Estimates Comments |
|-----------------------------|----------------------|------|-----------------------|------|-----------|----------------|------|-----------------------------|----------------------|----|----|--|--|
| Snake River Steelhead | Clearwate r River | | Lapwai Creek Basin | 9.1: | 8.00% | 45 | 45 | 45 | | 47 | 60 | Level of Certainty = 4. Beyond direct impacts to redds, extremely "flashy" spring events linked to all limiting factors except 1.1 and 8.7. HIGH BOOKENDS: Short-term (2018) response to no-till, grassed waterways, drain | 2012: NPT PROJECTS CONS ONLY. Benefits from 3.25 riparian restoration, in add benefits from floodplain re NPT trust unit 40 stream re and 4 major levee systems addressed. 2015: No actions were und during 2012-2015 time per therefore, there was no ch low bookend. EWL 3.10.16 |

DNSIDERED 25 miles of addition to n restoration on n restoraiton ms to be

undertaken period, change to the 0.16

| ESU | Populatio n | | Assessment | - | LF Weight | Low Bookend | Original 2018 Estimate | | High 2018 Bookend | | - | LF Weight and Bookends Comments | Estimates Comments |
|-----------------------------|---|------|-------------|---|-----------|----------------|------------------------------|----|----------------------|----|----|---|--|
| Snake River Steelhead | Clearwate r River lower mainstem | LCS4 | Creek Basin | 9.2: Water Quantity: Decrease d Water Quantity | 15.00% | 35 | 35 | 35 | 55 | 38 | 65 | Sweetwater and lower Lapwai Creek discharge impacted by BOR water withdrawals. HIGH BOOKENDS: Short-term (2018) response to no-till, | 2012: NPT PROJECTS CONS ONLY. Benefits from 3.25 r riparian restoration, in add benefits from floodplain re NPT trust unit 40 stream re and 4 major levee systems addressed. 2015: No actions were und during 2012-2015 period to this limiting factor, therefo no change to the low book 3.10.16 |

NSIDERED 25 miles of ddition to restoration on restoraiton ms to be

ndertaken d to address efore there is okend. EWL

| ESU | Populatio n | Code | | - | LF Weight | Low Bookend | Original 2018 Estimate | | High 2018 Bookend | | - | LF Weight and Bookends Comments | Estimates Comments |
|-----------------------------|---|------|-------------------------|---|-----------|----------------|------------------------------|----|----------------------|----|----|---|--|
| Snake River Steelhead | Clearwate r River lower mainstem | LCS5 | Potlatch River Basin | 1.1: Habitat Quantity: Anthropo genic Barriers | 10.00% | 65 | 65 | 71 | 75 | 75 | 75 | the W. Fork Little Bear. Culvert replacements are scheduled throughout the Potlatch River system that currently serve as migration barriers. Add Comment Per D. Keen 2/21/2013 "An additional barrier on Big Bear Creek is scheduled for evaluation and for | 2012: 71 miles total improv Value Edited to "86 miles to improved access" Per D. Ke 2/21/2013 2015: Troy Dam (including removal provided 10.7 mile (there are 35 stream miles dam, but not all are usable, to upstream culverts). Beca was a total barrier removal Expert Panel assessed this a improvement over the stree now accessible. To conside improvement of this project all steelhead bearing stream the Assessment Unit, the E started with the Streamnet |
| | | | | | | | | | | | | | but then added miles for tr based on known steelhead barriers, and gradient: 5 mi Potlatch Creek, 21 miles on 10 miles on Big Bear (partia exist; O. mykiss found up to Middle Fork, Pine Creek wa in Streamnet; 5 miles was a Cedar and 0.0 miles on Roc removed 2 miles from Boul (natural barrier), and added |

roved access s total . Keen

ing 2 culverts) niles of access es upstream of ole, in part due ecause this val project, the nis a 100% tream miles ider the ject relative to eam miles in Expert Panel net data layer, r tributaries, ad use, natural miles on Little on Little Bear, rtial barriers to highway); was accurate as added on Rock Creek, oulder Creek ded 1 mile on

| ESU | Populatio n | Code | Assessment Unit | - | LF Weight | Low Bookend | 2018 | Updated 2018 Estimate | High 2018 Bookend | | - | LF Weight and Bookends Comments | Estimates Comments |
|-----------------------------|----------------------|------|-------------------------|--|-----------|----------------|------|-----------------------------|----------------------|----|----|--|--|
| Snake River Steelhead | Clearwate r River | | Potlatch River Basin | 4.1: Riparian Condition: Riparian Vegetatio n | 15.00% | 50 | 50 | 50.7 | | 65 | 65 | active as well as areas of active livestock grazing. The riparian conditions in these area will be enhanced through livestock exclusion, riparian plantings with native species, and the implementation of upland agriclutural practices that reduce sheet and gully | 2012: ADD LSWCD Projects projects, benefits from pro other LF. 2015: Seven projects totali miles of treated area were and the stream miles treat prorated based on growth The meadow projects are r help hydrology (shift hydro provide more baseflow) ra riparian vegetation, so the weighted accordingly. Proj dominated by sedges matu Tree projects mature slowe after adjustments, the proj improved 1.341 stream mi Considered over the 179.5 miles in the Assessment Un Streamnet plus miles adde Expert Panel review of trib local knowledge), the impr was 0.7% (1.341/179.5*10 was recognition that this is drainage, so the projects w anticipated to make major this limiting factor. EWL 3.1 |

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ects - 8
projects in
taling 4.36 river
ere considered
eated was
rth to 2018.
re meant to
drograph to
rather than
hey were
rojects that
ature quickly.
ower. Thus,
rojects
miles.
9.5 stream
Unit (from
lded through
ributaries using
nprovement
100). There
s is a large
s were not
jor changes for
3.10.16
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| ESU | Populatio n | Assessment Unit | 2012 Standardi zed Limiting Factor | LF Weight | Low Bookend | Original 2018 Estimate | | High 2018 Bookend | | - | LF Weight and Bookends Comments | Estimates Comments |
|-----------------------------|---|-------------------------|---|-----------|----------------|------------------------------|------|----------------------|----|---|---|---|
| Snake River Steelhead | Clearwate r River lower mainstem | Potlatch River Basin | 6.1: Channel Structure and Form: Bed and Channel Form | 10.00% | 45 | 45 | 47.1 | 55 | 60 | | in the agricluture and forest landscapes through meadow and instream channel restorations where channel sinuosity has been lost and riparian restoration plantings. Areas of focus through 2018 will include Big Bear Creek, Little Bear Creek, Corral Creek, Fry Creek, and E. Fork Potlatch River. | juvenile rearing in Fry Mea away. Bloom Creek saw fa sediment response to char reconstruction. 4.21 stread treated. With recognition types of project require tir their full affects, the Exper adjusted river miles treate expected functionality in 2 |

s total - most n projects. arger meadow ound redds and leadow right fast gravel and hannel eam miles on that these time to realize pert Panel ated based on n 2018. Thus, as adjusted to d relative to miles the f(179.5 miles; ustment from ocal knowledge butaries). % low bookend

'L 3.10.16

| ESU | Populatio n | Code | Assessment Unit | - | LF Weight | Low Bookend | Original 2018 Estimate | Updated 2018 Estimate | High 2018 Bookend | | - | LF Weight and Bookends Comments | Estimates Comments |
|----------------|----------------------|------|-------------------------|-----------------|-----------|----------------|------------------------------|-----------------------------|----------------------|----|----|---|--|
| Snake River | Clearwate r River | LCS5 | Potlatch River Basin | 6.2: Channel | 10.00% | 40 | 40 | 41.7 | 45 | 55 | 55 | Instream structural complexity will be | 2012: Big Bear Creek - 2 m meadow restoration; IDFG |
| Steelhead | lower | | | Structure | | | | | | | | enhanced through | Bloom Cr, restoration - cha |
| | mainstem | | | and Form: | | | | | | | | instream channel | realignment, E Fork LWD p |
| | | | | Instream | | | | | | | | restorations (e.g., large | Comment Edited Per D. Ke |
| | | | | Structural | | | | | | | | woody debris when | 2/21/2013 "Big Bear Creek |
| | | | | Complexit | | | | | | | | appropriate) and riparian | riparian meadow restorati |
| | | | | у | | | | | | | | plantings with native | projects, Bloom Cr, restora |
| | | | | | | | | | | | | species will take place to | channel realignment, 2-E F |
| | | | | | | | | | | | | add instream structural | projects;" |
| | | | | | | | | | | | | complexity | |
| | | | | | | | | | | | | | 2015:Panel reviewed table |
| | | | | | | | | | | | | | limiting factor 6.1 regardin |
| | | | | | | | | | | | | | elements and for applicabi |
| | | | | | | | | | | | | | limiting factor 6.2; they co |
| | | | | | | | | | | | | | installed complexity as we |
| | | | | | | | | | | | | | changes since constructior |
| | | | | | | | | | | | | | 2018. Racetrack and Uppe |
| | | | | | | | | | | | | | incorporated historical cha |
| | | | | | | | | | | | | | received a high weight. Wo |
| | | | | | | | | | | | | | added to Fry and Bloom. T |
| | | | | | | | | | | | | | stream miles treated were |
| | | | | | | | | | | | | | consider functional improv |
| | | | | | | | | | | | | | through 2018 to 3.007 mile |
| | | | | | | | | | | | | | Considered over all steelhe |
| | | | | | | | | | | | | | river miles in the Assessme |
| | | | | | | | | | | | | | (from STreamnet plus adju |
| | | | | | | | | | | | | | Expert Panel using local kn |

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miles, riparian
FG - 2 projects,
channel
D project;
Keen
eek - 2 miles,
ration; IDFG - 3
oration -
E Fork LWD
```

ble from ding work ability to considered well as channel ion and to per Corral channel, thus Wood was . The 4.21 ere adjusted to rovement niles. lhead bearing ment Unit djusted by knowledge of

| ESU | Populatio n | | Assessment Unit | - | LF Weight | Low Bookend | 2018 | Updated 2018 Estimate | High 2018 Bookend | | - | LF Weight and Bookends Comments | Estimates Comments |
|-----------------------------|---|------|-------------------------|--|-----------|----------------|------|-----------------------------|----------------------|----|----|--|--|
| Snake River Steelhead | Clearwate r River lower mainstem | LCS5 | Potlatch River Basin | 7.2: Sediment Condition S: Increased Sediment Quantity | 15.00% | 40 | 40 | 41 | 50 | 55 | 55 | placed on road rocking projects near fish bearing streams, replacing undersized culverts, and | 2012: 10 LSWCD Projects + from other LF (i.e. Riparian 2015: With recognition that vegetation projects also im stabilization and reduces sedimentation, the Expert considered the sediment f several projects across 4.2: They considered the magni effect, realizing that it depo- subwatershed and location action e.g., channels had b- and were sediment source should be reduced due to p But there are other anthro sediment sources in the sa so each project was weight accordingly (position on lar total benefit possible withi subwatershed importance) multipliers were applied, th impacted 1.73 stream mile Considered over this large Unit (179.5 steelhead bear miles), the projects improv limiting factor by 1.0 % (1.73/179.5*100). EWL 3.1 |

s + projects ian) that riparian improve bank ert Panel flux after 1.21 river miles. gnitude of epends on ion, and the d been incised, rces, now, this to projects). nropogenic same reaches, ghted landscape, ithin reach, ce). After all l, the projects niles. ge Assessment

earing river roved this

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| | Populatio n | | Assessment | - | LF Weight | Low Bookend | 2018 | | High 2018 Bookend | | - | LF Weight and Bookends Comments | Estimates Comments |
|-----------------------------|---|------|-------------|---|-----------|----------------|------|----|----------------------|----|---|---|---|
| Snake River Steelhead | Clearwate r River lower mainstem | LCS5 | River Basin | 8.1: Water Quality: Temperat ure | 20.00% | 30 | 30 | 30 | | | | Practices will place an emphasis on restoring degraded riparian areas to minimize direct summer solar inputs to local streams. Meadow restorations will take place to provide for a source of cool groundwater inputs to streams. These efforts will also affect 4.1, 6.1, and 6.2. | 2012: 2 LSWCD Projects - riparian fencing, 3.5 river miles 2015: Expert Panel considered affects of Meadow projects and hyporheic changes to temperature. There are local benefits, but not measurable in assessment period at the assessment unit scale. Temperature is related to flow, but in this case, benefits are local, and affect winter temperatures (moderating overwintering habitat conditions) which is not included in this limiting factor. Therefore, the was no change from the low bookend. EWL 3.10.16 |
| River Steelhead | Clearwate r River lower mainstem | LCS5 | River Basin | 9.2: Water Quantity: Decrease d Water Quantity | 20.00% | 30 | 30 | 30 | 35 | 40 | | Meadows and wetland restorations will take place to provide for a source of base flows throughout the summer and fall. These efforts will also affect 6.2 and 8.1. | 2012: 1 LSWCD project - flow augmentation from City of Troy reservoir; 1 IDFG reforestation project 2500 primarily upland acres.Comment Edited Per D. Keen 2/21/2013 "1 LSWCD project - flow augmentation from City of Troy reservoir; 1 IDFG reforestation project 2500 primarily upland acres, 2 IDFG Flow augmentation projects-Spring Valley Reservoir and alternative site for reservoir construction." 2015: There were some relevant actions taken to address this limiting factor, but there will be no measureable improvement realized by 2018. Therefore, there was no change to the low bookend. EWL 3.10.16 |

| ESU | Populatio n | Code | Assessment | 2012 Standardi zed Limiting Factor | LF Weight | Low Bookend | Original 2018 Estimate | | High 2018 Bookend | | - | LF Weight and Bookends Comments | Estimates Comments |
|-----------------------------|---|-------|------------|--|-----------|----------------|------------------------------|----|----------------------|----|---|------------------------------------|--------------------|
| Snake River Steelhead | Clearwate r River lower mainstem | LCS6A | Prairie | 4.1: Riparian Condition: Riparian Vegetatio n | 15.00% | 55 | 55 | 55 | 60 | 55 | | linked to all other | |

| ndertaken |
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| limiting |
| as no change |
| 3.10.16 |
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| ESU | Populatio n | Code | Assessment Unit | - | LF Weight | Low | Original 2018 Estimate | Updated 2018 Estimate | High 2018 Bookend | | - | LF Weight and Bookends Comments | Estimates Comments |
|-----------|----------------|------|--------------------|-----------|-----------|-----|------------------------------|-----------------------------|----------------------|----|----|------------------------------------|-----------------------------|
| Snake | Clearwate | | | 6.1: | 5.00% | 45 | 45 | 45 | | 45 | 60 | Level of Certainty = 4. | 2015: No actions were und |
| River | r River | | Prairie | Channel | | | | | | | | Unstable channel | during 2012-2015 for this I |
| Steelhead | lower | | | Structure | | | | | | | | conditions noted through | factor, therefore there was |
| | mainstem | | | and Form: | | | | | | | | 2008-2011 NPT datasets | from low bookend. EWL 3. |
| | | | | Bed and | | | | | | | | HIGH BOOKENDS: Short- | |
| | | | | Channel | | | | | | | | term (2018) response to | |
| | | | | Form | | | | | | | | no-till, drain tile | |
| | | | | | | | | | | | | decommissioning, | |
| | | | | | | | | | | | | wetland development, | |
| | | | | | | | | | | | | bank stabilization and | |
| | | | | | | | | | | | | grassed waterways. Long- | |
| | | | | | | | | | | | | term (2033) response to | |
| | | | | | | | | | | | | wetland maturation, | |
| | | | | | | | | | | | | riparian/upland growth, | |
| | | | | | | | | | | | | forest regeneration, | |
| | | | | | | | | | | | | fencing/off-site watering | |
| | | | | | | | | | | | | and beaver | |
| | | | | | | | | | | | | recolonization. LF | |
| | | | | | | | | | | | | TARGET: Bank stability | |
| | | | | | | | | | | | | >90% for Rosgen C | |
| | | | | | | | | | | | | channel, >95% for A & B | |
| | | | | | | | | | | | | channel, 100% for E | |
| | | | | | | | | | | | | channel. Width:Depth | |
| | | | | | | | | | | | | ratio<10 for A channel, | |
| | | | | | | | | | | | | <20 for B channel, <40 for | |
| | | | | | | | | | | | | C channel and <7 for E | |
| | | | | | | | | | | | | channel. EXTANT DATA: | |
| | | | | | | | | | | | | 2008-2011 NPT undercut | |

| ndertaken | |
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| limiting | |
| as no change | |
| 3.10.16 | |
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| ESU | Populatio n | Code | Assessment Unit | - | LF Weight | Low Bookend | Original 2018 Estimate | Updated 2018 Estimate | High 2018 Bookend | | - | LF Weight and Bookends Comments | Estimates Comments |
|-----------------------------|---|-------|--------------------|---|-----------|----------------|------------------------------|-----------------------------|----------------------|----|----|---|---|
| Snake River Steelhead | Clearwate r River lower mainstem | LCS6A | Weippe Prairie | 6.2: Channel Structure and Form: Instream Structural Complexit Y | | 50 | 50 | 50 | 55 | 50 | 65 | Level of Certainty = 4. Relatively low channel/habitat complexity noted through 2008-2011 NPT datasets HIGH BOOKENDS: Short- term (2018) response to no-till, drain tile decommissioning, wetland development and grassed waterways. Long- term (2033) response to wetland maturation, riparian/upland growth, forest regeneration, fencing/off-site watering, LWD maturation/recruitment and beaver recolonization. LF TARGET: Potential natural values for pool frequency, pool quality and LWD quantity. EXTANT DATA: 2008-2011 NPT channel morphology data | 2015: No actions were und during 2012-2015 for this I factor, therefore there was from low bookend. EWL 3. |

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| limiting | |
| as no change | |
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| ESU | Populatio n | Code | Assessment Unit | - | LF Weight | Low Bookend | Original 2018 Estimate | Updated 2018 Estimate | High 2018 Bookend | | - | LF Weight and Bookends Comments | Estimates Comments |
|-----------|----------------|------|--------------------|-----------|-----------|----------------|------------------------------|-----------------------------|----------------------|----|----|------------------------------------|-----------------------------|
| Snake | Clearwate | | Weippe | 7.2: | | 40 | 40 | 40 | | 40 | 55 | Level of Certainty = 4. | 2015: No actions were und |
| River | r River | | Prairie | Sediment | | | | | | | | Beyond impacts of | during 2012-2015 for this I |
| Steelhead | | | | Condition | | | | | | | | turbidity on juvenile and | factor, therefore there was |
| | mainstem | | | s: | | | | | | | | adult physiology, habitat | from low bookend. EWL 3 |
| | | | | Increased | | | | | | | | impacts primarily | |
| | | | | Sediment | | | | | | | | localized within low | |
| | | | | Quantity | | | | | | | | gradient reaches due to | |
| | | | | | | | | | | | | high transport capacity of | |
| | | | | | | | | | | | | "flashy" systems. HIGH | |
| | | | | | | | | | | | | BOOKENDS: Short-term | |
| | | | | | | | | | | | | (2018) response to no-till, | |
| | | | | | | | | | | | | grassed waterways, | |
| | | | | | | | | | | | | wetland development, | |
| | | | | | | | | | | | | bank stabilization and | |
| | | | | | | | | | | | | fencing/off-site watering. | |
| | | | | | | | | | | | | Long-term (2033) | |
| | | | | | | | | | | | | response to | |
| | | | | | | | | | | | | riparian/upland growth, | |
| | | | | | | | | | | | | road decommissioning | |
| | | | | | | | | | | | | and forest regeneration. | |
| | | | | | | | | | | | | LF TARGET: Cobble | |
| | | | | | | | | | | | | Embeddedness <20%. | |
| | | | | | | | | | | | | Surface fines (<6mm) | |
| | | | | | | | | | | | | =10% for A & B channels | |
| | | | | | | | | | | | | and =20% for C & E | |
| | | | | | | | | | | | | channels. EXTANT DATA: | |
| | | | | | | | | | | | | 2008-2011 NPT dominant | |
| | | | | | | | | | | | | substrate and pebble | |
| | | | | | | | | | | | | la sunt data | |

| ndertaken | |
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| limiting | |
| as no change | |
| 3.10.16 | |
| | |

| ESU | Populatio n | Code | Assessment | - | LF Weight | Low Bookend | Original 2018 Estimate | | High 2018 Bookend | | - | LF Weight and Bookends Comments | Estimates Comments |
|-----------|----------------|-------|------------|-----------------|-----------|----------------|------------------------------|----|----------------------|----|----|------------------------------------|--|
| Snake | Clearwate | LCS6A | | 8.1: | 25.00% | 35 | 35 | 35 | 40 | 35 | 50 | Level of Certainty = 3. | 2015: No actions were und |
| River | r River | | | Water | | | | | | | | Max temps appear | during 2012-2015 for this li |
| Steelhead | mainstem | | | Quality: | | | | | | | | Ford and mid-lower | factor, therefore there was from low bookend. EWL 3. |
| | mainstern | | | Temperat ure | | | | | | | | Orofino Creek HIGH | ITOTITIOW DOOKETIU. EWLS. |
| | | | | ure | | | | | | | | BOOKENDS: Short-term | |
| | | | | | | | | | | | | (2018) response to drain- | |
| | | | | | | | | | | | | tile decom, wetland | |
| | | | | | | | | | | | | development and | |
| | | | | | | | | | | | | education/enforcement | |
| | | | | | | | | | | | | coordination on illegal | |
| | | | | | | | | | | | | withdrawals. Long-term | |
| | | | | | | | | | | | | (2033) response to | |
| | | | | | | | | | | | | riparian growth and | |
| | | | | | | | | | | | | effects of hydrological | |
| | | | | | | | | | | | | stabilization actions on | |
| | | | | | | | | | | | | W:D ratios and pool | |
| | | | | | | | | | | | | habitat. LF TARGET: | |
| | | | | | | | | | | | | Water temperature | |
| | | | | | | | | | | | | <14ºC. EXTANT DATA: | |
| | | | | | | | | | | | | 2008-2011 NPT | |
| | | | | | | | | | | | | instantaneous and Water | |
| | | | | | | | | | | | | Resources thermograph data | |
| | | | | | | | 1 | | | | | uata | 1 |

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| limiting | |
| as no change | |
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| ESU | Populatio n | Assessment | - | LF Weight | Low Bookend | Original 2018 Estimate | | High 2018 Bookend | | - | LF Weight and Bookends Comments | Estimates Comments |
|-----------------------------|---|------------|--|-----------|----------------|------------------------------|----|----------------------|----|----|---|--|
| Snake River Steelhead | Clearwate r River lower mainstem | Prairie | 9.1: Water Quantity: Increased Water Quantity | 5.00% | 45 | 45 | 45 | 50 | 45 | 55 | spring events linked to all limiting factors. HIGH BOOKENDS: Short-term (2018) response to no-till, grassed waterways, drain tile decom and wetland development. Long-term (2033) response to wetland maturation, riparian/upland growth and forest regeneration. LF TARGET: Discharge | 2015: No actions were und during 2012-2015 for this li factor, therefore there was from low bookend. EWL 3. |
| | | | | | | | | | | | volume and timing of peak flows comparable to a watershed functioning within its natural disturbance regime. EXTANT DATA: 2008-2011 NPT BF to wetted width data | |

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| limiting | |
| as no change | |
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| ESU | Populatio n | Code | Assessment | - | LF Weight | Low Bookend | Original 2018 Estimate | | High 2018 Bookend | | - | LF Weight and Bookends Comments | Estimates Comments |
|-----------------------------|---|-------|------------|---|-----------|----------------|------------------------------|----|----------------------|----|---|--|--|
| Snake River Steelhead | Clearwate r River lower mainstem | LCS6A | Prairie | 9.2: Water Quantity: Decrease d Water Quantity | 25.00% | 30 | 30 | 30 | 35 | 30 | | Level of Certainty = 3. Low rheic flows appear particularly limiting to Whiskey and Big Creek HIGH BOOKENDS: Short- term (2018) response to drain-tile decommissioning, wetland development and education/enforcement coordination on illegal withdrawals. Long-term (2033) response to riparian/upland growth, wetland maturation, forest regeneration and beaver recolonization. LF TARGET: Discharge volume and timing of base flows comparable to a watershed functioning within its natural disturbance regime. EXTANT DATA: 2008-2011 NPT wetted width and depth data | 2015: No actions were und during 2012-2015 for this li factor, therefore there was from low bookend. EWL 3. |

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| | | | | 2012 Standardi zed | | | Original | Updated | | Original | | | |
|-----------|-----------|-------|-------------|--------------------------|-----------|---------|----------|---------|-----------|----------|-----------|-----------------------------|-----------------------------|
| | Populatio | | Assessment | | | Low | 2018 | - | High 2018 | - | High 2033 | LF Weight and Bookends | |
| ESU | | Code | Unit | - | LF Weight | Bookend | Estimate | | Bookend | | - | - | Estimates Comments |
| Snake | Clearwate | LCS6B | Lower | 1.1: | 2.00% | 75 | 75 | 75 | 95 | 75 | 95 | Level of Certainty = 3. | 2015: No actions were und |
| River | r River | | canyon | Habitat | | | | | | | | Barrier at mouth of | during 2012-2015 for this I |
| Steelhead | lower | | tributaries | Quantity: | | | | | | | | Lindsay Creek responsible | factor, therefore there was |
| | mainstem | | | Anthropo | | | | | | | | for majority of habitat | from low bookend. EWL 3 |
| | | | | genic | | | | | | | | loss. HIGH BOOKENDS: | |
| | | | | Barriers | | | | | | | | Immediate response to | |
| | | | | | | | | | | | | replacement of fish | |
| | | | | | | | | | | | | passage barriers; <100% | |
| | | | | | | | | | | | | HB as potential for | |
| | | | | | | | | | | | | barrier(s) to be located | |
| | | | | | | | | | | | | upon uncooperative | |
| | | | | | | | | | | | | landowner parcel(s). LF | |
| | | | | | | | | | | | | TARGET: Full upstream | |
| | | | | | | | | | | | | and downstream passage | |
| | | | | | | | | | | | | for adult and juvenile fish | |
| | | | | | | | | | | | | at all flows. EXTANT | |
| | | | | | | | | | | | | DATA: 2008-2011 NPT | |
| | | | | | | | | | | | | groundtruthing | |
| | | | | | | | | | | | | observations | |
| | | | | | | | | | | | | | |

undertaken is limiting was no change L 3.10.16

| ESU | Populatio n | Code | Assessment | | LF Weight | Low Bookend | Original 2018 Estimate | | High 2018 Bookend | | - | LF Weight and Bookends Comments | Estimates Comments |
|-----------------------------|---|-------|-----------------------|--|-----------|----------------|------------------------------|----|----------------------|----|---|--|--|
| Snake River Steelhead | Clearwate r River lower mainstem | LCS6B | canyon tributaries | 4.1: Riparian Condition: Riparian Vegetatio n | 10.00% | 45 | 45 | 45 | 50 | 45 | | Level of Certainty = 3. Conservative LF weight as linked to all other impacts. HIGH BOOKENDS: Short-term (2018) response to initial riparian plantings throughout invasive weed treatment reaches, fencing/off-site watering corridors and removal or setback of levees. Long- term (2033) response to maturation of riparian plantings and natural revegetation of treatment areas. LF TARGET: Riparian buffer extending =300' from floodplain with riparian vegetation having >75% similarity to potential natural community composition. EXTANT DATA: 2008-2011 NPT photos and canopy cover data | 2015: No actions were und during 2012-2015 for this li factor, therefore there was from low bookend. EWL 3. |

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| limiting |
| as no change |
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| ESU | Populatio n | Code | Assessment Unit | - | LF Weight | Low | Original 2018 Estimate | Updated 2018 Estimate | High 2018 Bookend | | - | LF Weight and Bookends Comments | Estimates Comments |
|-----------|----------------|------|--------------------|-----------|-----------|-----|------------------------------|-----------------------------|----------------------|----|----|------------------------------------|------------------------------|
| Snake | Clearwate | | Lower | 6.1: | _ | 45 | 45 | 45 | 50 | 45 | 65 | Level of Certainty = 4. | 2015: No actions were und |
| River | r River | | canyon | Channel | | | | | | | | Unstable channel | during 2012-2015 for this li |
| Steelhead | lower | | tributaries | Structure | | | | | | | | conditions noted through | factor, therefore there was |
| | mainstem | | | and Form: | | | | | | | | 2008-2011 NPT datasets | from low bookend. EWL 3. |
| | | | | Bed and | | | | | | | | HIGH BOOKENDS: Short- | |
| | | | | Channel | | | | | | | | term (2018) response to | |
| | | | | Form | | | | | | | | no-till, drain tile | |
| | | | | | | | | | | | | decommissioning, | |
| | | | | | | | | | | | | wetland development, | |
| | | | | | | | | | | | | bank stabilization and | |
| | | | | | | | | | | | | grassed waterways. Long- | |
| | | | | | | | | | | | | term (2033) response to | |
| | | | | | | | | | | | | wetland maturation, | |
| | | | | | | | | | | | | riparian/upland growth, | |
| | | | | | | | | | | | | forest regeneration, | |
| | | | | | | | | | | | | fencing/off-site watering | |
| | | | | | | | | | | | | and beaver | |
| | | | | | | | | | | | | recolonization. LF | |
| | | | | | | | | | | | | TARGET: Bank stability | |
| | | | | | | | | | | | | >90% for Rosgen C | |
| | | | | | | | | | | | | channel, >95% for A & B | |
| | | | | | | | | | | | | channel, 100% for E | |
| | | | | | | | | | | | | channel. Width:Depth | |
| | | | | | | | | | | | | ratio<10 for A channel, | |
| | | | | | | | | | | | | <20 for B channel, <40 for | |
| | | | | | | | | | | | | C channel and <7 for E | |
| | | | | | | | | | | | | channel. EXTANT DATA: | |
| | | | | | | | | | | | | 2008-2011 NPT undercut | |

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| limiting | |
| as no change | |
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| Snake Clearwate LCS6B Lower 6.2: 15.00% 50 50 50 50 70 Level of Certainty = 4. 2015: No actions were River r River canyon Channel Structure and Form: Instream Structural Complexit and Form: Instream Structural Complexit 2008-2011.NPT datasets HIGH BOOKENDS: Short- term (2018) response to no-till, drain tile decommissioning, wetland development and grassed waterways. Long- term (2013) response to no-till, drain tile decommissioning, wetland development and grassed waterways. Long- term (2013) response to mouth, fencing/off-site watering, forest regeneration, LWD maturation, ripain/upland growth, fencing/off-site watering, forest regeneration, LWD maturation, recolonizition. LF TARGET: Potential natu | FSU | Populatio | Code | Assessment | - | I F Weight | Low | Original 2018 Estimate | Updated 2018 Estimate | High 2018 | - | LF Weight and Bookends | Estimates Comments |
|---|-------|------------------|---------------|------------|---|------------|-----|------------------------------|-----------------------------|-----------|---|---|--------------------|
| | River | r River lower | Code LCS6B | canyon | 6.2: Channel Structure and Form: Instream Structural | | | | | 55 | | Relatively low channel/habitat complexity noted through 2008-2011 NPT datasets HIGH BOOKENDS: Short- term (2018) response to no-till, drain tile decommissioning, wetland development and grassed waterways. Long- term (2033) response to wetland maturation, riparian/upland growth, fencing/off-site watering, forest regeneration, LWD maturation / recruitment and beaver recolonization. LF TARGET: Potential natural values for pool frequency, pool quality and LWD quantity. EXTANT DATA: | |

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| limiting |
| as no change |
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| ESU | Populatio n | Code | Assessment Unit | - | LF Weight | Low | 2018 | Updated 2018 Estimate | High 2018 Bookend | | - | LF Weight and Bookends Comments | Estimates Comments |
|-----------|----------------|------|--------------------|-----------|-----------|-----|------|-----------------------------|----------------------|----|----|------------------------------------|-----------------------------|
| Snake | Clearwate | | Lower | 7.2: | | 45 | 45 | 45 | | 45 | 70 | Level of Certainty = 4. | 2015: No actions were und |
| River | r River | | canyon | Sediment | | | | | | | | Beyond impacts of | during 2012-2015 for this I |
| Steelhead | lower | | tributaries | Condition | | | | | | | | turbidity on juvenile and | factor, therefore there was |
| | mainstem | | | s: | | | | | | | | adult physiology, habitat | from low bookend. EWL 3. |
| | | | | Increased | | | | | | | | impacts primarily | |
| | | | | Sediment | | | | | | | | localized within low | |
| | | | | Quantity | | | | | | | | gradient reaches due to | |
| | | | | | | | | | | | | high transport capacity of | |
| | | | | | | | | | | | | "flashy" systems. HIGH | |
| | | | | | | | | | | | | BOOKENDS: Short-term | |
| | | | | | | | | | | | | (2018) response to no-till, | |
| | | | | | | | | | | | | grassed waterways, | |
| | | | | | | | | | | | | wetland development, | |
| | | | | | | | | | | | | bank stabilization and | |
| | | | | | | | | | | | | fencing/off-site watering. | |
| | | | | | | | | | | | | Long-term (2033) | |
| | | | | | | | | | | | | response to | |
| | | | | | | | | | | | | riparian/upland growth | |
| | | | | | | | | | | | | and road | |
| | | | | | | | | | | | | decommissioning. LF | |
| | | | | | | | | | | | | TARGET: Cobble | |
| | | | | | | | | | | | | Embeddedness <20%. | |
| | | | | | | | | | | | | Surface fines (<6mm) | |
| | | | | | | | | | | | | =10% for A & B channels | |
| | | | | | | | | | | | | and =20% for C & E | |
| | | | | | | | | | | | | channels. EXTANT DATA: | |
| | | | | | | | | | | | | 2008-2011 NPT dominant | |
| | | | | | | | | | | | | substrate and pebble | |

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| as no change | |
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| ESU | Populatio n | | | - | LF Weight | Low Bookend | Original 2018 Estimate | Updated 2018 Estimate | High 2018 Bookend | | - | LF Weight and Bookends Comments | Estimates Comments |
|-----------------------------|---|-------|--------|--|-----------|----------------|------------------------------|-----------------------------|----------------------|----|----|--|--|
| Snake River Steelhead | Clearwate r River lower mainstem | LCS6B | canyon | 8.1: Water Quality: Temperat ure | 20.00% | 35 | 35 | 35 | 40 | 35 | 50 | Level of Certainty = 3. Max temps appear particularly limiting to lower Cottonwood Creek. HIGH BOOKENDS: Short- term (2018) response to drain-tile decommissioning, wetland development and education/enforcement coordination on illegal withdrawals. Long-term (2033) response to riparian growth and effects of hydrological stabilization actions on W:D ratios and pool habitat. LF TARGET: Water temperature <14°C. EXTANT DATA: 2008-2011 NPT instantaneous and Water Resources thermograph data | 2015: No actions were und during 2012-2015 for this li factor, therefore there was from low bookend. EWL 3. |

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| limiting |
| as no change |
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| ESU | Populatio n | Code | Assessment Unit | 2012 Standardi zed Limiting Factor | LF Weight | Low Bookend | Original 2018 Estimate | High 2018 Bookend | - | LF Weight and Bookends Comments | Estimates Comments |
|--------------------|------------------------------|------|-----------------------|--|-----------|----------------|------------------------------|----------------------|---|---|---|
| River Steelhead | r River lower mainstem | | canyon tributaries | Water Quantity: Increased Water | | | | | | redds, extremely "flashy" | during 2012-2015 for this li factor, therefore there was from low bookend. EWL 3. |
| | | | | Quantity | | | | | | BOOKENDS: Short-term (2018) response to no-till, grassed waterways, drain tile decommissioning and | |
| | | | | | | | | | | wetland development. Long-term (2033) response to wetland maturation, | |
| | | | | | | | | | | riparian/upland growth and forest regeneration. LF TARGET: Discharge | |
| | | | | | | | | | | volume and timing of peak flows comparable to a watershed functioning within its natural | |
| | | | | | | | | | | disturbance regime. EXTANT DATA: 2008-2011 NPT BF to wetted width data | |

| ndertaken |
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| limiting |
| as no change |
| 3.10.16 |
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| ESU | Populatio n | Code | Assessment Unit | - | LF Weight | Low | 2018 | Updated 2018 Estimate | High 2018 Bookend | | - | LF Weight and Bookends Comments | Estimates Comments |
|-----------------------------|---|-------|--------------------------------|---|-----------|-----|------|-----------------------------|----------------------|----|---|--|---|
| Snake River Steelhead | Clearwate r River lower mainstem | LCS6B | Lower canyon tributaries | 9.2: Water Quantity: Decrease d Water Quantity | 25.00% | 30 | 30 | 30 | 35 | 30 | | Level of Certainty = 3. Low baseflow levels present within all streams, intermittant reaches present throughout majority of streams. HIGH BOOKENDS: Short-term (2018) response to no-till, grassed waterways, drain tile decommissioning and wetland development. Long-term (2033) response to wetland maturation, riparian/upland growth and forest regeneration. LF TARGET: Discharge volume and timing of base flows comparable to a watershed functioning within its natural disturbance regime. EXTANT DATA: 2008-2011 NPT wetted width and depth data | 2015: No actions were undertaken during 2012-2015 for this limiting factor, therefore there was no change from low bookend. EWL 3.10.16 |
| Snake River Steelhead | Creek | LOS1 | Eldorado Creek | 1.2: Habitat Quantity: Natural Barriers | 0.00% | 5 | 5 | 5 | 5 | 5 | 5 | habitat in this drainage. | 2012: Natural barrier LF weight set to 0%. Current distribution mimics historic accessability. 2015: 2015: No actions were undertaken during 2012-2015 for this limiting factor, therefore there was no change from low bookend. EWL 3.10.16 |

| ndertaken s limiting vas no change 3.10.16 |
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| weight set to mimics |
| vere 2015 for this there was no id. EWL |

| | | | | 2012 Standardi zed | | | Original | Updated | | Original | | | |
|-----------|-----------|------|------------|--------------------------|-----------|---------|----------|----------|-----------|----------|-----------|--------------------------|-------------------------------|
| | Populatio | | Assessment | Limiting | | Low | 2018 | 2018 | High 2018 | 2033 | High 2033 | LF Weight and Bookends | |
| ESU | n | Code | Unit | Factor | LF Weight | Bookend | Estimate | Estimate | Bookend | Estimate | Bookend | Comments | Estimates Comments |
| Snake | Lolo | LOS1 | Eldorado | 4.1: | 50.00% | 70 | 70 | 70 | 75 | 70 | 80 | NPT Lolo Creek | 2012: No actions planned |
| River | Creek | | Creek | Riparian | | | | | | | | monitoring report (2011) | 2015: 2015: No actions we |
| Steelhead | | | | Condition: | | | | | | | | reports heavily impacted | undertaken during 2012-20 |
| | | | | Riparian | | | | | | | | by history of logging, | limiting factor, therefore th |
| | | | | Vegetatio | | | | | | | | infrastructure | change from low bookend. |
| | | | | n | | | | | | | | development (roads, | 3.10.16 |
| | | | | | | | | | | | | powerlines, etc), and/or | |
| | | | | | | | | | | | | grazing | |
| Snake | Lolo | LOS1 | Eldorado | 7.2: | 50.00% | 60 | 60 | 60 | 70 | 70 | 75 | Upper Lolo EAWS (2003): | 2012: 20 miles of road |
| River | Creek | | Creek | Sediment | | | | | | | | sediment estimated at 6 | decommisioning through L |
| Steelhead | | | | Condition | | | | | | | | tons/sq miles/year and | and disease. |
| | | | | s: | | | | | | | | currently elevated by an | 2015: 2015: No actions we |
| | | | | Increased | | | | | | | | estimated 33 percent | undertaken during 2012-20 |
| | | | | Sediment | | | | | | | | over natural. | limiting factor, therefore th |
| | | | | Quantity | | | | | | | | | change from low bookend. |
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were 2-2015 for this e there was no nd. EWL

| ESU | Populatio n | Code | Assessment Unit | - | LF Weight | Low Bookend | Original 2018 Estimate | Updated 2018 Estimate | High 2018 Bookend | | - | LF Weight and Bookends Comments | Estimates Comments |
|-----------------------------|----------------|------|--------------------|---|-----------|----------------|------------------------------|-----------------------------|----------------------|----|----|---|---|
| Snake River Steelhead | Lolo Creek | LOS2 | Jim Brown Creek | 1.1: Habitat Quantity: Anthropo genic Barriers | 15.00% | 70 | 72 | 80.7 | 85 | 72 | 85 | NPT Culvert Assessment (2010) identified 13 culverts in this watershed which are identified as fish passage barriers. | 2012: Jim Brown MP 39 sc 2013 will return 5 miles of habitat; Competed 4 barrie in the watershed to date. 2015: Jim Brown 2012 culv replacement opened up 5 habitat, but there are 26 k remaining culverts, 18 surv miles are still blocked. Two culverts were replaced on Only one left on mainstem new culvert was installed v passage. The Expert Panel the miles of treatment acc life history stage use of up habitat (75%) there is so spawning, but mostly used = 3.75 stream miles. Benef considered across the Asse required an estimate of to bearing stream miles in the Assessment Unit. Stream steelhead use miles mappe Expert Panel approximated 35.1 miles of 2nd and 3rd of streams. Steelhead are see up in pool below Jim Brow limited, but has some use. |

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| ESU | Populatio n | Code | Assessment Unit | - | LF Weight | Low | Original 2018 Estimate | | High 2018 Bookend | | High 2033 Bookend | LF Weight and Bookends Comments | Estimates Comments |
|-----------------------------|----------------|------|--------------------|--|-----------|-----|------------------------------|------|----------------------|----|----------------------|---|---|
| Snake | Lolo Creek | LOS2 | Jim Brown Creek | 4.1: Riparian Condition: Riparian Vegetatio n | - | 40 | 40 | 40.1 | 50 | 43 | 65 | reports heavily impacted by history of logging, infrastructure development (roads, powerlines, etc), and/or grazing | 2012: 1 mile of riparian planting planned 2015: Vegetation planting associated with a culvert replacement project resulted in 0.075 stream miles treated, adjusted for growth through 2018, the stream miles improved were 0.023. Across the 35.1 steelhead bearing stream miles in the Assessment Unit (based on summation of 2nd and 3rd order streams), the improvement for this limiting factor = 0.1% (0.023/35.1*100). EWL 3.10.16 |
| Snake River Steelhead | Lolo Creek | LOS2 | Jim Brown Creek | 7.2: Sediment Condition s: Increased Sediment Quantity | 25.00% | 40 | 41 | 41.3 | 45 | 43 | 50 | Resource Mangement Plan (1997): Impacts from roads and road construction have had the greatest effect on erosional processes in this watershed, | 2012: Secondary benefits from 1 mile of riparian planting to be completed 2015: The Expert Panel assessed the Jim Brown project, which replaced an undersized pipe that was at risk of failure, and was overtopping the road. It is a low gradient area, so affected downstream 1 mile, but the Expert Panel adjusted the affected river miles with weighting based on landscape position and total benefit possible there (lots of additive cattle impacts) to 0.45 stream miles affected. Therefore, across the 35.1 steelhead bearing stream miles in the Assessment Unit (estimated from 2 and 3rd order tributaries), there was a 1.3% (0.45/35.1*100) improvement from the low bookend. EWL 3.10.16 |

| ESU | Populatio n | Code | Assessment Unit | 2012 Standardi zed Limiting Factor | LF Weight | Low | Original 2018 Estimate | Updated 2018 Estimate | High 2018 Bookend | | - | LF Weight and Bookends Comments | Estimates Comments |
|-----------------------------|----------------|------|--------------------|--|-----------|-----|------------------------------|-----------------------------|----------------------|----|----|--|---|
| Snake | Lolo Creek | LOS2 | Jim Brown Creek | 8.1: Water Quality: Temperat ure | 30.00% | 40 | 40 | 40.1 | 45 | 45 | 50 | reports warm temperature due to loss of riparian cover due to grazing, elevation, | 2012: Based on the data, both of the average water temperature exceedences, the 16°C daily averag and the instantaneous maximum of 20°C, for the Lolo Creek watershed have decreased significantly since measurements began; 1 mile of riparian planting to be completed. 2015:A project that rerouted of wate and planted vegetation (which cools the stream as it grows up) was considered. The stream was re- meandered out of a road ditch and back into the stream channel (which was by the way in a shady location). also increased channel length, reduce slope, and there is more groundwate interaction now. The 0.075 stream miles treated was adjusted for realize improvement by 2018 (=0.0225) and considered over the entire steelhead bearing stream miles in the Assessment Unit (35.1 miles; a summation of 2nd and 3rd order streams as per the Expert Panel). Therefore, 0.0225/35.1*100= 0.1 % improvement to this limiting factor. EWL 3.10.16 |
| Snake River Steelhead | Lolo Creek | LOS2 | Jim Brown Creek | 8.2: Water Quality: Oxygen | 15.00% | 40 | 40 | 40 | 65 | 43 | 70 | Upper Lolo EAWS (2003): polltants of concern include: bacteria, dissolved oxygen, flow and habitat alterations, nutrients, oil and grease, sediment and temperature | 2012: Benefits from 1 mile of riparian planting to be completed 2015: No actions undertaken during 2012-2015 that address this limiting factor, therefore no change to low bookend. EWL 2.10.16 |

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| ESU Snake River Steelhead | | | Assessment Unit Lolo Creek | - | LF Weight | Low Bookend | 2018 | | High 2018 Bookend | Estimate | High 2033 Bookend 90 | NPT Culvert Assessment (2010) identified 19 culverts in this watershed which are identified as fish passage barriers. | Estimates Comments 2012: Molly Creek to return 3 miles of stream habitat 2015: The Collette Mine project removed 0.19 miles of berm and regraded to reconnect 4.2 acres of floodplain, added 10 wood structures, and accomplished 1,000 ft of bank work for a total of 1.2 treated miles. Recognizing that these improvement take time to be fully realized, the Expert Panel adjusted affected stream miles for the Collette Mine project (=0.6). Relative to steelhead bearing stream miles in the Assessment Unit (Streamnet steelhead miles, plus the less steep 2 miles of Crocker Creek, 1 mile of Molly Creek, lower 1 mile of Mud Creek;= 54.5 miles), this project resulting in a 1.1% improvement for this limiting factor. EWL 3.10.16 |
|------------------------------------|---------------|------|----------------------------------|--|-----------|----------------|------|------|----------------------|----------|----------------------------|--|---|
| Snake River Steelhead | Lolo Creek | LOS3 | Lolo Creek | 4.1: Riparian Condition: Riparian Vegetatio n | 40.00% | 60 | 60 | 60.1 | 75 | 75 | 80 | reports heavily impacted by history of logging, infrastructure development (roads, powerlines, etc), and/or grazing | 2012: Colette Mine Stream Restoration will restore approximately 5 miles of stream habitat, recontour, and reconnect the flood plain and wetlands 2015: Riparian vegetation planting over 0.2 miles was associated with the Collette Mine Restoration project (phase 1). The Expert Panel adjusted the treated stream miles to reflect the time it takes for vegetation to grow, therefore the realized change in 2018 is expected to affect 0.06 stream miles. Relative to all steelhead bearing stream miles in the Assessment Unit (54.5 miles based on Streamnet plus the less steep 2 miles of Crocker Creek, 1 mile of Molly Creek, lower 1 mile of Mud Creek), the project resulted in 0.1% improvement. EWL 3.10.16. |

| ESU | Populatio n | Code | Assessment | - | LF Weight | Low Bookend | Original 2018 Estimate | | High 2018 Bookend | | - | LF Weight and Bookends Comments | Estimates Comments |
|-----------------------------|----------------|------|------------|---|-----------|----------------|------------------------------|------|----------------------|----|----|---|--|
| Snake River Steelhead | Creek | LOS3 | | 6.2: Channel Structure and Form: Instream Structural Complexit Y | 10.00% | 70 | 70 | 70.5 | 75 | 75 | 80 | roads and trails that cross streams or are adjacent to streams have the hightest potential to deliver sediment to streams. Road densities in the | 2012: Collette Mine Stream Restoration will restore app 5 miles of stream habitat, r and reconnect the flood pla wetlands: 2012: Colette Mine Stream removed 0.19 miles of bern regraded to reconnect 4.2 a floodplain, added 10 wood and accomplished 1,000 ft work to restore stream ha recontour, and reconnect t plain and wetlands. The pro- brought wood load up to 1 channel is still adapting to v 2018 is anticipated at 80% Therefore, the 0.2 miles trea adjusted to 0.16 stream miles stream miles in the Assessr (54.5 Streamnet miles mine miles of canyon reach and unmanaged upper sections wood loading), this project 0.5% improvement. EWL 3 |

eam approximately it, recontour, I plain and

am Restoration berm and 1.2 acres of bod structures,) ft of bank habitat, ct the flood project o 100%, but to wood, so by 0% function. s treated was miles. elhead bearing

essment Unit ninus lower 18 nd 7 miles of ons with good ect resulted in /L 3.10.16

| | | | | 2012 | | | | | | | | | |
|-----------|-----------|------|-------------|-----------------------|-----------|-----|----------|---------|-----------|----------|-----------|---------------------------|---|
| | | | | Standardi | | | | | | | | | |
| | | | | zed | | | Original | Updated | | Original | | | |
| | Populatio | | Assessment | | | Low | - | - | High 2018 | - | High 2033 | LF Weight and Bookends | |
| ESU | - | | Unit | - | LF Weight | | | | Bookend | | - | Comments | Estimates Comments |
| Snake | | LOS3 | Lolo Creek | | 40.00% | 70 | | | 80 | 79 | 85 | | 2012: 35 miles of road |
| River | Creek | 1033 | LOID CIEEK | Sediment | 40.00% | /0 | /0 | /1./ | 80 | /5 | 00 | | decommisioning through Lolo insect |
| Steelhead | | | | | | | | | | | | tons/sq miles/year and | and disease EIS |
| Steemeau | | | | Condition | | | | | | | | | |
| | | | | S: | | | | | | | | currently elevated by an | 2015: Treated miles from Collette Mine restoration was assessed to |
| | | | | Increased Sediment | | | | | | | | estimated 33 percent | extend 2 miles downstream till |
| | | | | | | | | | | | | over natural. | |
| | | | | Quantity | | | | | | | | | gradient change, and Molly Creek |
| | | | | | | | | | | | | | culvert replacement addressed sedimentation 1 mile downstream. |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | Project effectiveness (in miles) was |
| | | | | | | | | | | | | | adjusted by landscape position and other sedimentation issues in the area |
| | | | | | | | | | | | | | (i.e., the weighting on the Molly Creek |
| | | | | | | | | | | | | | project was lower because there are |
| | | | | | | | | | | | | | roads on both sides of creek. Thus the |
| | | | | | | | | | | | | | total affected stream miles = 0.9. |
| | | | | | | | | | | | | | Relative to all steelhead bearing |
| | | | | | | | | | | | | | streams in the Assessment Unit (54.5 |
| | | | | | | | | | | | | | miles from Streamnet), the projects |
| | | | | | | | | | | | | | resulted in a 1.7% improvement |
| | | | | | | | | | | | | | (0.9/54.5*100). EWL 3.10.16 |
| | | | | | | | | | | | | | (0.3/34.3 100). EVE 3.10.10 |
| Snake | Lolo | LOS4 | Musselshell | 1.1: | 25.00% | 30 | 30 | 56.7 | 90 | 75 | 90 | Clearwater Subbasin Plan, | 2012: 14.4 miles of stream access to |
| River | Creek | | Creek | Habitat | | | | | | | | NOAA Recovery Plan | be restored |
| Steelhead | | | | Quantity: | | | | | | | | | 2015: Fixed tunnel problem in 2012, |
| | | | | Anthropo | | | | | | | | | which opened 8 miles of new access. |
| | | | | genic | | | | | | | | | The 8 miles were adjusted by 80% to |
| | | | | Barriers | | | | | | | | | account for life history stage use (=6.4 |
| | | | | | | | | | | | | | miles). Relative to steelhead bearing |
| | | | | | | | | | | | | | stream miles in the Assessment Unit, |
| | | | | | | | | | | | | | (24 miles Streamnet steelhead miles |
| | | | | | | | | | | | | | are 6.9, but panel thought this |
| | | | | | | | | | | | | | incorrect. There are 10 miles of critical |
| | | | | | | | | | | | | | habitat! The Expert Panel considered |
| | | | | | | | | | | | | | gradient GIS layer and known fish use, |
| | | | | | | | | | | | | | intrinsic potential layer, and known |
| | | | | | | | | | | | | | natural barriers, and added known fish |
| | | | | | | | | | | | | | use e.g., fish are known to be in Gold |
| | | | | | | | | | | | | | Creek), this project resulted in a 26.7% |
| | | | | | | | | | | | | | improvement. EWL |
| | | | | | | | | | | | | | |

| ESU | Populatio n | | Assessment Unit | - | LF Weight | Low Bookend | 2018 | Updated 2018 Estimate | High 2018 Bookend | | - | LF Weight and Bookends Comments | Estimates Comments |
|-----------|----------------|------|--------------------|------------|-----------|----------------|------|-----------------------------|----------------------|----|----|------------------------------------|--------------------------------|
| Snake | Lolo | LOS4 | Musselshell | 4.1: | 25.00% | 60 | 60 | 60.4 | 70 | 67 | 75 | NPT Lolo Creek | 2012: 4 miles of stream and |
| River | Creek | | Creek | Riparian | | | | | | | | monitoring report (2011) | plantings at Deer Gulch. |
| Steelhead | | | | Condition: | | | | | | | | reports heavily impacted | 2015:Deer Gulch project in |
| | | | | Riparian | | | | | | | | by history of logging, | treated 0.56 miles with 2 d |
| | | | | Vegetatio | | | | | | | | infrastructure | treatments. Planting was h |
| | | | | n | | | | | | | | development (roads, | grazed by cattle, so the val |
| | | | | | | | | | | | | powerlines, etc), and/or | project was significantly de |
| | | | | | | | | | | | | grazing | indicated in weighting). Th |
| | | | | | | | | | | | | | stream miles were affected |
| | | | | | | | | | | | | | project. Considered over t |
| | | | | | | | | | | | | | steelhead bearing stream r |
| | | | | | | | | | | | | | Assessment Unit (Streamne |
| | | | | | | | | | | | | | miles are 6.9, but panel the |
| | | | | | | | | | | | | | incorrect. There are 10 mile |
| | | | | | | | | | | | | | habitat! The Expert Panel of |
| | | | | | | | | | | | | | gradient GIS layer and know |
| | | | | | | | | | | | | | intrinsic potential layer, and |
| | | | | | | | | | | | | | natural barriers, and added |
| | | | | | | | | | | | | | use e.g., fish are known to |
| | | | | | | | | | | | | | Creek), there was a 0.4% |
| | | | | | | | | | | | | | improvement. EWL 3.10.1 |

and wetland t in 2013 2 different s heavily value of the decreased (as Thus 0.084 ted by this r the 24 n miles in the nnet steelhead thought this miles of critical el considered nown fish use, and known ded known fish to be in Gold

0.16

| ESU | Populatio | | Assessment Unit | - | LF Weight | Low Bookend | Original 2018 Estimate | High 2018 Bookend | | - | LF Weight and Bookends Comments | Estimates Comments |
|-----------------------------|---------------|------|----------------------|--|-----------|----------------|------------------------------|----------------------|----|----|---|--|
| Snake River Steelhead | Lolo Creek | LOS4 | Musselshell Creek | 7.2: Sediment Condition s: Increased Sediment Quantity | - | 40 | 40 | 55 | 55 | 60 | Upper Lolo EAWS (2003): sediment standards can be between 45 % and 55% for 10 out of 30 years. Current sedimant production is 25% over natural. | 2012:15 miles s of road decommisioning and impri- Lolo Insect and Disease 2015: The Expert Panel co- downstream benefits from Gulch restoration project of 2013. It is a low-gradient s scale of flow is captured in weighting. Of the 0.56 stru- treated, there was an adju the landscape position of t and the potential improve 2018. Thus the improved = 0.378. Relative to steelhe stream miles in the Assess 24 miles; Streamnet steelh are 6.9, but panel thought incorrect. There are 10 mil habitat! The Expert Panel gradient GIS layer and kno intrinsic potential layer, ar natural barriers, and adder use e.g., fish are known to Creek), there was a 1.6% in for this limiting factor (0.3 EWL 3.10.16 |

provement in

considered om the Deer ct occurring in nt section and in the project stream miles djustment for of the action vements to ed stream miles lhead bearing essment Unit (elhead miles ght this miles of critical el considered nown fish use, and known ded known fish to be in Gold 6 improvement).378/24*100).

| ESU | Populatio n | Code | Assessment | - | LF Weight | Low Bookend | 2018 | | High 2018 Bookend | | - | LF Weight and Bookends Comments | Estimates Comments |
|-----------------------------|----------------|------|-------------|---|-----------|----------------|------|----|----------------------|----|----|---|--|
| Snake River Steelhead | Lolo Creek | LOS4 | | 8.1: Water Quality: Temperat ure | 25.00% | 50 | 50 | | | 59 | 65 | Upper Lolo EAWS (2003), NPT Lolo Creek monitoring report (2011) reports warm temperature due to loss of riparian cover due to grazing, elevation, geology, and influence of tributary streams | 2012: From approximately 4 stream and wetland planting Gulch. 2015: Recognizing that riparia vegetation projects also impri- stream temperature from sha Expert Panel considered improvements for this limiting similarly. Deer Gulch project treated 0.56 miles with 2 diff treatments. Planting was hear grazed by cattle, so the value project was significantly decr indicated in weighting). Thus stream miles were affected b project. Considered over the steelhead bearing stream mil Assessment Unit (Streamnet miles are 6.9, but panel though incorrect. There are 10 miles habitat! The Expert Panel co gradient GIS layer and known intrinsic potential layer, and I natural barriers, and added k use e.g., fish are known to be Creek), there was a 0.4% improvement. EWL 3.10.16 |
| Snake River Steelhead | Lolo Creek | LOS5 | Yoosa Creek | 1.1: Habitat Quantity: Anthropo genic Barriers | 10.00% | 85 | 85 | 85 | 90 | 85 | 90 | Upper Lolo EAWS (2003): low pool quantity/quality and high cobble embeddedness levels in Yoosa Creek, which is caused by lack of instream (wood) and bank cover (wood/ vegetation). | 2012: No actions planned. 2015: No actions were taken 2012-2015, therefore no chan low bookend. EWL 2.10.16 |

ely 4 miles of nting at Deer

riparian improve om shading the

imiting factor oject in 2013 2 different as heavily value of the decreased (as Thus 0.084 ted by this er the 24 m miles in the mnet steelhead thought this miles of critical nel considered nown fish use, and known ded known fish to be in Gold

taken during o change to).16

| | | | | 2012 Standardi | | | Original | Undeted | | Original | | | |
|-----------|-----------|------|-------------|-------------------|-----------|-----|------------------|-----------------|-----------|------------------|-----------|---------------------------|--------------------------------------|
| | Populatio | | Assessment | zed Limiting | | Low | Original 2018 | Updated 2018 | High 2018 | Original 2033 | High 2033 | LF Weight and Bookends | |
| | - | Code | Unit | - | LF Weight | - | | | Bookend | | Bookend | - | Estimates Comments |
| Snake | Lolo | LOS5 | Yoosa Creek | 4.1: | 10.00% | 60 | 60 | 60 | 70 | 60 | 75 | Upper Lolo EAWS (2003): | 2012: No actions planned. |
| River | Creek | | | Riparian | | | | | | | | low pool quantity/quality | 2012: No actions planned. 2015: No |
| Steelhead | | | | Condition: | | | | | | | | and high cobble | actions were taken during 2012-2015, |
| | | | | Riparian | | | | | | | | embeddedness levels in | therefore no change to low bookend. |
| | | | | Vegetatio | | | | | | | | Yoosa Creek, which is | EWL 2.10.16 |
| | | | | n | | | | | | | | caused by lack of | |
| | | | | | | | | | | | | instream (wood) and bank | |
| | | | | | | | | | | | | cover (wood/ vegetation). | |
| | | | | | | | | | | | | | |
| Snake | Lolo | LOS5 | Yoosa Creek | 7.2: | 80.00% | 55 | 55 | 55 | 65 | 65 | 75 | Upper Lolo EAWS (2003): | 2012: Lolo insect and Disease EIS, |
| River | Creek | | | Sediment | | | | | | | | sediment estimated at 6 | approximately 20 miles of road |
| Steelhead | | | | Condition | | | | | | | | tons/sq miles/year and | decommissioning planned |
| | | | | s: | | | | | | | | currently elevated by an | 2012: No actions planned. 2015: No |
| | | | | Increased | | | | | | | | estimated 33 percent | actions were taken during 2012-2015, |
| | | | | Sediment | | | | | | | | over natural. | therefore no change to low bookend. |
| | | | | Quantity | | | | | | | | | EWL 2.10.16 |

| ESU | Populatio n | Assessment Unit | 2012 Standardi zed Limiting Factor | LF Weight | Low Bookend | Original 2018 Estimate | Updated 2018 Estimate | High 2018 Bookend | | - | LF Weight and Bookends Comments | Estimates Comments |
|-----------------------------|---------------------------------------|--------------------|---|-----------|----------------|------------------------------|-----------------------------|----------------------|----|----|---|---|
| Snake River Steelhead | South Fork Clearwate r River | American River | 1.1: Habitat Quantity: Anthropo genic Barriers | | 75 | 80 | 100 | 90 | 80 | 90 | Level of Certainty= 4 3. GIS mapping depicts 167 culverts in the American River Watershed. Best professional judgement that at least 10% are fish passage barriers blocking approximately 25% of the habitat. Target= 100% passable. | 2012: Culvert surveys from about 8 passage barriers; 5 in 2012-18. A partial bar low and very high flows stit the mouth of American Riv an expernsive project (app 500k) and cost-share funds pursued. 2015: Five access projects accomplished, which open of river. Panel prorated im based on seasonal/partial fixed and fish use (spawnin rearing) of affected miles. of proration based on time percentage of fish passed. migrating juveniles (low nu regularly captured in Ameri (proving some passage, bu enough), but migration de thought to occur. 68% of a thought to pass, but juven blocked by flows more oft prorated American culvert Panel assigned 90% to area potential to fail. Overall, w adjustments, the projects |

om 2012 show s; address 4 to barrier at very still exists at River. This is approximately nds are being

ts were ened 62 miles improvements al blockages ning and/or es. Discussion me/season or ed. Outnumbers) are nerican River but not delays are of adults are eniles are often, so Panel ert at 40%. reas with high , with ts affected

en over the

| | | | | 2012 | | | | | | | | | |
|-----------|-----------|------|------------|------------------|-----------|----|----------|---------|-----------|----------|-----------|---|--|
| | | | | Standardi zed | | | Original | Updated | | Original | | | |
| | Populatio | | Assessment | | | | - | - | High 2018 | - | High 2033 | LF Weight and Bookends | |
| ESU | - | | | - | LF Weight | | | | Bookend | | - | Comments | Estimates Comments |
| Snake | South | SCS1 | American | 4.1: | 20.00% | 35 | 35 | 35 | 65 | 45 | 80 | Level of Certainty= 2. | 2012: Approximently 2 miles of |
| River | Fork | | River | Riparian | | | | | | | | Loss of riparian veg from | riparian area (10 acres) along American |
| Steelhead | Clearwate | | | Condition: | | | | | | | | grazing, dredge mining, | River will be planted. There are many |
| | r River | | | Riparian | | | | | | | | | miles left along the mainstem |
| | | | | Vegetatio | | | | | | | | observations. SF | American River, Big Elk and Little Elk |
| | | | | n | | | | | | | | Cleawater River TMDL | Creeks to be planted. Majority of these |
| | | | | | | | | | | | | Appendix K (IDEQ 2003); | areas are on private land and future |
| | | | | | | | | | | | | American and Crooked | projects in these areas will be explored. |
| | | | | | | | | | | | | River EIS (USFS 2005), Aquatic Specialist Report | 2015: There were no applicable actions |
| | | | | | | | | | | | | (USFS 2007). CNF and | accomplished during the 2012-2015 |
| | | | | | | | | | | | | NPNF Matrix of | time frame, therefore there was no |
| | | | | | | | | | | | | Watershed Condition for | change to the low bookend. EWL |
| | | | | | | | | | | | | Chinook, Steelhead, and | 3.8.16 |
| | | | | | | | | | | | | Bull Trout is > 75% shade. | |
| | | | | | | | | | | | | Most sub-watersheds are | |
| | | | | | | | | | | | | less than 50% | |
| | | | | | | | | | | | | | |
| Snake | | SCS1 | American | 4.2: | 10.00% | 50 | 50 | 50 | 65 | 52 | 75 | | 2012: Planting along American River |
| River | Fork | | River | Riparian | | | | | | | | Loss of riparian veg from | will provide LWD recruitment in the |
| Steelhead | Clearwate | | | Condition: | | | | | | | | grazing, dredge mining, | long term. |
| | r River | | | LWD Recruitme | | | | | | | | | 2015: There were no applicable actions accomplished during the 2012-2015 |
| | | | | nt | | | | | | | | observations, SF Cleawater River TMDL | time frame, therefore there was no |
| | | | | | | | | | | | | Appendix K (IDEQ 2003); | change to the low bookend. EWL |
| | | | | | | | | | | | | | 3.8.16 |
| | | | | | | | | | | | | River EIS (USFS 2005), | |
| | | | | | | | | | | | | Aquatic Specialist Report | |
| | | | | | | | | | | | | (USFS 2007). CNF and | |
| | | | | | | | | | | | | NPNF Matrix of | |
| | | | | | | | | | | | | Watershed Condition for | |
| | | | | | | | | | | | | Chinook, Steelhead, and | |
| | | | | | | | | | | | | Bull Trout is > 75% shade. | |
| | | | | | | | | | | | | Most sub-watersheds are | |
| | | | | | | | | | | | | less than 50%. Assume | |
| | | | | | | | | | | | | that floodplain projects | |
| | | | | | | | | | | | | will promote recruitment or woody debris will be | |
| | | | | | | | | | | | | physically added from | |
| | | | | | | | | | | | | restoration activities. | |
| | | | | | | | | | | | | | |
| | | | | | | | | | | | | | |

| ESU | Populatio n | | Assessment Unit | - | LF Weight | Low Bookend | Original 2018 Estimate | Updated 2018 Estimate | High 2018 Bookend | | - | LF Weight and Bookends Comments | Estimates Comments |
|-----------------------------|---------------------------------------|------|--------------------|---|-----------|----------------|------------------------------|-----------------------------|----------------------|----|----|--|---|
| Snake River | South Fork Clearwate r River | SCS1 | American River | 5.1: Peripheral and Transition al Habitats: Side Channel and Wetland Condition s | 10.00% | 60 | 60 | 60 | 65 | 60 | 68 | Level of Certainty= 3. Historic side channel and wetland condition is difficult to estimate. Since floodplains have been | 2012: No side channels or will be constructed or imp watershed by 2018. Projec explored for beyond 2018 2015: There were no appli accomplished during the 2 time frame, therefore the change to the low booken 3.8.16 |
| Snake River Steelhead | South Fork Clearwate r River | SCS1 | American River | 5.2: Peripheral and Transition al Habitats: Floodplai n Condition | | 45 | 45 | 45 | 65 | 45 | 75 | Level of Certainty= 4. Loss of floodplain for approximately 14 miles of American River, 4 miles of | 2015: There were no appl accomplished during the 2 time frame, therefore the change to the low booken 3.8.16 |

| or wetlands |
|---------------------------|
| proved in this |
| ects are being |
| 8. |
| licable actions |
| 2012-2015 |
| ere was no |
| nd. EWL |
| |
| de channel |
| .8. Projects |
| eyonnd 2018. |
| licable actions 2012-2015 |
| ere was no |
| nd. EWL |
| IIG. LVVL |
| |
| |
| |
| |
| |

| | | | | 2012 Standardi zed | | | - | Updated | | Original | | | |
|-----------|-----------|------|------------|--------------------------|-----------|---------|----------|----------|-----------|----------|-----------|----------------------------|----------------------------|
| | Populatio | | Assessment | - | | Low | 2018 | 2018 | High 2018 | 2033 | High 2033 | LF Weight and Bookends | |
| ESU | n | Code | Unit | Factor | LF Weight | Bookend | Estimate | Estimate | Bookend | Estimate | Bookend | Comments | Estimates Comments |
| Snake | South | SCS1 | American | 6.2: | 15.00% | 50 | 50 | 50 | 70 | 50 | 75 | Level of Certainty= | 2012: No instream work w |
| River | Fork | | River | Channel | | | | | | | | 3.American River should | in the American River wate |
| Steelhead | Clearwate | | | Structure | | | | | | | | have 140 pools per mile | 2018. Projects are being e |
| | r River | | | and Form: | | | | | | | | to meet the CNF and | beyond 2018. |
| | | | | Instream | | | | | | | | NPNF Matrix of | 2015: There were no appli |
| | | | | Structural | | | | | | | | Watershed Condition for | accomplished during the 2 |
| | | | | Complexit | | | | | | | | Chinook, Steelhead, and | time frame, therefore the |
| | | | | у | | | | | | | | Bull Trout. Pool | change to the low booken |
| | | | | | | | | | | | | frequency ranges from 18 | 3.8.16 |
| | | | | | | | | | | | | pools per mile in | |
| | | | | | | | | | | | | American River to about | |
| | | | | | | | | | | | | 48 pools per mile is the | |
| | | | | | | | | | | | | tributaries (South Fork | |
| | | | | | | | | | | | | Clearwater River TMDL- | |
| | | | | | | | | | | | | Appendix K, 2003). Target | |
| | | | | | | | | | | | | for pool quanity based on | |
| | | | | | | | | | | | | stream width; pool quality | |
| | | | | | | | | | | | | >4, LWD near natural | |
| | | | | | | | | | | | | levels. | |

will be done atershed by explored for

plicable actions e 2012-2015 nere was no end. EWL

| ESU | Populatio n | Code | Assessment Unit | - | LF Weight | Low | 2018 | Updated 2018 Estimate | High 2018 Bookend | | - | LF Weight and Bookends Comments | Estimates Comments |
|-----------------------------|---------------------------------------|------|--------------------|--|-----------|-----|------|-----------------------------|----------------------|----|----|---|--|
| Snake River | South Fork Clearwate r River | SCS1 | American River | 7.2: Sediment Condition s: Increased Sediment Quantity | 15.00% | 40 | 40 | 40.1 | 60 | 50 | 75 | Level of Certainty = 3. 167 mapped culverts that are potentially sediment sources. Road surveys conducted in 2012 show that road densities are 2.5 miles per square mile. Approximately 75 miles of trail in American River watershed with the majority of trail miles in the riparian area. | 2012: Approximately 70 m are non-system roads and potentially be decommissio Grazing still exists on priva are being explored for bey 2015: One road decommis project occurred in 2012, road sediment issues, mos slope, had 2 stream crossi treated 2.9 miles. Road de American River watershed than 2.3 miles/square mile high cobble embeddednes American main-stem. Rega proration using road locat Service counts only length within 300 ft of stream, bu concentration of flow by r understates benefit to stree downstream of action. The Panel prorated using slope categories: upland 10%, m 50%, and streamside 90%) weighting relative to asses (including slope, landslide- locations to account for hi areas that can contribute of |
| Snake River Steelhead | South Fork Clearwate r River | SCS1 | American River | 8.1: Water Quality: Temperat ure | 5.00% | 60 | 60 | 60 | 75 | 65 | 85 | being impaired for | 2012: Benefits from riparia actions. 2015: There were no actio undertaken during the 202 frame, therefore, there wa from Low Bookend. EWL |

) miles of road nd can ssioned. 15-20 sioned by 2018. ivate land and beyond 2018. nissioning 2 , which fixed nostly midssings, and density in the ed is more nile. There is iess in egarding ation: Forest gth of road , but, due to y roads, this treams The Expert ope position (3 mid-slope %) and overall sessment unit de-prone r high-elevation te more arian planting tions 2012-2015 time was no change /L 3.9.16

| | Populatio | | Assessment | 2012 Standardi zed | | Low | Original 2018 | Updated 2018 | High 2018 | Original | High 2022 | LF Weight and Bookends | |
|---------------------|------------|--------------|-----------------|--------------------------|--------------------|-----|------------------|-----------------|---------------|----------|-----------|------------------------------------|--|
| | | | | - | L T Maight | - | | | - | | - | - | Estimatos Commonto |
| ESU Snake | n South | Code SCS2 | Unit Crooked | Factor 1.1: | LF Weight 5.00% | 80 | Estimate 80 | Estimate 80 | Bookend 90 | 83 | 90 | Comments Level of Certainty= 3. | Estimates Comments 2012: Replacing 2 culverts |
| River | Fork | 3032 | River | Habitat | 5.00% | 80 | 80 | 00 | 50 | 65 | 50 | | River by 2018. |
| Steelhead | Clearwate | | | Quantity: | | | | | | | | mapped stream crossings | 2015: No actions complete |
| | r River | | | Anthropo | | | | | | | | in the Crooked River | this limiting factor, therefo |
| | | | | genic | | | | | | | | watershed (GIS). Three of | no change to the low book |
| | | | | Barriers | | | | | | | | the larger tributaries have | 2.9.16 |
| | | | | | | | | | | | | partial or complete fish | |
| | | | | | | | | | | | | barriers and contribute to | |
| | | | | | | | | | | | | 10% of the potential | |
| | | | | | | | | | | | | habitat. There are at least | |
| | | | | | | | | | | | | three other know barriers | |
| | | | | | | | | | | | | to streams with rearing | |
| | | | | | | | | | | | | habitat. Target= 100% | |
| | | | | | | | | | | | | fish passage. | |
| | | | | | | | | | | | | | |

| S | in | Crooked |
|---|----|---------|

eted to address efore there is ookend. EWL

| ESU | Populatio n | | Assessment | - | LF Weight | Low Bookend | Original 2018 Estimate | Updated 2018 Estimate | High 2018 Bookend | | - | LF Weight and Bookends Comments | Estimates Comments |
|-----------------------------|---------------------------------------|------|------------|--|-----------|----------------|------------------------------|-----------------------------|----------------------|----|---|--|--|
| Snake River Steelhead | South Fork Clearwate r River | SCS2 | | 4.1: Riparian Condition: Riparian Vegetatio n | _ | 25 | 25 | 25.3 | 50 | 40 | | Loss of floodplain for lower 1 mile Five Mile Creek; loss of floodplain for lower Quartz Creek; loss of floodplain for lower 2 miles Relief Creek, loss of floodplain for lower 1 mile Rainbow Gulch Creek. Sources: | 2012: Benefits from the Cr Meanders project. Approx acres will be rehabilitated a floodplain will be replanted Approximately 1 mile of str will be planted along the m Crooked River. 2015: The Expert Panel for riparian growth/functional the Crooked River vegetati out to 2018. Over 0.25 mile stream side), there was go but 1 gallon plants are still ft tall), so the treated lengt was adjusted to better rep realized benefits to 2018 (re estimate of average annua rates, but cottonwoods dic high survival. Other vegeta 2 ft per year, depending or precipitation). To consider improvement relative to al stream miles in the Assess the Expert Panel initially ca Streamnet steelhead miles however later agreed to us miles, using criteria of cour mainstem and main tributa |

Crooked River roximately 120 ed and new ited. streambank e mainstem

forcasted nal change for ation project nile (one good survival, till small (2.5-3 ngth of stream epresent the 8 (using an ual growth did not have etation grew 1on der o all steelhead essment Unit: calculated les= 26.5, use 44 stream ounting utaries miles,

| ESU | Populatio n | | 2012 Standardi zed Limiting Factor | LF Weight | Low Bookend | 2018 | | High 2018 Bookend | | - | LF Weight and Bookends Comments | Estimates Comments |
|-----|----------------|--|--|-----------|----------------|------|----|----------------------|----|---|---|---|
| | Fork | | 4.2: Riparian Condition: LWD Recruitme nt | | 40 | 40 | 40 | 55 | 46 | | Level of Certainty= 4. Loss of floodplain for entire 12 miles of mainstem Crooked River. Loss of floodplain for lower 1 mile Five Mile Creek; loss of floodplain for lower Quartz Creek; loss of floodplain for lower 0.5 mile of Baker Gulch, loss of floodplain for lower 2 miles Relief Creek, loss of floodplain for lower 1 mile Rainbow Gulch Creek. Sources: personal observation, American and Crooked River EIS 2005, South Fork Landscape Assessment 2003. | 2012: The Meanders proje existing woody debris in the area that would not likely to create instream habitate recontrcuting floodplain we woody debris from upstree in the lower two miles instep passed through. Plantings bottom will provide future debris recruitment. 2015: While there is one a completed in the 2012-20 timeframe, and it was hop plantings will affect this line in the long term, it has no benefit from 2013 when pe were made through 2018. cottonwood survival was les survivors were shrubby sp thus will not provide large Therefore, there is no char- low bookend. EWL 3.9.16 |

oject will use in the project aly be recruited tat. Also, in will allow cream to recruit instead of being ings in the valley ure woody

e action 2015 oped that limiting factor no measureable n plantings L8. Further, is low and most species, and ge wood. hange to the 16

| | | | | 2012 | | | | | | | | | |
|-----------|-----------|------|------------|----------------|-----------|----|----------|---------|-----------|----------|-----------|------------------------------|---|
| | | | | Standardi | | | | | | | | | |
| | | | | zed | | | Original | Updated | | Original | | | |
| | Populatio | | Assessment | | | | 2018 | - | High 2018 | - | High 2033 | LF Weight and Bookends | |
| ESU | - | Code | Unit | - | LF Weight | | | | - | | - | - | Estimates Comments |
| Snake | South | SCS2 | Crooked | 5.1: | 10.00% | 35 | 35 | 35 | 45 | 45 | 50 | Level of Certainty= 5. | 2012: Design criteria from 2012 show |
| River | Fork | | River | Peripheral | | | | | | | | | increased side channels accessible to |
| Steelhead | Clearwate | | | and | | | | | | | | wetland condition is | fish during all flows. Design criteria |
| | r River | | | Transition | | | | | | | | difficult to estimate. Since | also provides wetland meadows |
| | | | | al | | | | | | | | floodplains have been | adjacent to Crooked River in place of |
| | | | | Habitats: | | | | | | | | drastically altered and | dredge ponds. |
| | | | | Side | | | | | | | | lost, it is likely that a | 2015: No actions completed to address |
| | | | | Channel | | | | | | | | significant amount of | this limiting factor, therefore there is |
| | | | | and | | | | | | | | wetlands and side | no change to the low bookend. EWL |
| | | | | Wetland | | | | | | | | channels were also lost. | 2.9.16 |
| | | | | Condition | | | | | | | | Percent lost is based on | |
| | | | | s | | | | | | | | an estimate of lost | |
| | | | | | | | | | | | | floodplains in the | |
| | | | | | | | | | | | | watershed. With the | |
| | | | | | | | | | | | | restoration of floodplain | |
| | | | | | | | | | | | | functions, it is likely that | |
| | | | | | | | | | | | | wetland and side channel | |
| | | | | | | | | | | | | functions will also be | |
| | | | | | | | | | | | | restored. | |
| Snake | South | SCS2 | Crooked | 5.2: | | 35 | 35 | 35 | 50 | 50 | 60 | Level of Certainty= 4. | 2012: Design criteria from 2012 shows |
| River | Fork | | River | Peripheral | | | | | | | | | that by removing mine tailings along |
| Steelhead | Clearwate | | | and | | | | | | | | | the lower 2 miles of Crooked River |
| | r River | | | Transition | | | | | | | | | approx. 120 acres of floodplain, with |
| | | | | ai | | | | | | | | Loss of floodplain for | various stages of flooding, will be |
| | | | | Habitats: | | | | | | | | | provided. |
| | | | | Floodplai | | | | | | | | | 2015: There were no actions |
| | | | | n Condition | | | | | | | | | undertaken during the 2012-2015 time |
| | | | | Condition | | | | | | | | | frame, therefore, there was no change from Low Bookend. EWL 3.9.16 |
| | | | | | | | | | | | | Creek, loss of floodplain | ITOTILLOW BOOKEIIU. EWE 3.9.10 |
| | | | | | | | | | | | | for lower 1 mile Rainbow | |
| | | | | | | | | | | | | Gulch Creek. Sources: | |
| | | | | | | | | | | | | local observation, | |
| | | | | | | | | | | | | American and Crooked | |
| | | | | | | | | | | | | River EIS 2005, South Fork | |
| | | | | | | | | | | | | Landscape Assessment | |
| | | | | | | | | | | | | 2003. | |
| | | | | | | | | | | | | | |
| | | | 1 | 1 | | | | 1 | 1 | | | | 1 |

| | Populatio | | Assessment | 2012 Standardi zed | | Low | Original 2018 | Updated 2018 | High 2018 | Original | High 2033 | LF Weight and Bookends | |
|----------------|-----------|------|------------------|---|-----------|-----|------------------|-----------------|-----------|----------|-----------|--|--|
| ESU | n | | | Factor | LF Weight | | | | Bookend | | - | - | Estimates Comments |
| Snake River | | SCS2 | Crooked River | 6.2: Channel Structure and Form: Instream Structural Complexit Y | 25.00% | 40 | 40 | 40 | | 60 | 80 | Level of Certainty= 3. Loss of natural channel morphology for entire mainstem Crooked River (12 miles); loss of natural channel morphology for lower 2 miles Relief Creek. SF Clearwater River Subbasin Assessment- Appendix K (IDEQ 2003); Crooked River Habitat Improvement Project (USFS 1985); South Fork Clearwater Landscape Assessment 1998. Target= Pool quantity based on channel width, pool quality >4, LWD near natural levels. | 2012: Design criteria from season show an increace o approximately 1 mile of ne channel and approx. 4 mile improved instream structu complexity. 2015: No actions complete this limiting factor, therefo no change to the low book 2.9.16 |

om 2012 field e of new stream niles of ctural

eted to address efore there is ookend. EWL

| ESU | Populatio n | | Assessment Unit | 2012 Standardi zed Limiting Factor | LF Weight | Low Bookend | 2018 | Updated 2018 Estimate | High 2018 Bookend | | - | LF Weight and Bookends Comments | Estimates Comments |
|-------|---------------------------------------|------|--------------------|--|-----------|----------------|------|-----------------------------|----------------------|----|----|--|--------------------|
| River | South Fork Clearwate r River | SCS2 | Crooked River | 7.2: Sediment Condition s: Increased Sediment Quantity | 10.00% | 60 | 60 | 60.5 | 65 | 65 | 70 | River watershed approximately 15% (IDEQ Appendix K, 2003). There are 38 mapped culverts in the watershed. The majority of those are high in the watershed and likely sources of fine sediment. Road denisty is approximately 2.0 miles per square mile. Watershed condition indicators suggest >1 mi per square mile. Target= Embeddedness <20%, surface fines <20 % for C&E channels and <10 % for A&B Channels. | |

being replaced atershed by e some t will affect most are However, the provide better he lower two contemplated

vs. unquantified . The action 1 Road, East ected a e watershed ned, and there culvert: 1-2 oured, plus imately 200 ial future l chose to use assigned 90% ng this was not rce but rather tial to fail. n of an impact ould have to ınit was

| ESU | Populatio n | Code | Assessment Unit | - | LF Weight | Low Bookend | 2018 | Updated 2018 Estimate | High 2018 Bookend | | - | LF Weight and Bookends Comments | Estimates Comments |
|-----------------------------|---------------------------------------|------|--------------------|---|-----------|----------------|------|-----------------------------|----------------------|----|----|---|---|
| Snake River Steelhead | South Fork Clearwate r River | SCS2 | Crooked River | 8.1: Water Quality: Temperat ure | 5.00% | 60 | 60 | 60 | 70 | 68 | 80 | SF Clearwater River TMDL (2003) lists the majority of streams in the South Fork Clearwater Rivers as being impaired for temperature. Projects that improve riparian condition and instream complexity are likley to improve temperature conditions in the watershed. | 2012: Improvements from Meanders project. Restor floodplain will provide bet groundwater connection a the amount of exposed su the ponds will reduce over temperatures in the lower River. 2015: Water temperature Crooked River. While ther action completed in the 20 timeframe, and there is re that plantings will affect th factor in the long term, it I measureable benefit from plantings were made throu Further, cottonwood survi and most survivors were s species, which may provid over the long term. Howe currently, there is no chan low bookend. EWL 3.9.16 |
| Snake River Steelhead | South Fork Clearwate r River | SCS3 | John's Creek | 1.1: Habitat Quantity: Anthropo genic Barriers | 20.00% | 80 | 80 | 80 | 90 | 85 | 90 | road crossings, based on stream miles blocked and assuming 3 are barriers, this results in a LBE of 80% and assuming 2 could be replaced by 2018 results in a HBE of 90%. Future crossing | 1 unidentified stream cros planned in the Hugary Ridg 2013-2018. Based on stre- blocked and the total num stream miles in the AU rep culvert in 2013- 2018 gets 2015: No actions undertak 2012-2015 to address this factor, therefore there wa improvement to the low b EWL 2.9.16 |

m the oring the petter n and reducing suface water in verall stream ver Crooked

ares are high in here is one 2012-2015 recognition this limiting it has no or 2013 when rough 2018. rvival was low e shrubby vide shading wever, ange to the 16

rossing is idge EIS for cream miles umber of replacing 1 ets to us to 85% taken during his limiting was no v bookend.

| ESU | Populatio n | Code | Assessment Unit | 2012 Standardi zed Limiting Factor | LF Weight | Low Bookend | Original 2018 Estimate | Updated 2018 Estimate | High 2018 Bookend | | - | LF Weight and Bookends Comments | Estimates Comments |
|-----------------------------|---------------------------------------|------|--------------------|--|-----------|----------------|------------------------------|-----------------------------|----------------------|----|----|---|---|
| Snake | South Fork | SCS3 | John's Creek | | - | 80 | 80 | 80 | 85 | 85 | 90 | LOC: 4 Specific areas of the watershed are affected by livestock resulting in loss of stream bank stability and increased width depth ratio. Goal bank stability of greater than 90% and | 2012:Slight additional benefit from road decommissioning reducing impacts to riparian zone. No additional activities planned for 2013-2018. 2015: No actions undertaken during 2012-2015 to address this limiting factor, therefore there was no improvement to the low bookend. EWL 2.9.16 |
| Snake River Steelhead | South Fork Clearwate r River | SCS3 | John's Creek | 7.2: Sediment Condition s: Increased Sediment Quantity | 40.00% | 80 | 80 | 80 | 85 | 84 | 90 | LOC: 4 Goal for cobble embeddedness is less than 30%; occular estimates of cobble embeddedness in Johns Creek is less than 40%. | 2012: 5 miles decommissioning in the roaded portion planned for 2013-2018. 2015: No actions undertaken during 2012-2015 to address this limiting factor, therefore there was no improvement to the low bookend. EWL 2.9.16 |
| | South Fork Clearwate r River | SCS4 | Meadow Creek | 1.1: Habitat Quantity: Anthropo genic Barriers | 10.00% | 80 | 80 | 80 | 90 | 80 | 90 | LOC: 2. There are 67 known road crossings, 34 are known barriers based | 2012: No actions planned for 2013- 2018 2015: No actions were undertaken during 2012-2015 that address this limiting factor, therefore there is no change to low bookend |

| ESU | Populatio | | Assessment Unit | - | LF Weight | Low | Original 2018 Estimate | | High 2018 Bookend | | - | LF Weight and Bookends Comments | Estimates Comments |
|-----------------------------|--|------|--------------------|--|-----------|-----|------------------------------|------|----------------------|----|----|--|--|
| Snake River | n South Fork Clearwate r River | SCS4 | Meadow Creek | 4.1: Riparian Condition: Riparian Vegetatio n | - | 60 | 60 | 61.1 | 70 | 70 | 75 | LOC: 3 Specific areas of the watershed are affected by livestock resulting in loss of stream bank stability and increased width depth ratio. Goal bank stability of greater than 90% and width depth ratio of less than 10. | 2012: 3.0 miles riparian pl planned for 2013-2018. benefit from road decomr |
| Snake River Steelhead | South Fork Clearwate r River | | Meadow Creek | 4.2: Riparian Condition: LWD Recruitme nt | | 65 | 65 | 65 | 70 | 65 | 75 | LOC: 4. Lack of recuitment of riparian vegetation in some areas has resulted in less than desired LWD. Goal is greater than 30 pieces of LWD per mile. | 2012: 3.0 miles riparian planned for 2013-2018. R planting will not provide L recruitment until the long plus years). 2015: Riparian vegetation would not improve condit limiting factor within 2012 period. Furthermore plan would not provide large w Therefore, there was no cl assessed from the low boo 3.9.16 |

planting Additional nmissioning ian zone. project leadows from e entire area ed, only 0.25 weed also occurred lone action, but jects, so end. The ne functional ng based on functioning 018: anywhere iding on what d (assumes 5% vear). The affected by the 5 and made ead stream Unit. stribution is 15 stem and not pert Panel ional tributary planting Riparian LWD ng term (75 on projects ditions for this 12-2018 anted species wood. change ookend. EWL

| ESU | Populatio n | | Assessment | - | LF Weight | Low Bookend | 2018 | Updated 2018 Estimate | High 2018 Bookend | | - | LF Weight and Bookends Comments | Estimates Comments |
|-----------|----------------|------|------------|-----------|-----------|----------------|------|-----------------------------|----------------------|----|----|------------------------------------|------------------------------|
| Snake | South | SCS4 | Meadow | 7.2: | 45.00% | 50 | 50 | 50.7 | 70 | 60 | 75 | LOC: 4 Goal for cobble | 2012:15 miles decommissi |
| River | Fork | | Creek | Sediment | | | | | | | | embeddedness is less | planned for 2013-2018. A |
| Steelhead | Clearwate | | | Condition | | | | | | | | than 30%; occular | benefit from 3.0 miles ripa |
| | r River | | | s: | | | | | | | | estimates of cobble | planned for 2013-2018. |
| | | | | Increased | | | | | | | | embeddedness in | 2015: Meadow Face Road |
| | | | | Sediment | | | | | | | | Meadow Creek is less | Decommissioning III (2012 |
| | | | | Quantity | | | | | | | | than 40%. Goal for road | (2014) occurred in separat |
| | | | | | | | | | | | | density is 1 mile/sq. mile. | in the Assessment Unit. In |
| | | | | | | | | | | | | Current road density is 4.6 | stream miles were estimat |
| | | | | | | | | | | | | mi./sq. mi. There are 174 | measuring down to next d |
| | | | | | | | | | | | | miles of known roads in | major tributary junction, t |
| | | | | | | | | | | | | the drainage. Additonal | by slope position and weig |
| | | | | | | | | | | | | non inventoried roads | considering all existing ant |
| | | | | | | | | | | | | increase road densities | sediment sources including |
| | | | | | | | | | | | | above stated values. | mining, etc. Resultant met |
| | | | | | | | | | | | | | miles of stream improved |
| | | | | | | | | | | | | | action and assessed over t |
| | | | | | | | | | | | | | steelhead stream miles in |
| | | | | | | | | | | | | | Assessment Unit (21 miles |
| | | | | | | | | | | | | | Therefore, 0.15/21*100 = |
| | | | | | | | | | | | | | improvement over low bo |
| | | | | | | | | | | | | | 3.9.16. |

ssioning Additional iparian planting ad 12) and IV rate locations Improved nated by t downstream , then adjusted eighted by anthropogenic ling grazing, netric was 0.15

etric was (ed by the er total in the les). = 0.7%

bookend. EWL

| ESU | Populatio n | Code | Assessment Unit | 2012 Standardi zed Limiting Factor | LF Weight | Low Bookend | 2018 | Updated 2018 Estimate | High 2018 Bookend | | - | LF Weight and Bookends Comments | Estimates Comments |
|----------------|--|--------------|-------------------------|--|-----------|----------------|------|-----------------------------|----------------------|----|--------------------|---|--|
| Snake River | n South Fork Clearwate r River | Code SCS4 | Unit Meadow Creek | Factor 8.1: Water Quality: Temperat ure | - | 65 | 65 | 66.1 | Bookend 70 | 70 | Bookend 75 | LOC: 2. Goal is 20 degree max and 16 degree max for spawning. Over 40 days annually exceeded | Estimates Comments 2012: 3.0 miles riparian pla planned for 2013-2018. R show 20-25 days exceeder 2015: Because vegetative s cools stream temperature, Panel considered riparian p listed under limiting factor 8 planting project occurred a Meadows from 2012 throu The entire area was not inf treated, only 0.25 mile per riparian weed treatment o also occurred but it was no alone action, but rather pa projects, so assigned 0 mile end. The Expert Panel adju functional miles treated by based on percentage of pro functioning condition expe 2018: anywhere from 15% depending on what year th |
| | | | | | | | | | | | | | occurred (assumes 5% improvement=growth/yea resultant stream miles affe prorated actions = 0.225 a relative to all the steelhead miles in the Assessment U |

planting Recent trends dence. ve shading re, the Expert in projects tor 4.1 as r 8.1. A 1-mile ed at McComas rough 2015. intensely per year. A t of 0.25 mile not a standpart of many niles in the djusted the by prorating properly pected by 5% to 30% the action vear). The

and made ead stream

| ESU | Populatio n | Code | Assessment Unit | | LF Weight | Low Bookend | Original 2018 Estimate | Updated 2018 Estimate | High 2018 Bookend | | - | LF Weight and Bookends Comments | Estimates Comments |
|-----------|----------------|------|--------------------|-----------|-----------|----------------|------------------------------|-----------------------------|----------------------|----|----|------------------------------------|-----------------------------|
| Snake | South | SCS5 | Mill Creek | 1.1: | - | 83 | 90 | 91.9 | 94 | 90 | 94 | LOC: 3 There are 48 | 2012: 4 stream crossings a |
| River | Fork | | | Habitat | | | | | | | | known road crossings, | for 2013-2018, 2 at Black (|
| Steelhead | Clearwate | | | Quantity: | | | | | | | | based on stream miles | Creek, and 1 with the plan |
| | r River | | | Anthropo | | | | | | | | blocked 10 a known as | decommissioning. Based o |
| | | | | genic | | | | | | | | barriers, this results in a | miles blocked and the tota |
| | | | | Barriers | | | | | | | | LBE of 83% and assuming | stream miles in the AU rep |
| | | | | | | | | | | | | 6 could be replaced by | /removing these culverts |
| | | | | | | | | | | | | 2018 results in a HBE of | 2018 gets to us to 90% |
| | | | | | | | | | | | | 94%. Future crossing | 2015: Three passage proje |
| | | | | | | | | | | | | inventory and assessment | between 2012 and 2015, c |
| | | | | | | | | | | | | is needed to priotitize | stream miles. An upstrear |
| | | | | | | | | | | | | actions. | exists on Adams Creek. Th |
| | | | | | | | | | | | | | Panel adjusted miles of im |
| | | | | | | | | | | | | | based on distinguishing ful |
| | | | | | | | | | | | | | barriers and adult/juvenile |
| | | | | | | | | | | | | | for a realized improvemen |
| | | | | | | | | | | | | | stream miles (changed fro |
| | | | | | | | | | | | | | as per QA review of Lookb |
| | | | | | | | | | | | | | materials, EWW 7.6.16) of |
| | | | | | | | | | | | | | Overall improvement to th |
| | | | | | | | | | | | | | Assessment Unit was asses |
| | | | | | | | | | | | | | making improved stream r |
| | | | | | | | | | | | | | to all steelhead stream mi |
| | | | | | | | | | | | | | Assessment Unit. Using St |
| | | | | | | | | | | | | | they calculated 15.1 miles |
| | | | | | | | | | | | | | Mill Creek. Then the Exper |
| | | | | | | | | | | | | | added tributaries with kno |
| | | | | | | | | | | | | | spawning and rearing (Me |

s a scheduled k George, Hunt anned road d on stream otal number of replacing ts in 2013-

ojects occurred 5, over 4.3 eam barrier still The Expert improvement full/partial nile blockage ent to 2.15 rom 3.7 miles kback of stream. the sessed by n miles relative miles in the Streamnet, es in mainstem pert Panel nown Aerton 2 miles,

| ESU | | Code | Assessment Unit | - | LF Weight | Low Bookend | 2018 Estimate | Updated 2018 Estimate | | Estimate | Bookend | LF Weight and Bookends Comments | Estimates Comments |
|-------|---------------------------------------|------|--------------------|--|-----------|----------------|------------------|-----------------------------|----|----------|---------|--|---|
| River | South Fork Clearwate r River | SCS5 | Mill Creek | 4.1: Riparian Condition: Riparian Vegetatio n | 30.00% | 60 | 60 | 60.1 | 70 | 67 | 75 | LOC: 3 Specific areas of the watershed are affected by livestock resulting in loss of stream bank stability and increased width depth ratio. Goal bank stability of greater than 90% and width depth ratio of less than 10. | 2012: 1.0 miles riparian planting planned for 2013-2018. Additional benefit from road decommissioning reducing access to riparian zone. 2015:Four Mill Creek projects occurred, with 0.1 mile planted annually for 4 years. Total miles treated was adjusted to account for spatial overlap and a % improvement factor (5%/year) to account for vegetation growing over time. The resultant total miles improved by the actions was 0.0225. Assessed over all steelhead bearing river miles in the Assessment Unit (24.1), the Expert Panel calculated a 0.1% improvement over the low bookend. EWL 3.9.16. |
| River | South Fork Clearwate r River | SCS5 | Mill Creek | 4.2: Riparian Condition: LWD Recruitme nt | | 60 | 60 | 60 | 65 | 60 | 70 | LOC: 4. Lack of recuitment of riparian vegetation in some areas has resulted in less than desired LWD. Goal is greater than 30 pieces of LWD per mile. | 2012: 1.0 miles riparian planting planned for 2013-2018. Riparian planting will not provide LWD recruitment until the long term (75 plus years). 2015: No actions undertaken during 2012-2015 that address this limiting factor, therefore no change to low bookend. EWL 2.9.16 |

| <mark>ESU</mark> Snake River | | Code SCS5 | Assessment Unit Mill Creek | Factor | LF Weight | Low | 2018 Estimate | Estimate | High 2018 Bookend | Estimate | Bookend 80 | density is 2 mile/sq. mile. Current road density is 2.6 | Estimates Comments 2012: 10 miles decommissioning planned for 2013-2018. Additional benefit from 1.0 miles riparian planting planned for 2013-2018. 2015: Fixed an ATV and cattle ford that was a chronic sediment source by installing bridge over Mill Creek, which improved 0.5 miles but weighted with other anthropogenic sediment sources in that area, the total stream miles affected was 0.25. Relative to the 24.1 steelhead bearing stream miles in the Assessment Unit, the Expert Panel |
|------------------------------------|---------------------------------------|--------------|----------------------------------|--|-----------|-----|------------------|----------|----------------------|----------|---------------|--|--|
| | South Fork Clearwate r River | SCS5 | Mill Creek | 8.1: Water Quality: Temperat ure | 15.00% | 70 | 70 | 70.1 | 75 | 75 | 85 | max and 16 degree max for spawning. Over 30 days annually exceeded 20 degrees in each of the past few years. | estimated a 1.0% improvement. EWL 3.9.16 2012: 1.0 miles riparian planting planned for 2013-2018. Recent trends show 10-15 days excedence. 2015: Because vegetation shades streams and cools water: 2015: Four Mill Creek projects, with 0.1 mile planted annually for 4 years, were considered as projects to benefit this limiting factor. Total miles treated was adjusted to account for spatial overlap and a % improvement factor (5%/year) to account for vegetation growing over time. The resultant total miles improved by the actions was 0.0225. Assessed over all steelhead bearing river miles in the Assessment Unit (24.1), the Expert Panel calculated a 0.1% improvement over the low bookend. EWL 3.9.16. |

| ESU | Populatio n | Code | Assessment Unit | - | LF Weight | Low Bookend | Original 2018 Estimate | | High 2018 Bookend | | - | LF Weight and Bookends Comments | Estimates Comments |
|----------------|---------------------------------------|------|-----------------------------|---|-----------|----------------|------------------------------|----|----------------------|----|----|--|---|
| Snake River | South Fork Clearwate r River | SCS6 | Misc Clearwater Tribs | 1.1: Habitat Quantity: Anthropo genic Barriers | 25.00% | 75 | 75 | 75 | 80 | 77 | 80 | LOC: 4 There are 168 known road crossings, based on stream miles and assuming 42 are barriers, this results in a LBE of 75% and assuming 8 could be replaced by 2018 results in a HBE of 80%. Future crossing inventory and assessment is needed to priotitize | 2012: 3 stream crossings a for 2013-2018, 2 at Black (Creek, and 1 with the plan decommissioning. Based o miles blocked and the tota stream miles in the AU rep /removing these culverts 2018 gets to us to 77% 2015: No actions undertak 2012-2015 to address this factor, therefore there wa in the lowbookend. EWL 2 |
| River | South Fork Clearwate r River | SCS6 | Misc Clearwater Tribs | 4.1: Riparian Condition: Riparian Vegetatio n | 25.00% | 60 | 60 | 60 | 70 | 60 | 80 | LOC: 4 Specific areas of the watershed are affected by livestock resulting in loss of stream bank stability and increased width depth ratio. Goal bank stability of greater than 90% and width depth ratio of less than 10. Reassigned LF based on review of watershed conditions and goals. | 2012: No actions planned 2018 2015: No actions undertak 2012-2015 to address this factor, therefore there wa in the lowbookend. EWL 2 |

| s a scheduled |
|-----------------|
| k George, Hunt |
| anned road |
| d on stream |
| otal number of |
| replacing |
| ts in 2013- |
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| taken during |
| nis limiting |
| was no increase |
| 'L 2.9.16 |
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| ed for 2013- |
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| taken during |
| nis limiting |
| was no increase |
| 'L 2.9.16 |
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| | Populatio | | Assessment | - | | Low | 2018 | | High 2018 | | - | LF Weight and Bookends | Fabimates Community |
|------------------------------------|--|--------------|-------------------------------------|--|---------------------|-----|------|------|-----------|----|----|---|---|
| ESU Snake River Steelhead | n South Fork Clearwate r River | Code SCS6 | Unit Misc Clearwater Tribs | Factor 7.2: Sediment Condition s: Increased Sediment Quantity | LF Weight 35.00% | 50 | 55 | 57.9 | Bookend | 60 | 70 | LOC: 4 Goal for cobble embeddedness is less than 30%. Goal for road density is 2 mile/sq. mile. Current road density is 2.6 | Estimates Comments 2012: 30 miles decommiss the roaded portion planne 2018. Additional benefits road improvement planne and Peasley Creeks 2015:Road 469 failure fix r sediment input to stream. affected by the action was the location of the road re stream and the total bene Thus the realized improve (modified from 3.24 on 7.6 post Nez Perce Tribe's Loo review). Relative improve result of this project over a bearing stream miles in th Assessment Unit =22.8 fro distribution maps (*Modif 18.9 from Streamnet by N Tribe, post Lookback QA, E 1.8/22.8*100= 7.9% impro- over low bookend. Nez Per comment "Excess roads ar potentially failing culverts adjacent to these other Streams and need to be ac EWL 3.9.16 (Modified by E |
| Snake River Steelhead | South Fork Clearwate r River | | Misc Clearwater Tribs | 8.1: Water Quality: Temperat ure | 15.00% | 60 | 60 | 60 | 65 | 60 | | LOC:4 The NPPC 1994 | 7.6.16) 2012: No actions planned 2018 2015: No actions undertak 2012-2015 to address this factor, therefore there wa in the lowbookend. EWL 2 |

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issioning in
ned for 2013-
ts 5.1 miles
ned for Leggett
x reduced
m. Miles
as adjusted by
relative to the
nefit possible.
ved miles = 1.8
7.6.16 by EWW
ookback QA
vement as a
er all steelhead
the
from USFS
dified from
Nez Perce
, EWW) is
provement
Perce Tribe
and
ts still exist
Steelhead
addressed."
y EWW on
ed for 2013-
taken during
nis limiting
was no increase
L 2.9.16
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| ESU | Populatio n | | Assessment Unit | - | LF Weight | Low Bookend | Original 2018 Estimate | | High 2018 Bookend | | - | LF Weight and Bookends Comments | Estimates Comments |
|-----------------------------|---------------------------------------|------|--------------------|--|-----------|----------------|------------------------------|----|----------------------|----|----|--|---|
| Snake River | South Fork Clearwate r River | SCS7 | Newsome Creek | | | 83 | 83 | 83 | | 83 | 90 | LOC: 2. Only 2 high priority culverts for fish passage identified (both replaced already). More may be found upon further investigation. | 2102: Identified high prior for fish passage replaced a actions planned, but more found upon further investi 2015: No actions undertak 2012-2015 to address this factor, therefore there wa in the lowbookend. EWL 2 |
| Snake River Steelhead | South Fork Clearwate r River | SCS7 | Newsome Creek | 4.1: Riparian Condition: Riparian Vegetatio n | 10.00% | 45 | 45 | 47 | 50 | 55 | | LOC: 3. Newsome Watershed Assessment (EAWS) recommended riparian restoration for reaches heavily impacted by dredge mining and streamside roads (approx. 10 stream miles) | 2012: All stream and flood restoration to be planted b 2015: In 2014, planted som but was mostly willows in the riparian zone. Used lar stock: 1-5 gallon, so benefi accrue relatively quickly, a was good -in the 90% rang Expert Panel adjusted mile assuming 10% growth/yea through 2018. To assess in relative to all steelhead be streams in the Assessment Expert Panel used Streamr steelhead miles. Therefore 1/51.1*100= 2% improven low bookend. EWL 3.9.16 |

ority culverts d already. No ore may be estigation. taken during his limiting was no increase 'L 2.9.16

odplain d by 2018. some conifers, in 2.5 miles of large planting efits should , and survival nge. The iles treated by year (40%) s improvement bearing ent Unit, the mnet's 51.1 ore, vement above 16

| ESU | Populatio n | Code | Assessment Unit | - | LF Weight | Low Bookend | 2018 | Updated 2018 Estimate | High 2018 Bookend | | | LF Weight and Bookends Comments | Estimates Comments |
|-----------|----------------|------|--------------------|------------|-----------|----------------|------|-----------------------------|----------------------|----|----|------------------------------------|------------------------------|
| Snake | South | SCS7 | Newsome | 4.2: | 10.00% | 40 | 40 | 40.2 | 42 | 40 | 45 | LOC: 3. Newsome | 2012: Conifers will be plan |
| River | Fork | | Creek | Riparian | | | | | | | | Watershed Assessment | of the floodplain/valley bo |
| Steelhead | Clearwate | | | Condition: | | | | | | | | (EAWS) recommended | revegetation after the stre |
| | r River | | | LWD | | | | | | | | riparian restoration for | restoration complete. The |
| | | | | Recruitme | | | | | | | | reaches heavily impacted | from planting on LWD is a |
| | | | | nt | | | | | | | | by dredge mining and | benefit (75 years plus). |
| | | | | | | | | | | | | streamside roads (approx. | 2015:In 2014, planted som |
| | | | | | | | | | | | | 10 strea miles) | but was mostly willows in |
| | | | | | | | | | | | | | the riparian zone. Used lar |
| | | | | | | | | | | | | | stock: 1-5 gallon, so benef |
| | | | | | | | | | | | | | accrue relatively quickly, a |
| | | | | | | | | | | | | | was good -in the 90% rang |
| | | | | | | | | | | | | | Expert Panel adjusted mile |
| | | | | | | | | | | | | | a 4% improvement factor |
| | | | | | | | | | | | | | 2018. To assess improvem |
| | | | | | | | | | | | | | to all steelhead bearing str |
| | | | | | | | | | | | | | Assessment Unit, the Expe |
| | | | | | | | | | | | | | used Streamnet's 51.1 stee |
| | | | | | | | | | | | | | Therefore, 0.1/51.1*100= |
| | | | | | | | | | | | | | improvement above low b |
| | | | | | | | | | | | | | EWL 3.9.16 |
| | | | | | | | | | | | | | |

anted as part bottom tream The benefits a long-term

ome conifers, in 2.5 miles of large planting hefits should r, and survival inge. The hiles treated by or through ement relative streams in the spert Panel teelhead miles. D= 0.2% v bookend.

| ESU | Populatio n | Code | Assessment Unit | - | LF Weight | Low Bookend | 2018 | Updated 2018 Estimate | High 2018 Bookend | | - | LF Weight and Bookends Comments | Estimates Comments |
|-----------------------------|---------------------------------------|------|--------------------|---|-----------|----------------|------|-----------------------------|----------------------|----|----|---|---|
| Snake River Steelhead | South Fork Clearwate r River | SCS7 | Newsome Creek | 5.2: Peripheral and Transition al Habitats: Floodplai n Condition | 15.00% | 40 | 50 | 60.8 | 55 | 57 | 65 | LOC: 3. Newsome EAWS recommends restoration of areas impacted by dredge mining (approx 8 miles) | 2012: Reach 2 will be imple over a 2-3 year period to m floodplain connectivity. 2015:Mine tailing project (4 phases):watershed asses guided phasing and prioriti Panel adjusted miles treate extent of treatment. Reac given 100%, due to extent treatment, and Reach 3 wa Thus, the miles treated = 2 improvement relative to al bearing stream miles in the Assessment Unit was calcu starting with the 51.1 miles includes tributaries, but no so panel excluded many m on channel types. They use (11 miles of mainstem, plu more for the mouths). The 2.495/12*100= 20.8% imp over the low bookend. The Panel expected a large imp from this project. EWL 3.9 |

plemented maximize t (divided into sessment rities. Expert ated based on each 2 was nt and was 90%. = 2.495. The o all steelhead the lculated by iles, which not floodplain, miles based used 12 miles plus a little Therefore, nprovement The Expert mprovement 3.9.16

| ECU | Populatio | Code | Assessment Unit | - | | Low | Original 2018 Estimato | Updated 2018 Estimate | High 2018 Bookend | | - | LF Weight and Bookends Comments | Estimates Comments |
|---------------------|-----------|--------------|--------------------|----------------|---------------------|-----|------------------------------|-----------------------------|----------------------|----|----|------------------------------------|------------------------------|
| ESU Snake | | Code SCS7 | Newsome | Factor 6.2: | LF Weight 40.00% | 40 | Estimate | 42.3 | 60 | 55 | 65 | LOC: 3. Newsome | 2012: Reach 2 will be impl |
| River | Fork | 5057 | Creek | Channel | 40.0070 | 40 | 40 | 42.5 | 00 | 55 | 05 | Watershed Assessment | over a 1-2 year period after |
| | Clearwate | | CIEEK | Structure | | | | | | | | (EAWS) recommended | floodplain has been recon |
| Steemeau | r River | | | and Form: | | | | | | | | stream habitat complexity | |
| | | | | Instream | | | | | | | | for the entire mainstem | townsite will be evaluated |
| | | | | Structural | | | | | | | | from the mouth up to | The stream restoration inc |
| | | | | Complexit | | | | | | | | Radcliff Creek (approx. 11 | installation of approximate |
| | | | | V | | | | | | | | miles) | instream structures. |
| | | | | <i>'</i> | | | | | | | | , | 2015:Newsome Restoration |
| | | | | | | | | | | | | | treated 0.15 miles, with w |
| | | | | | | | | | | | | | treatment along entire sec |
| | | | | | | | | | | | | | remeandering occurred. R |
| | | | | | | | | | | | | | reach has 35 pieces per 10 |
| | | | | | | | | | | | | | Installed 13 large wood str |
| | | | | | | | | | | | | | 7-9 logs per structure, whi |
| | | | | | | | | | | | | | pieces in 0.5 mile, ~13 piec |
| | | | | | | | | | | | | | m; however, panel though |
| | | | | | | | | | | | | | was at capacity in treated |
| | | | | | | | | | | | | | there was no room for mo |
| | | | | | | | | | | | | | 100% for wood. Considere |
| | | | | | | | | | | | | | change through time to 20 |
| | | | | | | | | | | | | | adjustment of miles treate |
| | | | | | | | | | | | | | the right trajectory, but no |
| | | | | | | | | | | | | | Full action has been done, |
| | | | | | | | | | | | | | still adjusting, so prorated |
| | | | | | | | | | | | | | 50%. Thus, miles treated = |
| | | | | | | | | | | | | | Assessed over 12 miles of |
| | | | | | | | | | | | | | bearing stream in the Asse |

plemented fter the onnected. mouth to the ed as well. includes the ately 350

tion project wood section. No . Reference 100 meters. structures with hich is 104 vieces per 100 ght that wood ed reach and nore, so at ered channel 2018 for ated: it is on not there yet. ne, but creek is ed benefit to d = 0.275. of steelhead ssessment Unit

| ESU | Populatio n | Code | | - | LF Weight | Low Bookend | 2018 | Updated 2018 Estimate | High 2018 Bookend | | - | LF Weight and Bookends Comments | Estimates Comments |
|----------------|---------------------------------------|------|------------------|--|-----------|----------------|------|-----------------------------|----------------------|----|----|---|--|
| Snake River | South Fork Clearwate r River | SCS7 | Newsome Creek | 7.2: Sediment Condition s: Increased Sediment Quantity | | 42 | 42 | 42.2 | | 47 | 75 | LOC: 2. Newsome Watershed Assessment (EAWS) recommended road density reduction from 3.4 mi/mi^2 to 1.4 mi/mi^2 | 2012: Approx. 168 miles of covered under NEPA. Road improvement and decomm will take several years to co 2015: Haysfork project repa "glory hole" and sediment 80% has stabilized with veg Pond was no longer neede functioning. Project remov avoid sedimentation and p failure. There was no curre but was expected to prese future risk. Project improv mainstem down to Newson site = 3.5 miles. The locatio slope, so the Expert Panel a miles treated by 50%, and 5% weighting factor for tot benefit. Relative improvem the Assessment Unit was c using 51.1 Streamnet miles contributing water affects downstream. Therefore, 0.0875/51.1*100=0.2% im over low bookend. EWL 3. |

s of roads oad mmissioning o complete. epaired large nt pond, berm. vegetation. ded or noved berm to d potential rrent erosion, esent large roved some Town ation was midel adjusted nd assessed a total possible ement across s calculated iles because all ts sediment

improvement . 3.9.16

| ESU | Populatio n | Code | Assessment Unit | - | | Low Bookend | Original 2018 Estimate | | High 2018 Bookend | | - | LF Weight and Bookends Comments | Estimates Comments |
|-----------|----------------|------|--------------------|----------|-------|----------------|------------------------------|------|----------------------|----|----|------------------------------------|--|
| Snake | South | SCS7 | Newsome | 8.1: | 5.00% | 60 | 60 | 61.2 | 65 | 65 | 70 | LOC: 3. Newsome | 2012: Benefits from vegetation |
| River | Fork | | Creek | Water | | | | | | | | Watershed Assessment | planting and channel work. Hyporheic |
| Steelhead | Clearwate | | | Quality: | | | | | | | | (EAWS) cites dredge | flow |
| | r River | | | Temperat | | | | | | | | mining and reduced | 2015: All phases of Newsome Creek |
| | | | | ure | | | | | | | | vegetation cover as major | tailings removal project were |
| | | | | | | | | | | | | contributors to increased | considered cumulatively for this |
| | | | | | | | | | | | | stream temps. | limiting factor. Previously, the area |
| | | | | | | | | | | | | | consisted of ponds, and no riparian |
| | | | | | | | | | | | | | vegetation. Now there is less water |
| | | | | | | | | | | | | | warming due to vegetation plantings. |
| | | | | | | | | | | | | | Total project miles=4, and conditions |
| | | | | | | | | | | | | | are expected to improve 15% through |
| | | | | | | | | | | | | | 2018. Relative to the 51.1 steelhead |
| | | | | | | | | | | | | | occupied river miles (from Streamnet), |
| | | | | | | | | | | | | | the estimated improvement from this |
| | | | | | | | | | | | | | project = 0.6/51.1*100=1.2%. EWL |
| | | | | | | | | | | | | | 3.9.16 |

| ESU | Populatio n | Code | Assessment Unit | - | LF Weight | Low Bookend | 2018 | Updated 2018 Estimate | High 2018 Bookend | | - | LF Weight and Bookends Comments | Estimates Comments |
|-----------|----------------|------|--------------------|-----------|-----------|----------------|------|-----------------------------|----------------------|----|----|------------------------------------|-------------------------------|
| Snake | | SCS8 | Red River | 1.1: | - | 60 | 60 | 64.8 | | 65 | 80 | LOC: 2. 200 stream/road | 2012: Six crossings current |
| River | Fork | | | Habitat | | | | | | | | crossings. 40 are passage | indentified and prioritized |
| Steelhead | Clearwate | | | Quantity: | | | | | | | | barriers. | and replacement. Addition |
| | r River | | | Anthropo | | | | | | | | | will be addressed in outyea |
| | | | | genic | | | | | | | | | 2018). |
| | | | | Barriers | | | | | | | | | 2015: Four culvert replace |
| | | | | | | | | | | | | | opened 9 miles of juvenile |
| | | | | | | | | | | | | | stream. Spawning occurs in |
| | | | | | | | | | | | | | The small creeks in this are |
| | | | | | | | | | | | | | order, have higher product |
| | | | | | | | | | | | | | expected given how high in |
| | | | | | | | | | | | | | watershed they are. Water |
| | | | | | | | | | | | | | temperatures are cold, so |
| | | | | | | | | | | | | | valuable future refuge. All |
| | | | | | | | | | | | | | replacements removed ful |
| | | | | | | | | | | | | | with outlet drops. Still 8-10 |
| | | | | | | | | | | | | | priority culverts remaining |
| | | | | | | | | | | | | | replaced. Expert Panel adju |
| | | | | | | | | | | | | | of stream improvement by |
| | | | | | | | | | | | | | miles) based on known oth |
| | | | | | | | | | | | | | issues in area affected and |
| | | | | | | | | | | | | | life history stage. Relative |
| | | | | | | | | | | | | | improvement in the Assess |
| | | | | | | | | | | | | | was calculated using steelh |
| | | | | | | | | | | | | | stream miles from Stream |
| | | | | | | | | | | | | | miles), but then added 3 m |
| | | | | | | | | | | | | | Dawson Creek up to head |
| | | | | | | | | | | | | | miles of Ditch Creek, 2 mile |

ently ed for design :ional culverts years (beyond

cements ile rearing s in mainstem. area, even low uctivity than h in the ter so they are All culverts full barriers -10 high ing to be djusted miles by 50% (to 4.5 other passage nd steelhead /e essment Unit elhead bearing mnet (83.1 3 miles of adwaters, 3

niles of Jungle

| ESU | Populatio n | Code | Assessment Unit | - | LF Weight | Low Bookend | 2018 | Updated 2018 Estimate | High 2018 Bookend | | - | LF Weight and Bookends Comments | Estimates Comments |
|-----------------------------|---------------------------------------|------|--------------------|--|-----------|----------------|------|-----------------------------|----------------------|----|----|---|--|
| Snake River | South Fork Clearwate r River | SCS8 | Red River | 4.1: Riparian Condition: Riparian Vegetatio n | 25.00% | 50 | 50 | 51.1 | | 65 | 75 | LOC 2:RR EAWS - loss of large established woody veg in meadows. Red Pines NEPA clears 32 miles for planting. LOC: 2. Red River EAWS recommends easements and/or land purchase on private meadow in- holdings | 2012: 36-48 streambank (or river) miles total to be plan Estimate does not include potential conservation eas land purchases. 2015: Red River Meadows conservation easement plan project treated both sides so using stream miles (2 minitial metric. They used lan gallon) rooted stock, and his survival of alder (less suscession browse than willow), and or planting, intense in some stareas. Vegetation responses to be good and the Expert adjusted the miles treated (10%/year improvement) for delayed responses throo Relative to steelhead bear miles in the Assessment Un which are Streamnet miles miles from local knowledge refinement) the project responses improvement of 1.1% for to Factor (1.004/94.1*100). |
| Snake River Steelhead | South Fork Clearwate r River | SCS8 | Red River | 4.2: Riparian Condition: LWD Recruitme nt | | 60 | 60 | 60 | 65 | 60 | 70 | Red River EAWS identifies lack of LWD due to streamside roads & past dredge mining. Most of RR has streamside roads or is meadow complexes. | 2012:Conifers will be plant the floodplain/valley botto revegetation after the stre restoration complete. The from riparian planting on L term benefit. 2015: No large wood was during the 2012-2015 time therefore there was no cha the low bookend. EWL 3.9 |

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< (one side of
planted.
de future
easements or
ws
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planting es of stream, miles) as larger (1 d had good sceptible to d used trench e selected nse is expected ert Panel ed by 50% t) to account hrough 2018. earing stream Unit (94.1, les plus 11 dge resulted in an r this Limiting . EWL 3.9.16

anted as part of ttom tream 'he benefit n LWD is a longas planted

meframe, change from 3.9.16

| ESU | Populatio n | | Assessment Unit | 2012 Standardi zed Limiting Factor | LF Weight | Low Bookend | Original 2018 Estimate | | High 2018 Bookend | | - | LF Weight and Bookends Comments | Estimates Comments |
|-----------------------------|---------------------------------------|------|--------------------|---|-----------|----------------|------------------------------|----|----------------------|----|----|---|---|
| Snake River Steelhead | South Fork | SCS8 | Red River | 5.2: Peripheral and Transition al Habitats: Floodplai n Condition | 5.00% | | 65 | 65 | 75 | 73 | 80 | LOC: 2. RR EAWS identified RR Narrows as key project for floodplain restoration (2 stream miles). Some work exists on private property as well. | 2012:Benefits estimated in channel restoration. This combination of multiple W 2015: There were no actio undertaken during the 201 frame, therefore, there wa from Low Bookend. EWL 3 |
| Snake River Steelhead | South Fork Clearwate r River | | Red River | 6.2: Channel Structure and Form: Instream Structural Complexit Y | 20.00% | 40 | 40 | 40 | 60 | 47 | 70 | LOC: 2. Red River Narrows project area key area for restoration (2 miles). Meadows also simplified habitat (approx. 12 miles) | 2012: Estimate is a combir multiple WEs. Meadows w LWD structures placed, wi floodplain connectivity and revegetation. 2015: There were no actio undertaken during the 201 frame, therefore, there wa from Low Bookend. EWL 3 |

d include is reflects a WEs. tions 2012-2015 time was no change /L 3.9.16

bination of s will not have will focus on and

tions 2012-2015 time was no change /L 3.9.16

| ESU | Populatio n | | Assessment Unit | - | LF Weight | Low Bookend | 2018 | Updated 2018 Estimate | High 2018 Bookend | | - | LF Weight and Bookends Comments | Estimates Comments |
|-----------|----------------|------|--------------------|-----------|-----------|----------------|------|-----------------------------|----------------------|----|----|------------------------------------|-------------------------------|
| Snake | South | SCS8 | Red River | 7.2: | _ | 50 | 50 | 58.3 | 70 | 62 | 80 | LOC: 2. Road densities | 2012: 45-50 miles total of |
| River | Fork | | | Sediment | | | | | | | | are 3.6 mi/mi^2. Goal for | decommissioning and 10-1 |
| Steelhead | Clearwate | | | Condition | | | | | | | | road densities are 1.0 | road improvements to be |
| | r River | | | s: | | | | | | | | mi./sq. mi. | Road density is taken from |
| | | | | Increased | | | | | | | | | NPT and FS has implement |
| | | | | Sediment | | | | | | | | | miles of road decommission |
| | | | | Quantity | | | | | | | | | watershed wide to date. |
| | | | | | | | | | | | | | 2015: Miles of stream imp |
| | | | | | | | | | | | | | four projects were adjuste |
| | | | | | | | | | | | | | their proximity of road pro |
| | | | | | | | | | | | | | stream (e.g., Deadwood w |
| | | | | | | | | | | | | | stream-side and mid-slope |
| | | | | | | | | | | | | | weight)), and total benefit |
| | | | | | | | | | | | | | given other influences on t |
| | | | | | | | | | | | | | factor. Still have 65 miles o |
| | | | | | | | | | | | | | improve and 46 miles to |
| | | | | | | | | | | | | | decommission, meaning th |
| | | | | | | | | | | | | | work remains to be done. |
| | | | | | | | | | | | | | the 94.1 miles of steelhead |
| | | | | | | | | | | | | | stream in the Assessment |
| | | | | | | | | | | | | | (STreamnet plus 11 miles a |
| | | | | | | | | | | | | | based on local knowledge) |
| | | | | | | | | | | | | | 8.3% improvement (7.8/94 |
| | | | | | | | | | | | | | This is validated by sedime |
| | | | | | | | | | | | | | monitoring, indicating imp |
| | | | | | | | | | | | | | compared to 1980s. EWL 3 |

of road 0-15 miles of be completed. om 1998 data. ented many ssioning

nproved by sted to reflect project to d was mostly ope (65% efit possible on this limiting es of road to

g that 25% of e. Relative to ead bearing nt Unit es addition ge), there was /94.1*100). ment mprovements /L 3.9.16

| ESU | Populatio n | Code | Assessment Unit | 2012 Standardi zed Limiting Factor | LF Weight | Low Bookend | Original 2018 Estimate | | High 2018 Bookend | | - | LF Weight and Bookends Comments | Estimates Comments |
|-----------------------------|---------------------------------------|------|--------------------------------------|---|-----------|----------------|------------------------------|----|----------------------|----|----|---|---|
| Snake River Steelhead | South Fork Clearwate r River | SCS8 | Red River | 8.1: Water Quality: Temperat ure | - | 40 | 40 | 40 | 60 | 55 | 70 | commonly exceeded in mainstem RR, streamside shading reduced. | 2012: Benefits from stream floodplain restoration (hyp flow) as well as riparian pl 2015: Benefits from veget planting projects were app limiting factor because as vegetation grows up, it wi streams and cool them. Re Meadows conservation ea planting project treated be stream, so using stream m as initial metric. They used gallon) rooted stock, and H survival of alder (less susce browse than willow), and planting, intense in some s areas.Still, the Expert Pane it will take a while before temperature benefits from plantings will be measurak 0.5%/year of growth), and treated was adjusted to re value. Thus, essentially, th zero miles of stream that we benefit from the action. T there was no change from bookend. EWL 3.9.16 |
| Snake River Steelhead | South Fork Clearwate r River | SCS9 | South Fork Clearwater Mainstem | 6.2: Channel Structure and Form: Instream Structural Complexit Y | | 60 | 60 | 60 | 70 | 60 | 75 | | 2012: No actions for 2013 planned. 2015: No actions undertak the 2012-2015 timeframe, there was no change from bookend. EWL 3.9.16 |

eam & nyphorheic planting work. getation applied to this as the will shade the Red River easement both sides of n miles (2 miles) sed larger (1 nd had good sceptible to nd used trench ne selected anel recognizes re the om the rable (about nd miles reflect this low , there were at would Therefore, om the low

13-2018

taken during me, therefore om the low

| ESU | Populatio | | Assessment Unit | 2012 Standardi zed Limiting Factor | LF Weight | Low | Original 2018 Estimate | | High 2018 Bookend | | - | LF Weight and Bookends Comments | Estimates Comments |
|-----------|-----------|------|--------------------|--|-----------|-----|------------------------------|-------|----------------------|----|----|------------------------------------|---|
| Snake | South | SCS9 | South Fork | | _ | 60 | 60 | 61.75 | | 67 | 75 | LOC: 4 Improvements | 2012: No actions for 2013 |
| River | Fork | | Clearwater | Sediment | | | | | | | | would come from habitat | |
| Steelhead | Clearwate | | Mainstem | Condition | | | | | | | | actions within the | upstream tributary improv |
| | r River | | | s: | | | | | | | | tributaries. | including road improveme |
| | | | | Increased | | | | | | | | | improvments, riparian pro |
| | | | | Sediment | | | | | | | | | road decmmossioning. |
| | | | | Quantity | | | | | | | | | 2015: Collective benefits of |
| | | | | | | | | | | | | | tributatires (upstream asso |
| | | | | | | | | | | | | | units (30.9) miles affected |
| | | | | | | | | | | | | | uplifts for all AUs putting s |
| | | | | | | | | | | | | | into the mainstem is 3.7% |
| | | | | | | | | | | | | | Expert Panel adjusted this |
| | | | | | | | | | | | | | down based on best profe |
| | | | | | | | | | | | | | judgment. Therefore, imp this Assessment Unit is 1.7 |
| | | | | | | | | | | | | | 3.9.16 |
| | | | | | | | | | | | | | 5.5.10 |
| Snake | South | SCS9 | South Fork | 8.1: | 40.00% | 50 | 50 | 50 | 60 | 60 | 70 | LOC:4 Improvements | 2012: No actions for 2013 |
| River | Fork | | Clearwater | Water | | | | | | | | would come from habitat | planned. Benefits attribut |
| Steelhead | Clearwate | | Mainstem | Quality: | | | | | | | | actions within the | upstream tributary improv |
| | r River | | | Temperat | | | | | | | | tributaries. | including road improveme |
| | | | | ure | | | | | | | | | improvments, riparian pro |
| | | | | | | | | | | | | | road decmmossioning. |
| | | | | | | | | | | | | | 2015: While all other Sout |
| | | | | | | | | | | | | | Clearwater Assessment Ur |
| | | | | | | | | | | | | | into this one, there is no e |
| | | | | | | | | | | | | | that temperature improve |
| | | | | | | | | | | | | | those projects would be re |
| | | | | | | | | | | | | | Therefore, there were no a |
| | | | | | | | | | | | | | no change from low booke 3.9.16 |
| | | | | | | | | | | | | | 2.2.10 |

13-2018 butted to rovements ments, riparian production, and

ts of projects in assessment ed. Average of og sediment 7%, but the his estimate ofessional mprovement to 1.75%. EWL

13-2018 outted to rovements ments, riparian production, and

outhfork t Units drain o expectation ovements from e realized here. no actions and okend. EWL

| ESU | Populatio n | | Assessment | - | LF Weight | Low | 2018 | | High 2018 Bookend | | - | LF Weight and Bookends Comments | Estimates Comments |
|-----------------------------|----------------|-------|------------|--|-----------|-----|------|------|----------------------|----|---|--|---|
| Snake River Steelhead | Fork | SCS10 | Creek | 1.1: Habitat Quantity: Anthropo genic Barriers | 30.00% | 85 | 85 | 85 | 95 | 90 | | road crossings, based on stream miles and assuming 2 are barriers, this results in a LBE of 85% and assuming 1 could be replaced by 2018 results in a HBE of 95%. Future crossing | 2012: 1 unidentified stream crossings a scheduled for 2013-2018. Based on stream miles blocked and the total number of stream miles in the AU replacing /removing this culvert in 2013- 2018 gets to us to 90% 2015: There were no actions undertaken during the 2012-2015 time frame, therefore, there was no change from Low Bookend. EWL 3.9.16 |
| Snake River Steelhead | Fork | SCS10 | Creek | 7.2: Sediment Condition s: Increased Sediment Quantity | 70.00% | 82 | 82 | 83.9 | 87 | 87 | | LOC: 4 Goal for cobble embeddedness is less than 30%; occular estimates of cobble embeddedness in Ten Mile Creek is less than 40%. Goal for road density is 2 mile/sq. mile. Current road density in the roaded portion is 1.2 mi./sq. mi. There are 29 miles of known roads in the drainage. Additional non inventoried roads increase road densities above stated values. | 2012: Sediment reduction due to Tenmile Creek Bridge replacement. 2015: The Ten Mile project in 2012 included replacement of failing bridge with wide span. This was a preventative action to reduce risk of erosion/failure: otherwise, it would have continued to erode at each peak flow. The road continues up to SCS6. Project affected 4 miles of stream, and those miles were adjusted 90% for landscape/slope position and 10% for other human-caused sedimentation in area (other roads, timber harvest) and upstream for total stream miles affected=0.36. The Expert Panel used Streamnet steelhead miles in the Assessment Unit=18.5 miles to assess the relative benefit of the project across the Assessment Unit. Therefore 0.36/18.5*100 = 1.9% improvement over the low bookend. EWL 3.9.16 |

| ESU | Populatio | | Assessment | - | | Low | Original 2018 Estimate | Updated 2018 | High 2018 Bookend | | - | LF Weight and Bookends | Estimates Comments |
|------------------------------------|-----------------|--------------|-------------------------------|--|--------|-----|------------------------------|-----------------|----------------------|----|----|---|---|
| ESU Snake River Steelhead | | Code SRS1 | Unit Lower Selway River | Quantity: Anthropo genic Barriers | | 75 | 83 | 84.5 | 90 | 83 | 90 | Comments LOC: 3. 4 large stream crossings were identified as passage barriers. 2 have been relaced with 2 remaining. Surveys need to be completed in remainder of Lower Drainage. | 2012:3 culvert replacement approx. 24 miles upstreamt 2015: The Expert Panel event benefits from 3 barrier rent projects, and weighted the effectiveness of the actions adjusting miles opened by based on life-history stage is a full vs. partial barrier (To assess the benefits of the over the entire Assessment Panel considered steelhea Streamnet (39.4), and add miles based on local known distribution (an additional which totaled 60.4 total rent occupied by Steelhead. The 5.75/60.4*100=9.5% impre- EWL 3.8.16 |
| Snake River Steelhead | River | SRS1 | Lower Selway River | Condition s: Increased Sediment Quantity | | 65 | 65 | 65.1 | | 69 | | LOC: 4 Goal for cobble embeddedness is less than 30%. Goal for road density is 1 mile/sq. mile. | 2012: 20-30 miles of road improvement/decommissi 2015: One project that aff was weighted for landscap position and total benefit possible/other anthropoge sediment sources (=0.045 Relative to the 60.4 river r steelhead habitat, the Exp estimated a 0.1% uplift (0.045/60.4*100). EWL 3.8 |
| Snake River Steelhead | Selway River | SRS1 | Lower Selway River | 8.1: Water Quality: Temperat ure | 20.00% | 60 | 60 | 60 | 65 | 60 | | max and 16 degree max for spawning), average | 2012: No actions planned 2015: No actions were und during the 2012-2015 time therefore there was not ch the Low Bookend. EWL 3. |

nents for am passage evaluated the emoval he ons by by proration ge use and if it r (=5.75 miles). f these actions ent Unit, the ead miles in dded more owledge of fish nal 21 miles), l river miles Therefore provement. d ssioning affected 1 mile ape/slope it ogenic 45 miles). r miles of xpert Panel

3.8.16 ed undertaken imeperiod, t change from . 3.8.16

| <mark>ESU</mark> Snake River | | <mark>Code</mark> SRS2 | Assessment Unit Meadow | Factor 7.2: Sediment | LF Weight | Low Bookend | Original 2018 Estimate 90 | | High 2018 Bookend | Estimate | High 2033 Bookend 95 | LOC: 3. Selway and Middle Fork Clearwater | Estimates Comments 2012: Horse Creek Road improvement/decommission, Falls |
|------------------------------------|-----------------|---------------------------|------------------------------|--|-----------|----------------|------------------------------------|------|----------------------|----------|----------------------------|---|--|
| Steelhead | | | | Condition s: Increased Sediment Quantity | | | | | | | | Assessment (2001) describe sediment yield as 8% over base levels. | Creek Road improvement 2015: No actions were undertaken during the 2012-2015 timeperiod, therefore there was not change from the Low Bookend. EWL 3.8.16 |
| | Selway River | SRS3 | O'Hara Creek | 4.1: Riparian Condition: Riparian Vegetatio n | | | 60 | 60 | | | 75 | that stream temperatures in the Selway at Ohara | 2012: Plant 3 miles of riparian vegetation-O'Hara Creek 2015: 2015: No actions were undertaken during the 2012-2015 timeperiod, therefore there was not change from the Low Bookend. EWL 3.8.16 |
| | Selway River | SRS3 | Creek | 7.2: Sediment Condition s: Increased Sediment Quantity | 60.00% | 50 | 50 | 54.8 | 65 | 62 | 75 | Assessment (2001) describe road density at approx 1.8 mi/sq. mi with 52 miles of excess roads. Goal is 1 mi/sq. mi. Culverts should be inventoried for sediment sources. | 2012: 15 miles road improvements 2015: O'Hara Road replaced 4 culverts and improved road prism to reduce sediment delivery to stream. This was 3.5 miles of stream-adjacent road. Panel weighted accordingly (90%), and weighted for other sediment sources in area (20%: this was a major contributor, but others still exist). Still have 1-2 miles to do. NOTE: these future phases need to be included in Look Forward. Steelhead river miles from Streamnet was adjusted based on local knowledge and the panel added 4 miles to the 9.1 Streamnet miles for a total of 13.1 steelhead bearing stream miles in the Assessment Unit. Therefore, 0.63 miles of improvement over 13.1 miles of stream results in 4.8% improvement. EWL 3.8.16 |

| ESU | Populatio n | Code | Assessment Unit | - | | Low Bookend | 2018 | | High 2018 Bookend | | | LF Weight and Bookends Comments | Estimates Comments |
|-----------------------------|----------------|------|---|--|---------|----------------|------|----|----------------------|----|----|--|---|
| Snake River Steelhead | River | SRS3 | O'Hara Creek | 8.1: Water Quality: Temperat ure | 20.00% | 60 | 60 | 60 | 65 | 62 | 70 | | 2012: Plant riparian vegeta Creek 2015: No actions were und during the 2012-2015 time therefore no change from Bookend. EWL 3.8.16 |
| Snake River Steelhead | River | SRS4 | Wilderness Area (Moose Creek, Upper Selway River, etc.) | 7.2: Sediment Condition s: Increased Sediment Quantity | 100.00% | 85 | 85 | 85 | 90 | 85 | 90 | LOC: 3. Selway and Middle Fork Clearwater Rivers Subbasin Assessment (2001) describe sediment yield as 3% over base levels. | 2012: No actions planned 2015: No actions were und during the 2012-2015 time therefore no change from Bookend. EWL 3.8.16 |

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