



## Metric Guidance by Work Element

Data Current as of: 12/24/2016

Report Printed: 12/25/2016

Fiscal Year:

This report lists work elements by ID, grouped first by those requiring metrics, then by those not requiring metrics.

To view a report that lists each metric and their associated work elements please see: [Metrics - Work Elements report.](#)

This is the list of 426 work element metrics for work elements active in Fiscal Year 2017

Contracts that start in this fiscal year must use work elements from this list.

| WE ID | Work Element Name                          | Category                | Work Element Definition   | Metric ID | Metric   | Metric Guidance ID | Metric Guidance   | Metric Required | Metric Type | Metric Precision |
|-------|--|-------------------------|---|-----------|--|--------------------|---|-----------------|-------------|------------------|
| 5     | Land Purchase and/or Conservation Easement | BPA Internal Operations | This is a BPA Internal-use only work element. BPA uses this work element to describe directly wiring money to escrow associated with real estate transactions. This work element only covers the purchase price or option of the land or easement (it may include escrow, title, and/or closing costs). Any work performed by BPA's Transmission Business Line (TBL) in support of the real estate transactions shall be covered by WE#6, TBL Work (also a BPA Internal-use only work element). | 1375      | Type of acquisition [Fee Title, New Easement, Renewed Easement, Exchange, Mix] | 1                  | 'Mix' refers to any combination of different types of acquisition. 'Exchange' refers to a land trade or swap. If additional BPA funds are required as part of an exchange, select 'Mix.'  | ✓               | list        |                  |
|       |  |                         |   | 1376      | Start date of easement   | 2                  | In most cases, this will be a Conservation Easement; not a construction easement. This metric does not apply to Fee Title acquisitions.   |                 | date        |                  |
|       |  |                         |   | 1377      | End date of easement   | 3                  | In most cases, this will be a Conservation Easement; not a construction easement. This metric does not apply to fee title acquisitions.   |                 | date        |                  |
|       |  |                         |   | 1378      | Start date of the purchase   | 4                  | This is the closing date of the transaction.  |                 | date        |                  |
|       |  |                         |   | 1381      | # of minimum estimated HUs protected for wildlife                              | 7                  | Use this habitat unit (HU) metric when a land acquisition is part of BPA's Wildlife Mitigation Program, which mitigates for the impacts to wildlife caused by the development of the dams of the Federal Columbia River Power System (FCRPS).   |                 | number      | 1.0              |
|       |  |                         |   | 1382      | Start latitude of protected stream reach                                       | 8                  | This metric only applies to acquisitions (by lease or purchase) in riparian areas. Must be entered in decimal degrees. For help converting from degrees, minutes, seconds go to <a href="https://www.fcc.gov/media/radio/dms-decimal">https://www.fcc.gov/media/radio/dms-decimal</a> . |                 | lat         | 0.000001         |



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| 1383  | End latitude of protected stream reach   |          |                         | 9         |        |                    | This metric only applies to acquisitions (by lease or purchase) in riparian areas. Must be entered in decimal degrees. For help converting from degrees, minutes, seconds go to <a href="https://www.fcc.gov/media/radio/dms-decimal">https://www.fcc.gov/media/radio/dms-decimal</a> . |                 | lat         | 0.000001         |
| 1384  | Start longitude of protected stream reach  |          |                         | 10        |        |                    | This metric only applies to acquisitions (by lease or purchase) in riparian areas. Must be entered in decimal degrees. For help converting from degrees, minutes, seconds go to <a href="https://www.fcc.gov/media/radio/dms-decimal">https://www.fcc.gov/media/radio/dms-decimal</a> . |                 | long        | 0.000001         |
| 1385  | End longitude of protected stream reach  |          |                         | 11        |        |                    | This metric only applies to acquisitions (by lease or purchase) in riparian areas. Must be entered in decimal degrees. For help converting from degrees, minutes, seconds go to <a href="https://www.fcc.gov/media/radio/dms-decimal">https://www.fcc.gov/media/radio/dms-decimal</a> . |                 | long        | 0.000001         |
| 1452  | Amount of water secured in acre-feet/year  |          |                         | 82        |        |                    | This is the total volume of water being addressed by the acquisition over the course of one irrigation season. The term acquisition refers to either the lease or the purchase of water.  | ✓               | number      | 0.1              |
| 1453  | Flow of water returned to the stream as prescribed in the water acquisition in cubic-feet per second (cfs) |          |                         | 83        |        |                    | Provide the average volume rate of flow expected by the acquisition. The term "acquisition" refers to either the lease or the purchase of water.  | ✓               | number      | 0.01             |
| 1481  | # of stream kilometers credited for resident fish  |          |                         | 113       |        |                    | Use this stream kilometer metric when the land purchase or conservation easement results in credit towards BPA's Resident Fish Mitigation Program in Montana. Note that this metric is in kilometers while other metrics in Pisces tend to use miles.                                   |                 | number      | 0.01             |



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|-------|--|----------|-------------------------|-----------|--------|--------------------|--|-----------------|-------------|------------------|
| 1524  | # of acres of upland non-wetland habitat protected |          |                         | 161       |        |                    | Identify the total acres of habitat protected in the upland habitat zone. To calculate acres, use a GIS program or approximate the value by multiplying the total length of the protected habitat zone times the average width of the protected habitat zone in feet / divided by 43,560 sq. ft./acre. (Note the total area protected for this WE should roughly equal the total acres identified in the purchase.)<br>-Upland: Habitat upslope of the riparian and instream habitat zone with non-hydrophilic plants, unless part of an isolated wetland, which occurs outside the hyporheic, or floodplain/riparian zone.<br>-Non-wetland: Habitat designated and regulated as non-wetland habitat, which is dominated by areas that are not inundated or saturated by surface or groundwater at a frequency and duration sufficient to support a prevalence of non-hydrophytic vegetation typically adapted for life in dry soil conditions.  | ✓               | number      | 0.01             |
| 1525  | # of acres of upland wetland habitat protected     |          |                         | 162       |        |                    | Identify the total acres of habitat protected in the upland habitat zone. To calculate acres, use a GIS program or approximate the value by multiplying the total length of the protected habitat zone times the average width of the protected habitat zone in feet / divided by 43,560 sq. ft./acre. (Note the total area protected for this WE should roughly equal the total acres identified in the purchase.)<br>-Upland: Habitat upslope of the riparian and instream habitat zone with non-hydrophilic plants, unless part of an isolated wetland, which occurs outside the hyporheic, or floodplain/riparian zone.<br><br>-Wetland: Habitat designated and regulated as wetland habitat, which is dominated by areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support a prevalence of hydrophytic vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs and similar areas. For more information consult the USFWS National Wetland Inventory at <a href="http://www.fws.gov/wetlands/">http://www.fws.gov/wetlands/</a> or EPA wetland information at <a href="http://www.epa.gov/wetlands/">http://www.epa.gov/wetlands/</a> . | ✓               | number      | 0.01             |



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| 1526  |                   |          |                         |           | # of acres of riparian non-wetland habitat protected | 163                | <p>Identify the total acres of habitat protected in the riparian habitat zone. To calculate acres, use a GIS program or approximate the value by multiplying the total length of the protected habitat zone times the average width of the protected habitat zone in feet / divided by 43,560 sq. ft./acre. (Note the total area protected for this WE should roughly equal the total acres identified in the purchase.)</p> <p>-Riparian: Transition zone between aquatic and upland habitat typically within a river's floodplain. These habitats are related to and influenced by surface or subsurface waters, especially the margins of streams, lakes, ponds, wetlands, seeps, and ditches between land and a stream and above the average high watermark, or bank full height. Plant communities along the river and lake margins are called riparian vegetation, characterized by hydrophilic plants. This includes floodplain habitat, which may be restored to properly functioning conditions. (This excludes floodplain habitat influenced by the tides, which is classified as "Estuarine Habitat" for Pisces.)</p> <p>-Non-Wetland: Habitat designated and regulated as non-wetland habitat, which is dominated by areas that are not inundated or saturated by surface or groundwater at a frequency and duration sufficient to support a prevalence of non-hydrophytic vegetation typically adapted for life in dry soil conditions.</p> | ✓               | number      | 0.01             |



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| 1527  |                   |          |                         |           | # of acres of riparian wetland habitat protected | 164                | <p>Identify the total acres of habitat protected in the riparian habitat zone.</p> <p>To calculate acres, use a GIS program or approximate the value by multiplying the total length of the protected habitat zone times the average width of the protected habitat zone in feet / divided by 43,560 sq. ft./acre. (Note the total area protected for this WE should roughly equal the total acres identified in the purchase.)</p> <p>-Riparian: Transition zone between aquatic and upland habitat typically within a river's floodplain. These habitats are related to and influenced by surface or subsurface waters, especially the margins of streams, lakes, ponds, wetlands, seeps, and ditches between land and a stream and above the average high watermark, or bank full height. Plant communities along the river and lake margins are called riparian vegetation, characterized by hydrophilic plants. This includes floodplain habitat, which may be restored to properly functioning conditions. (This excludes floodplain habitat influenced by the tides, which is classified as "Estuarine Habitat" for Pisces.)</p> <p>Wetland: Habitat designated and regulated as wetland habitat, which is dominated by areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support a prevalence of hydrophytic vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs and similar areas. For more information consult the USFWS National Wetland Inventory at <a href="http://www.fws.gov/wetlands/">http://www.fws.gov/wetlands/</a> or EPA wetland information at <a href="http://www.epa.gov/wetlands/">http://www.epa.gov/wetlands/</a>.</p> | ✓               | number      | 0.01             |



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| 1528  | # of acres of freshwater non-wetland habitat protected |          |                         | 165       |        |                    | <p>Identify the total acres of habitat protected in the freshwater non-tidal habitat zone. To calculate acres, use a GIS program or approximate the value by multiplying the total length of the protected habitat zone times the average width of the protected habitat zone in feet / divided by 43,560 sq. ft./acre. (Note the total area protected for this WE should roughly equal the total acres identified in the purchase.)</p> <p>-Freshwater non-tidal: Habitat with freshwater flowing in a channel or watercourse, including lakes, ponds, and adjacent areas below the high water mark that is not subject to the tidal influence of the estuarine zone.</p> <p>-Non-wetland: Habitat designated and regulated as non-wetland habitat, which is dominated by areas that are not inundated or saturated by surface or groundwater at a frequency and duration sufficient to support a prevalence of non-hydrophytic vegetation typically adapted for life in dry soil conditions.</p>   | ✓               | number      | 0.01             |
| 1529  | # of acres of freshwater wetland habitat protected     |          |                         | 166       |        |                    | <p>Identify the total acres of habitat protected in the freshwater non-tidal habitat zone. To calculate acres, use a GIS program or approximate the value by multiplying the total length of the protected habitat zone times the average width of the protected habitat zone in feet / divided by 43,560 sq. ft./acre. (Note the total area protected for this WE should roughly equal the total acres identified in the purchase.)</p> <p>-Freshwater non-tidal: Habitat with freshwater flowing in a channel or watercourse, including lakes, ponds, and adjacent areas below the high water mark that is not subject to the tidal influence of the estuarine zone.</p> <p>-Wetland: Habitat designated and regulated as wetland habitat, which is dominated by areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support a prevalence of hydrophytic vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs and similar areas. For more information consult the USFWS National Wetland Inventory at <a href="http://www.fws.gov/wetlands/">http://www.fws.gov/wetlands/</a> or EPA wetland information at <a href="http://www.epa.gov/wetlands/">http://www.epa.gov/wetlands/</a>.</p> | ✓               | number      | 0.01             |



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| 1530  |                   |          |                         |           | # of acres of estuarine wetland habitat protected | 167                | <p>Identify the total acres of habitat protected in the estuarine habitat zone. To calculate acres, use a GIS program or approximate the value by multiplying the total length of the protected habitat zone times the average width of the protected habitat zone in feet / divided by 43,560 sq. ft./acre. (Note the total area protected for this WE should roughly equal the total acres identified in the purchase.)</p> <p>-Estuarine: Habitat that is part of a semi-enclosed coastal body of water that is subject to the ebb and flow of tides, with one or more rivers or streams flowing into it, and with a free connection to the nearshore marine zone. This includes habitat impacted by the highest high and lowest low tides of a year. Estuaries are environments whose pH, salinity, and water levels are subject to the ebb and flow of tides, and the physical and chemical properties of the river that feeds the estuary and the ocean from which it derives its salinity. This habitat includes floodplain/riparian habitat subject to inundation from the tides.</p> <p>Wetland: Habitat designated and regulated as wetland habitat, which is dominated by areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support a prevalence of hydrophytic vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs and similar areas. For more information consult the USFWS National Wetland Inventory at <a href="http://www.fws.gov/wetlands/">http://www.fws.gov/wetlands/</a> or EPA wetland information at <a href="http://www.epa.gov/wetlands/">http://www.epa.gov/wetlands/</a>.</p> | ✓               | number      | 0.01             |



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| 1531  | # of acres of estuarine non-wetland habitat protected |          |                         | 168       |        |                    | Identify the total acres of habitat protected in the estuarine habitat zone. To calculate acres, use a GIS program or approximate the value by multiplying the total length of the protected habitat zone times the average width of the protected habitat zone in feet / divided by 43,560 sq. ft./acre. (Note the total area protected for this WE should roughly equal the total acres identified in the purchase.)<br>-Estuarine: Habitat that is part of a semi-enclosed coastal body of water that is subject to the ebb and flow of tides, with one or more rivers or streams flowing into it, and with a free connection to the nearshore marine zone. This includes habitat impacted by the highest high and lowest low tides of a year. Estuaries are environments whose pH, salinity, and water levels are subject to the ebb and flow of tides, and the physical and chemical properties of the river that feeds the estuary and the ocean from which it derives its salinity. This habitat includes floodplain/riparian habitat subject to inundation from the tides.<br>-Non-wetland: Habitat designated and regulated as non-wetland habitat, which is dominated by areas that are not inundated or saturated by surface or groundwater at a frequency and duration sufficient to support a prevalence of non-hydrophytic vegetation typically adapted for life in dry soil conditions. | ✓               | number                   | 0.01             |
| 1555  | # of miles protected in a riparian wetland area       |          |                         | 192       |        |                    | Add length on both sides of stream when both sides are protected. Add one side when one side is protected. Normally, riparian habitat protection is intended for the benefit of fish.  | ✓               | number                   | 0.01             |
| 1556  | # of miles protected in a riparian non-wetland area   |          |                         | 193       |        |                    | Add length on both sides of stream when both sides are protected. Add one side when one side is protected. Normally, riparian habitat protection is intended for the benefit of fish.  | ✓               | number                   | 0.01             |
| 1772  | Total # of Acres Protected                            |          |                         | 440       |        |                    | This is the total number of acres identified in the purchase including items such as home sites.   | ✓               | number                   | 0.1              |
| 1774  | BPA's water rights interest post acquisition          |          |                         | 442       |        |                    | Identify how BPA will have rights to the water rights after the land acquisition by selecting an option from the list.   | ✓               | BPARightsPostAcquisition |                  |
| 1775  | Water rights use prior to acquisition                 |          |                         | 443       |        |                    | Specify the primary current use of the water rights. If more than one use, provide additional information on secondary uses (e.g irrigation, stock watering, etc.) in BPA Comments field.  | ✓               | UseOfWaterRights         |                  |



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|       |                   |                     |  | 1776      | Planned water rights use after acquisition              | 444                | Select "Instream" if any amount of water will be returned instream. Otherwise, specify the the primary planned use of water rights after acquisition. If more than one use, provide additional information on secondary uses (e.g irrigation, stock watering, etc.) in BPA Comments field. | ✓               | UseOfWaterRights |                  |
|       |                   |                     |  | 1777      | Water right certificate numbers                         | 445                | Please include the water right certificate numbers for the water rights that will be secured by the acquisition. Separate multiple entries with commas. If no water right certificate is available use claim or permit number.   | ✓               | text             |                  |
| 27    | Remove Debris     | Habitat/Passage O&M | Removal of items such as trash, old buildings, and abandoned equipment from water or land. Does not include removal of a diversion or instream structure. For removal of organic matter when cleaning screens, use WE#186, Operate and Maintain Habitat/Passage/Structure.   | 1764      | # pounds (lbs) (to nearest 100 lbs.) of trash collected | 433                | Pounds of trash collected to the nearest 100 pounds.   | ✓               | number           | 1.0              |
| 28    | Trap and Haul     | Habitat/Passage O&M | Work to capture and transport fish, including kelts, usually by means of trucking or barging for the purpose of assisting upstream and/or downstream migration, fish salvage operations, or re-establishing a population in different tributaries. If trapping and hauling for predator control, use WE#190, Remove, Exclude and/or Relocate Animals. If installing a fish trap, use WE#70, Install Fish Monitoring Equipment. | 1386      | # of fish transported                                   | 12                 | Self-Explanatory   | ✓               | number           | 1.0              |



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|-------|---|---------------------|--|-----------|---|--------------------|---|-----------------|-------------|------------------|
| 29    | Increase Aquatic and/or Floodplain Complexity | Habitat Improvement | Work that adds natural materials instream to create habitat features or to improve channel morphology. Includes J-hooks, barbs, vortex weirs, and large woody debris (LWD), and in some instances the use of angular rock as ballast for LWD structures. Or improve complexity by creation of pools or fish spawning habitat by addition of gravel. If structures are being added primarily to overcome a fish passage barrier, use 184. Install Fish Passage Structure. If replacing or maintaining an existing structure, use 186. Operate and Maintain Habitat/Passage/Structure. If planting is used for bank stabilization, use 47. Plant Vegetation. If other methods are used to control erosion in the riparian and upland zones, use 55. Erosion and Sedimentation Control. | 1387      | # of miles of stream with improved complexity     | 13                 | Use best estimates of actual habitat improved from each structure at a resolution of .01 miles. Do not lump multiple structures such that they include areas not affected by the treatments.  | ✓               | number      | 0.01             |
|       |   |                     |  | 1389      | Start latitude of treated stream reach            | 15                 | This metric only applies to work in riparian areas. Must be entered in decimal degrees. For help converting from degrees, minutes, seconds go to <a href="https://www.fcc.gov/media/radio/dms-decimal">https://www.fcc.gov/media/radio/dms-decimal</a> .  | ✓               | lat         | 0.000001         |
|       |   |                     |  | 1390      | End latitude of treated stream reach              | 16                 | This metric only applies to work in riparian areas. Must be entered in decimal degrees. For help converting from degrees, minutes, seconds go to <a href="https://www.fcc.gov/media/radio/dms-decimal">https://www.fcc.gov/media/radio/dms-decimal</a> .  | ✓               | lat         | 0.000001         |
|       |   |                     |  | 1391      | Start longitude of treated stream reach           | 17                 | This metric only applies to work in riparian areas. Must be entered in decimal degrees. For help converting from degrees, minutes, seconds go to <a href="https://www.fcc.gov/media/radio/dms-decimal">https://www.fcc.gov/media/radio/dms-decimal</a> .  | ✓               | long        | 0.000001         |
|       |   |                     |  | 1392      | End longitude of treated stream reach             | 18                 | This metric only applies to work in riparian areas. Must be entered in decimal degrees. For help converting from degrees, minutes, seconds go to <a href="https://www.fcc.gov/media/radio/dms-decimal">https://www.fcc.gov/media/radio/dms-decimal</a> .  | ✓               | long        | 0.000001         |
|       |   |                     |  | 1547      | # of miles of stream treated with spawning gravel | 184                | Length of treatment in miles. This should be the total length of the stream to be treated with gravel placement (if placement of gravel is dumped with the expectation of distribution from high flows, identify the length of stream expected to be treated). The addition of gravel, sand and fine sediments into the stream with size ratios to support salmonid spawning and rearing. |                 |             |                  |



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| 1571  |                   |          |                         |           | # of unanchored individual log structures (not logjams) installed for only stabilization | 208                | Enter the quantity of unanchored individual log structures (not logjams) used for stabilization of the streambank or channel.<br>(Note: If unanchored individual logs are not used, enter a "0" for the value of the metric.)<br>-Individual logs (unanchored): Placement of individual logs as a discrete structure that is not part of log jams, weirs, or specified as root wads that are not secured to withstand movement under high flows.<br>-Stabilization: The structure serves as a means to stabilize sediment in the stream or on the bank of the stream. | ✓               | number      | 1.0              |
| 1572  |                   |          |                         |           | # of anchored individual log structures (not logjams) installed for only stabilization   | 209                | Enter the quantity of anchored individual logs used for stabilization of the streambank or channel.<br>(Note: If unanchored individual logs are not used, enter a "0" for the value of the metric.)<br>-Anchored individual logs: Placement of individual logs that are either cabled or buried to withstand movement under high flows as a discrete structure that are not part of log jams, weirs or root wads.<br>-Stabilization: The structure serves as a means to stabilize sediment in the stream or on the bank of the stream.                                | ✓               | number      | 1.0              |
| 1573  |                   |          |                         |           | # of logjam structures installed for only stabilization                                  | 210                | Enter the quantity of logs fastened together (logjam) used for stabilization of the streambank or channel.<br>(Note: If logs fastened together (logjam) are not used, enter a "0" for the value of the metric.)<br>-Logs fastened together (logjam): Placement of wood structure/log jam with multiple logs and/or rootwads fastened together as a discrete structure.<br>-Stabilization: The structure serves as a means to stabilize sediment in the stream or on the bank of the stream.   | ✓               | number      | 1.0              |



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| 1574  | # of unanchored rocks/boulder structures installed for only stabilization |          |                         | 211       |        |                    | Enter the quantity of unanchored rock/boulders used for stabilization of the streambank or channel.<br>(Note: If unanchored rock/boulders are not used, enter a "0" for the value of the metric.)<br>-Unanchored rocks/boulders: Addition of large rocks or boulders (non-gabion) as discrete structures to a stream channel or bank that are not secured to withstand movement under high flows. (Note: rocks and boulders used to anchor structures are not captured under this metric.)<br>-Stabilization: The structure serves as a means to stabilize sediment in the stream or on the bank of the stream.                   | ✓               | number      | 1.0              |
| 1575  | # of anchored rocks/boulder structures installed for only stabilization   |          |                         | 212       |        |                    | Enter the quantity of anchored rock/boulders used for stabilization of the streambank or channel.<br>(Note: If anchored rock/boulders are not used, enter a "0" for the value of the metric.)<br>-Anchored rocks/boulders: Addition of large rocks or boulders, secured by cabling or other restraints, as discrete structures to a stream channel or bank that are secured to withstand movement under high flows. (Note: rocks and boulders used to anchor structures are not captured under this metric.)<br>-Stabilization: The structure serves as a means to stabilize sediment in the stream or on the bank of the stream. | ✓               | number      | 1.0              |
| 1576  | # of log weir structures installed for only stabilization                 |          |                         | 213       |        |                    | Enter the quantity of log weirs used for stabilization of the streambank or channel.<br>(Note: If log weirs are not used, enter a "0" for the value of the metric.)<br>- Log weirs: Placement of logs as a discrete structure to collect and retain gravel for spawning habitat, to deepen existing resting/jumping pools, to create new pools above and/or below the structure, to trap sediment, aerate the water, or promote deposition of organic debris.<br>-Stabilization: The structure serves as a means to stabilize sediment in the stream or prevent erosion along the bank of the stream.                             | ✓               | number      | 1.0              |



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| 1577  | # of rock weir structures installed for only stabilization               |          |                         | 214       |        |                    | Enter the quantity of rock weirs used for stabilization of the streambank or channel.<br>(Note: If rock weirs are not used, enter a "0" for the value of the metric.)<br>-Rock weirs: The placement of rocks as a discrete structure to collect and retain gravel for spawning habitat, to deepen existing resting/jumping pools; and/or to create new pools, to trap sediment, aerate the water, and to promote deposition of organic debris.<br>-Stabilization: The structure serves as a means to stabilize sediment in the stream or on the bank of the stream.  | ✓               | number      | 1.0              |
| 1579  | # of deflector/barb structures installed for only stabilization          |          |                         | 216       |        |                    | Enter the quantity of deflectors/barbs used for stabilization of the streambank or channel.<br>(Note: If deflectors/barbs are not used, enter a "0" for the value of the metric.)<br>-Deflectors/barbs: Placement of structures of rock or logs as a discrete structure on a bank that extend into the stream to narrow or deepen the channel, or alter flow.<br>-Stabilization: The structure serves as a means to stabilize sediment in the stream or on the bank of the stream.   | ✓               | number      | 1.0              |
| 1580  | # of revetment/rip rap/other structures installed for only stabilization |          |                         | 217       |        |                    | Enter the quantity of revetments, rip rap, or other engineered structures used for stabilization of the streambank or channel.<br>(Note: If revetments, rip rap, or other engineered structures are not used, enter a "0" for the value of the metric.)<br>-Revetments/rip rap/other engineered structures: Retaining wall to prevent erosion, to face a surface with stone slabs, and concrete and/or steel structure as a discrete structure.<br>-Stabilization: The structure serves as a means to stabilize sediment in the stream or on the bank of the stream. | ✓               | number      | 1.0              |



### Metric Guidance by Work Element

| WE ID | Work Element Name | Category | Work Element Definition | Metric ID | Metric  | Metric Guidance ID | Metric Guidance  | Metric Required | Metric Type | Metric Precision |
|-------|-------------------|----------|-------------------------|-----------|---|--------------------|--|-----------------|-------------|------------------|
| 1581  |                   |          |                         |           | # of rootwad structures installed for only stabilization                              | 218                | Enter the quantity of rootwad structures used for stabilization of the streambank or channel. (Note: If rootwad structures are not used, enter a "0" for the value of the metric.)<br>- Stumps with roots attached (root wads): Placement of a stump with roots attached into the stream or on a bank. Root wads are a type of large woody debris. (Note: if rootwads are fastened to multiple pieces of wood, select "logjam".)<br>- Stabilization: The structure serves as a means to stabilize sediment in the stream or on the bank of the stream.     | ✓               | number      | 1.0              |
| 1582  |                   |          |                         |           | # of unanchored individual log structures (not logjams) installed for only complexity | 219                | Enter the quantity of unanchored individual logs used for complexity of the stream channel. (Note: If unanchored individual logs are not used, enter a "0" for the value of the metric.)<br>-Individual logs (unanchored): Placement of individual logs as a discrete structure that is not part of log jams, weirs, or specified as root wads that are not secured to withstand movement under high flows.<br>-Complexity: The structure increases instream habitat complexity, through creation of morphologic features that benefit the target species. | ✓               | number      | 1.0              |
| 1583  |                   |          |                         |           | # of anchored individual log structures (not logjams) installed for only complexity   | 220                | Enter the quantity of anchored individual logs used for complexity of the stream channel. (Note: If unanchored individual logs are not used, enter a "0" for the value of the metric.)<br>-Anchored individual logs: Placement of individual logs that are either cabled or buried to withstand movement under high flows as a discrete structure that are not part of log jams, weirs or root wads.<br>-Complexity: The structure increases instream habitat complexity, through creation of morphologic features that benefit the target species.        | ✓               | number      | 1.0              |



### Metric Guidance by Work Element

| WE ID | Work Element Name  | Category | Work Element Definition | Metric ID | Metric | Metric Guidance ID | Metric Guidance   | Metric Required | Metric Type | Metric Precision |
|-------|--|----------|-------------------------|-----------|--------|--------------------|---|-----------------|-------------|------------------|
| 1584  | # of logjam structures installed for only complexity                   |          |                         | 221       |        |                    | Enter the quantity of logs fastened together (logjam) used for complexity of the stream channel.<br>(Note: If logs fastened together (logjam) are not used; enter a "0" for the value of the metric.)<br>-Logs fastened together (logjam): Placement of wood structure/log jam with multiple logs and/or rootwads fastened together as a discrete structure.<br>-Complexity: The structure increases instream habitat complexity, through creation of morphologic features that benefit the target species.   | ✓               | number      | 1.0              |
| 1585  | # of unanchored rocks/boulder structures installed for only complexity |          |                         | 222       |        |                    | Enter the quantity of unanchored rock/boulders used for complexity of the stream channel.<br>(Note: If unanchored rock/boulders are not used, enter a "0" for the value of the metric.)<br>-Unanchored rocks/boulders: Addition of large rocks or boulders (non-gabion) as discrete structures to a stream channel or bank that are not secured to withstand movement under high flows. (Note: rocks and boulders used to anchor structures are not captured under this metric.)<br>-Complexity: The structure increases instream habitat complexity, through creation of morphologic features that benefit the target species. | ✓               | number      | 1.0              |
| 1586  | # of anchored rocks/boulder structures installed for only complexity   |          |                         | 223       |        |                    | Enter the quantity of anchored rock/boulders used for complexity of the stream channel.<br>(Note: If anchored rock/boulders are not used, enter a "0" for the value of the metric.)<br>-Anchored rocks/boulders: Addition of large rocks or boulders, secured by cabling or other restraints, as discrete structures to a stream channel or bank that are secured to withstand movement under high flows. (Note: rocks and boulders used to anchor structures are not captured under this metric.)<br>-Stabilization: The structure serves as a means to stabilize sediment in the stream or on the bank of the stream.         | ✓               | number      | 1.0              |



### Metric Guidance by Work Element

| WE ID | Work Element Name                                       | Category | Work Element Definition | Metric ID | Metric | Metric Guidance ID | Metric Guidance   | Metric Required | Metric Type | Metric Precision |
|-------|---|----------|-------------------------|-----------|--------|--------------------|---|-----------------|-------------|------------------|
| 1587  | # of log weir structures installed for only complexity  |          |                         | 224       |        |                    | <p>Enter the quantity of log weirs used for complexity of the stream channel.<br/>                     (Note: If log weirs are not used, enter a "0" for the value of the metric.)</p> <p>- Log weirs: Placement of logs as a discrete structure to collect and retain gravel for spawning habitat, to deepen existing resting/jumping pools, to create new pools above and/or below the structure, to trap sediment, aerate the water, or promote deposition of organic debris.</p> <p>-Complexity: The structure increases instream habitat complexity, through creation of morphologic features that benefit the target species.</p> | ✓               | number      | 1.0              |
| 1588  | # of rock weir structures installed for only complexity |          |                         | 225       |        |                    | <p>Enter the quantity of rock weirs used for stabilization of the stream channel.<br/>                     (Note: If rock weirs are not used, enter a "0" for the value of the metric.)</p> <p>-Rock weirs: The placement of rocks as a discrete structure to collect and retain gravel for spawning habitat, to deepen existing resting/jumping pools, and/or to create new pools, trap sediment, aerate the water, and promote deposition of organic debris.</p> <p>-Complexity: The structure increases instream habitat complexity, through creation of morphologic features that benefit the target species.</p>                   | ✓               | number      | 1.0              |
| 1592  | # of rootwad structures installed for only complexity   |          |                         | 229       |        |                    | <p>Enter the quantity of rootwad structures used for complexity of the stream channel.<br/>                     (Note: If rootwad structures are not used, enter a "0" for the value of the metric.)</p> <p>-Stumps with roots attached (root wads): Placement of a stump with roots attached into the stream or on a bank. Root wads are a type of large woody debris. (Note: if rootwads are fastened to multiple pieces of wood, select "logjam".)</p> <p>-Complexity: The structure increases instream habitat complexity, through creation of morphologic features that benefit the target species.</p>                            | ✓               | number      | 1.0              |



### Metric Guidance by Work Element

| WE ID | Work Element Name | Category | Work Element Definition | Metric ID | Metric  | Metric Guidance ID | Metric Guidance  | Metric Required | Metric Type | Metric Precision |
|-------|-------------------|----------|-------------------------|-----------|---|--------------------|--|-----------------|-------------|------------------|
| 1593  |                   |          |                         |           | # of unanchored individual log structures (not logjams) installed for both stabilization and complexity | 230                | Enter the quantity of unanchored individual logs used for both complexity and stabilization of the stream channel or bank.<br>(Note: If unanchored individual logs are not used, enter a "0" for the value of the metric.)<br>-Individual logs (unanchored): Placement of individual logs as a discrete structure that is not part of log jams, weirs, or specified as root wads that are not secured to withstand movement under high flows.<br>-Both: The structure serves as both an instream complexity and a bank or channel stabilizing structure. | ✓               | number      | 1.0              |
| 1594  |                   |          |                         |           | # of anchored individual log structures (not logjams) installed for both stabilization and complexity   | 231                | Enter the quantity of anchored individual logs used for both complexity and stabilization of the stream channel or bank.<br>(Note: If unanchored individual logs are not used, enter a "0" for the value of the metric.)<br>-Anchored individual logs: Placement of individual logs that are either cabled or buried to withstand movement under high flows as a discrete structure that are not part of log jams, weirs or root wads.<br>-Both: The structure serves as both an instream complexity and a bank or channel stabilizing structure.        | ✓               | number      | 1.0              |
| 1595  |                   |          |                         |           | # of logjam structures installed for both stabilization and complexity                                  | 232                | Enter the quantity of logs fastened together (logjam) used both complexity and stabilization of the stream channel or bank.<br>(Note: If logs fastened together (logjam) are not used, enter a "0" for the value of the metric.)<br>-Logs fastened together (logjam): Placement of wood structure/log jam with multiple logs and/or rootwads fastened together as a discrete structure.<br>-Both: The structure serves as both an instream complexity and a bank or channel stabilizing structure.   | ✓               | number      | 1.0              |



### Metric Guidance by Work Element

| WE ID | Work Element Name | Category | Work Element Definition | Metric ID | Metric   | Metric Guidance ID | Metric Guidance  | Metric Required | Metric Type | Metric Precision |
|-------|-------------------|----------|-------------------------|-----------|--|--------------------|--|-----------------|-------------|------------------|
| 1596  |                   |          |                         |           | # of unanchored rocks/boulder structures installed for both stabilization and complexity | 233                | Enter the quantity of unanchored rock/boulders used for both complexity and stabilization of the stream channel or bank.<br>(Note: If unanchored rock/boulders are not used, enter a "0" for the value of the metric.)<br>-Unanchored rocks/boulders: Addition of large rocks or boulders (non-gabion) as discrete structures to a stream channel or bank that are not secured to withstand movement under high flows. (Note: rocks and boulders used to anchor structures are not captured under this metric.)<br>-Both: The structure serves as both an instream complexity and a bank or channel stabilizing structure.                   | ✓               | number      | 1.0              |
| 1597  |                   |          |                         |           | # of anchored rocks/boulder structures installed for both stabilization and complexity   | 234                | Enter the quantity of anchored rock/boulders used for both complexity and stabilization of the stream channel or bank.<br>(Note: If anchored rock/boulders are not used, enter a "0" for the value of the metric.)<br>-Anchored rocks/boulders: Addition of large rocks or boulders, secured by cabling or other restraints, as discrete structures to a stream channel or bank that are secured to withstand movement under high flows. (Note: rocks and boulders used to anchor structures are not captured under this metric.)<br>-Both: The structure serves as both an instream complexity and a bank or channel stabilizing structure. | ✓               | number      | 1.0              |
| 1598  |                   |          |                         |           | # of log weir structures installed for both stabilization and complexity                 | 235                | Enter the quantity of log weirs used for both complexity and stabilization of the stream channel or bank.<br>(Note: If log weirs are not used, enter a "0" for the value of the metric.)<br>- Log weirs: Placement of logs as a discrete structure to collect and retain gravel for spawning habitat, to deepen existing resting/jumping pools, to create new pools above and/or below the structure, to trap sediment, aerate the water, or promote deposition of organic debris.<br>-Both: The structure serves as both an instream complexity and a bank or channel stabilizing structure.  | ✓               | number      | 1.0              |



### Metric Guidance by Work Element

| WE ID | Work Element Name | Category | Work Element Definition | Metric ID | Metric  | Metric Guidance ID | Metric Guidance   | Metric Required | Metric Type | Metric Precision |
|-------|-------------------|----------|-------------------------|-----------|---|--------------------|---|-----------------|-------------|------------------|
| 1599  |                   |          |                         |           | # of rock weir structures installed for both stabilization and complexity               | 236                | Enter the quantity of rock weirs used for both complexity and stabilization of the stream channel or bank.<br>(Note: If rock weirs are not used, enter a "0" for the value of the metric.)<br>-Rock weirs: The placement of rocks as a discrete structure to collect and retain gravel for spawning habitat, to deepen existing resting/jumping pools; and/or to create new pools, to trap sediment, aerate the water, and to promote deposition of organic debris.<br>-Both: The structure serves as both an instream complexity and a bank or channel stabilizing structure.  | ✓               | number      | 1.0              |
| 1601  |                   |          |                         |           | # of deflector/barb structures installed for both stabilization and complexity          | 238                | Enter the quantity of deflectors/barbs used for both complexity and stabilization of the stream channel or bank.<br>(Note: If deflectors/barbs are not used, enter a "0" for the value of the metric.)<br>-Deflectors/barbs: Placement of structures of rock or logs as a discrete structure on a bank that extend into the stream to narrow or deepen the channel, or alter flow.<br>-Both: The structure serves as both an instream complexity and a bank or channel stabilizing structure.   | ✓               | number      | 1.0              |
| 1602  |                   |          |                         |           | # of revetment/rip rap/other structures installed for both stabilization and complexity | 239                | Enter the quantity of revetments, rip rap, or other engineered structures used for both complexity and stabilization of the stream channel or bank.<br>(Note: If revetments, rip rap, or other engineered structures are not used, enter a "0" for the value of the metric.)<br>-Revetments/rip rap/other engineered structures: Retaining wall to prevent erosion, to face a surface with stone slabs, and concrete and/or steel structure as a discrete structure.<br>-Both: The structure serves as both an instream complexity and a bank or channel stabilizing structure. | ✓               | number      | 1.0              |



### Metric Guidance by Work Element

| WE ID | Work Element Name                       | Category            | Work Element Definition   | Metric ID | Metric  | Metric Guidance ID | Metric Guidance  | Metric Required | Metric Type | Metric Precision |
|-------|---|---------------------|---|-----------|---|--------------------|--|-----------------|-------------|------------------|
|       |   |                     |   | 1603      | # of rootwad structures installed for both stabilization and complexity | 240                | Enter the quantity of rootwad structures used for both complexity and stabilization of the stream channel or bank.<br>(Note: If rootwad structures are not used, enter a "0" for the value of the metric.)<br>-Stumps with roots attached (root wads): Placement of a stump with roots attached into the stream or on a bank. Root wads are a type of large woody debris. (Note: if rootwads are fastened to multiple pieces of wood, select "logjam".)<br>-Both: The structure serves as both an instream complexity and a bank or channel stabilizing structure. | ✓               | number      | 1.0              |
|       |   |                     |   | 1748      | # of pools created for only complexity                                  | 417                | Identify the number of pools that are created to enhance channel complexity. A pool is defined as a deep or still place in a stream.   | ✓               | number      | 1.0              |
| 30    | Realign, Connect, and/or Create Channel | Habitat Improvement | Active attempts to directly add sinuosity, meanders, side channels, and/or off-channel habitats (e.g., sloughs or oxbows). May include reconnection of historical channels (either via excavation or diversion of existing streamflow), excavation of new channels, and/or significantly improving the functionality of existing channels (e.g., creating a "natural" spawning channel for chum). If work is solely to add structures/features that change hydraulic conditions and that may eventually cause channel realignment, create a pool, or promote spawning then use WE#29, Increase Aquatic and/or Floodplain Complexity. If the work includes removal of a barrier for fish passage into upstream reaches of the existing channel, then use WE#84, Remove/Install Diversion, WE#85, Remove/Breach Fish Passage Barrier, or WE#184, Install Fish Passage Structure, since the miles of opened habitat must be recorded as a metric. If work is to create, restore, or enhance wetland function then use WE#181, Create, Restore, and/or Enhance Wetland. | 1389      | Start latitude of treated stream reach                                  | 15                 | This metric only applies to work in riparian areas. Must be entered in decimal degrees. For help converting from degrees, minutes, seconds go to <a href="https://www.fcc.gov/media/radio/dms-decimal">https://www.fcc.gov/media/radio/dms-decimal</a> .   | ✓               | lat         | 0.000001         |
|       |   |                     |   | 1390      | End latitude of treated stream reach                                    | 16                 | This metric only applies to work in riparian areas. Must be entered in decimal degrees. For help converting from degrees, minutes, seconds go to <a href="https://www.fcc.gov/media/radio/dms-decimal">https://www.fcc.gov/media/radio/dms-decimal</a> .   | ✓               | lat         | 0.000001         |



### Metric Guidance by Work Element

| WE ID | Work Element Name                                    | Category | Work Element Definition | Metric ID | Metric   | Metric Guidance ID | Metric Guidance   | Metric Required | Metric Type | Metric Precision |
|-------|--|----------|-------------------------|-----------|--|--------------------|---|-----------------|-------------|------------------|
| 1391  | Start longitude of treated stream reach              |          |                         | 17        | Start longitude of treated stream reach              |                    | This metric only applies to work in riparian areas. Must be entered in decimal degrees. For help converting from degrees, minutes, seconds go to <a href="https://www.fcc.gov/media/radio/dms-decimal">https://www.fcc.gov/media/radio/dms-decimal</a> .  | ✓               | long        | 0.000001         |
| 1392  | End longitude of treated stream reach                |          |                         | 18        | End longitude of treated stream reach                |                    | This metric only applies to work in riparian areas. Must be entered in decimal degrees. For help converting from degrees, minutes, seconds go to <a href="https://www.fcc.gov/media/radio/dms-decimal">https://www.fcc.gov/media/radio/dms-decimal</a> .  | ✓               | long        | 0.000001         |
| 1519  | # of acres of freshwater non-wetland habitat treated |          |                         | 156       | # of acres of freshwater non-wetland habitat treated |                    | Identify the total acres of habitat treated in the freshwater non-tidal habitat zone. To calculate acres, use a GIS program or approximate the value by multiplying the total length of the treated habitat zone times the average width of the treated habitat zone in feet / divided by 43,560 sq. ft/acre.<br>-Freshwater non-tidal: Habitat with freshwater flowing in a channel or watercourse, including lakes, ponds, and adjacent areas below the high water mark that is not subject to the tidal influence of the estuarine zone.<br>-Non-wetland: Habitat designated and regulated as non-wetland habitat, which is dominated by areas that are not inundated or saturated by surface or groundwater at a frequency and duration sufficient to support a prevalence of non-hydrophytic vegetation typically adapted for life in dry soil conditions. | ✓               | number      | 0.01             |



### Metric Guidance by Work Element

| WE ID | Work Element Name | Category | Work Element Definition | Metric ID | Metric  | Metric Guidance ID | Metric Guidance   | Metric Required | Metric Type | Metric Precision |
|-------|-------------------|----------|-------------------------|-----------|---|--------------------|---|-----------------|-------------|------------------|
| 1522  |                   |          |                         |           | # of acres of estuarine non-wetland habitat treated                 | 159                | <p>Identify the total acres of habitat treated in the estuary habitat zone. To calculate acres, use a GIS program or approximate the value by multiplying the total length of the treated habitat zone times the average width of the treated habitat zone in feet / divided by 43,560 sq. ft/acre.</p> <p>-Estuarine: Habitat that is part of a semi-enclosed coastal body of water that is subject to the ebb and flow of tides, with one or more rivers or streams flowing into it, and with a free connection to the nearshore marine zone. This includes habitat impacted by the highest high and lowest low tides of a year. Estuaries are environments whose pH, salinity, and water levels are subject to the ebb and flow of tides, and the physical and chemical properties of the river that feeds the estuary and the ocean from which it derives its salinity. This habitat includes floodplain/riparian habitat subject to inundation from the tides.</p> <p>-Non-wetland: Habitat designated and regulated as non-wetland habitat, which is dominated by areas that are not inundated or saturated by surface or groundwater at a frequency and duration sufficient to support a prevalence of non-hydrophytic vegetation typically adapted for life in dry soil conditions.</p> | ✓               | number      | 0.01             |
| 1750  |                   |          |                         |           | # of miles of side channel treated in the estuarine zone            | 419                | TBD   | ✓               | number      | 0.01             |
| 1751  |                   |          |                         |           | # of miles of main channel treated in the estuarine zone            | 420                | TBD   | ✓               | number      | 0.01             |
| 1752  |                   |          |                         |           | # of miles of side channel treated in the freshwater non-tidal zone | 421                | TBD   | ✓               | number      | 0.01             |
| 1753  |                   |          |                         |           | # of miles of main channel treated in the freshwater non-tidal zone | 422                | TBD   | ✓               | number      | 0.01             |
| 1754  |                   |          |                         |           | # of miles of side channel created in the freshwater non-tidal zone | 423                | TBD   | ✓               | number      | 0.01             |
| 1755  |                   |          |                         |           | # of miles of main channel created in the freshwater non-tidal zone | 424                | TBD   | ✓               | number      | 0.01             |
| 1756  |                   |          |                         |           | # of miles of side channel created in the estuarine zone            | 425                | TBD   | ✓               | number      | 0.01             |



### Metric Guidance by Work Element

| WE ID | Work Element Name               | Category            | Work Element Definition   | Metric ID | Metric   | Metric Guidance ID | Metric Guidance  | Metric Required | Metric Type | Metric Precision |
|-------|---------------------------------|---------------------|---|-----------|--|--------------------|--|-----------------|-------------|------------------|
|       |                                 |                     |   | 1757      | # of miles of main channel created in the estuarine zone | 426                | TBD  | ✓               | number      | 0.01             |
| 33    | Decommission Road/Relocate Road | Habitat Improvement | Any activity that makes a road or trail unusable including adding berms, pits, boulders or logs, and/or ripping, scarifying, recontouring, or obliterating the road or trail with heavy equipment that may involve re-contouring the slope. Also use for building a road or trail in a more appropriate location to replace a decommissioned road or trail. If decommissioning by planting vegetation or seeding use WE#47, Plant Vegetation. If removal of fish barrier (e.g., culvert) is included, also use WE#84, Remove/Install Diversion, WE#85, Remove/Breach Fish Passage Barrier, or WE#184, Install Fish Passage Structure. If work also involves channel realignment, use WE#30, Realign, Connect, and/or Create Channel in addition to this work element. | 1396      | Start latitude of treated road or trail segment          | 22                 | Must be entered in decimal degrees. For help converting from degrees, minutes, seconds go to <a href="https://www.fcc.gov/media/radio/dms-decimal">https://www.fcc.gov/media/radio/dms-decimal</a> . | ✓               | lat         | 0.000001         |
|       |                                 |                     |   | 1397      | End latitude of treated road or trail segment            | 23                 | Must be entered in decimal degrees. For help converting from degrees, minutes, seconds go to <a href="https://www.fcc.gov/media/radio/dms-decimal">https://www.fcc.gov/media/radio/dms-decimal</a> . | ✓               | lat         | 0.000001         |
|       |                                 |                     |   | 1398      | Start longitude of treated road or trail segment         | 24                 | Must be entered in decimal degrees. For help converting from degrees, minutes, seconds go to <a href="https://www.fcc.gov/media/radio/dms-decimal">https://www.fcc.gov/media/radio/dms-decimal</a> . | ✓               | long        | 0.000001         |
|       |                                 |                     |   | 1399      | End longitude of treated road or trail segment           | 25                 | Must be entered in decimal degrees. For help converting from degrees, minutes, seconds go to <a href="https://www.fcc.gov/media/radio/dms-decimal">https://www.fcc.gov/media/radio/dms-decimal</a> . | ✓               | long        | 0.000001         |



### Metric Guidance by Work Element

| WE ID | Work Element Name  | Category | Work Element Definition | Metric ID | Metric | Metric Guidance ID | Metric Guidance   | Metric Required | Metric Type | Metric Precision |
|-------|--|----------|-------------------------|-----------|--------|--------------------|---|-----------------|-------------|------------------|
| 1482  | # of miles of road or trail created/relocated in the riparian zone |          |                         | 115       |        |                    | <p>The length of new road or trail relocated in miles in the riparian habitat zone. (This metric value will = 0 if decommissioning is done without relocation)</p> <p>To calculate the length in miles divide the total length of new road or trail (in feet) created by 5,280 feet/mile.</p> <p>-The riparian zone is defined as: the transition zone between aquatic and upland habitat typically within a rivers floodplain. These habitats are related to and influenced by surface or subsurface waters, especially the margins of streams, lakes, ponds, wetlands, seeps, and ditches between land and a stream and above the average high watermark, or bank full height. Plant communities along the river and lake margins are called riparian vegetation, characterized by hydrophilic plants. This includes floodplain habitat, which may be restored to properly functioning conditions. (This excludes floodplain habitat influenced by the tides, which is classified as "Estuarine Habitat" for Pisces.)</p> | ✓               | number      | 0.01             |
| 1483  | # of miles of road or trail created/relocated in the upland zone   |          |                         | 116       |        |                    | <p>The length of new road, or trail or trail relocated in miles in the upland habitat zone. (This metric value will = 0 if decommissioning is done without relocation)</p> <p>To calculate the length in miles divide the total length of new road or trail (in feet) created by 5,280 feet/mile.</p> <p>-Upland habitat is defined as: habitat upslope of the riparian and instream habitat zone with non-hydrophilic plants, unless part of an isolated wetland, which occurs outside the hyporheic, or floodplain/riparian zone.</p>   | ✓               | number      | 0.01             |
| 1523  | Average width of treatment   |          |                         | 160       |        |                    | <p>The average width (in feet) modified/created or road treated or altered.</p>   | ✓               | number      | 0.01             |



### Metric Guidance by Work Element

| WE ID | Work Element Name   | Category | Work Element Definition | Metric ID | Metric | Metric Guidance ID | Metric Guidance   | Metric Required | Metric Type | Metric Precision |
|-------|---|----------|-------------------------|-----------|--------|--------------------|---|-----------------|-------------|------------------|
| 1535  | # of miles of road or trail created/relocated in the estuarine zone |          |                         | 172       |        |                    | <p>The length of new road, or trail or trail relocated in miles in the estuarine habitat zone. (This metric value will = 0 if decommissioning is done without relocation)</p> <p>To calculate the length in miles divide the total length of new road or trail (in feet) created by 5,280 feet/mile.</p> <p>-Estuarine habitat is defined as: Habitat that is part of a semi-enclosed coastal body of water that is subject to the ebb and flow of tides, with one or more rivers or streams flowing into it, and with a free connection to the nearshore marine zone. This includes habitat impacted by the highest high and lowest low tides of a year. Estuaries are environments whose pH, salinity, and water levels are subject to the ebb and flow of tides, and the physical and chemical properties of the river that feeds the estuary and the ocean from which it derives its salinity. This habitat includes floodplain/riparian habitat subject to inundation from the tides.</p>  | ✓               | number      | 0.01             |
| 1606  | # of miles of road or trail blocked in the riparian zone            |          |                         | 243       |        |                    | <p>To avoid double-counting, if you are both blocking and scarifying/ripping or recontouring a road, report this metric as zero and report the # of miles treated in the metric for scarifying/ripping or recontouring. If you are decommissioning by blocking alone, report the # of miles decommissioned here.</p> <p>The length of road or trail blocked in the riparian habitat zone (in miles).</p> <p>To calculate the length in miles, divide the total length (in feet) of road or trail treated/removed by 5,280 feet/mile.</p> <p>-Blocked: Placement of a physical barrier (gates, boulders, ditches, etc.) to prevent vehicle access.</p> <p>-Riparian: Transition zone between aquatic and upland habitat typically within a river's floodplain. These habitats are related to and influenced by surface or subsurface waters, especially the margins of streams, lakes, ponds, wetlands, seeps, and ditches between land and a stream and above the average high watermark, or bank full height. Plant communities along the river and lake margins are called riparian vegetation, characterized by hydrophilic plants. This includes floodplain habitat, which may be restored to properly functioning conditions. (This excludes floodplain habitat influenced by the tides, which is classified as "Estuarine Habitat" for Pisces.)</p> | ✓               | number      | 0.01             |



### Metric Guidance by Work Element

| WE ID | Work Element Name | Category | Work Element Definition | Metric ID | Metric  | Metric Guidance ID | Metric Guidance  | Metric Required | Metric Type | Metric Precision |
|-------|-------------------|----------|-------------------------|-----------|---|--------------------|--|-----------------|-------------|------------------|
| 1607  |                   |          |                         |           | # of miles of road or trail scarified/ripped in the riparian zone | 244                | <p>The length of road or trail scarified/ripped in the estuary habitat zone (in miles).<br/>           To calculate the length in miles, divide the total length (in feet) of road or trail treated/removed by 5,280 feet/mile.</p> <p>-Scarified/ripped: Road or trail surface is altered to allow for planting or plant colonization.<br/>           -Estuarine: Habitat that is part of a semi-enclosed coastal body of water that is subject to the ebb and flow of tides, with one or more rivers or streams flowing into it, and with a free connection to the nearshore marine zone. This includes habitat impacted by the highest high and lowest low tides of a year. Estuaries are environments whose pH, salinity, and water levels are subject to the ebb and flow of tides, and the physical and chemical properties of the river that feeds the estuary and the ocean from which it derives its salinity. This habitat includes floodplain/riparian habitat subject to inundation from the tides.</p>                    | ✓               | number      | 0.01             |
| 1608  |                   |          |                         |           | # of miles of road or trail recontoured in the riparian zone      | 245                | <p>The length of road or trail recontoured in the riparian habitat zone (in miles).<br/>           To calculate the length in miles, divide the total length (in feet) of road or trail treated/removed by 5,280 feet/mile.</p> <p>-Recontoured: Road or trail slope is re-graded to allow for more natural processes.<br/>           -Riparian: Transition zone between aquatic and upland habitat typically within a river;s floodplain. These habitats are related to and influenced by surface or subsurface waters, especially the margins of streams, lakes, ponds, wetlands, seeps, and ditches between land and a stream and above the average high watermark, or bank full height. Plant communities along the river and lake margins are called riparian vegetation, characterized by hydrophilic plants. This includes floodplain habitat, which may be restored to properly functioning conditions. (This excludes floodplain habitat influenced by the tides, which is classified as "Estuarine Habitat" for Pisces.)</p> | ✓               | number      | 0.01             |



### Metric Guidance by Work Element

| WE ID | Work Element Name | Category | Work Element Definition | Metric ID | Metric   | Metric Guidance ID | Metric Guidance  | Metric Required | Metric Type | Metric Precision |
|-------|-------------------|----------|-------------------------|-----------|--|--------------------|--|-----------------|-------------|------------------|
| 1609  |                   |          |                         |           | # of miles of road or trail blocked in the estuarine zone          | 246                | <p>To avoid double-counting, if you are both blocking and scarifying/ripping or recontouring a road, report this metric as zero and report the # of miles treated in the metric for scarifying/ripping or recontouring. If you are decommissioning by blocking alone, report the # of miles decommissioned here.</p> <p>The length of road or trail blocked in the estuary habitat zone (in miles).</p> <p>To calculate the length in miles, divide the total length (in feet) of road or trail treated/removed by 5,280 feet/mile.</p> <p>-Blocked: Placement of a physical barrier (gates, boulders, ditches, etc.) to prevent vehicle access.</p> <p>-Estuarine: Habitat that is part of a semi-enclosed coastal body of water that is subject to the ebb and flow of tides, with one or more rivers or streams flowing into it, and with a free connection to the nearshore marine zone. This includes habitat impacted by the highest high and lowest low tides of a year. Estuaries are environments whose pH, salinity, and water levels are subject to the ebb and flow of tides, and the physical and chemical properties of the river that feeds the estuary and the ocean from which it derives its salinity. This habitat includes floodplain/riparian habitat subject to inundation from the tides.</p> | ✓               | number      | 0.01             |
| 1610  |                   |          |                         |           | # of miles of road or trail scarified/ripped in the estuarine zone | 247                | <p>The length of road or trail scarified/ripped in the riparian habitat zone (in miles).</p> <p>To calculate the length in miles, divide the total length (in feet) of road or trail treated/removed by 5,280 feet/mile.</p> <p>-Scarified/ripped: Road or trail surface is altered to allow for planting or plant colonization.</p> <p>-Riparian: Transition zone between aquatic and upland habitat typically within a river's floodplain. These habitats are related to and influenced by surface or subsurface waters, especially the margins of streams, lakes, ponds, wetlands, seeps, and ditches between land and a stream and above the average high watermark, or bank full height. Plant communities along the river and lake margins are called riparian vegetation, characterized by hydrophilic plants. This includes floodplain habitat, which may be restored to properly functioning conditions. (This excludes floodplain habitat influenced by the tides, which is classified as "Estuarine Habitat" for Pisces.)</p>   | ✓               | number      | 0.01             |



### Metric Guidance by Work Element

| WE ID | Work Element Name | Category | Work Element Definition | Metric ID | Metric  | Metric Guidance ID | Metric Guidance   | Metric Required | Metric Type | Metric Precision |
|-------|-------------------|----------|-------------------------|-----------|---|--------------------|---|-----------------|-------------|------------------|
| 1611  |                   |          |                         |           | # of miles of road or trail recontoured in the estuarine zone | 248                | <p>The length of road or trail recontoured in the estuary habitat zone (in miles).<br/>           To calculate the length in miles, divide the total length (in feet) of road or trail treated/removed by 5,280 feet/mile.</p> <p>-Recontoured: Road or trail slope is re-graded to allow for more natural processes.<br/>           -Estuarine: Habitat that is part of a semi-enclosed coastal body of water that is subject to the ebb and flow of tides, with one or more rivers or streams flowing into it, and with a free connection to the nearshore marine zone. This includes habitat impacted by the highest high and lowest low tides of a year. Estuaries are environments whose pH, salinity, and water levels are subject to the ebb and flow of tides, and the physical and chemical properties of the river that feeds the estuary and the ocean from which it derives its salinity. This habitat includes floodplain/riparian habitat subject to inundation from the tides.</p> | ✓               | number      | 0.01             |
| 1612  |                   |          |                         |           | # of miles of road or trail blocked in the upland zone        | 249                | <p>To avoid double-counting, if you are both blocking and scarifying/ripping or recontouring a road, report this metric as zero and report the # of miles treated in the metric for scarifying/ripping or recontouring. If you are decommissioning by blocking alone, report the # of miles decommissioned here.</p> <p>The length of road or trail blocked in the upland habitat zone (in miles).<br/>           To calculate the length in miles, divide the total length (in feet) of road or trail treated/removed by 5,280 feet/mile.</p> <p>-Blocked: Placement of a physical barrier (gates, boulders, ditches, etc.) to prevent vehicle access.</p> <p>-Upland: Habitat upslope of the riparian and instream habitat zone with non-hydrophilic plants, unless part of an isolated wetland, which occurs outside the hyporheic, or floodplain/riparian zone.</p>   | ✓               | number      | 0.01             |



### Metric Guidance by Work Element

| WE ID | Work Element Name                    | Category            | Work Element Definition   | Metric ID | Metric  | Metric Guidance ID | Metric Guidance   | Metric Required | Metric Type | Metric Precision |
|-------|--------------------------------------|---------------------|---|-----------|---|--------------------|---|-----------------|-------------|------------------|
|       |                                      |                     |   | 1613      | # of miles of road or trail scarified/ripped in the upland zone | 250                | The length of road or trail scarified/ripped in the upland habitat zone (in miles).<br>To calculate the length in miles, divide the total length (in feet) of road or trail treated/removed by 5,280 feet/mile.<br>-Scarified/ripped: Road or trail surface is altered to allow for planting or plant colonization.<br>-Upland: Habitat upslope of the riparian and instream habitat zone with non-hydrophilic plants, unless part of an isolated wetland, which occurs outside the hyporheic, or floodplain/riparian zone. | ✓               | number      | 0.01             |
|       |                                      |                     |   | 1614      | # of miles of road or trail recontoured in the upland zone      | 251                | The length of road or trail recontoured in the upland zone (in miles).<br>To calculate the length in miles, divide the total length (in feet) of road or trail treated/removed by 5,280 feet/mile.<br>-Recontoured: Road or trail slope is re-graded to allow for more natural processes.<br>-Upland: Habitat upslope of the riparian and instream habitat zone with non-hydrophilic plants, unless part of an isolated wetland, which occurs outside the hyporheic, or floodplain/riparian zone.                           | ✓               | number      | 0.01             |
| 34    | Develop Alternative Water Source     | Habitat Improvement | Provision of water supply for livestock that is out of the water zone and at a distance beyond that which may affect the conditions of the water body. Includes, but not limited to, watering troughs, spring and well development, and guzzler installation. | 1765      | # of alternate water sources installed in the upland            | 434                | The number of objects installed.  | ✓               | number      | 1.0              |
|       |                                      |                     |   | 1766      | # of alternate water sources installed in the riparian          | 435                | The number of objects installed.  | ✓               | number      | 1.0              |
| 36    | Develop Terrestrial Habitat Features | Habitat Improvement | Includes the installation and/or creation of structures for the benefit of wildlife species, including, but not limited to, nest boxes/platforms, avian perches, snags, guzzlers, and artificial roosting sites.  | 1400      | # of features developed   | 26                 | Self-Explanatory  | ✓               | number      | 1.0              |



### Metric Guidance by Work Element

| WE ID | Work Element Name | Category            | Work Element Definition  | Metric ID | Metric  | Metric Guidance ID | Metric Guidance  | Metric Required | Metric Type | Metric Precision |
|-------|-------------------|---------------------|--|-----------|---|--------------------|--|-----------------|-------------|------------------|
| 38    | Improve Road      | Habitat Improvement | Work designed to eliminate or reduce erosion, sediment, and/or toxic run-off from reaching streams, rivers, or wetlands from roads or trails currently in use. This includes road projects that reduce or eliminate inter-basin transfer of water, placement of structures to contain/control run-off from roads or trails, road or trail reconstruction or reinforcement, surface and peak-flow drainage improvements, and roadside vegetation. These roads may be in or extend into the riparian zone. | 1523      | Average width of treatment                              | 160                | The average width (in feet) modified/created or road treated or altered.   | ✓               | number      | 0.01             |
|       |                   |                     |  | 1615      | # of miles of road or trail improved in a riparian area | 252                | The length of road or trail improved in a riparian area (in miles).<br>To calculate the length in miles, divide the total length (in feet) of road or trail improved by 5,280 feet/mile.<br>-Riparian: Transition zone between aquatic and upland habitat typically within a river's floodplain. These habitats are related to and influenced by surface or subsurface waters, especially the margins of streams, lakes, ponds, wetlands, seeps, and ditches between land and a stream and above the average high watermark, or bank full height. Plant communities along the river and lake margins are called riparian vegetation, characterized by hydrophilic plants. This includes floodplain habitat, which may be restored to properly functioning conditions. (This excludes floodplain habitat influenced by the tides, which is classified as "Estuarine Habitat" for Pisces.) | ✓               | number      | 0.01             |



### Metric Guidance by Work Element

| WE ID | Work Element Name | Category | Work Element Definition | Metric ID | Metric  | Metric Guidance ID | Metric Guidance   | Metric Required | Metric Type | Metric Precision |
|-------|-------------------|----------|-------------------------|-----------|---|--------------------|---|-----------------|-------------|------------------|
| 1616  |                   |          |                         |           | # of miles of road or trail improved in an estuarine area | 253                | <p>The length of road or trail improved in a estuarine area (in miles).<br/>           To calculate the length in miles, divide the total length (in feet) of road or trail improved by 5,280 feet/mile.</p> <p>- Estuarine: Habitat that is part of a semi-enclosed coastal body of water that is subject to the ebb and flow of tides, with one or more rivers or streams flowing into it, and with a free connection to the nearshore marine zone. This includes habitat impacted by the highest high and lowest low tides of a year. Estuaries are environments whose pH, salinity, and water levels are subject to the ebb and flow of tides, and the physical and chemical properties of the river that feeds the estuary and the ocean from which it derives its salinity. This habitat includes floodplain/riparian habitat subject to inundation from the tides.</p> | ✓               | number      | 0.01             |
| 1617  |                   |          |                         |           | # of miles of road or trail improved in an upland area    | 254                | <p>The length of road or trail improved in an upland area (in miles).<br/>           To calculate the length in miles, divide the total length (in feet) of road or trail improved by 5,280 feet/mile.</p> <p>-Upland: Habitat upslope of the riparian and instream habitat zone with non-hydrophilic plants, unless part of an isolated wetland, which occurs outside the hyporheic, or floodplain/riparian zone.</p>  | ✓               | number      | 0.01             |
| 1618  |                   |          |                         |           | # of water bars installed                                 | 255                | <p>Identify the number of water bars installed in the treated area. Treated area is defined as the construction footprint.</p> <p>- A water bar or interceptor dyke is a shallow ditch dug across a road or trail at an angle to prevent excessive flow down the road or trail surface and erosion of road or trail surface materials. A small excavation across a road or trail to collect and divert road or trail surface water flow.</p>  | ✓               | number      | 1.0              |
| 1619  |                   |          |                         |           | # of ditch relief culverts/ cross drains installed        | 256                | <p>Identify the number of ditch relief culverts installed in the treated area.</p> <p>- A ditch relief culvert or other structure or shaping for the travel way designed to capture and remove surface water from road or trail surfaces.</p>   | ✓               | number      | 1.0              |



### Metric Guidance by Work Element

| WE ID | Work Element Name                                    | Category | Work Element Definition | Metric ID | Metric | Metric Guidance ID | Metric Guidance   | Metric Required | Metric Type | Metric Precision |
|-------|--|----------|-------------------------|-----------|--------|--------------------|---|-----------------|-------------|------------------|
| 1620  | # of improved road crowns                            |          |                         | 257       |        |                    | Identify the number of improved road crowns in the treated area. Treated is defined as the construction footprint that provides benefit to focal species. (Note: To have multiple worksites, the construction footprint should be spaced a 1/2 mile or more apart for each improvement.)<br>-Improved road crowns: Surface shaping of the road or trail that causes surface runoff to flow laterally towards the uphill shoulder or ditch and/or the downhill shoulder.   | ✓               | number      | 1.0              |
| 1621  | # of road stream crossing improvements (rocked ford) |          |                         | 258       |        |                    | Identify the number of road stream crossings installed in the treated area.<br>-Road stream crossing improvements (rocked ford): Creation or improvement of a reinforced rock road or trail bed that crosses the stream without restricting the stream flow. Does not include stream crossing improvements that have a fish passage goal.   | ✓               | number      | 1.0              |
| 1622  | # of regradation and/or terracing treatments         |          |                         | 259       |        |                    | Identify the number of regradation or terracing treatments implemented in the treated area. The number will usually be one, unless multiple treatments are made where worksites are spaced greater than .5 miles apart.<br>-Regradation or terracing: Regradation is a technique that alters the angle of the slope of the bank or removes sediment mass to reduce erosion, landslides or slumping. Terracing is a non-agricultural sediment and water conservation technique consisting of ridges on the contour, or level areas constructed on a slope. | ✓               | number      | 1.0              |
| 1623  | # of other sediment control measures                 |          |                         | 260       |        |                    | Identify the number of "other" treatments implemented in the treated area. Treated is defined as the construction footprint that provides benefit to focal species.<br>-Other sediment control measures: Other structures used to manage road or trail drainage networks and decrease erosion.  | ✓               | number      | 1.0              |



### Metric Guidance by Work Element

| WE ID | Work Element Name | Category            | Work Element Definition   | Metric ID | Metric                                  | Metric Guidance ID | Metric Guidance  | Metric Required | Metric Type | Metric Precision |
|-------|-------------------|---------------------|---|-----------|---|--------------------|--|-----------------|-------------|------------------|
| 40    | Install Fence     | Habitat Improvement | <p>Work to install various types of fence and/or gates for habitat improvement. If applicable, include cattle guards or water gaps for livestock as part of the deliverable. For riparian fencing, BPA recommends project sponsors include 50+ foot riparian buffers, or wider, based on the stream type, site specific dynamics, and current research. This work is not generally intended to be used for upland fencing for pasture rotation purposes. Upland fencing for fish will be considered on a case by case basis. Upland fencing is authorized for parcels managed for wildlife if this is part of a management plan to exclude livestock. WE#40, Install Fence should not be used for non-habitat purposes such as securing equipment or property; instead, use a milestone under the work element for which the property or equipment is used. WE#40, Install Fence should not be used for protection of new plantings; instead, use a milestone under WE#47, Plant Vegetation or WE#198, Maintain Vegetation.</p> <p>If work is to repair a fence or exclusion device, use WE#186, Operate and Maintain Habitat/Passage/Structure . If a lease or other land use agreement of greater than 15 years is completed as part of the fence installation, you must also use WE#92, Lease Land in addition to WE#40, Install Fence (i.e., if you have an agreement for less than 15 years, only use WE#40, Install Fence). For a renewal of a lease or land use agreement that extends the period of protection, you must use WE#92, Lease Land instead of WE#40, Install Fence.</p> | 1389      | Start latitude of treated stream reach  | 15                 | This metric only applies to work in riparian areas. Must be entered in decimal degrees. For help converting from degrees, minutes, seconds go to <a href="https://www.fcc.gov/media/radio/dms-decimal">https://www.fcc.gov/media/radio/dms-decimal</a> . |                 | lat         | 0.000001         |
|       |                   |                     |   | 1390      | End latitude of treated stream reach    | 16                 | This metric only applies to work in riparian areas. Must be entered in decimal degrees. For help converting from degrees, minutes, seconds go to <a href="https://www.fcc.gov/media/radio/dms-decimal">https://www.fcc.gov/media/radio/dms-decimal</a> . |                 | lat         | 0.000001         |
|       |                   |                     |   | 1391      | Start longitude of treated stream reach | 17                 | This metric only applies to work in riparian areas. Must be entered in decimal degrees. For help converting from degrees, minutes, seconds go to <a href="https://www.fcc.gov/media/radio/dms-decimal">https://www.fcc.gov/media/radio/dms-decimal</a> . |                 | long        | 0.000001         |



### Metric Guidance by Work Element

| WE ID | Work Element Name  | Category | Work Element Definition | Metric ID | Metric | Metric Guidance ID | Metric Guidance  | Metric Required | Metric Type | Metric Precision |
|-------|--|----------|-------------------------|-----------|--------|--------------------|--|-----------------|-------------|------------------|
| 1392  | End longitude of treated stream reach                      |          |                         | 18        |        |                    | This metric only applies to work in riparian areas. Must be entered in decimal degrees. For help converting from degrees, minutes, seconds go to <a href="https://www.fcc.gov/media/radio/dms-decimal">https://www.fcc.gov/media/radio/dms-decimal</a> .   |                 | long        | 0.000001         |
| 1401  | # of miles of fence installed in a riparian area           |          |                         | 27        |        |                    | Number of miles of fence built to protect a riparian area. May include fencing above the floodplain if the purpose is to exclude livestock from the riparian area. Riparian is defined as above the ordinary high water mark of the stream and within the flood plain of streams. To determine total miles treated, we will sum the upland and riparian mileage. | ✓               | number      | 0.01             |
| 1443  | Start date of lease  |          |                         | 389       |        |                    | This metric is required when there is a lease agreement of less than 15 years accompanying the fence. If the agreement is for more than 15 years, the SOW must also include WE# 92, Lease Land work element. When renewing a lease agreement on a fence previously constructed, use Lease Land instead.  |                 | date        |                  |
| 1444  | End date of lease  |          |                         | 390       |        |                    | This metric is required when there is a lease agreement of less than 15 years accompanying the fence. If the agreement is for more than 15 years, the SOW must also include WE# 92, Lease Land work element. When renewing a lease agreement on a fence previously constructed, use Lease Land instead.  |                 | date        |                  |
| 1549  | # of miles of left streambank fenced in a freshwater area  |          |                         | 186       |        |                    | Measure the streambank length protected by the fence installed by using the route of the center of channel. The measurement should reflect the total center of channel counted for the left side of the stream, if looking downstream. This excludes the length of streambank associated with side channel or inlets.  | ✓               | number      | 0.01             |
| 1550  | # of miles of left streambank fenced in an estuarine area  |          |                         | 187       |        |                    | Measure the streambank length protected by the fence installed, by using the route of the center of channel protected. The measurement should reflect the total center of channel counted for the left side, if looking downstream. This excludes the length of streambank associated with side channel or inlets.   | ✓               | number      | 0.01             |
| 1551  | # of miles of right streambank fenced in a freshwater area |          |                         | 188       |        |                    | Measure the streambank length protected by the fence installed by using the route of the center of channel protected. The measurement should reflect the center of channel counted for the right side, if looking downstream. This excludes the length of streambank associated with side channel or inlets.   | ✓               | number      | 0.01             |



### Metric Guidance by Work Element

| WE ID | Work Element Name | Category | Work Element Definition | Metric ID | Metric  | Metric Guidance ID | Metric Guidance   | Metric Required | Metric Type | Metric Precision |
|-------|-------------------|----------|-------------------------|-----------|---|--------------------|---|-----------------|-------------|------------------|
| 1552  |                   |          |                         |           | # of miles of right streambank fenced in an estuarine area    | 189                | Measure the streambank length protected by the fence installed by using the route of the center of channel protected. The measurement should reflect the center of channel counted for the right side, if looking downstream. This excludes the length of streambank associated with side channel or inlets.  | ✓               | number      | 0.01             |
| 1624  |                   |          |                         |           | # of water gaps   | 261                | The number of water gaps installed (provision of a fenced livestock stream crossing).   | ✓               | number      | 1.0              |
| 1625  |                   |          |                         |           | # of cattle guards installed                                  | 262                | The number of cattle guards installed (bridge over a ditch or stream consisting of parallel metal bars that allow pedestrians and vehicles to pass, but not livestock).   | ✓               | number      | 1.0              |
| 1626  |                   |          |                         |           | # of other exclusion structures                               | 263                | The number of other techniques to block livestock access to a stream including natural debris piles, herding, etc.  | ✓               | number      | 1.0              |
| 1743  |                   |          |                         |           | Average buffer width  | 412                | The average width of habitat buffer of estuarine or riparian habitat protected by the installation of a fence (in feet).  | ✓               | number      | 0.01             |
| 1758  |                   |          |                         |           | # of acres of upland non-wetland habitat protected by fencing | 427                | Identify the total acres of habitat protected in the upland habitat zone. To calculate acres, use a GIS program or approximate the value by multiplying the total length of the protected habitat zone times the average width of the protected habitat zone in feet / divided by 43,560 sq. ft./acre. (Note the total area protected for this WE should roughly equal the total length fenced times the average buffer width.) -Upland: Habitat upslope of the riparian and instream habitat zone with non-hydrophilic plants, unless part of an isolated wetland, which occurs outside the hyporheic, or floodplain/riparian zone. -Non-wetland: Habitat designated and regulated as non-wetland habitat, which is dominated by areas that are not inundated or saturated by surface or groundwater at a frequency and duration sufficient to support a prevalence of non-hydrophytic vegetation typically adapted for life in dry soil conditions. | ✓               | number      | 0.01             |



### Metric Guidance by Work Element

| WE ID | Work Element Name | Category | Work Element Definition | Metric ID | Metric  | Metric Guidance ID | Metric Guidance   | Metric Required | Metric Type | Metric Precision |
|-------|-------------------|----------|-------------------------|-----------|---|--------------------|---|-----------------|-------------|------------------|
| 1759  |                   |          |                         |           | # of acres of upland wetland habitat protected by fencing | 428                | Identify the total acres of habitat protected in the upland habitat zone. To calculate acres, use a GIS program or approximate the value by multiplying the total length of the protected habitat zone times the average width of the protected habitat zone in feet / divided by 43,560 sq. ft./acre. (Note the total area protected for this WE should roughly equal the total length fenced times the average buffer width.) -Upland: Habitat upslope of the riparian and instream habitat zone with non-hydrophilic plants, unless part of an isolated wetland, which occurs outside the hyporheic, or floodplain/riparian zone. - Wetland: Habitat designated and regulated as wetland habitat, which is dominated by areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support a prevalence of hydrophytic vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs and similar areas. For more information consult the USFWS National Wetland Inventory at <a href="http://www.fws.gov/wetlands/">http://www.fws.gov/wetlands/</a> or EPA wetland information at <a href="http://www.epa.gov/wetlands/">http://www.epa.gov/wetlands/</a> . | ✓               | number      | 0.01             |



### Metric Guidance by Work Element

| WE ID | Work Element Name | Category | Work Element Definition | Metric ID | Metric  | Metric Guidance ID | Metric Guidance  | Metric Required | Metric Type | Metric Precision |
|-------|-------------------|----------|-------------------------|-----------|---|--------------------|--|-----------------|-------------|------------------|
| 1760  |                   |          |                         | 429       | # of acres of riparian non-wetland habitat protected by fencing | 429                | Identify the total acres of habitat protected in the riparian habitat zone. To calculate acres, use a GIS program or approximate the value by multiplying the total length of the protected habitat zone times the average width of the protected habitat zone in feet / divided by 43,560 sq. ft./acre. (Note the total area protected for this WE should roughly equal the total length fenced times the average buffer width.) -Riparian: Transition zone between aquatic and upland habitat typically within a river's floodplain. These habitats are related to and influenced by surface or subsurface waters, especially the margins of streams, lakes, ponds, wetlands, seeps, and ditches between land and a stream and above the average high watermark, or bank full height. Plant communities along the river and lake margins are called riparian vegetation, characterized by hydrophilic plants. This includes floodplain habitat, which may be restored to properly functioning conditions. (This excludes floodplain habitat influenced by the tides, which is classified as "Estuarine Habitat" for Pisces.) - Non-wetland: Habitat designated and regulated as non-wetland habitat, which is dominated by areas that are not inundated or saturated by surface or groundwater at a frequency and duration sufficient to support a prevalence of non-hydrophytic vegetation typically adapted for life in dry soil conditions. | ✓               | number      | 0.01             |



### Metric Guidance by Work Element

| WE ID | Work Element Name | Category | Work Element Definition | Metric ID | Metric  | Metric Guidance ID | Metric Guidance   | Metric Required | Metric Type | Metric Precision |
|-------|-------------------|----------|-------------------------|-----------|---|--------------------|---|-----------------|-------------|------------------|
| 1761  |                   |          |                         |           | # of acres of riparian wetland habitat protected by fencing | 430                | Identify the total acres of habitat protected in the riparian habitat zone. To calculate acres, use a GIS program or approximate the value by multiplying the total length of the protected habitat zone times the average width of the protected habitat zone in feet / divided by 43,560 sq. ft./acre. (Note the total area protected for this WE should roughly equal the total length fenced times the average buffer width.) -Riparian: Transition zone between aquatic and upland habitat typically within a river's floodplain. These habitats are related to and influenced by surface or subsurface waters, especially the margins of streams, lakes, ponds, wetlands, seeps, and ditches between land and a stream and above the average high watermark, or bank full height. Plant communities along the river and lake margins are called riparian vegetation, characterized by hydrophilic plants. This includes floodplain habitat, which may be restored to properly functioning conditions. (This excludes floodplain habitat influenced by the tides, which is classified as "Estuarine Habitat" for Pisces.) - Wetland: Habitat designated and regulated as wetland habitat, which is dominated by areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support a prevalence of hydrophytic vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs and similar areas. For more information consult the USFWS National Wetland Inventory at <a href="http://www.fws.gov/wetlands/">http://www.fws.gov/wetlands/</a> or EPA wetland information at <a href="http://www.epa.gov/wetlands/">http://www.epa.gov/wetlands/</a> . | ✓               | number      | 0.01             |



### Metric Guidance by Work Element

| WE ID | Work Element Name | Category | Work Element Definition | Metric ID | Metric   | Metric Guidance ID | Metric Guidance   | Metric Required | Metric Type | Metric Precision |
|-------|-------------------|----------|-------------------------|-----------|--|--------------------|---|-----------------|-------------|------------------|
| 1762  |                   |          |                         |           | # of acres of estuarine wetland habitat protected by fencing | 431                | Identify the total acres of habitat protected in the upland habitat zone. To calculate acres, use a GIS program or approximate the value by multiplying the total length of the protected habitat zone times the average width of the protected habitat zone in feet / divided by 43,560 sq. ft./acre. (Note the total area protected for this WE should roughly equal the total length fenced times the average buffer width.) -Upland: Habitat upslope of the riparian and instream habitat zone with non-hydrophilic plants, unless part of an isolated wetland, which occurs outside the hyporheic, or floodplain/riparian zone. -Non-wetland: Habitat designated and regulated as non-wetland habitat, which is dominated by areas that are not inundated or saturated by surface or groundwater at a frequency and duration sufficient to support a prevalence of non-hydrophytic vegetation typically adapted for life in dry soil conditions. | ✓               | number      | 0.01             |



### Metric Guidance by Work Element

| WE ID | Work Element Name                 | Category            | Work Element Definition   | Metric ID | Metric   | Metric Guidance ID | Metric Guidance  | Metric Required | Metric Type | Metric Precision |
|-------|-----------------------------------|---------------------|---|-----------|--|--------------------|--|-----------------|-------------|------------------|
|       |                                   |                     |   | 1763      | # of acres of estuarine non-wetland habitat protected by fencing | 432                | Identify the total acres of habitat protected in the estuarine habitat zone. To calculate acres, use a GIS program or approximate the value by multiplying the total length of the protected habitat zone times the average width of the protected habitat zone in feet / divided by 43,560 sq. ft./acre. (Note the total area protected for this WE should roughly equal the total length fenced times the average buffer width.) -Estuarine: Habitat that is part of a semi-enclosed coastal body of water that is subject to the ebb and flow of tides, with one or more rivers or streams flowing into it, and with a free connection to the nearshore marine zone. This includes habitat impacted by the highest high and lowest low tides of a year. Estuaries are environments whose pH, salinity, and water levels are subject to the ebb and flow of tides, and the physical and chemical properties of the river that feeds the estuary and the ocean from which it derives its salinity. This habitat includes floodplain/riparian habitat subject to inundation from the tides. - Wetland: Habitat designated and regulated as wetland habitat, which is dominated by areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support a prevalence of hydrophytic vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs and similar areas. For more information consult the USFWS National Wetland Inventory at <a href="http://www.fws.gov/wetlands/">http://www.fws.gov/wetlands/</a> or EPA wetland information at <a href="http://www.epa.gov/wetlands/">http://www.epa.gov/wetlands/</a> . | ✓               | number      | 0.01             |
| 44    | Enhance Nutrients in Water Bodies | Habitat Improvement | Addition of fish carcasses, or direct nutrient introduction methods to improve biological diversity in streams, rivers, or lakes. | 1523      | Average width of treatment                                       | 388                | The average wetted width (in feet) of channel treated or altered.  | ✓               | number      | 0.01             |
|       |                                   |                     |   | 1570      | # of miles of stream treated with nutrients                      | 207                | TBD  | ✓               | number      | 0.01             |
|       |                                   |                     |   | 1718      | # of lbs of salmonid carcass fertilizer added                    | 355                | Identify the weight of the salmonid carcasses released into the stream for nutrient enrichment.  | ✓               | number      | 0.1              |
|       |                                   |                     |   | 1719      | # of lbs of carcass analog/fish meal brick fertilizer added      | 356                | Identify the weight of the carcass analog/fish meal brick nutrients released into the stream for nutrient enrichment.  | ✓               | number      | 0.1              |



### Metric Guidance by Work Element

| WE ID | Work Element Name | Category            | Work Element Definition   | Metric ID | Metric                                      | Metric Guidance ID | Metric Guidance   | Metric Required | Metric Type | Metric Precision |
|-------|-------------------|---------------------|---|-----------|---|--------------------|---|-----------------|-------------|------------------|
|       |                   |                     |   | 1720      | # of lbs of liquid fertilizer added         | 357                | Identify the weight of the liquid nutrients released into the stream for nutrient enrichment.<br>-Liquid Fertilizer: Liquid nutrients used to change nutrient loads to increase primary productivity.<br>Note: for the weight of the liquid fertilizer, use the mass of the fertilizer prior to mixing with water.  | ✓               | number      | 0.1              |
|       |                   |                     |   | 1721      | # of lbs of other nutrient fertilizer added | 358                | Identify the weight of the other types of nutrients released into the stream for nutrient enrichment.   | ✓               | number      | 0.1              |
| 47    | Plant Vegetation  | Habitat Improvement | Use during the first year (and only first year) of planting terrestrial or aquatic vegetation and/or applying seed (aerially, mechanically, and/or by hand) for purposes such as: wildlife cover and forage enhancement, erosion control and soil stabilization (run-off reduction and other soil destabilizing processes and activities not related to restoration after construction of facilities such as passage structures, buildings, or fish hatcheries), roughness recruitment, shading, restoration of native habitat, restoration after wildfires, and rehabilitation of removed roads/trails.<br><br>All maintenance activities (irrigation, site prep, survival survey) which occur during the same contract period as planting/seeding should be included in this WE as milestones. See associated work elements and notes for this WE#47, Plant Vegetation for more guidance. | 1406      | # of riparian miles treated                 | 32                 | To calculate the length of riparian streambank habitat treated in miles, the measurement should reflect the length of the center of channel counted for the right side, if looking downstream; or left side looking downstream; or both, if both banks are treated. This excludes the length of streambank associated with unnamed tributaries, side channels or inlets.<br>- Riparian: Transition zone between aquatic and upland habitat typically within a river's floodplain. These habitats are related to and influenced by surface or subsurface waters, especially the margins of streams, lakes, ponds, wetlands, seeps, and ditches between land and a stream and above the average high watermark, or bank full height. Plant communities along the river and lake margins are called riparian vegetation, characterized by hydrophilic plants. This includes floodplain habitat, which may be restored to properly functioning conditions. (This excludes floodplain habitat influenced by the tides, which is classified as "Estuarine Habitat" for Pisces.) |                 | number      | 0.01             |



### Metric Guidance by Work Element

| WE ID | Work Element Name | Category | Work Element Definition | Metric ID | Metric   | Metric Guidance ID | Metric Guidance  | Metric Required | Metric Type | Metric Precision |
|-------|-------------------|----------|-------------------------|-----------|--|--------------------|--|-----------------|-------------|------------------|
|       |                   |          |                         | 1515      | # of acres of upland non-wetland habitat treated | 152                | <p>Identify the total acres of habitat treated in the upland habitat zone. To calculate acres, use a GIS program or approximate the value by multiplying the total length of the treated habitat zone times the average width of the treated habitat zone in feet / divided by 43,560 sq. ft/acre.</p> <p>-Upland: Habitat upslope of the riparian and instream habitat zone with non-hydrophilic plants, unless part of an isolated wetland, which occurs outside the hyporheic, or floodplain/riparian zone.</p> <p>-Non-wetland: Habitat designated and regulated as non-wetland habitat, which is dominated by areas that are not inundated or saturated by surface or groundwater at a frequency and duration sufficient to support a prevalence of non-hydrophytic vegetation typically adapted for life in dry soil conditions.</p>   |                 | number      | 0.01             |
|       |                   |          |                         | 1516      | # of acres of upland wetland habitat treated     | 153                | <p>Identify the total acres of habitat treated in the upland habitat zone. To calculate acres, use a GIS program or approximate the value by multiplying the total length of the treated habitat zone times the average width of the treated habitat zone in feet / divided by 43,560 sq. ft/acre.</p> <p>-Upland: Habitat upslope of the riparian and instream habitat zone with non-hydrophilic plants, unless part of an isolated wetland, which occurs outside the hyporheic, or floodplain/riparian zone.</p> <p>-Wetland: Habitat designated and regulated as wetland habitat, which is dominated by areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support a prevalence of hydrophytic vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs and similar areas. For more information consult the USFWS National Wetland Inventory at <a href="http://www.fws.gov/wetlands/">http://www.fws.gov/wetlands/</a> or EPA wetland information at <a href="http://www.epa.gov/wetlands/">http://www.epa.gov/wetlands/</a>.</p> | ✓               | number      | 0.01             |



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| WE ID | Work Element Name | Category | Work Element Definition | Metric ID | Metric   | Metric Guidance ID | Metric Guidance  | Metric Required | Metric Type | Metric Precision |
|-------|-------------------|----------|-------------------------|-----------|--|--------------------|--|-----------------|-------------|------------------|
| 1517  |                   |          |                         |           | # of acres of riparian non-wetland habitat treated | 154                | <p>Identify the total acres of habitat treated in the riparian non-wetland habitat zone. To calculate acres, use a GIS program or approximate the value by multiplying the total length of the treated habitat zone times the average width of the treated habitat zone in feet / divided by 43,560 sq. ft/acre.</p> <p>-Riparian: Transition zone between aquatic and upland habitat typically within a river's floodplain. These habitats are related to and influenced by surface or subsurface waters, especially the margins of streams, lakes, ponds, wetlands, seeps, and ditches between land and a stream and above the average high watermark, or bank full height. Plant communities along the river and lake margins are called riparian vegetation, characterized by hydrophilic plants. This includes floodplain habitat, which may be restored to properly functioning conditions. (This excludes floodplain habitat influenced by the tides, which is classified as "Estuarine Habitat" for Pisces.)</p> <p>-Non-wetland: Habitat designated and regulated as non-wetland habitat, which is dominated by areas that are not inundated or saturated by surface or groundwater at a frequency and duration sufficient to support a prevalence of non-hydrophytic vegetation typically adapted for life in dry soil conditions.</p> | ✓               | number      | 0.01             |



### Metric Guidance by Work Element

| WE ID | Work Element Name | Category | Work Element Definition | Metric ID | Metric   | Metric Guidance ID | Metric Guidance  | Metric Required | Metric Type | Metric Precision |
|-------|-------------------|----------|-------------------------|-----------|--|--------------------|--|-----------------|-------------|------------------|
| 1518  |                   |          |                         |           | # of acres of riparian wetland habitat treated | 155                | <p>Identify the total acres of habitat treated in riparian habitat zone. To calculate acres, use a GIS program or approximate the value by multiplying the total length of the treated habitat zone times the average width of the treated habitat zone in feet / divided by 43,560 sq. ft/acre.</p> <p>-Riparian: Transition zone between aquatic and upland habitat typically within a river's floodplain. These habitats are related to and influenced by surface or subsurface waters, especially the margins of streams, lakes, ponds, wetlands, seeps, and ditches between land and a stream and above the average high watermark, or bank full height. Plant communities along the river and lake margins are called riparian vegetation, characterized by hydrophilic plants. This includes floodplain habitat, which may be restored to properly functioning conditions. (This excludes floodplain habitat influenced by the tides, which is classified as "Estuarine Habitat" for Pisces.)</p> <p>-Wetland: Habitat designated and regulated as wetland habitat, which is dominated by areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support a prevalence of hydrophytic vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs and similar areas. For more information consult the USFWS National Wetland Inventory at <a href="http://www.fws.gov/wetlands/">http://www.fws.gov/wetlands/</a> or EPA wetland information at <a href="http://www.epa.gov/wetlands/">http://www.epa.gov/wetlands/</a>.</p> | ✓               | number      | 0.01             |



### Metric Guidance by Work Element

| WE ID | Work Element Name                                    | Category | Work Element Definition | Metric ID | Metric | Metric Guidance ID | Metric Guidance  | Metric Required | Metric Type | Metric Precision |
|-------|--|----------|-------------------------|-----------|--------|--------------------|--|-----------------|-------------|------------------|
| 1519  | # of acres of freshwater non-wetland habitat treated |          |                         | 156       |        |                    | Identify the total acres of habitat treated in the freshwater non-tidal habitat zone. To calculate acres, use a GIS program or approximate the value by multiplying the total length of the treated habitat zone times the average width of the treated habitat zone in feet / divided by 43,560 sq. ft/acre.<br>-Freshwater non-tidal: Habitat with freshwater flowing in a channel or watercourse, including lakes, ponds, and adjacent areas below the high water mark that is not subject to the tidal influence of the estuarine zone.<br>-Non-wetland: Habitat designated and regulated as non-wetland habitat, which is dominated by areas that are not inundated or saturated by surface or groundwater at a frequency and duration sufficient to support a prevalence of non-hydrophytic vegetation typically adapted for life in dry soil conditions.  | ✓               | number      | 0.01             |
| 1520  | # of acres of freshwater wetland habitat treated     |          |                         | 157       |        |                    | Identify the total acres of habitat treated in the freshwater non-tidal habitat zone. To calculate acres, use a GIS program or approximate the value by multiplying the total length of the treated habitat zone times the average width of the treated habitat zone in feet / divided by 43,560 sq. ft/acre.<br>-Freshwater non-tidal: Habitat with freshwater flowing in a channel or watercourse, including lakes, ponds, and adjacent areas below the high water mark that is not subject to the tidal influence of the estuarine zone.<br>-Wetland: Habitat designated and regulated as wetland habitat, which is dominated by areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support a prevalence of hydrophytic vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs and similar areas. For more information consult the USFWS National Wetland Inventory at <a href="http://www.fws.gov/wetlands/">http://www.fws.gov/wetlands/</a> or EPA wetland information at <a href="http://www.epa.gov/wetlands/">http://www.epa.gov/wetlands/</a> . | ✓               | number      | 0.01             |



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|-------|-------------------|----------|-------------------------|-----------|---|--------------------|---|-----------------|-------------|------------------|
| 1521  |                   |          |                         |           | # of acres of estuarine wetland habitat treated | 158                | <p>Identify the total acres of habitat treated in estuarine habitat zone. To calculate acres, use a GIS program or approximate the value by multiplying the total length of the treated habitat zone times the average width of the treated habitat zone in feet / divided by 43,560 sq. ft/acre.</p> <p>-Estuarine: Habitat that is part of a semi-enclosed coastal body of water that is subject to the ebb and flow of tides, with one or more rivers or streams flowing into it, and with a free connection to the nearshore marine zone. This includes habitat impacted by the highest high and lowest low tides of a year. Estuaries are environments whose pH, salinity, and water levels are subject to the ebb and flow of tides, and the physical and chemical properties of the river that feeds the estuary and the ocean from which it derives its salinity. This habitat includes floodplain/riparian habitat subject to inundation from the tides.</p> <p>-Wetland: Habitat designated and regulated as wetland habitat, which is dominated by areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support a prevalence of hydrophytic vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs and similar areas. For more information consult the USFWS National Wetland Inventory at <a href="http://www.fws.gov/wetlands/">http://www.fws.gov/wetlands/</a> or EPA wetland information at <a href="http://www.epa.gov/wetlands/">http://www.epa.gov/wetlands/</a>.</p> | ✓               | number      | 0.01             |



### Metric Guidance by Work Element

| WE ID | Work Element Name                                 | Category            | Work Element Definition   | Metric ID | Metric  | Metric Guidance ID | Metric Guidance   | Metric Required | Metric Type | Metric Precision |
|-------|---|---------------------|---|-----------|---|--------------------|---|-----------------|-------------|------------------|
|       |   |                     |   | 1522      | # of acres of estuarine non-wetland habitat treated | 159                | <p>Identify the total acres of habitat treated in the estuary habitat zone. To calculate acres, use a GIS program or approximate the value by multiplying the total length of the treated habitat zone times the average width of the treated habitat zone in feet / divided by 43,560 sq. ft/acre.</p> <p>-Estuarine: Habitat that is part of a semi-enclosed coastal body of water that is subject to the ebb and flow of tides, with one or more rivers or streams flowing into it, and with a free connection to the nearshore marine zone. This includes habitat impacted by the highest high and lowest low tides of a year. Estuaries are environments whose pH, salinity, and water levels are subject to the ebb and flow of tides, and the physical and chemical properties of the river that feeds the estuary and the ocean from which it derives its salinity. This habitat includes floodplain/riparian habitat subject to inundation from the tides.</p> <p>-Non-wetland: Habitat designated and regulated as non-wetland habitat, which is dominated by areas that are not inundated or saturated by surface or groundwater at a frequency and duration sufficient to support a prevalence of non-hydrophytic vegetation typically adapted for life in dry soil conditions.</p> | ✓               | number      | 0.01             |
| 48    | Practice No-till and Conservation Tillage Systems | Habitat Improvement | Includes establishing conservation tillage systems that focus on increased crop residue during subsequent crop seeding, and/or the reduction or elimination of traditional tilling practices. Work may also include the purchase of chaff chopper/spreaders and other equipment (generally co-operatively purchased) designed to aid in no- or reduced- till operations and crop residue enhancement. | 1515      | # of acres of upland non-wetland habitat treated    | 152                | <p>Identify the total acres of habitat treated in the upland habitat zone. To calculate acres, use a GIS program or approximate the value by multiplying the total length of the treated habitat zone times the average width of the treated habitat zone in feet / divided by 43,560 sq. ft/acre.</p> <p>-Upland: Habitat upslope of the riparian and instream habitat zone with non-hydrophilic plants, unless part of an isolated wetland, which occurs outside the hyporheic, or floodplain/riparian zone.</p> <p>-Non-wetland: Habitat designated and regulated as non-wetland habitat, which is dominated by areas that are not inundated or saturated by surface or groundwater at a frequency and duration sufficient to support a prevalence of non-hydrophytic vegetation typically adapted for life in dry soil conditions.</p>  | ✓               | number      | 0.01             |



### Metric Guidance by Work Element

| WE ID | Work Element Name    | Category            | Work Element Definition  | Metric ID | Metric  | Metric Guidance ID | Metric Guidance  | Metric Required | Metric Type | Metric Precision |
|-------|----------------------|---------------------|--|-----------|---|--------------------|--|-----------------|-------------|------------------|
|       |                      |                     |  | 1517      | # of acres of riparian non-wetland habitat treated  | 154                | <p>Identify the total acres of habitat treated in the riparian non-wetland habitat zone. To calculate acres, use a GIS program or approximate the value by multiplying the total length of the treated habitat zone times the average width of the treated habitat zone in feet / divided by 43,560 sq. ft/acre.</p> <p>-Riparian: Transition zone between aquatic and upland habitat typically within a river's floodplain. These habitats are related to and influenced by surface or subsurface waters, especially the margins of streams, lakes, ponds, wetlands, seeps, and ditches between land and a stream and above the average high watermark, or bank full height. Plant communities along the river and lake margins are called riparian vegetation, characterized by hydrophilic plants. This includes floodplain habitat, which may be restored to properly functioning conditions. (This excludes floodplain habitat influenced by the tides, which is classified as "Estuarine Habitat" for Pisces.)</p> <p>-Non-wetland: Habitat designated and regulated as non-wetland habitat, which is dominated by areas that are not inundated or saturated by surface or groundwater at a frequency and duration sufficient to support a prevalence of non-hydrophytic vegetation typically adapted for life in dry soil conditions.</p> | ✓               | number      | 0.01             |
| 52    | Remove Mine Tailings | Habitat Improvement | <p>Work to remove or re-contour remnant landscape effects from old mining operations. Could be terrestrial or aquatic in nature.</p> <p>If work also creates wetland or modifies channel use WE#181, Create, Restore, and/or Enhance Wetland and WE#30, Realign, Connect, and/or Create Channel.</p> | 1408      | Did the tailings create a fish passage barrier?   | 35                 | Applies to the removal of mine tailings in aquatic habitat.  | ✓               | list        |                  |
|       |                      |                     |  | 1441      | # of miles of habitat accessed to the next upstream barrier(s) or likely limit of habitable range | 383                | The length of stream made accessible to the next upstream barrier to fish passage in miles. To calculate miles, divide the total length of feet by 5,280 ft/per mile. Note: If this metric is captured for this barrier under another work element, put "0" here.  | ✓               | number      | 0.01             |



### Metric Guidance by Work Element

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|-------|---|----------|-------------------------|-----------|--------|--------------------|--|-----------------|-------------|------------------|
| 1632  | # of mine tailing full passage barriers addressed in the freshwater zone    |          |                         | 269       |        |                    | <p>The number of mine tailing full barriers to fish passage removed at a specified worksite in the freshwater non-tidal zone. (Note: If distance between barriers is greater than half a mile, use two WE.)</p> <p>-Full barrier: A complete barrier to fish migration, preventing passage for all life history stages.</p> <p>-Freshwater non-tidal: Habitat with freshwater flowing in a channel or watercourse, including lakes, ponds, and adjacent areas below the high water mark that is not subject to the tidal influence of the estuarine zone.</p>  | ✓               | number      | 1.0              |
| 1633  | # of mine tailing full passage barriers addressed in the estuarine zone     |          |                         | 270       |        |                    | <p>The number of mine tailing full barriers to fish passage removed at a specified worksite in the estuarine zone. (Note: If distance between barriers is greater than half a mile, use two WE.)</p> <p>-Full barrier: A complete barrier to fish migration, preventing passage for all life history stages.</p> <p>-Estuarine: Habitat that is part of a semi-enclosed coastal body of water that is subject to the ebb and flow of tides, with one or more rivers or streams flowing into it, and with a free connection to the near shore marine zone. This includes habitat impacted by the highest high and lowest low tides of a year. Estuaries are environments in which pH, salinity, and water levels are subject to the ebb and flow of tides, and the physical and chemical properties of the river that feeds the estuary and the ocean from which it derives its salinity. This habitat includes floodplain/riparian habitat subject to inundation from the tides.</p> | ✓               | number      | 1.0              |
| 1634  | # of mine tailing partial passage barriers addressed in the freshwater zone |          |                         | 271       |        |                    | <p>The number of mine tailing partial barriers to fish passage removed at a specified worksite in the freshwater non-tidal zone. (Note: If distance between barriers is greater than half a mile use two WE.)</p> <p>-Partial barrier: A barrier to fish migration, preventing passage of specific life history stages. These barriers may be temporal in nature or limit passage due to obstructions, e.g., high flow, low flow, temperature, physical barriers, etc., or other variables that may allow passage for some species, but not others.</p> <p>- Freshwater non-tidal: Habitat with freshwater flowing in a channel or watercourse, including lakes, ponds, and adjacent areas below the high water mark that is not subject to the tidal influence of the estuarine zone.</p>   | ✓               | number      | 1.0              |



### Metric Guidance by Work Element

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|-------|--|----------|-------------------------|-----------|--------|--------------------|--|-----------------|-------------|------------------|
| 1635  | # of mine tailing partial passage barriers addressed in the estuarine zone |          |                         | 272       |        |                    | <p>The number of mine tailing partial barriers to fish passage removed at a specified worksite in the estuarine zone. (Note: If distance between barriers is greater than half a mile use two WE.)</p> <p>-Partial barrier: A barrier to fish migration, preventing passage of specific life history stages. These barriers may be temporal in nature or limit passage due to obstructions, e.g., high flow, low flow, temperature, physical barriers, etc., or other variables that may allow passage for some species, but not others.</p> <p>-Estuarine: Habitat that is part of a semi-enclosed coastal body of water that is subject to the ebb and flow of tides, with one or more rivers or streams flowing into it, and with a free connection to the near shore marine zone. This includes habitat impacted by the highest high and lowest low tides of a year. Estuaries are environments in which pH, salinity, and water levels are subject to the ebb and flow of tides, and the physical and chemical properties of the river that feeds the estuary and the ocean from which it derives its salinity. This habitat includes floodplain/riparian habitat subject to inundation from the tides.</p> | ✓               | number      | 1.0              |



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| WE ID | Work Element Name | Category | Work Element Definition | Metric ID | Metric                                   | Metric Guidance ID | Metric Guidance   | Metric Required | Metric Type | Metric Precision |
|-------|-------------------|----------|-------------------------|-----------|--|--------------------|---|-----------------|-------------|------------------|
| 1638  |                   |          |                         |           | # of acres of riparian habitat treated   | 275                | Identify the total acres of habitat treated in the riparian habitat zone. The treatment area is the construction footprint, plus the estimated catchment area that the treatment is designed to reduce sediment transport export from. (For example the area treated may be the area of a sediment pond, plus the upslope area that drains directly into the pond.) To calculate acres, use a GIS program or approximate the value by multiplying the total length of the treated habitat zone times the average width of the treated habitat zone in feet / divided by 43,560 sq. ft/acre.<br>-Riparian: Transition zone between aquatic and upland habitat typically within a river's floodplain. These habitats are related to and influenced by surface or subsurface waters, especially the margins of streams, lakes, ponds, wetlands, seeps, and ditches between land and a stream and above the average high watermark, or bank full height. Plant communities along the river and lake margins are called riparian vegetation, characterized by hydrophilic plants. This includes floodplain habitat, which may be restored to properly functioning conditions. (This excludes floodplain habitat influenced by the tides, which is classified as "Estuarine Habitat" for Pisces.) | ✓               | number      | 0.01             |
| 1640  |                   |          |                         |           | # of acres of upland habitat treated     | 277                | Identify the total acres of habitat treated in the upland habitat zone. The treatment area is the construction footprint, plus the estimated catchment area that the treatment is designed to reduce sediment transport export from. (For example the area treated may be the area of a sediment pond, plus the upslope area that drains directly into the pond.) To calculate acres, use a GIS program or approximate the value by multiplying the total length of the treated habitat zone times the average width of the treated habitat zone in feet / divided by 43,560 sq. ft/acre.<br>-Upland: Habitat upslope of the riparian and instream habitat zone with non-hydrophilic plants, unless part of an isolated wetland, which occurs outside the hyporheic, or floodplain/riparian zone.   | ✓               | number      | 0.01             |
| 1641  |                   |          |                         |           | # of acres of freshwater habitat treated | 278                | Identify the total acres of habitat treated in this habitat zone.; Freshwater Non-Tidal: Habitat with freshwater flowing in a channel or watercourse, including lakes, ponds, and adjacent areas below the high water mark that is not subject to the tidal influence of the estuarine zone.  | ✓               | number      | 0.01             |



### Metric Guidance by Work Element

| WE ID | Work Element Name                 | Category            | Work Element Definition  | Metric ID | Metric                                       | Metric Guidance ID | Metric Guidance   | Metric Required | Metric Type | Metric Precision |
|-------|-----------------------------------|---------------------|--|-----------|--|--------------------|---|-----------------|-------------|------------------|
| 55    | Erosion and Sedimentation Control | Habitat Improvement | This is work that occurs in the riparian and upland zones, which may include the installation of water bars, gully plugs and culvert outlets, grassed waterways, grade stabilization structures, sediment catchment ponds/basins, regrading or terracing, and removal of drainage pipes and other blockages specifically to prevent erosion, sediment slumps, or landslides. This WE does not include improvements to roads or the planting of vegetation in applications other than surface soils stabilization. For that work, use WE#38, Improve Road or WE#47, Plant Vegetation, respectively. | 1622      | # of regradation and/or terracing treatments | 259                | Identify the number of regradation or terracing treatments implemented in the treated area. The number will usually be one, unless multiple treatments are made where worksites are spaced greater than .5 miles apart.<br>-Regradation or terracing: Regradation is a technique that alters the angle of the slope of the bank or removes sediment mass to reduce erosion, landslides or slumping. Terracing is a non-agricultural sediment and water conservation technique consisting of ridges on the contour, or level areas constructed on a slope.   | ✓               | number      | 1.0              |
|       |                                   |                     |  | 1638      | # of acres of riparian habitat treated       | 275                | Identify the total acres of habitat treated in the riparian habitat zone. The treatment area is the construction footprint, plus the estimated catchment area that the treatment is designed to reduce sediment transport export from. (For example the area treated may be the area of a sediment pond, plus the upslope area that drains directly into the pond.) To calculate acres, use a GIS program or approximate the value by multiplying the total length of the treated habitat zone times the average width of the treated habitat zone in feet / divided by 43,560 sq. ft/acre.<br>-Riparian: Transition zone between aquatic and upland habitat typically within a river's floodplain. These habitats are related to and influenced by surface or subsurface waters, especially the margins of streams, lakes, ponds, wetlands, seeps, and ditches between land and a stream and above the average high watermark, or bank full height. Plant communities along the river and lake margins are called riparian vegetation, characterized by hydrophilic plants. This includes floodplain habitat, which may be restored to properly functioning conditions. (This excludes floodplain habitat influenced by the tides, which is classified as "Estuarine Habitat" for Pisces.) | ✓               | number      | 0.01             |



### Metric Guidance by Work Element

| WE ID | Work Element Name                       | Category | Work Element Definition | Metric ID | Metric | Metric Guidance ID | Metric Guidance  | Metric Required | Metric Type | Metric Precision |
|-------|---|----------|-------------------------|-----------|--------|--------------------|--|-----------------|-------------|------------------|
| 1639  | # of acres of estuarine habitat treated |          |                         | 276       |        |                    | Identify the total acres of habitat treated in the estuary habitat zone. The treatment area is the construction footprint, plus the estimated catchment area that the treatment is designed to reduce sediment transport export from. (For example the area treated may be the area of a sediment pond, plus the upslope area that drains directly into the pond.) To calculate acres, use a GIS program or approximate the value by multiplying the total length of the treated habitat zone times the average width of the treated habitat zone in feet / divided by 43,560 sq. ft/acre.<br>-Estuarine: Habitat that is part of a semi-enclosed coastal body of water that is subject to the ebb and flow of tides, with one or more rivers or streams flowing into it, and with a free connection to the nearshore marine zone. This includes habitat impacted by the highest high and lowest low tides of a year. Estuaries are environments whose pH, salinity, and water levels are subject to the ebb and flow of tides, and the physical and chemical properties of the river that feeds the estuary and the ocean from which it derives its salinity. This habitat includes floodplain/riparian habitat subject to inundation from the tides. | ✓               | number      | 0.01             |
| 1640  | # of acres of upland habitat treated    |          |                         | 277       |        |                    | Identify the total acres of habitat treated in the upland habitat zone. The treatment area is the construction footprint, plus the estimated catchment area that the treatment is designed to reduce sediment transport export from. (For example the area treated may be the area of a sediment pond, plus the upslope area that drains directly into the pond.) To calculate acres, use a GIS program or approximate the value by multiplying the total length of the treated habitat zone times the average width of the treated habitat zone in feet / divided by 43,560 sq. ft/acre.<br>-Upland: Habitat upslope of the riparian and instream habitat zone with non-hydrophilic plants, unless part of an isolated wetland, which occurs outside the hyporheic, or floodplain/riparian zone.  | ✓               | number      | 0.01             |



### Metric Guidance by Work Element

| WE ID | Work Element Name                           | Category                     | Work Element Definition   | Metric ID | Metric   | Metric Guidance ID | Metric Guidance  | Metric Required | Metric Type | Metric Precision |
|-------|---|------------------------------|---|-----------|--|--------------------|--|-----------------|-------------|------------------|
|       |   |                              |   | 1642      | # of sediment basins, collection ponds, and sediment traps installed                               | 279                | Identify the number of sediment basins, collection ponds, and sediment traps installed, which are defined as: a man-made basin or intentional ponding area designed to hold storm water for a period of time to allow sediment and other suspended material to settle. The water eventually flows out of the basin to downstream waterways, evaporates into the atmosphere, or infiltrates the ground. | ✓               | number      | 1.0              |
|       |   |                              |   | 1643      | # of baffles installed   | 280                | Identify the number of baffles installed where baffles are defined as: porous barriers installed inside a temporary sediment trap, rock dam, skimmer basin, or sediment basin to reduce the velocity and turbulence of the water flowing through the control measure, and facilitate the settling of sediment from the water before discharge.   | ✓               | number      | 1.0              |
| 66    | Trap/Collect/Hold/Transport Fish - Hatchery | Hatchery O&M                 | Includes work performed under contracts solely for trapping, collecting, transporting, and/or holding fish (all life history stages) for inclusion in a fish culture program. If the full range of fish culture activities is performed under a contract, use WE#176, Produce Hatchery Fish, with milestones for trapping, collecting, transporting, and/or holding fish, as appropriate. | 1410      | Purpose of production program [Supplementation, Harvest Augmentation, Research]                    | 37                 | Drop-down box. Supplement natural populations to help recovery, increase Harvest opportunities, or Research.   | ✓               | list        |                  |
|       |   |                              |   | 1489      | Secondary purpose of production program (if any) [Supplementation, Harvest Augmentation, Research] | 122                | If there is a secondary purpose for the production different from the primary purpose, select it here. Otherwise, uncheck the metric. Secondary purpose of production includes: Supplement natural populations to help recovery, increase Harvest opportunities, or Research.  |                 | list        |                  |
| 69    | Install Fish Screen                         | Instream Passage Improvement | Work to install or replace a fish screen associated with a diversion or pump. Typical screen types include rotary drum, flat plate or traveling. The design of complex or large-scale screens is typically a separate work element. See WE#175, Produce Design and/or Specifications.   | 1434      | Does the screen meet NOAA specs?   | 62                 | Self-Explanatory   | ✓               | list        |                  |
|       |   |                              |   | 1436      | Quantity of water protected by screening in acre-feet/year   | 64                 | Determined by what is stated in the water right or calculated based on flow rate.  | ✓               | number      | 0.1              |
|       |   |                              |   | 1745      | Flow rate at the new screen diversion allowed by the water right in cubic-feet per second (cfs)    | 414                | TBD  | ✓               | number      | 0.1              |



### Metric Guidance by Work Element

| WE ID | Work Element Name        | Category                                    | Work Element Definition   | Metric ID | Metric   | Metric Guidance ID | Metric Guidance  | Metric Required | Metric Type | Metric Precision |
|-------|--------------------------|---|---|-----------|--|--------------------|--|-----------------|-------------|------------------|
|       |                          |   |   | 1746      | Flow rate at the replaced screen diversion allowed by the water right in cubic-feet per second (cfs)   | 415                | TBD  | ✓               | number      | 0.1              |
| 82    | Install Well             | Water Conservation and Irrigation Practices | Install well to enable groundwater to be used for irrigation as an alternative to instream flow. Wells installed to provide water for livestock should be covered under WE#34, Develop Alternative Water Source. Wells installed to provide hatchery or acclimation water supplies should be covered under WE#171, Build, Modify, and/or Refurbish Artificial Production Facility. If a well is being installed to provide water instream, also use WE#154, Develop and Negotiate Water Right Transaction and WE#164, Acquire Water Instream. | 1438      | # of miles of primary stream reach improvement   | 67                 | This work is designed to eliminate an irrigation diversion or to provide irrigation efficiencies. The # of miles refers to the distance (0.1 miles) from the point of diversion being addressed to the next downstream diversion or confluence with the next major order stream, whichever comes first.                | ✓               | number      | 0.1              |
|       |                          |   |   | 1439      | # of miles of total stream reach improvement   | 69                 | This work is designed to eliminate an irrigation diversion or to provide irrigation efficiencies. The # of miles refers to the distance (0.1 miles) from the point of diversion being addressed to the confluence of the next major order stream. The term "total" includes both primary and secondary stream reaches. | ✓               | number      | 0.01             |
|       |                          |   |   | 1440      | Amount of unprotected water flow returned to the stream by conservation in acre-feet/year              | 70                 | This is the seasonal volume of water left instream due to irrigation efficiencies; this water is "unprotected" until an official water transaction is recorded.  | ✓               | number      | 0.1              |
|       |                          |   |   | 1451      | Amount of unprotected water flow returned to the stream by conservation in cubic-feet per second (cfs) | 81                 | This is the rate of flow of water left instream due to irrigation efficiencies or the removal of a diversion; this water is "unprotected" unless and until an official water transaction is recorded.  | ✓               | number      | 0.1              |
| 84    | Remove/Install Diversion | Instream Passage Improvement                | Work that removes, replaces, or avoids creating a fish passage barrier associated with a stream diversion, including push-up dams. May be part of a diversion consolidation effort that reduces the number of diversion sites. Includes installation of alternative ways to divert stream flow without creating passage barriers caused by traditional diversion structures. Examples include, but are not limited to, infiltration galleries, instream diversion pumps, and lay-flat stanchions.   | 1441      | # of miles of habitat accessed to the next upstream barrier(s) or likely limit of habitable range      | 384                | The length of stream made accessible to the next upstream barrier to fish passage in miles. To calculate miles, divide the total length of feet by 5,280 ft/per mile. Note: If this metric is captured for this barrier under another work element, put "0" here.  | ✓               | number      | 0.01             |
|       |                          |   |   | 1480      | # of screens addressed   | 110                | This metric applies to screens associated with the removal or replacement of a diversion.  | ✓               | number      | 1.0              |



### Metric Guidance by Work Element

| WE ID | Work Element Name  | Category | Work Element Definition | Metric ID | Metric | Metric Guidance ID | Metric Guidance  | Metric Required | Metric Type | Metric Precision |
|-------|--|----------|-------------------------|-----------|--------|--------------------|--|-----------------|-------------|------------------|
| 1644  | # of small scale push-up or diversion dam full passage barriers in the estuarine zone            |          |                         | 281       |        |                    | The number of full barriers to fish passage for all life stages that are addressed by removal of a small scale push-up or diversion dam at a worksite in the estuarine zone.<br>-Full barrier: A complete barrier to fish migration, preventing passage for all life history stages.<br>-Estuarine: Habitat that is part of a semi-enclosed coastal body of water that is subject to the ebb and flow of tides, with one or more rivers or streams flowing into it, and with a free connection to the nearshore marine zone. This includes habitat impacted by the highest high and lowest low tides of a year. Estuaries are environments whose pH, salinity, and water levels are subject to the ebb and flow of tides, and the physical and chemical properties of the river that feeds the estuary and the ocean from which it derives its salinity. This habitat includes floodplain/riparian habitat subject to inundation from the tides. | ✓               | number      | 1.0              |
| 1645  | # of small scale push-up or diversion dam full passage barriers in the freshwater non-tidal zone |          |                         | 282       |        |                    | The number of full barriers to fish for all life stages that are addressed by removal of a small scale push-up or diversion dam at a worksite in the freshwater non-tidal zone.<br>-Full barrier: A complete barrier to fish migration, preventing passage for all life history stages.<br>-Freshwater non-tidal: Habitat with freshwater flowing in a channel or watercourse, including lakes, ponds, and adjacent areas below the high water mark that is not subject to the tidal influence of the estuarine zone.  | ✓               | number      | 1.0              |



### Metric Guidance by Work Element

| WE ID | Work Element Name   | Category | Work Element Definition | Metric ID | Metric | Metric Guidance ID | Metric Guidance  | Metric Required | Metric Type | Metric Precision |
|-------|---|----------|-------------------------|-----------|--------|--------------------|--|-----------------|-------------|------------------|
| 1646  | # of small scale push-up or diversion dam partial passage barriers in the estuarine zone            |          |                         | 283       |        |                    | <p>The number of partial barriers that are addressed by removal of a small scale push-up or diversion dam at a worksite in the estuarine zone.</p> <p>-Partial barrier: A barrier to fish migration, preventing passage to specific life history stages. These barriers may be temporal in nature or limit passage due to obstructions, e.g., high flow, low flow, temperature, physical barriers, etc., or other variables that may allow some fish past, but not others.</p> <p>-Estuarine: Habitat that is part of a semi-enclosed coastal body of water that is subject to the ebb and flow of tides, with one or more rivers or streams flowing into it, and with a free connection to the nearshore marine zone. This includes habitat impacted by the highest high and lowest low tides of a year. Estuaries are environments whose pH, salinity, and water levels are subject to the ebb and flow of tides, and the physical and chemical properties of the river that feeds the estuary and the ocean from which it derives its salinity. This habitat includes floodplain/riparian habitat subject to inundation from the tides.</p> | ✓               | number      | 1.0              |
| 1647  | # of small scale push-up or diversion dam partial passage barriers in the freshwater non-tidal zone |          |                         | 284       |        |                    | <p>The number of partial barriers that are addressed by removal of a small scale push-up or diversion dam at a worksite in the freshwater non-tidal zone.</p> <p>-Partial barrier: A barrier to fish migration, preventing passage to specific life history stages. These barriers may be temporal in nature or limit passage due to obstructions, e.g., high flow, low flow, temperature, physical barriers, etc., or other variables that may allow some fish past, but not others.</p> <p>- Freshwater non-tidal: Habitat with freshwater flowing in a channel or watercourse, including lakes, ponds, and adjacent areas below the high water mark that is not subject to the tidal influence of the estuarine zone.</p>   | ✓               | number      | 1.0              |



### Metric Guidance by Work Element

| WE ID | Work Element Name                  | Category                     | Work Element Definition   | Metric ID | Metric  | Metric Guidance ID | Metric Guidance   | Metric Required | Metric Type | Metric Precision |
|-------|------------------------------------|------------------------------|---|-----------|---|--------------------|---|-----------------|-------------|------------------|
| 85    | Remove/Breach Fish Passage Barrier | Instream Passage Improvement | Work that facilitates fish passage over a natural (e.g., beaver) or human-made barrier by breaching or removal without replacement. This includes dams, weirs, fish ladders, tidegates, culverts, bridges, and road crossings. If the dam is part of a diversion, use WE#84, Remove/Install Diversion. If installing a fish passage structure at the same location, use WE#184, Install Fish Passage Structure, and have removal of the passage barrier as a milestone under that work element. | 1441      | # of miles of habitat accessed to the next upstream barrier(s) or likely limit of habitable range | 385                | The length of stream made accessible to the next upstream barrier to fish passage in miles. To calculate miles, divide the total length of feet by 5,280 ft/per mile. Note: If this metric is captured for this barrier under another work element, put "0" here.   | ✓               | number      | 0.01             |
|       |                                    |                              |   | 1648      | # of large scale hydropower and diversion dam full passage barriers in the estuarine zone         | 285                | The number of large scale hydropower or diversion dam full barriers to fish passage removed at a specified worksite in the estuarine zone.<br>-Large scale hydropower and diversion dams: Large man-made dams that are used for hydropower generation, or water supply management that pose complete or partial barriers to fish passage.<br>-Full barrier: A complete barrier to fish migration, preventing passage for all life history stages.<br>-Estuarine: Habitat that is part of a semi-enclosed coastal body of water that is subject to the ebb and flow of tides, with one or more rivers or streams flowing into it, and with a free connection to the nearshore marine zone. This includes habitat impacted by the highest high and lowest low tides of a year. Estuaries are environments whose pH, salinity, and water levels are subject to the ebb and flow of tides, and the physical and chemical properties of the river that feeds the estuary and the ocean from which it derives its salinity. This habitat includes floodplain/riparian habitat subject to inundation from the tides. | ✓               | number      | 1.0              |



### Metric Guidance by Work Element

| WE ID | Work Element Name  | Category | Work Element Definition | Metric ID | Metric | Metric Guidance ID | Metric Guidance   | Metric Required | Metric Type | Metric Precision |
|-------|--|----------|-------------------------|-----------|--------|--------------------|---|-----------------|-------------|------------------|
| 1649  | # of large scale hydropower and diversion dam partial passage barriers in the estuarine zone         |          |                         | 286       |        |                    | <p>The number of large scale hydropower or diversion dam partial barriers to fish passage removed at a specified worksite in the estuarine zone.</p> <p>-Large scale hydropower and diversion dams: Large man-made dams that are used for hydropower generation, or water supply management that pose complete or partial barriers to fish passage.</p> <p>-Partial barrier: A barrier to fish migration, preventing passage to specific life history stages. These barriers may be temporal in nature or limit passage due to obstructions, e.g., high flow, low flow, temperature, physical barriers, etc., or other variables that may allow some fish past, but not others.</p> <p>-Estuarine: Habitat that is part of a semi-enclosed coastal body of water that is subject to the ebb and flow of tides, with one or more rivers or streams flowing into it, and with a free connection to the nearshore marine zone. This includes habitat impacted by the highest high and lowest low tides of a year. Estuaries are environments whose pH, salinity, and water levels are subject to the ebb and flow of tides, and the physical and chemical properties of the river that feeds the estuary and the ocean from which it derives its salinity. This habitat includes floodplain/riparian habitat subject to inundation from the tides.</p> | ✓               | number      | 1.0              |
| 1650  | # of large scale hydropower and diversion dam full passage barriers in the freshwater non-tidal zone |          |                         | 287       |        |                    | <p>The number of large scale hydropower or diversion dam full barriers to fish passage removed at a specified worksite in the freshwater non-tidal zone.</p> <p>-Large scale hydropower and diversion dams: Large man-made dams that are used for hydropower generation, or water supply management that pose complete or partial barriers to fish passage.</p> <p>-Full barrier: A complete barrier to fish migration, preventing passage for all life history stages.</p> <p>-Freshwater non-tidal: Habitat with freshwater flowing in a channel or watercourse, including lakes, ponds, and adjacent areas below the high water mark that is not subject to the tidal influence of the estuarine zone.</p>   | ✓               | number      | 1.0              |



### Metric Guidance by Work Element

| WE ID | Work Element Name   | Category | Work Element Definition | Metric ID | Metric | Metric Guidance ID | Metric Guidance   | Metric Required | Metric Type | Metric Precision |
|-------|---|----------|-------------------------|-----------|--------|--------------------|---|-----------------|-------------|------------------|
| 1651  | # of large scale hydropower and diversion dam partial passage barriers in the freshwater non-tidal zone |          |                         | 288       |        |                    | <p>The number of large scale hydropower or diversion dam partial barriers to fish passage removed at a specified worksite in the freshwater non-tidal zone.</p> <p>-Large scale hydropower and diversion dams: Large man-made dams that are used for hydropower generation, or water supply management that pose complete or partial barriers to fish passage.</p> <p>-Partial barrier: A barrier to fish migration, preventing passage to specific life history stages. These barriers may be temporal in nature or limit passage due to obstructions, e.g., high flow, low flow, temperature, physical barriers, etc., or other variables that may allow some fish past, but not others.</p> <p>-Freshwater non-tidal: Habitat with freshwater flowing in a channel or watercourse, including lakes, ponds, and adjacent areas below the high water mark that is not subject to the tidal influence of the estuarine zone.</p>  | ✓               | number      | 1.0              |
| 1652  | # of small scale hydropower and diversion dam full passage barriers in the estuarine zone               |          |                         | 289       |        |                    | <p>The number of small scale push-up or diversion dam full barriers to fish passage removed at a specified worksite in the estuarine zone.</p> <p>-Small scale push-up or diversion dam: An earthen push-up dam or small scale concrete diversion dam constructed to divert water for irrigation or hydropower that impairs fish passage.</p> <p>-Full barrier: A complete barrier to fish migration, preventing passage for all life history stages.</p> <p>-Estuarine: Habitat that is part of a semi-enclosed coastal body of water that is subject to the ebb and flow of tides, with one or more rivers or streams flowing into it, and with a free connection to the nearshore marine zone. This includes habitat impacted by the highest high and lowest low tides of a year. Estuaries are environments whose pH, salinity, and water levels are subject to the ebb and flow of tides, and the physical and chemical properties of the river that feeds the estuary and the ocean from which it derives its salinity. This habitat includes floodplain/riparian habitat subject to inundation from the tides.</p> | ✓               | number      | 1.0              |



### Metric Guidance by Work Element

| WE ID | Work Element Name  | Category | Work Element Definition | Metric ID | Metric | Metric Guidance ID | Metric Guidance   | Metric Required | Metric Type | Metric Precision |
|-------|--|----------|-------------------------|-----------|--------|--------------------|---|-----------------|-------------|------------------|
| 1653  | # of small scale hydropower and diversion dam partial passage barriers in the estuarine zone         |          |                         | 290       |        |                    | <p>The number of large scale hydropower or diversion dam partial barriers to fish passage removed at a specified worksite in the estuarine zone.</p> <p>-Large scale hydropower and diversion dams: Large man-made dams that are used for hydropower generation, or water supply management that pose complete or partial barriers to fish passage.</p> <p>-Partial barrier: A barrier to fish migration, preventing passage to specific life history stages. These barriers may be temporal in nature or limit passage due to obstructions, e.g., high flow, low flow, temperature, physical barriers, etc., or other variables that may allow some fish past, but not others.</p> <p>-Estuarine: Habitat that is part of a semi-enclosed coastal body of water that is subject to the ebb and flow of tides, with one or more rivers or streams flowing into it, and with a free connection to the nearshore marine zone. This includes habitat impacted by the highest high and lowest low tides of a year. Estuaries are environments whose pH, salinity, and water levels are subject to the ebb and flow of tides, and the physical and chemical properties of the river that feeds the estuary and the ocean from which it derives its salinity. This habitat includes floodplain/riparian habitat subject to inundation from the tides.</p> | ✓               | number      | 1.0              |
| 1654  | # of small scale hydropower and diversion dam full passage barriers in the freshwater non-tidal zone |          |                         | 291       |        |                    | <p>The number of small scale push-up or diversion dam full barriers to fish passage removed at a specified worksite in the freshwater non-tidal zone.</p> <p>-Small scale push-up or diversion dam: An earthen push-up dam or small scale concrete diversion dam constructed to divert water for irrigation or hydropower that impairs fish passage.</p> <p>-Full barrier: A complete barrier to fish migration, preventing passage for all life history stages.</p> <p>-Freshwater non-tidal: Habitat with freshwater flowing in a channel or watercourse, including lakes, ponds, and adjacent areas below the high water mark that is not subject to the tidal influence of the estuarine zone.</p>  | ✓               | number      | 1.0              |



### Metric Guidance by Work Element

| WE ID | Work Element Name   | Category | Work Element Definition | Metric ID | Metric | Metric Guidance ID | Metric Guidance   | Metric Required | Metric Type | Metric Precision |
|-------|---|----------|-------------------------|-----------|--------|--------------------|---|-----------------|-------------|------------------|
| 1655  | # of small scale hydropower and diversion dam partial passage barriers in the freshwater non-tidal zone |          |                         | 292       |        |                    | <p>The number of small scale push-up or diversion dam partial barriers to fish passage removed at a specified worksite in the freshwater non-tidal zone.</p> <p>-Small scale push-up or diversion dam: An earthen push-up dam or small scale concrete diversion dam constructed to divert water for irrigation or hydropower that allows impaired passage.</p> <p>-Partial barrier: A barrier to fish migration, preventing passage to specific life history stages. These barriers may be temporal in nature or limit passage due to obstructions, e.g., high flow, low flow, temperature, physical barriers, etc., or other variables that may allow some fish past, but not others.</p> <p>-Freshwater non-tidal: Habitat with freshwater flowing in a channel or watercourse, including lakes, ponds, and adjacent areas below the high water mark that is not subject to the tidal influence of the estuarine zone.</p>  | ✓               | number      | 1.0              |
| 1656  | # of natural dam full passage barriers removed in the estuarine zone                                    |          |                         | 293       |        |                    | <p>The number of natural dam full barriers to fish passage removed at a specified worksite in the estuarine zone.</p> <p>-Natural dam or barrier: Naturally created barriers to fish passage either in the form of log jams or stream aggradation resulting in subsurface flows from landslides or low flows.</p> <p>-Full barrier: A complete barrier to fish migration, preventing passage for all life history stages.</p> <p>-Estuarine: Habitat that is part of a semi-enclosed coastal body of water that is subject to the ebb and flow of tides, with one or more rivers or streams flowing into it, and with a free connection to the nearshore marine zone. This includes habitat impacted by the highest high and lowest low tides of a year. Estuaries are environments whose pH, salinity, and water levels are subject to the ebb and flow of tides, and the physical and chemical properties of the river that feeds the estuary and the ocean from which it derives its salinity. This habitat includes floodplain/riparian habitat subject to inundation from the tides.</p> | ✓               | number      | 1.0              |



### Metric Guidance by Work Element

| WE ID | Work Element Name   | Category | Work Element Definition | Metric ID | Metric | Metric Guidance ID | Metric Guidance  | Metric Required | Metric Type | Metric Precision |
|-------|---|----------|-------------------------|-----------|--------|--------------------|--|-----------------|-------------|------------------|
| 1657  | # of natural dam partial passage barriers removed in the estuarine zone         |          |                         | 294       |        |                    | <p>The number of natural dam partial barriers to fish passage removed at a specified worksite in the estuarine zone.</p> <p>-Natural dam or barrier: Naturally created barriers to fish passage either in the form of log jams or stream aggradation resulting in subsurface flows from landslides or low flows.</p> <p>-Partial barrier: A barrier to fish migration, preventing passage to specific life history stages. These barriers may be temporal in nature or limit passage due to obstructions, e.g., high flow, low flow, temperature, physical barriers, etc., or other variables that may allow some fish past, but not others.</p> <p>-Estuarine: Habitat that is part of a semi-enclosed coastal body of water that is subject to the ebb and flow of tides, with one or more rivers or streams flowing into it, and with a free connection to the nearshore marine zone. This includes habitat impacted by the highest high and lowest low tides of a year. Estuaries are environments whose pH, salinity, and water levels are subject to the ebb and flow of tides, and the physical and chemical properties of the river that feeds the estuary and the ocean from which it derives its salinity. This habitat includes floodplain/riparian habitat subject to inundation from the tides.</p> | ✓               | number      | 1.0              |
| 1658  | # of natural dam full passage barriers removed in the freshwater non-tidal zone |          |                         | 295       |        |                    | <p>The number of natural dam full barriers to fish passage removed at a specified worksite in the freshwater non-tidal zone.</p> <p>-Natural dam or barrier: Naturally created barriers to fish passage either in the form of log jams or stream aggradation resulting in subsurface flows from landslides or low flows.</p> <p>-Full barrier: A complete barrier to fish migration, preventing passage for all life history stages.</p> <p>-Freshwater non-tidal: Habitat with freshwater flowing in a channel or watercourse, including lakes, ponds, and adjacent areas below the high water mark that is not subject to tidal influence.</p>   | ✓               | number      | 1.0              |



### Metric Guidance by Work Element

| WE ID | Work Element Name  | Category | Work Element Definition | Metric ID | Metric | Metric Guidance ID | Metric Guidance   | Metric Required | Metric Type | Metric Precision |
|-------|--|----------|-------------------------|-----------|--------|--------------------|---|-----------------|-------------|------------------|
| 1659  | # of natural dam partial passage barriers removed in the freshwater non-tidal zone |          |                         | 296       |        |                    | <p>The number of natural dam partial barriers to fish passage removed at a specified worksite in the freshwater non-tidal zone.</p> <p>-Natural dam or barrier: Naturally created barriers to fish passage either in the form of log jams or stream aggradation resulting in subsurface flows from landslides or low flows.</p> <p>-Partial barrier: A barrier to fish migration, preventing passage to specific life history stages. These barriers may be temporal in nature or limit passage due to obstructions, e.g., high flow, low flow, temperature, physical barriers, etc., or other variables that may allow some fish past, but not others.</p> <p>-Freshwater non-tidal: Habitat with freshwater flowing in a channel or watercourse, including lakes, ponds, and adjacent areas below the high water mark that is not subject to tidal influence.</p>   | ✓               | number      | 1.0              |
| 1660  | # of weir full passage barriers removed in the estuarine zone                      |          |                         | 297       |        |                    | <p>The number of weir full barriers to fish passage removed at a specified worksite in the estuarine zone.</p> <p>-Weir: A stream-spanning structure used to facilitate or divert passage of salmon across steep grades; or a structure used by fish hatcheries to divert fish passage for collection or removal.</p> <p>-Full barrier: A complete barrier to fish migration, preventing passage for all life history stages.</p> <p>-Estuarine: Habitat that is part of a semi-enclosed coastal body of water that is subject to the ebb and flow of tides, with one or more rivers or streams flowing into it, and with a free connection to the nearshore marine zone. This includes habitat impacted by the highest high and lowest low tides of a year. Estuaries are environments whose pH, salinity, and water levels are subject to the ebb and flow of tides, and the physical and chemical properties of the river that feeds the estuary and the ocean from which it derives its salinity. This habitat includes floodplain/riparian habitat subject to inundation from the tides.</p> | ✓               | number      | 1.0              |



### Metric Guidance by Work Element

| WE ID | Work Element Name  | Category | Work Element Definition | Metric ID | Metric | Metric Guidance ID | Metric Guidance  | Metric Required | Metric Type | Metric Precision |
|-------|--|----------|-------------------------|-----------|--------|--------------------|--|-----------------|-------------|------------------|
| 1661  | # of weir partial passage barriers removed in the estuarine zone         |          |                         | 298       |        |                    | <p>The number of weir partial barriers to partial passage removed at a specified worksite in the estuarine zone.</p> <p>-Weir: A stream-spanning structure used to facilitate or divert passage of salmon across steep grades; or a structure used by fish hatcheries to divert fish passage for collection or removal.</p> <p>-Partial barrier: A barrier to fish migration, preventing passage to specific life history stages. These barriers may be temporal in nature or limit passage due to obstructions, e.g., high flow, low flow, temperature, physical barriers, etc. or other variables that may allow some fish past, but not others.</p> <p>-Estuarine: Habitat that is part of a semi-enclosed coastal body of water that is subject to the ebb and flow of tides, with one or more rivers or streams flowing into it, and with a free connection to the nearshore marine zone. This includes habitat impacted by the highest high and lowest low tides of a year. Estuaries are environments whose pH, salinity, and water levels are subject to the ebb and flow of tides, and the physical and chemical properties of the river that feeds the estuary and the ocean from which it derives its salinity. This habitat includes floodplain/riparian habitat subject to inundation from the tides.</p> | ✓               | number      | 1.0              |
| 1662  | # of weir full passage barriers removed in the freshwater non-tidal zone |          |                         | 299       |        |                    | <p>The number of weir full barriers to fish passage removed at a specified worksite in the freshwater non-tidal zone.</p> <p>-Weir: A stream-spanning structure used to facilitate or divert passage of salmon across steep grades; or a structure used by fish hatcheries to divert fish passage for collection or removal.</p> <p>-Full barrier: A complete barrier to fish migration, preventing passage for all life history stages.</p> <p>-Freshwater non-tidal: Habitat with freshwater flowing in a channel or watercourse, including lakes, ponds, and adjacent areas below the high water mark that is not subject to tidal influence.</p>   | ✓               | number      | 1.0              |



### Metric Guidance by Work Element

| WE ID | Work Element Name   | Category | Work Element Definition | Metric ID | Metric | Metric Guidance ID | Metric Guidance  | Metric Required | Metric Type | Metric Precision |
|-------|---|----------|-------------------------|-----------|--------|--------------------|--|-----------------|-------------|------------------|
| 1663  | # of weir partial passage barriers removed in the freshwater non-tidal zone |          |                         | 300       |        |                    | <p>The number of weir partial barriers to partial passage removed at a specified worksite in the freshwater non-tidal zone.</p> <p>-Weir: A stream-spanning structure used to facilitate or divert passage of salmon across steep grades; or a structure used by fish hatcheries to divert fish passage for collection or removal.</p> <p>-Partial barrier: A barrier to fish migration, preventing passage to specific life history stages. These barriers may be temporal in nature or limit passage due to obstructions, e.g., high flow, low flow, temperature, physical barriers, etc. or other variables that may allow some fish past, but not others.</p> <p>-Freshwater non-tidal: Habitat with freshwater flowing in a channel or watercourse, including lakes, ponds, and adjacent areas below the high water mark that is not subject to tidal influence.</p>  | ✓               | number      | 1.0              |
| 1664  | # of culvert full passage barriers removed in the estuarine zone            |          |                         | 301       |        |                    | <p>The number of culvert full barriers to fish passage removed at a specified worksite in the estuarine zone.</p> <p>-Culvert: Conduit used to enclose a flowing body of water. It may be used to allow water to pass underneath a road, railway, or embankment for example. Culverts can be made of many different materials; steel, polyvinyl chloride (PVC) and concrete are the most common.</p> <p>-Full barrier: A complete barrier to fish migration, preventing passage for all life history stages.</p> <p>-Estuarine: Habitat that is part of a semi-enclosed coastal body of water that is subject to the ebb and flow of tides, with one or more rivers or streams flowing into it, and with a free connection to the nearshore marine zone. This includes habitat impacted by the highest high and lowest low tides of a year. Estuaries are environments whose pH, salinity, and water levels are subject to the ebb and flow of tides, and the physical and chemical properties of the river that feeds the estuary and the ocean from which it derives its salinity. This habitat includes floodplain/riparian habitat subject to inundation from the tides.</p> | ✓               | number      | 1.0              |



### Metric Guidance by Work Element

| WE ID | Work Element Name   | Category | Work Element Definition | Metric ID | Metric | Metric Guidance ID | Metric Guidance   | Metric Required | Metric Type | Metric Precision |
|-------|---|----------|-------------------------|-----------|--------|--------------------|---|-----------------|-------------|------------------|
| 1665  | # of culvert partial passage barriers removed in the estuarine zone         |          |                         | 302       |        |                    | <p>The number of culvert partial barriers to fish passage removed at a specified worksite in the estuarine zone.</p> <p>-Culvert: Conduit used to enclose a flowing body of water. It may be used to allow water to pass underneath a road, railway, or embankment for example. Culverts can be made of many different materials; steel, polyvinyl chloride (PVC) and concrete are the most common.</p> <p>-Partial barrier: A barrier to fish migration, preventing passage to specific life history stages. These barriers may be temporal in nature or limit passage due to obstructions, e.g., high flow, low flow, temperature, physical barriers, etc., or other variables that may allow some fish past, but not others.</p> <p>-Estuarine: Habitat that is part of a semi-enclosed coastal body of water that is subject to the ebb and flow of tides, with one or more rivers or streams flowing into it, and with a free connection to the nearshore marine zone. This includes habitat impacted by the highest high and lowest low tides of a year. Estuaries are environments whose pH, salinity, and water levels are subject to the ebb and flow of tides, and the physical and chemical properties of the river that feeds the estuary and the ocean from which it derives its salinity. This habitat includes floodplain/riparian habitat subject to inundation from the tides.</p> | ✓               | number      | 1.0              |
| 1666  | # of culvert full passage barriers removed in the freshwater non-tidal zone |          |                         | 303       |        |                    | <p>The number of culvert full barriers to fish passage removed at a specified worksite in the freshwater non-tidal zone.</p> <p>-Culvert: Conduit used to enclose a flowing body of water. It may be used to allow water to pass underneath a road, railway, or embankment for example. Culverts can be made of many different materials; steel, polyvinyl chloride (PVC) and concrete are the most common.</p> <p>-Full barrier: A complete barrier to fish migration, preventing passage for all life history stages.</p> <p>-Freshwater non-tidal: Habitat with freshwater flowing in a channel or watercourse, including lakes, ponds, and adjacent areas below the high water mark that is not subject to tidal influence.</p>   | ✓               | number      | 1.0              |



### Metric Guidance by Work Element

| WE ID | Work Element Name | Category | Work Element Definition | Metric ID | Metric   | Metric Guidance ID | Metric Guidance   | Metric Required | Metric Type | Metric Precision |
|-------|-------------------|----------|-------------------------|-----------|--|--------------------|---|-----------------|-------------|------------------|
| 1667  |                   |          |                         | 304       | # of culvert partial passage barriers removed in the freshwater non-tidal zone | 304                | <p>The number of culvert partial barriers to fish passage removed at a specified worksite in the freshwater non-tidal zone.</p> <p>-Culvert: Conduit used to enclose a flowing body of water. It may be used to allow water to pass underneath a road, railway, or embankment for example. Culverts can be made of many different materials; steel, polyvinyl chloride (PVC) and concrete are the most common.</p> <p>-Partial barrier: A barrier to fish migration, preventing passage to specific life history stages. These barriers may be temporal in nature or limit passage due to obstructions, e.g., high flow, low flow, temperature, physical barriers, etc., or other variables that may allow some fish past, but not others.</p> <p>-Freshwater non-tidal: Habitat with freshwater flowing in a channel or watercourse, including lakes, ponds, and adjacent areas below the high water mark that is not subject to tidal influence.</p>  | ✓               | number      | 1.0              |
| 1668  |                   |          |                         | 305       | # of tidegate full passage barriers removed in the estuarine zone              | 305                | <p>The number of tidegate full barriers to fish passage removed at a specified worksite in the estuarine zone.</p> <p>-Tidegate: A structure providing an opening through which water may flow freely when the tide sets in one direction, but which closes automatically and prevents the water from flowing in the other direction.</p> <p>-Full barrier: A complete barrier to fish migration, preventing passage for all life history stages.</p> <p>-Estuarine: Habitat that is part of a semi-enclosed coastal body of water that is subject to the ebb and flow of tides, with one or more rivers or streams flowing into it, and with a free connection to the nearshore marine zone. This includes habitat impacted by the highest high and lowest low tides of a year. Estuaries are environments whose pH, salinity, and water levels are subject to the ebb and flow of tides, and the physical and chemical properties of the river that feeds the estuary and the ocean from which it derives its salinity. This habitat includes floodplain/riparian habitat subject to inundation from the tides.</p> | ✓               | number      | 1.0              |



### Metric Guidance by Work Element

| WE ID | Work Element Name | Category                                 | Work Element Definition  | Metric ID | Metric   | Metric Guidance ID | Metric Guidance   | Metric Required | Metric Type | Metric Precision |
|-------|-------------------|--|--|-----------|--|--------------------|---|-----------------|-------------|------------------|
|       |                   |  |  | 1669      | # of tidegate partial passage barriers removed in the estuarine zone | 306                | <p>The number of tidegate partial barriers to fish passage removed at a specified worksite in the estuarine zone.</p> <p>-Tidegate: A structure providing an opening through which water may flow freely when the tide sets in one direction, but which closes automatically and prevents the water from flowing in the other direction.</p> <p>-Partial barrier: A barrier to fish migration, preventing passage to specific life history stages. These barriers may be temporal in nature or limit passage due to obstructions, e.g., high flow, low flow, temperature, physical barriers, etc. or other variables that may allow some fish past, but not others.</p> <p>-Estuarine: Habitat that is part of a semi-enclosed coastal body of water that is subject to the ebb and flow of tides, with one or more rivers or streams flowing into it, and with a free connection to the nearshore marine zone. This includes habitat impacted by the highest high and lowest low tides of a year. Estuaries are environments whose pH, salinity, and water levels are subject to the ebb and flow of tides, and the physical and chemical properties of the river that feeds the estuary and the ocean from which it derives its salinity. This habitat includes floodplain/riparian habitat subject to inundation from the tides.</p> | ✓               | number      | 1.0              |
| 92    | Lease Land        | Land Acquisition / Conservation Easement | Includes riparian, grazing, and multiple-use leases, typically for multiple years. | 1382      | Start latitude of protected stream reach                             | 8                  | This metric only applies to acquisitions (by lease or purchase) in riparian areas. Must be entered in decimal degrees. For help converting from degrees, minutes, seconds go to <a href="https://www.fcc.gov/media/radio/dms-decimal">https://www.fcc.gov/media/radio/dms-decimal</a> .   |                 | lat         | 0.000001         |
|       |                   |  |  | 1383      | End latitude of protected stream reach                               | 9                  | This metric only applies to acquisitions (by lease or purchase) in riparian areas. Must be entered in decimal degrees. For help converting from degrees, minutes, seconds go to <a href="https://www.fcc.gov/media/radio/dms-decimal">https://www.fcc.gov/media/radio/dms-decimal</a> .   |                 | lat         | 0.000001         |
|       |                   |  |  | 1384      | Start longitude of protected stream reach                            | 10                 | This metric only applies to acquisitions (by lease or purchase) in riparian areas. Must be entered in decimal degrees. For help converting from degrees, minutes, seconds go to <a href="https://www.fcc.gov/media/radio/dms-decimal">https://www.fcc.gov/media/radio/dms-decimal</a> .   |                 | long        | 0.000001         |
|       |                   |  |  | 1385      | End longitude of protected stream reach                              | 11                 | This metric only applies to acquisitions (by lease or purchase) in riparian areas. Must be entered in decimal degrees. For help converting from degrees, minutes, seconds go to <a href="https://www.fcc.gov/media/radio/dms-decimal">https://www.fcc.gov/media/radio/dms-decimal</a> .   |                 | long        | 0.000001         |



### Metric Guidance by Work Element

| WE ID | Work Element Name  | Category | Work Element Definition | Metric ID | Metric  | Metric Guidance ID | Metric Guidance | Metric Required | Metric Type | Metric Precision |
|-------|--|----------|-------------------------|-----------|---|--------------------|-----------------|-----------------|-------------|------------------|
| 1442  | Type of lease [New Lease, Renewed Lease]   |          |                         | 72        | Self-Explanatory  |                    |                 | ✓               | list        |                  |
| 1443  | Start date of lease  |          |                         | 73        | Self-Explanatory  |                    |                 | ✓               | date        |                  |
| 1444  | End date of lease  |          |                         | 74        | Self-Explanatory  |                    |                 | ✓               | date        |                  |
| 1452  | Amount of water secured in acre-feet/year  |          |                         | 82        | This is the total volume of water being addressed by the acquisition over the course of one irrigation season. The term acquisition refers to either the lease or the purchase of water.  |                    |                 | ✓               | number      | 0.1              |
| 1453  | Flow of water returned to the stream as prescribed in the water acquisition in cubic-feet per second (cfs) |          |                         | 83        | Provide the average volume rate of flow expected by the acquisition. The term "acquisition" refers to either the lease or the purchase of water.  |                    |                 | ✓               | number      | 0.01             |
| 1524  | # of acres of upland non-wetland habitat protected   |          |                         | 381       | Identify the total acres of habitat protected in the upland habitat zone. To calculate acres, use a GIS program or approximate the value by multiplying the total length of the protected habitat zone times the average width of the protected habitat zone in feet / divided by 43,560 sq. ft./acre.) (Note the total area protected for this WE should roughly equal the total acres identified in the lease.)<br>-Upland: Habitat upslope of the riparian and instream habitat zone with non-hydrophilic plants, unless part of an isolated wetland, which occurs outside the hyporheic, or floodplain/riparian zone.<br>-Non-wetland: Habitat designated and regulated as non-wetland habitat, which is dominated by areas that are not inundated or saturated by surface or groundwater at a frequency and duration sufficient to support a prevalence of non-hydrophytic vegetation typically adapted for life in dry soil conditions. |                    |                 | ✓               | number      | 0.01             |



### Metric Guidance by Work Element

| WE ID | Work Element Name | Category | Work Element Definition | Metric ID | Metric   | Metric Guidance ID | Metric Guidance   | Metric Required | Metric Type | Metric Precision |
|-------|-------------------|----------|-------------------------|-----------|--|--------------------|---|-----------------|-------------|------------------|
| 1525  |                   |          |                         |           | # of acres of upland wetland habitat protected | 377                | <p>Identify the total acres of habitat protected in the upland habitat zone. To calculate acres, use a GIS program or approximate the value by multiplying the total length of the protected habitat zone times the average width of the protected habitat zone in feet / divided by 43,560 sq. ft./acre. (Note the total area protected for this WE should roughly equal the total acres identified in the lease.)</p> <p>-Upland: Habitat upslope of the riparian and instream habitat zone with non-hydrophilic plants, unless part of an isolated wetland, which occurs outside the hyporheic, or floodplain/riparian zone.</p> <p>-Wetland: Habitat designated and regulated as wetland habitat, which is dominated by areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support a prevalence of hydrophytic vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs and similar areas. For more information consult the USFWS National Wetland Inventory at <a href="http://www.fws.gov/wetlands/">http://www.fws.gov/wetlands/</a> or EPA wetland information at <a href="http://www.epa.gov/wetlands/">http://www.epa.gov/wetlands/</a>.</p> | ✓               | number      | 0.01             |



### Metric Guidance by Work Element

| WE ID | Work Element Name | Category | Work Element Definition | Metric ID | Metric   | Metric Guidance ID | Metric Guidance   | Metric Required | Metric Type | Metric Precision |
|-------|-------------------|----------|-------------------------|-----------|--|--------------------|---|-----------------|-------------|------------------|
| 1526  |                   |          |                         |           | # of acres of riparian non-wetland habitat protected | 378                | <p>Identify the total acres of habitat protected in the riparian habitat zone. To calculate acres, use a GIS program or approximate the value by multiplying the total length of the protected habitat zone times the average width of the protected habitat zone in feet / divided by 43,560 sq. ft./acre. (Note the total area protected for this WE should roughly equal the total acres identified in the lease.)</p> <p>-Riparian: Transition zone between aquatic and upland habitat typically within a river's floodplain. These habitats are related to and influenced by surface or subsurface waters, especially the margins of streams, lakes, ponds, wetlands, seeps, and ditches between land and a stream and above the average high watermark, or bank full height. Plant communities along the river and lake margins are called riparian vegetation, characterized by hydrophilic plants. This includes floodplain habitat, which may be restored to properly functioning conditions. (This excludes floodplain habitat influenced by the tides, which is classified as "Estuarine Habitat" for Pisces.)</p> <p>-Non-wetland: Habitat designated and regulated as non-wetland habitat, which is dominated by areas that are not inundated or saturated by surface or groundwater at a frequency and duration sufficient to support a prevalence of non-hydrophytic vegetation typically adapted for life in dry soil conditions.</p> | ✓               | number      | 0.01             |



### Metric Guidance by Work Element

| WE ID | Work Element Name | Category | Work Element Definition | Metric ID | Metric   | Metric Guidance ID | Metric Guidance  | Metric Required | Metric Type | Metric Precision |
|-------|-------------------|----------|-------------------------|-----------|--|--------------------|--|-----------------|-------------|------------------|
| 1527  |                   |          |                         |           | # of acres of riparian wetland habitat protected | 374                | <p>Identify the total acres of habitat protected in the riparian habitat zone.</p> <p>To calculate acres, use a GIS program or approximate the value by multiplying the total length of the protected habitat zone times the average width of the protected habitat zone in feet / divided by 43,560 sq. ft./acre. (Note the total area protected for this WE should roughly equal the total acres identified in the lease.)</p> <p>-Riparian: Transition zone between aquatic and upland habitat typically within a river's floodplain. These habitats are related to and influenced by surface or subsurface waters, especially the margins of streams, lakes, ponds, wetlands, seeps, and ditches between land and a stream and above the average high watermark, or bank full height. Plant communities along the river and lake margins are called riparian vegetation, characterized by hydrophilic plants. This includes floodplain habitat, which may be restored to properly functioning conditions. (This excludes floodplain habitat influenced by the tides, which is classified as "Estuarine Habitat" for Pisces.)</p> <p>-Wetland: Habitat designated and regulated as wetland habitat, which is dominated by areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support a prevalence of hydrophytic vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs and similar areas. For more information consult the USFWS National Wetland Inventory at <a href="http://www.fws.gov/wetlands/">http://www.fws.gov/wetlands/</a> or EPA wetland information at <a href="http://www.epa.gov/wetlands/">http://www.epa.gov/wetlands/</a>.</p> | ✓               | number      | 0.01             |



### Metric Guidance by Work Element

| WE ID | Work Element Name                                      | Category | Work Element Definition | Metric ID | Metric   | Metric Guidance ID | Metric Guidance   | Metric Required | Metric Type | Metric Precision |
|-------|--|----------|-------------------------|-----------|--|--------------------|---|-----------------|-------------|------------------|
| 1528  | # of acres of freshwater non-wetland habitat protected |          |                         | 380       | # of acres of freshwater non-wetland habitat protected | 380                | <p>Identify the total acres of habitat protected in the freshwater non-tidal habitat zone. To calculate acres, use a GIS program or approximate the value by multiplying the total length of the protected habitat zone times the average width of the protected habitat zone in feet / divided by 43,560 sq. ft./acre. (Note the total area protected for this WE should roughly equal the total acres identified in the lease.)</p> <p>-Freshwater non-tidal: Habitat with freshwater flowing in a channel or watercourse, including lakes, ponds, and adjacent areas below the high water mark that is not subject to the tidal influence of the estuarine zone.</p> <p>-Non-wetland: Habitat designated and regulated as non-wetland habitat, which is dominated by areas that are not inundated or saturated by surface or groundwater at a frequency and duration sufficient to support a prevalence of non-hydrophytic vegetation typically adapted for life in dry soil conditions.</p>   | ✓               | number      | 0.01             |
| 1529  | # of acres of freshwater wetland habitat protected     |          |                         | 376       | # of acres of freshwater wetland habitat protected     | 376                | <p>Identify the total acres of habitat protected in the freshwater non-tidal habitat zone. To calculate acres, use a GIS program or approximate the value by multiplying the total length of the protected habitat zone times the average width of the protected habitat zone in feet / divided by 43,560 sq. ft./acre. (Note the total area protected for this WE should roughly equal the total acres identified in the lease.)</p> <p>-Freshwater non-tidal: Habitat with freshwater flowing in a channel or watercourse, including lakes, ponds, and adjacent areas below the high water mark that is not subject to the tidal influence of the estuarine zone.</p> <p>-Wetland: Habitat designated and regulated as wetland habitat, which is dominated by areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support a prevalence of hydrophytic vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs and similar areas. For more information consult the USFWS National Wetland Inventory at <a href="http://www.fws.gov/wetlands/">http://www.fws.gov/wetlands/</a> or EPA wetland information at <a href="http://www.epa.gov/wetlands/">http://www.epa.gov/wetlands/</a>.</p> | ✓               | number      | 0.01             |



### Metric Guidance by Work Element

| WE ID | Work Element Name | Category | Work Element Definition | Metric ID | Metric  | Metric Guidance ID | Metric Guidance  | Metric Required | Metric Type | Metric Precision |
|-------|-------------------|----------|-------------------------|-----------|---|--------------------|--|-----------------|-------------|------------------|
| 1530  |                   |          |                         |           | # of acres of estuarine wetland habitat protected | 375                | <p>Identify the total acres of habitat protected in the estuarine habitat zone. To calculate acres, use a GIS program or approximate the value by multiplying the total length of the protected habitat zone times the average width of the protected habitat zone in feet / divided by 43,560 sq. ft./acre. (Note the total area protected for this WE should roughly equal the total acres identified in the lease.)</p> <p>-Estuarine: Habitat that is part of a semi-enclosed coastal body of water that is subject to the ebb and flow of tides, with one or more rivers or streams flowing into it, and with a free connection to the nearshore marine zone. This includes habitat impacted by the highest high and lowest low tides of a year. Estuaries are environments whose pH, salinity, and water levels are subject to the ebb and flow of tides, and the physical and chemical properties of the river that feeds the estuary and the ocean from which it derives its salinity. This habitat includes floodplain/riparian habitat subject to inundation from the tides.</p> <p>-Wetland: Habitat designated and regulated as wetland habitat, which is dominated by areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support a prevalence of hydrophytic vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs and similar areas. For more information consult the USFWS National Wetland Inventory at <a href="http://www.fws.gov/wetlands/">http://www.fws.gov/wetlands/</a> or EPA wetland information at <a href="http://www.epa.gov/wetlands/">http://www.epa.gov/wetlands/</a>.</p> | ✓               | number      | 0.01             |



### Metric Guidance by Work Element

| WE ID | Work Element Name      | Category                  | Work Element Definition   | Metric ID | Metric  | Metric Guidance ID | Metric Guidance   | Metric Required | Metric Type | Metric Precision |
|-------|------------------------|---------------------------|---|-----------|---|--------------------|---|-----------------|-------------|------------------|
|       |                        |                           |   | 1531      | # of acres of estuarine non-wetland habitat protected | 379                | Identify the total acres of habitat protected in the estuarine habitat zone. To calculate acres, use a GIS program or approximate the value by multiplying the total length of the protected habitat zone times the average width of the protected habitat zone in feet / divided by 43,560 sq. ft./acre. (Note the total area protected for this WE should roughly equal the total acres identified in the lease.)<br>-Estuarine: Habitat that is part of a semi-enclosed coastal body of water that is subject to the ebb and flow of tides, with one or more rivers or streams flowing into it, and with a free connection to the nearshore marine zone. This includes habitat impacted by the highest high and lowest low tides of a year. Estuaries are environments whose pH, salinity, and water levels are subject to the ebb and flow of tides, and the physical and chemical properties of the river that feeds the estuary and the ocean from which it derives its salinity. This habitat includes floodplain/riparian habitat subject to inundation from the tides.<br>-Non-wetland: Habitat designated and regulated as non-wetland habitat, which is dominated by areas that are not inundated or saturated by surface or groundwater at a frequency and duration sufficient to support a prevalence of non-hydrophytic vegetation typically adapted for life in dry soil conditions. | ✓               | number      | 0.01             |
|       |                        |                           |   | 1724      | # of miles of streambank protected                    | 393                | To calculate the length of riparian bank habitat protected in miles, measure the streambank length protected by using the route of the center of channel. The measurement should reflect the center of channel counted for the right side, if looking downstream; or left side looking downstream; or both, if both banks are protected. This excludes the length of streambank associated with side channels or inlets.  | ✓               | number      | 0.01             |
| 99    | Outreach and Education | Planning and Coordination | Covers work to educate or communicate with the public. Includes conducting classes, seminars, workshops, training, symposia, and conferences. Excludes work to coordinate with landowners or other direct participants in on-the-ground conservation (include this type of coordination as part of the associated implementation WE), or work to identify and select new projects (WE#114, Identify and Select Projects). | 1447      | # of students reached                                 | 77                 | This is the total number of "class" participants for any given event; it does not include members of the "presenting" organization.   | ✓               | number      | 1.0              |



### Metric Guidance by Work Element

| WE ID | Work Element Name | Category | Work Element Definition | Metric ID | Metric                      | Metric Guidance ID | Metric Guidance   | Metric Required | Metric Type | Metric Precision |
|-------|-------------------|----------|-------------------------|-----------|-----------------------------|--------------------|---|-----------------|-------------|------------------|
| 1448  |                   |          |                         |           | # of general public reached | 78                 | This is the total number of "class" participants for any given event; it does not include members of the "presenting" organization. | ✓               | number      | 1.0              |
| 1449  |                   |          |                         |           | # of teachers reached       | 79                 | This is the total number of "class" participants for any given event; it does not include members of the "presenting" organization. | ✓               | number      | 1.0              |



### Metric Guidance by Work Element

| WE ID | Work Element Name                | Category  | Work Element Definition  | Metric ID | Metric                         | Metric Guidance ID | Metric Guidance  | Metric Required | Metric Type | Metric Precision |
|-------|----------------------------------|-----------|--|-----------|--------------------------------|--------------------|--|-----------------|-------------|------------------|
| 132   | Produce (Annual) Progress Report | Reporting | <p>This work element covers written reports of results that are submitted to BPA for dissemination to the public. These progress reports may cover less than a year or multiple years. Progress reports come in three types, RM&amp;E Technical Progress Report, Non-technical Progress Report, and Hybrid Progress Report</p> <p>RM&amp;E Technical Progress Reports are used for contracts that have RM&amp;E work elements (WE#156, Develop RM&amp;E Methods and Designs, WE#157, Collect/Generate/Validate Field and Lab Data, WE#162, Analyze/Interpret Data).</p> <p>Non-technical Progress Reports are used for contracts that have no RM&amp;E work elements.</p> <p>Hybrid Progress Reports are used for contracts that have RM&amp;E work elements (WE#156, Develop RM&amp;E Methods and Designs, WE#157, Collect/Generate/Validate Field and Lab Data, WE#162, Analyze/Interpret Data), as well as other work elements. Work with your COTR and the RME Support team to determine appropriate due dates and format for Hybrid reports. For example you may have separate chapters for RM&amp;E, habitat restoration, and O&amp;M activities.</p> <p>Work with your COTR and the RME support team if you have a question regarding which report type is most suitable for your project.</p> <p>Reports should be submitted using the most recent BPA reporting guidance &amp; templates available at <a href="https://www.cbfish.org/Help.mvc/GuidanceDocuments">https://www.cbfish.org/Help.mvc/GuidanceDocuments</a></p> <p>Once uploaded in Pisces, a progress report will be finalized by BPA with an identification number, and then made publicly available via <a href="https://www.cbfish.org">https://www.cbfish.org</a>.</p> | 1768      | Start date of reporting period | 437                | The start date of the period your report covers. RM&E technical reports should report on calendar years, January through December. |                 | date        |                  |



### Metric Guidance by Work Element

| WE ID | Work Element Name                            | Category                                    | Work Element Definition   | Metric ID | Metric   | Metric Guidance ID | Metric Guidance  | Metric Required | Metric Type | Metric Precision |
|-------|--|---|---|-----------|--|--------------------|--|-----------------|-------------|------------------|
|       |  |   |   | 1769      | End date of reporting period   | 438                | The end date of the period your report covers. RM&E technical reports should report on calendar years, January through December.   |                 | date        |                  |
| 148   | Install Flow Measuring Device                | Water Conservation and Irrigation Practices | Includes activities for installing and/or moving electrical flow gauges or other complex flow measuring devices, such as flow gauges using telemetry to transmit data. Devices may be fixed or portable, and tend to be left in place for a full season or longer. Actual measurement would occur under WE#157, Collect/Generate/Validate Field and Lab Data.   | 1450      | Are the measuring devices portable or fixed?   | 80                 | Self-Explanatory   | ✓               | list        |                  |
|       |  |   |   | 1502      | Type of metering device primarily used   | 135                | Metering Device choices: 1) Electronic, Data Transmitted - a gauge that records and transmits by telemetry to another location, 2) Electronic, Data Read On-Site - a gauge that is read on-site, or 3) Other - Under "Deliverable Specification" please describe device and explain why this device would be more appropriate.   | ✓               | list        |                  |
| 157   | Collect/Generate/Validate Field and Lab Data | RM & E and Data Management                  | <p>Collect, generate, or capture source or empirical data; enter data into a computer spreadsheet/database; use automated data capture programs/routines and related hardware/software (e.g., PDAs, data loggers, thermographs); prepare or compile metadata; implement quality assurance/quality control (QA/QC) processes.</p> <p>Includes the collection of field samples/specimens (e.g., tissue, macroinvertebrate, or water quality samples), remote sensing data, and the subsequent laboratory processing of field samples/specimens and generation of data summaries.</p> <p>May include the installation of a weir, trap, electronic portal, or other equipment or facility used to monitor fish passage or to collect juvenile or adult fish.</p> <p>Do NOT use this work element for the following types of work:</p> <ul style="list-style-type: none"> <li>• if you are marking or tagging animals, you must use WE#158, Mark/Tag Animals,</li> <li>• data analysis or interpretation requires WE#162, Analyze/Interpret Data,</li> </ul> | 1464      | Primary R, M, and E Focal Strategy [Population Status, Hydrosystem, Tributary Habitat, Estuary/Ocean, Harvest, Hatchery, Predation, Multiple Strategies] | 94                 | <p>Primary RM&amp;E Focal Strategies refer to the principle focus of the work being conducted in relation to program RM&amp;E strategy management questions. Additional details on strategies and management questions may be found at <a href="https://www.cbfish.org/ProgramStrategy.mvc/Ind">https://www.cbfish.org/ProgramStrategy.mvc/Ind</a> ex. Secondary RM&amp;E strategies are used when data collected for one strategy also supports other strategies. For example, Coded Wire Tag monitoring used for Harvest management may also be used to support the effectiveness of hatchery programs. Multiple Strategies: should only be selected under the Secondary RM&amp;E Focal Area Metric.</p> <p>Population Status – Monitoring of Fish or Wildlife Program focal species population-specific abundance, productivity, spatial distribution, or genetic and life history diversity. Population status may be used to support other focal strategies.</p> <p>Hydrosystem – RM&amp;E applicable to management questions or critical uncertainties associated with the mainstem and reservoirs, and the operation of the dams. (e.g. total dissolved gas, flow, fish passage, food web, etc.)</p> <p>Tributary Habitat – RM&amp;E applicable to management questions or critical uncertainties</p> | ✓               | list        |                  |



### Metric Guidance by Work Element

- validation of completion and intended performance of implemented actions, or verification of Pisces metrics should be captured under the appropriate implementation work element (e.g., fence or culvert installation, habitat improvement, construction),
- visual surveys, photo points, and inspection of physical parameters to assure habitat structures are functioning as intended should be captured under WE#186, Operate and Maintain Habitat/Passage/Structure.

associated with habitat enhancement and protection in Columbia basin tributaries including abiotic (flow, temperature, structural diversity, etc.) and biotic (population density, biomass, supporting survival or capacity) factors.

Estuary/Ocean – RM&E applicable to management questions or critical uncertainties associated with the Columbia River estuary habitat or the ocean (e.g. population density or biomass supporting survival or capacity, ecological condition, etc.).

Harvest – RM&E associated with harvest management questions or critical uncertainties (e.g. harvest/catch, effort, food web, etc.).

Hatchery - RM&E associated with hatchery management questions or critical uncertainties (e.g. pHOS, PNI, genetics, survival, relative reproductive success, density dependence, etc.).

Predation – RM&E associated with predation management questions or critical uncertainties (e.g. marine mammal, cormorants, Caspian terns, pikeminnow and non-native fish species considered predators to salmonids, sturgeon, lamprey, burbot and wildlife species mitigated under the Northwest Power Act).

|      |  |     |  |   |      |
|------|--|-----|--|---|------|
| 1472 | Primary R, M, and E Type [Status and Trend Monitoring, Action Effectiveness Research, Uncertainties Research, Project Implementation/ Compliance Monitoring] | 102 | Primary Research, Monitoring, and Evaluation Type refers to the primary goal of the work. If there is a secondary type, please enter it under the metric "Secondary R, M, and E Type." This information helps us classify R, M, and E work. Definitions of each type follow.   | ✓ | list |
|      |  |     | Status and Trend Monitoring: A type of monitoring (or research) that attempts to estimate the status of fish populations and watershed conditions, and to track over time Indicators of habitat, water quality, water quantity and other factors that affect watershed health. The spatial scale is large and varies from watershed scale (HUC 6), to ESUs, to an entire region such as the Pacific Northwest. |   |      |
|      |  |     | Action Effectiveness Monitoring: A type of monitoring (or research) that attempts to establish "cause and effect" or inferential relationships between fish conditions, habitat conditions, and/or management actions. It pertains to evaluation of projects and programs  |   |      |



## Metric Guidance by Work Element

meant to protect or enhance habitat conditions or fish production. These studies are complex and technically rigorous, and often require measuring many parameters under a very structured statistical design to detect the variable affecting change. Action effectiveness research can be performed for a localized effect (project or stream reach level effect) or for a watershed level effect (intensively monitored effect). Localized (project level) effects most commonly identify changes in habitat conditions associated with the action, while fish or biological responses may require a watershed level (intensively monitored approach) to capture a broader area in which a biological response is expressed.

**Uncertainties Research:** Research to resolve scientific uncertainties regarding the relationships between fish or wildlife health, population performance, habitat conditions, life history and/or genetic. This is a manipulative experiment where variables are manipulated to infer or demonstrate cause and effect relationships using statistical-designed hypothesis testing. Uncertainties research does not include experimental research and monitoring specifically targeting the effect of a mitigation or restoration action (this is Action Effectiveness Research). It also does not include monitoring (observational studies) of fish or habitat conditions with inferences from statistical correlation assessments (this is Status and Trend Monitoring).

**Project Implementation/Compliance Monitoring:** The monitoring of management actions to determine if they were implemented properly according to the project design or comply with established standards or with laws, rules, or benchmarks. This is normally associated with a restoration project where an engineered solution has been constructed, or where a best management practice (BMP) has been implemented. Implementation monitoring documents the type of action, the location, and whether the action was implemented successfully. It also assesses whether the project remained functional over the life of the monitoring. It does not require environmental data and is usually a low-cost monitoring activity.

**Project Feasibility and Development Monitoring:** The monitoring of environmental attributes that influence project design (e.g., topographic



## Metric Guidance by Work Element

|      |  |  |      |
|------|--|--|------|
| 1478 | <p>Secondary R, M, and E Type 108<br/>         [Status and Trend Monitoring, Action Effectiveness Research, Uncertainties Research, Project Implementation/ Compliance Monitoring]</p> | <p>survey, groundwater or stream discharge assessments).</p>   | list |
|      |  | <p>Secondary Research, Monitoring, and Evaluation Type refers to a secondary goal or indirect benefit of the work. This information helps us classify R, M, and E work. Definitions of each type follow.</p>   |      |
|      |  | <p>Status and Trend Monitoring: A type of monitoring (or research) that attempts to estimate the status of fish populations and watershed conditions, and to track over time Indicators of habitat, water quality, water quantity and other factors that affect watershed health. The spatial scale is large and varies from watershed scale (HUC 6), to ESUs, to an entire region such as the Pacific Northwest.</p>  |      |
|      |  | <p>Action Effectiveness Monitoring: A type of monitoring (or research) that attempts to establish "cause and effect" or inferential relationships between fish conditions, habitat conditions, and/or management actions. It pertains to evaluation of projects and programs meant to protect or enhance habitat conditions or fish production. These studies are complex and technically rigorous, and often require measuring many parameters under a very structured statistical design to detect the variable affecting change. Action effectiveness research can be performed for a localized effect (project or stream reach level effect) or for a watershed level effect (intensively monitored effect). Localized (project level) effects most commonly identify changes in habitat conditions associated with the action, while fish or biological responses may require a watershed level (intensively monitored approach) to capture a broader area in which a biological response is expressed.</p> |      |
|      |  | <p>Uncertainties Research: Research to resolve scientific uncertainties regarding the relationships between fish or wildlife health, population performance, habitat conditions, life history and/or genetic. This is a manipulative experiment where variables are manipulated to infer or demonstrate cause and effect relationships using statistical-designed hypothesis testing. Uncertainties research does not include experimental research and monitoring specifically targeting the effect of a mitigation or restoration action (this is Action Effectiveness Monitoring). It also does not include monitoring</p>  |      |



## Metric Guidance by Work Element

(observational studies) of fish or habitat conditions with inferences from statistical correlation assessments (this is Status and Trend Monitoring).

**Project Implementation/Compliance Monitoring:**  
The monitoring of management actions to determine if they were implemented properly according to the project design or comply with established standards or with laws, rules, or benchmarks. This is normally associated with a restoration project where an engineered solution has been constructed, or where a best management practice (BMP) has been implemented. Implementation monitoring documents the type of action, the location, and whether the action was implemented successfully. It also assesses whether the project remained functional over the life of the monitoring. It does not require environmental data and is usually a low-cost monitoring activity.

**Project Feasibility and Development Monitoring:**  
The monitoring of environmental attributes that influence project design, such as topographic survey, groundwater or stream discharge assessments.

|      |  |     |   |      |
|------|--|-----|---|------|
| 1495 | Secondary R, M, and E Focal Strategy [Population Status, Hydrosystem, Tributary Habitat, Estuary/Ocean, Harvest, Hatchery, Predation, Multiple Strategies] | 128 | Secondary RM&E strategies are used when data collected for one strategy also supports other strategies. For example, Coded Wire Tag monitoring used for Harvest management may also be used to support the effectiveness of hatchery programs. If there is a secondary focal strategy different from the primary focal strategy, select it here. If not applicable, uncheck the metric. | list |
|      |  |     | Please note the focal strategies are only for the work YOU conduct, not how others may use it in the future. Additional details on strategies and management questions may be found at <a href="https://www.cbfish.org/ProgramStrategy.mvc/Ind ex">https://www.cbfish.org/ProgramStrategy.mvc/Ind ex</a> .  |      |
|      |  |     | Population Status – Monitoring of Fish or Wildlife Program focal species population-specific abundance, productivity, spatial distribution, or genetic and life history diversity. Population status may be used to support other focal strategies.   |      |
|      |  |     | Hydrosystem – RM&E applicable to management questions or critical uncertainties associated with   |      |



## Metric Guidance by Work Element

the mainstem and reservoirs, and the operation of the dams. (e.g. total dissolved gas, flow, fish passage, food web, etc.)

Tributary Habitat – RM&E applicable to management questions or critical uncertainties associated with habitat enhancement and protection in Columbia basin tributaries including abiotic (flow, temperature, structural diversity, etc.) and biotic (population density, biomass, supporting survival or capacity) factors.

Estuary/Ocean – RM&E applicable to management questions or critical uncertainties associated with the Columbia River estuary habitat or the ocean (e.g. population density or biomass supporting survival or capacity, ecological condition, etc.).

Harvest – RM&E associated with harvest management questions or critical uncertainties (e.g. harvest/catch, effort, food web, etc.).

Hatchery - RM&E associated with hatchery management questions or critical uncertainties (e.g. pHOS, PNI, genetics, survival, relative reproductive success, density dependence, etc.).

Predation – RM&E associated with predation management questions or critical uncertainties (e.g. marine mammal, cormorants, Caspian terns, pikeminnow and non-native fish species considered predators to salmonids, sturgeon, lamprey, burbot and wildlife species mitigated under the Northwest Power Act).

Multiple Strategies – RM&E associated with broad, ecosystem-level management questions across multiple strategies. Only select if you intend to report results for more than two RM&E Strategies in relationship to specific management questions.

|     |                  |                            |  |      |  |    |   |   |      |
|-----|------------------|----------------------------|--|------|--|----|---|---|------|
| 158 | Mark/Tag Animals | RM & E and Data Management | Covers activities integral to placing marks/tags on animals. Recognizing that this is a subset of data collection/generation, it has been separated to facilitate tracking the sometimes-significant costs associated with animal marking/tagging.<br><br>This also covers Installation of a weir, trap, electronic portal, or other equipment or facility used to monitor fish passage or | 1464 | Primary R, M, and E Focal Strategy [Population Status, Hydrosystem, Tributary Habitat, Estuary/Ocean, Harvest, Hatchery, Predation, Multiple Strategies] | 94 | Primary RM&E Focal Strategies refer to the principle focus of the work being conducted in relation to program RM&E strategy management questions. Additional details on strategies and management questions may be found at <a href="https://www.cbfish.org/ProgramStrategy.mvc/Ind ex">https://www.cbfish.org/ProgramStrategy.mvc/Ind ex</a> . Secondary RM&E strategies are used when data collected for one strategy also supports other strategies. For example, Coded Wire Tag monitoring used for Harvest management may also be used to support the effectiveness of | ✓ | list |
|-----|------------------|----------------------------|--|------|--|----|---|---|------|



## Metric Guidance by Work Element

to collect juvenile or adult fish. This describes the installation of relatively permanent fixed facilities as well as more mobile equipment, like rotary screw traps for smolts.

This work element includes capture and bio-sampling activities when they support a primary purpose of placing the mark/tag. It also includes monitoring the effects of the mark/tag on the animals (e.g., tagging mortality), the mark/tag retention/detectability, other QA/QC for the mark/tag data, and creation of associated metadata. It does not include capture activities when the primary purpose is to collect biological data, and does not include subsequent mark/tag observations and analysis.

When tagging fish, a separate instance of WE#158, Mark/Tag Animals must be used for different species. Also, if the marks are different by life stage (juveniles vs. adults), you should use a separate instance of WE#158, Mark/Tag Animals for each life stage. Insertion of a CWT in fry, followed by insertion of a PIT tag in the same fish as a parr, would be considered as both occurring under the "juvenile" life stage, and thus could be covered under the same WE#158, Mark/Tag Animals.

If the marks will be applied to fish in a closed system, and fish will not be released, simply include your marking/tagging technique as a milestone under WE#157, Collect/Generate/Validate Field and Lab Data.

For the use of this WE, a tag/mark is defined as something that is applied or done to the animal. "Genetic tags" do not fit this definition. Genetic sampling should be addressed under WE#157, Collect/Generate/Validate Field and Lab Data.

hatchery programs. Multiple Strategies: should only be selected under the Secondary RM&E Focal Area Metric.

Population Status – Monitoring of Fish or Wildlife Program focal species population-specific abundance, productivity, spatial distribution, or genetic and life history diversity. Population status may be used to support other focal strategies.

Hydrosystem – RM&E applicable to management questions or critical uncertainties associated with the mainstem and reservoirs, and the operation of the dams. (e.g. total dissolved gas, flow, fish passage, food web, etc.)

Tributary Habitat – RM&E applicable to management questions or critical uncertainties associated with habitat enhancement and protection in Columbia basin tributaries including abiotic (flow, temperature, structural diversity, etc.) and biotic (population density, biomass, supporting survival or capacity) factors.

Estuary/Ocean – RM&E applicable to management questions or critical uncertainties associated with the Columbia River estuary habitat or the ocean (e.g. population density or biomass supporting survival or capacity, ecological condition, etc.).

Harvest – RM&E associated with harvest management questions or critical uncertainties (e.g. harvest/catch, effort, food web, etc.).

Hatchery - RM&E associated with hatchery management questions or critical uncertainties (e.g. pHOS, PNI, genetics, survival, relative reproductive success, density dependence, etc.).

Predation – RM&E associated with predation management questions or critical uncertainties (e.g. marine mammal, cormorants, Caspian terns, pikeminnow and non-native fish species considered predators to salmonids, sturgeon, lamprey, burbot and wildlife species mitigated under the Northwest Power Act).

|      |   |     |   |   |      |
|------|---|-----|---|---|------|
| 1472 | Primary R, M, and E Type [Status and Trend Monitoring, Action Effectiveness Research, | 102 | Primary Research, Monitoring, and Evaluation Type refers to the primary goal of the work. If there is a secondary type, please enter it under the metric "Secondary R, M, and E Type." This | ✓ | list |
|------|---|-----|---|---|------|



## Metric Guidance by Work Element

Uncertainties Research,  
Project Implementation/  
Compliance Monitoring]

information helps us classify R, M, and E work.  
Definitions of each type follow.

**Status and Trend Monitoring:** A type of monitoring (or research) that attempts to estimate the status of fish populations and watershed conditions, and to track over time Indicators of habitat, water quality, water quantity and other factors that affect watershed health. The spatial scale is large and varies from watershed scale (HUC 6), to ESUs, to an entire region such as the Pacific Northwest.

**Action Effectiveness Monitoring:** A type of monitoring (or research) that attempts to establish "cause and effect" or inferential relationships between fish conditions, habitat conditions, and/or management actions. It pertains to evaluation of projects and programs meant to protect or enhance habitat conditions or fish production. These studies are complex and technically rigorous, and often require measuring many parameters under a very structured statistical design to detect the variable affecting change. Action effectiveness research can be performed for a localized effect (project or stream reach level effect) or for a watershed level effect (intensively monitored effect). Localized (project level) effects most commonly identify changes in habitat conditions associated with the action, while fish or biological responses may require a watershed level (intensively monitored approach) to capture a broader area in which a biological response is expressed.

**Uncertainties Research:** Research to resolve scientific uncertainties regarding the relationships between fish or wildlife health, population performance, habitat conditions, life history and/or genetic. This is a manipulative experiment where variables are manipulated to infer or demonstrate cause and effect relationships using statistical-designed hypothesis testing. Uncertainties research does not include experimental research and monitoring specifically targeting the effect of a mitigation or restoration action (this is Action Effectiveness Research). It also does not include monitoring (observational studies) of fish or habitat conditions with inferences from statistical correlation assessments (this is Status and Trend Monitoring).

**Project Implementation/Compliance Monitoring:**



## Metric Guidance by Work Element

The monitoring of management actions to determine if they were implemented properly according to the project design or comply with established standards or with laws, rules, or benchmarks. This is normally associated with a restoration project where an engineered solution has been constructed, or where a best management practice (BMP) has been implemented. Implementation monitoring documents the type of action, the location, and whether the action was implemented successfully. It also assesses whether the project remained functional over the life of the monitoring. It does not require environmental data and is usually a low-cost monitoring activity.

Project Feasibility and Development Monitoring: The monitoring of environmental attributes that influence project design (e.g., topographic survey, groundwater or stream discharge assessments).

|      |   |   |      |
|------|---|---|------|
| 1478 | Secondary R, M, and E Type 108<br>[Status and Trend Monitoring, Action Effectiveness Research, Uncertainties Research, Project Implementation/ Compliance Monitoring] | <p>Secondary Research, Monitoring, and Evaluation Type refers to a secondary goal or indirect benefit of the work. This information helps us classify R, M, and E work. Definitions of each type follow.</p> <p>Status and Trend Monitoring: A type of monitoring (or research) that attempts to estimate the status of fish populations and watershed conditions, and to track over time Indicators of habitat, water quality, water quantity and other factors that affect watershed health. The spatial scale is large and varies from watershed scale (HUC 6), to ESUs, to an entire region such as the Pacific Northwest.</p> <p>Action Effectiveness Monitoring: A type of monitoring (or research) that attempts to establish "cause and effect" or inferential relationships between fish conditions, habitat conditions, and/or management actions. It pertains to evaluation of projects and programs meant to protect or enhance habitat conditions or fish production. These studies are complex and technically rigorous, and often require measuring many parameters under a very structured statistical design to detect the variable affecting change. Action effectiveness research can be performed for a localized effect (project or stream reach level effect) or for a watershed level effect (intensively monitored effect). Localized (project level) effects most commonly identify changes in</p> | list |
|------|---|---|------|



## Metric Guidance by Work Element

habitat conditions associated with the action, while fish or biological responses may require a watershed level (intensively monitored approach) to capture a broader area in which a biological response is expressed.

**Uncertainties Research:** Research to resolve scientific uncertainties regarding the relationships between fish or wildlife health, population performance, habitat conditions, life history and/or genetic. This is a manipulative experiment where variables are manipulated to infer or demonstrate cause and effect relationships using statistical-designed hypothesis testing. Uncertainties research does not include experimental research and monitoring specifically targeting the effect of a mitigation or restoration action (this is Action Effectiveness Monitoring). It also does not include monitoring (observational studies) of fish or habitat conditions with inferences from statistical correlation assessments (this is Status and Trend Monitoring).

**Project Implementation/Compliance Monitoring:** The monitoring of management actions to determine if they were implemented properly according to the project design or comply with established standards or with laws, rules, or benchmarks. This is normally associated with a restoration project where an engineered solution has been constructed, or where a best management practice (BMP) has been implemented. Implementation monitoring documents the type of action, the location, and whether the action was implemented successfully. It also assesses whether the project remained functional over the life of the monitoring. It does not require environmental data and is usually a low-cost monitoring activity.

**Project Feasibility and Development Monitoring:** The monitoring of environmental attributes that influence project design, such as topographic survey, groundwater or stream discharge assessments.

|      |  |     |  |      |
|------|--|-----|--|------|
| 1495 | Secondary R, M, and E Focal Strategy [Population Status, Hydrosystem, Tributary Habitat, Estuary/Ocean, Harvest, Hatchery, Predation, Multiple Strategies] | 128 | Secondary RM&E strategies are used when data collected for one strategy also supports other strategies. For example, Coded Wire Tag monitoring used for Harvest management may also be used to support the effectiveness of hatchery programs. If there is a secondary focal strategy different from the primary focal strategy, | list |
|------|--|-----|--|------|



## Metric Guidance by Work Element

select it here. If not applicable, uncheck the metric.

Please note the focal strategies are only for the work YOU conduct, not how others may use it in the future. Additional details on strategies and management questions may be found at <https://www.cbfish.org/ProgramStrategy.mvc/Ind ex>.

**Population Status – Monitoring of Fish or Wildlife**  
Program focal species population-specific abundance, productivity, spatial distribution, or genetic and life history diversity. Population status may be used to support other focal strategies.

**Hydrosystem – RM&E applicable to management questions or critical uncertainties associated with the mainstem and reservoirs, and the operation of the dams.** (e.g. total dissolved gas, flow, fish passage, food web, etc.)

**Tributary Habitat – RM&E applicable to management questions or critical uncertainties associated with habitat enhancement and protection in Columbia basin tributaries including abiotic (flow, temperature, structural diversity, etc.) and biotic (population density, biomass, supporting survival or capacity) factors.**

**Estuary/Ocean – RM&E applicable to management questions or critical uncertainties associated with the Columbia River estuary habitat or the ocean** (e.g. population density or biomass supporting survival or capacity, ecological condition, etc.).

**Harvest – RM&E associated with harvest management questions or critical uncertainties** (e.g. harvest/catch, effort, food web, etc.).

**Hatchery - RM&E associated with hatchery management questions or critical uncertainties** (e.g. pHOS, PNI, genetics, survival, relative reproductive success, density dependence, etc.).

**Predation – RM&E associated with predation management questions or critical uncertainties** (e.g. marine mammal, cormorants, Caspian terns, pikeminnow and non-native fish species considered predators to salmonids, sturgeon, lamprey, burbot and wildlife species mitigated under the Northwest Power Act).



### Metric Guidance by Work Element

|     |                        |                            |   |  |  |     |   |        |      |
|-----|------------------------|----------------------------|---|--|--|-----|---|--------|------|
|     |                        |                            |   | Multiple Strategies – RM&E associated with broad, ecosystem-level management questions across multiple strategies. Only select if you intend to report results for more than two RM&E Strategies in relationship to specific management questions. |  |     |   |        |      |
|     |                        |                            |   | 1794   | # fish tagged with CWT   | 471 | Enter the number of fish that will receive CWT. This includes all categories of wire tags, such as coded for release group, state-only, and blank tags.   | number | 1.0  |
|     |                        |                            |   | 1795   | # fish tagged with PIT   | 472 | Enter the number of fish that will receive PIT tags.  | number | 1.0  |
|     |                        |                            |   | 1796   | # fish marked with ad clip   | 473 | Enter the number of fish that will be ad clipped.   | number | 1.0  |
|     |                        |                            |   | 1797   | # fish tagged with acoustic tags   | 474 | Enter the number of fish to be tagged with acoustic tags.   | number | 1.0  |
|     |                        |                            |   | 1798   | # fish tagged with radio tags  | 475 | Enter the number of fish to be tagged with radio tags.  | number | 1.0  |
|     |                        |                            |   | 1799   | # fish marked with scute removal   | 476 | Enter the number of fish that will have scutes removed.   | number | 1.0  |
|     |                        |                            |   | 1800   | # fish marked by otolith   | 477 | Enter the number of fish to receive otolith marking.  | number | 1.0  |
|     |                        |                            |   | 1801   | # of "other" tag/marks applied to fish   | 478 | Enter the number of tags/marks applied to fish for which no metric is supplied. Specify the type(s) and number(s) of marks/tags to be applied in the associated milestone(s) under this work element. If more than one mark or tag will be applied, use a separate milestone to specify each type and number of marks/tags, and enter the total number of "other" marks/tags under this metric.   | number | 1.0  |
| 162 | Analyze/Interpret Data | RM & E and Data Management | Data analysis that goes beyond generation of data summaries from data collected or generated in the field or through remote sensing. These activities apply analytical tools to derive variables, or indicators to inform management decisions. Often involving tests of statistical significance, this work element also may include modeling, indices, and synthesis. Typically culminates in resource management recommendations presented in a report of research/evaluation findings or analyses presented as formal publications. For the effort to publish your study, also use WE#183, Produce Journal Article. | 1464   | Primary R, M, and E Focal Strategy [Population Status, Hydrosystem, Tributary Habitat, Estuary/Ocean, Harvest, Hatchery, Predation, Multiple Strategies] | 94  | Primary RM&E Focal Strategies refer to the principle focus of the work being conducted in relation to program RM&E strategy management questions. Additional details on strategies and management questions may be found at <a href="https://www.cbfish.org/ProgramStrategy.mvc/In dex">https://www.cbfish.org/ProgramStrategy.mvc/In dex</a> . Secondary RM&E strategies are used when data collected for one strategy also supports other strategies. For example, Coded Wire Tag monitoring used for Harvest management may also be used to support the effectiveness of hatchery programs. Multiple Strategies: should only be selected under the Secondary RM&E Focal Area Metric. | ✓      | list |
|     |                        |                            |   | Population Status – Monitoring of Fish or Wildlife Program focal species population-specific abundance, productivity, spatial distribution, or genetic and life history diversity. Population  |  |     |   |        |      |



## Metric Guidance by Work Element

status may be used to support other focal strategies.

Hydrosystem – RM&E applicable to management questions or critical uncertainties associated with the mainstem and reservoirs, and the operation of the dams. (e.g. total dissolved gas, flow, fish passage, food web, etc.)

Tributary Habitat – RM&E applicable to management questions or critical uncertainties associated with habitat enhancement and protection in Columbia basin tributaries including abiotic (flow, temperature, structural diversity, etc.) and biotic (population density, biomass, supporting survival or capacity) factors.

Estuary/Ocean – RM&E applicable to management questions or critical uncertainties associated with the Columbia River estuary habitat or the ocean (e.g. population density or biomass supporting survival or capacity, ecological condition, etc.).

Harvest – RM&E associated with harvest management questions or critical uncertainties (e.g. harvest/catch, effort, food web, etc.).

Hatchery - RM&E associated with hatchery management questions or critical uncertainties (e.g. PHOS, PNI, genetics, survival, relative reproductive success, density dependence, etc.).

Predation – RM&E associated with predation management questions or critical uncertainties (e.g. marine mammal, cormorants, Caspian terns, pikeminnow and non-native fish species considered predators to salmonids, sturgeon, lamprey, burbot and wildlife species mitigated under the Northwest Power Act).

|      |  |     |  |   |      |
|------|--|-----|--|---|------|
| 1472 | Primary R, M, and E Type [Status and Trend Monitoring, Action Effectiveness Research, Uncertainties Research, Project Implementation/ Compliance Monitoring] | 102 | Primary Research, Monitoring, and Evaluation Type refers to the primary goal of the work. If there is a secondary type, please enter it under the metric "Secondary R, M, and E Type." This information helps us classify R, M, and E work. Definitions of each type follow. | ✓ | list |
|      |  |     | Status and Trend Monitoring: A type of monitoring (or research) that attempts to estimate the status of fish populations and watershed conditions, and to track over time Indicators of habitat, water quality, water quantity and other                                     |   |      |



## Metric Guidance by Work Element

factors that affect watershed health. The spatial scale is large and varies from watershed scale (HUC 6), to ESUs, to an entire region such as the Pacific Northwest.

**Action Effectiveness Monitoring:** A type of monitoring (or research) that attempts to establish "cause and effect" or inferential relationships between fish conditions, habitat conditions, and/or management actions. It pertains to evaluation of projects and programs meant to protect or enhance habitat conditions or fish production. These studies are complex and technically rigorous, and often require measuring many parameters under a very structured statistical design to detect the variable affecting change. Action effectiveness research can be performed for a localized effect (project or stream reach level effect) or for a watershed level effect (intensively monitored effect). Localized (project level) effects most commonly identify changes in habitat conditions associated with the action, while fish or biological responses may require a watershed level (intensively monitored approach) to capture a broader area in which a biological response is expressed.

**Uncertainties Research:** Research to resolve scientific uncertainties regarding the relationships between fish or wildlife health, population performance, habitat conditions, life history and/or genetic. This is a manipulative experiment where variables are manipulated to infer or demonstrate cause and effect relationships using statistical-designed hypothesis testing. Uncertainties research does not include experimental research and monitoring specifically targeting the effect of a mitigation or restoration action (this is Action Effectiveness Research). It also does not include monitoring (observational studies) of fish or habitat conditions with inferences from statistical correlation assessments (this is Status and Trend Monitoring).

**Project Implementation/Compliance Monitoring:** The monitoring of management actions to determine if they were implemented properly according to the project design or comply with established standards or with laws, rules, or benchmarks. This is normally associated with a restoration project where an engineered solution has been constructed, or where a best management practice (BMP) has been



## Metric Guidance by Work Element

|      |  |  |      |
|------|--|--|------|
| 1478 | <p>Secondary R, M, and E Type 108<br/>         [Status and Trend Monitoring, Action Effectiveness Research, Uncertainties Research, Project Implementation/ Compliance Monitoring]</p> | <p>implemented. Implementation monitoring documents the type of action, the location, and whether the action was implemented successfully. It also assesses whether the project remained functional over the life of the monitoring. It does not require environmental data and is usually a low-cost monitoring activity.</p> <p>Project Feasibility and Development Monitoring: The monitoring of environmental attributes that influence project design (e.g., topographic survey, groundwater or stream discharge assessments).</p>  | list |
|      |  | <p>Status and Trend Monitoring: A type of monitoring (or research) that attempts to estimate the status of fish populations and watershed conditions, and to track over time Indicators of habitat, water quality, water quantity and other factors that affect watershed health. The spatial scale is large and varies from watershed scale (HUC 6), to ESUs, to an entire region such as the Pacific Northwest.</p>  |      |
|      |  | <p>Action Effectiveness Monitoring: A type of monitoring (or research) that attempts to establish "cause and effect" or inferential relationships between fish conditions, habitat conditions, and/or management actions. It pertains to evaluation of projects and programs meant to protect or enhance habitat conditions or fish production. These studies are complex and technically rigorous, and often require measuring many parameters under a very structured statistical design to detect the variable affecting change. Action effectiveness research can be performed for a localized effect (project or stream reach level effect) or for a watershed level effect (intensively monitored effect). Localized (project level) effects most commonly identify changes in habitat conditions associated with the action, while fish or biological responses may require a watershed level (intensively monitored approach) to capture a broader area in which a biological response is expressed.</p> |      |
|      |  | <p>Uncertainties Research: Research to resolve scientific uncertainties regarding the relationships</p>  |      |



## Metric Guidance by Work Element

between fish or wildlife health, population performance, habitat conditions, life history and/or genetic. This is a manipulative experiment where variables are manipulated to infer or demonstrate cause and effect relationships using statistical-designed hypothesis testing. Uncertainties research does not include experimental research and monitoring specifically targeting the effect of a mitigation or restoration action (this is Action Effectiveness Monitoring). It also does not include monitoring (observational studies) of fish or habitat conditions with inferences from statistical correlation assessments (this is Status and Trend Monitoring).

**Project Implementation/Compliance Monitoring:**  
The monitoring of management actions to determine if they were implemented properly according to the project design or comply with established standards or with laws, rules, or benchmarks. This is normally associated with a restoration project where an engineered solution has been constructed, or where a best management practice (BMP) has been implemented. Implementation monitoring documents the type of action, the location, and whether the action was implemented successfully. It also assesses whether the project remained functional over the life of the monitoring. It does not require environmental data and is usually a low-cost monitoring activity.

**Project Feasibility and Development Monitoring:**  
The monitoring of environmental attributes that influence project design, such as topographic survey, groundwater or stream discharge assessments.

|      |  |     |   |      |
|------|--|-----|---|------|
| 1495 | Secondary R, M, and E Focal Strategy [Population Status, Hydrosystem, Tributary Habitat, Estuary/Ocean, Harvest, Hatchery, Predation, Multiple Strategies] | 128 | Secondary RM&E strategies are used when data collected for one strategy also supports other strategies. For example, Coded Wire Tag monitoring used for Harvest management may also be used to support the effectiveness of hatchery programs. If there is a secondary focal strategy different from the primary focal strategy, select it here. If not applicable, uncheck the metric. | list |
|------|--|-----|---|------|

Please note the focal strategies are only for the work YOU conduct, not how others may use it in the future. Additional details on strategies and management questions may be found at <https://www.cbfish.org/ProgramStrategy.mvc/Ind>



## Metric Guidance by Work Element

ex.

Population Status – Monitoring of Fish or Wildlife Program focal species population-specific abundance, productivity, spatial distribution, or genetic and life history diversity. Population status may be used to support other focal strategies.

Hydrosystem – RM&E applicable to management questions or critical uncertainties associated with the mainstem and reservoirs, and the operation of the dams. (e.g. total dissolved gas, flow, fish passage, food web, etc.)

Tributary Habitat – RM&E applicable to management questions or critical uncertainties associated with habitat enhancement and protection in Columbia basin tributaries including abiotic (flow, temperature, structural diversity, etc.) and biotic (population density, biomass, supporting survival or capacity) factors.

Estuary/Ocean – RM&E applicable to management questions or critical uncertainties associated with the Columbia River estuary habitat or the ocean (e.g. population density or biomass supporting survival or capacity, ecological condition, etc.).

Harvest – RM&E associated with harvest management questions or critical uncertainties (e.g. harvest/catch, effort, food web, etc.).

Hatchery - RM&E associated with hatchery management questions or critical uncertainties (e.g. pHOS, PNI, genetics, survival, relative reproductive success, density dependence, etc.).

Predation – RM&E associated with predation management questions or critical uncertainties (e.g. marine mammal, cormorants, Caspian terns, pikeminnow and non-native fish species considered predators to salmonids, sturgeon, lamprey, burbot and wildlife species mitigated under the Northwest Power Act).

Multiple Strategies – RM&E associated with broad, ecosystem-level management questions across multiple strategies. Only select if you intend to report results for more than two RM&E Strategies in relationship to specific management questions.



### Metric Guidance by Work Element

| WE ID | Work Element Name      | Category           | Work Element Definition  | Metric ID | Metric   | Metric Guidance ID | Metric Guidance   | Metric Required | Metric Type | Metric Precision |
|-------|------------------------|--------------------|--|-----------|--|--------------------|---|-----------------|-------------|------------------|
| 164   | Acquire Water Instream | Water Transactions | <p>Covers final aspects to complete implementation of water transactions through the Columbia Basin Water Transactions Program process to maintain and/or increase the flow of water to provide needed habitat conditions. Work includes steps for payment of funds to water right holder and/or completion of agreement for securing protected water instream. The work element involves the purchase or transfer of water rights for instream purposes, and these water allocations are not withdrawn from the stream. This work element is generally linked with WE#154, Develop and Negotiate Water Right Transaction.</p> <p>This work element may be linked with WE#82, Install Well, WE#149, Install Pipeline, WE#150, Install Sprinkler, and WE#151, Line Diversion Ditch for purposes of legally transferring conserved water instream. Entities using these irrigation efficiency work elements and putting water instream should coordinate with the CBWTP to complete a CBWTP water transaction checklist to ensure conserved flow is put instream and this work element is used to collect metrics for the amount of flow secured instream. See <a href="http://www.cbwtp.org">www.cbwtp.org</a> for more information regarding the Columbia Basin Water Transactions Program. This work element may often be used in a separate contract, such as a contract under the CBWTP, instead of the contract with irrigation efficiency work elements due to the time involved for the conserved water application to be processed through the state water agency. This work element may also be used to transfer water rights instream that were secured from an earlier land transaction if the water rights were not dedicated to instream purposes at the time of acquiring the land and putting the water rights instream is consistent with the fish and wildlife purposes.</p> | 1438      | # of miles of primary stream reach improvement | 66                 | The # of miles refers to the distance (0.1 miles) from the point of diversion being addressed by the acquisition to the next downstream diversion or confluence, whichever comes first. The term acquisition refers to either the lease or the purchase of water. | ✓               | number      | 0.1              |



### Metric Guidance by Work Element

| WE ID | Work Element Name | Category | Work Element Definition | Metric ID | Metric   | Metric Guidance ID | Metric Guidance  | Metric Required | Metric Type | Metric Precision |
|-------|-------------------|----------|-------------------------|-----------|--|--------------------|--|-----------------|-------------|------------------|
| 1439  |                   |          |                         |           | # of miles of total stream reach improvement   | 68                 | The # of miles refers to the distance (0.1 miles) from the point of diversion being addressed by the acquisition to the confluence. The term total includes both primary and secondary stream reaches. The term acquisition refers to either the lease or the purchase of water. | ✓               | number      | 0.01             |
| 1452  |                   |          |                         |           | Amount of water secured in acre-feet/year  | 82                 | This is the total volume of water being addressed by the acquisition over the course of one irrigation season. The term acquisition refers to either the lease or the purchase of water.   | ✓               | number      | 0.1              |
| 1453  |                   |          |                         |           | Flow of water returned to the stream as prescribed in the water acquisition in cubic-feet per second (cfs) | 83                 | Provide the average volume rate of flow expected by the acquisition. The term "acquisition" refers to either the lease or the purchase of water.   | ✓               | number      | 0.01             |
| 1463  |                   |          |                         |           | End day and month for water instream   | 93                 | This is the end of the season in which flow will be returned. Pertains to acre-feet of water acquisition.  | ✓               | list        |                  |
| 1465  |                   |          |                         |           | Start day and month for water instream   | 95                 | This is the beginning of the season in which flow will be returned. Pertains to acre-feet of acquisition. The term acquisition refers to either the lease or the purchase of water.  | ✓               | list        |                  |
| 1466  |                   |          |                         |           | Start year of returned flow  | 96                 | This is the first year in which flow will be returned under the water transaction.   | ✓               | LeaseYear   |                  |
| 1467  |                   |          |                         |           | End year of returned flow  | 97                 | This refers to the end of the agreement (when it expires). For permanent acquisitions, enter Permanent as the metric.  | ✓               | LeaseYear   |                  |



### Metric Guidance by Work Element

| WE ID | Work Element Name                              | Category                 | Work Element Definition   | Metric ID | Metric   | Metric Guidance ID | Metric Guidance   | Metric Required | Metric Type | Metric Precision |
|-------|--|--------------------------|---|-----------|--|--------------------|---|-----------------|-------------|------------------|
| 165   | Produce Environmental Compliance Documentation | Environmental Compliance | Covers any work by the contractor to investigate, gather, acquire, or prepare data and documents in support of obtaining environmental clearances for BPA. Work may include providing maps, drafting a biological assessment, obtaining permits, monitoring and reporting required by permits, conducting public involvement activities, completing a cultural resource survey and report, inspecting water craft, vehicles, and heavy equipment for invasive species, implementing best management practices for lamprey, etc. Contractors are required to comply with all applicable federal, state, and local laws, including those that restrict the transport of invasive species. In all cases, environmental compliance work done by the contractor must be separated from all other work. It is not permitted to combine environmental compliance activities with any other work element. | 1479      | Are herbicides used as part of work performed under this contract? | 109                | Please select yes if you are using BPA funding to apply herbicides as part of this contract. Herbicide use is often related to noxious weed control, restoration of native vegetation, or for rehabilitation purposes after construction. | ✓               | list        |                  |



### Metric Guidance by Work Element

| WE ID | Work Element Name | Category | Work Element Definition | Metric ID | Metric   | Metric Guidance ID | Metric Guidance  | Metric Required | Metric Type | Metric Precision |
|-------|-------------------|----------|-------------------------|-----------|--|--------------------|--|-----------------|-------------|------------------|
| 1722  |                   |          |                         | 391       | Will water craft, heavy equipment, waders, boots, or other equipment be used from outside the local watershed as part of work performed under this contract? | 391                | <p>Please select yes if water craft, heavy equipment, waders, boots, or other equipment from outside the local watershed will be used during performance of work in the contract.</p> <p>Implement standard protocols or BMPs to meet the intent of federal, state, and local aquatic and terrestrial invasive species prevention guidelines.</p> <p>Aquatic invasive Species Guidance: Uniform Decontamination Procedures:<br/> <a href="http://www.aquaticnuisance.org/wordpress/wp-content/uploads/2009/01/Recommended-Protocols-and-Standards-for-Watercraft-Interception-Programs-for-Dreissenid-Mussels-in-the-Western-United-States-September-8.pdf">http://www.aquaticnuisance.org/wordpress/wp-content/uploads/2009/01/Recommended-Protocols-and-Standards-for-Watercraft-Interception-Programs-for-Dreissenid-Mussels-in-the-Western-United-States-September-8.pdf</a> -- Best management guidance for boaters:<br/> <a href="http://www.westernais.org">http://www.westernais.org</a> -- Aquatic Nuisance Species newsletter:<br/> <a href="http://www.aquaticnuisance.org/newsletters">http://www.aquaticnuisance.org/newsletters</a> -- State Aquatic Invasive Species Management Plans: Oregon:<br/> <a href="http://www.aquaticnuisance.org/wordpress/wp-content/uploads/2009/01/Recommended-Protocols-and-Standards-for-Watercraft-Interception-Programs-for-Dreissenid-Mussels-in-the-Western-United-States-September-8.pdf">http://www.aquaticnuisance.org/wordpress/wp-content/uploads/2009/01/Recommended-Protocols-and-Standards-for-Watercraft-Interception-Programs-for-Dreissenid-Mussels-in-the-Western-United-States-September-8.pdf</a> -- Washington:<br/> <a href="http://www.wdfw.wa.gov/publications/pub.php?id=00105">http://www.wdfw.wa.gov/publications/pub.php?id=00105</a> -- Montana:<br/> <a href="http://www.anstaskforce.gov/Montana-FINAL_PLAN.pdf">http://www.anstaskforce.gov/Montana-FINAL_PLAN.pdf</a> -- Idaho:<br/> <a href="http://www.anstaskforce.gov/stateplans.php">http://www.anstaskforce.gov/stateplans.php</a></p> | ✓               | list        | 1.0              |



### Metric Guidance by Work Element

| WE ID | Work Element Name     | Category     | Work Element Definition   | Metric ID | Metric   | Metric Guidance ID | Metric Guidance  | Metric Required | Metric Type | Metric Precision |
|-------|-----------------------|--------------|---|-----------|--|--------------------|--|-----------------|-------------|------------------|
| 176   | Produce Hatchery Fish | Hatchery O&M | This work element includes the fish culture activities associated with a "typical" hatchery O&M contract: obtaining broodstock, spawning broodstock, incubating fertilized eggs, maintaining fish health, rearing juveniles, acclimating juveniles prior to release, releasing juveniles into a stream or lake (either onsite or from a separate acclimation facility), and transportation of fish or eggs between various locations. O&M contractors should use this work element, "Produce Hatchery Fish," along with WE#61, Maintain Artificial Production Facility/Infrastructure, in their SOWs. Use WE#60, Maintain Fish Health, if you are ONLY performing fish health activities under your contract. Unless there are unusual circumstances, use only one work element per species and brood year. | 1410      | Purpose of production program [Supplementation, Harvest Augmentation, Research]                    | 37                 | Drop-down box. Supplement natural populations to help recovery, increase Harvest opportunities, or Research.   | ✓               | list        |                  |
|       |                       |              |   | 1456      | # eggs you released to the natural environment during this contract period                         | 86                 | Number of eggs released to the natural environment from your facility during this contract period. Do not report eggs that are being held over for release under a subsequent contract. Enter zero if eggs are taken to another hatchery for rearing under another BPA-funded contract. A number must be entered. Zero is a valid entry.                       |                 | number      | 1.0              |
|       |                       |              |   | 1459      | # juveniles you released to the natural environment during this contract period                    | 89                 | Number of juveniles released to the natural environment from your facility during this contract period. Do not report juveniles that are being held over for release under a subsequent contract. Enter zero if juveniles are taken to an acclimation site for release under another BPA-funded contract. A number must be entered. Zero is a valid entry.     |                 | number      | 1.0              |
|       |                       |              |   | 1489      | Secondary purpose of production program (if any) [Supplementation, Harvest Augmentation, Research] | 122                | If there is a secondary purpose for the production different from the primary purpose, select it here. Otherwise, uncheck the metric. Secondary purpose of production includes: Supplement natural populations to help recovery, increase Harvest opportunities, or Research.  |                 | list        |                  |
|       |                       |              |   | 1490      | Brood Year   | 123                | Brood year is defined as the calendar year in which the eggs were spawned. This metric is only applicable for eggs, juveniles or fish collected for brood. If releasing adults for non-anadromous fishery or collecting kelts, the metric should be unchecked. Select a brood year from the drop-down list regardless of when eggs or juveniles were released. |                 | list        |                  |



### Metric Guidance by Work Element

| WE ID | Work Element Name | Category | Work Element Definition | Metric ID | Metric   | Metric Guidance ID | Metric Guidance  | Metric Required | Metric Type | Metric Precision |
|-------|-------------------|----------|-------------------------|-----------|--|--------------------|--|-----------------|-------------|------------------|
| 1491  |                   |          |                         | 1491      | # eggs transferred to a non BPA-funded facility  | 124                | Number of eggs transferred to another facility that is not funded by BPA, with the expectation that they will NOT be transferred back to a BPA-funded program. If eggs will be shipped to another BPA-funded program FROM the non-BPA funded program enter zero. |                 | number      | 1.0              |
| 1492  |                   |          |                         | 1492      | # adult fish released to non-anadromous fishery  | 125                | Excess broodstock or returning hatchery fish not utilized for natural spawning that are taken to a lake or other area with no outlet to anadromous streams.  |                 | number      | 1.0              |
| 1493  |                   |          |                         | 1493      | # juveniles transferred to a non BPA-funded facility   | 126                | Number of juveniles transferred to another facility that is not funded by BPA, with the expectation that they will NOT be transferred back to a BPA-funded program.  |                 | number      | 1.0              |
| 1506  |                   |          |                         | 1506      | # of kelts released to natural environment during this contract period                       | 140                | Number of kelts released to the natural environment from your facility during this contract period with the expectation that they will spawn within the next few months.   |                 | number      | 1.0              |
| 1507  |                   |          |                         | 1507      | # of kelts collected or received   | 141                | Number of kelts collected from the natural environment or received for reconditioning.   |                 | number      | 1.0              |
| 1508  |                   |          |                         | 1508      | # of kelts transferred to a non BPA-funded facility  | 142                | Number of kelts transferred to another facility that is not funded by BPA, with the expectation that they will NOT be transferred back to a BPA funded program.  |                 | number      | 1.0              |
| 1509  |                   |          |                         | 1509      | # of captively reared adults released to the natural environment during this contract period | 143                | Number of captively reared adults released to the natural environment from your facility during this contract period with the expectation that they will spawn within the next few months,   |                 | number      | 1.0              |
| 1510  |                   |          |                         | 1510      | # of captively reared adults transferred to a non BPA-funded facility                        | 144                | Number of captively reared adults transferred to another facility that is not funded by BPA, with the expectation that they will NOT be transferred back to a BPA funded program.  |                 | number      | 1.0              |
| 1511  |                   |          |                         | 1511      | # of adults transferred to a non BPA-funded facility   | 145                | Number of adults transferred to another facility that is not funded by BPA, with the expectation that they will NOT be transferred back to a BPA funded program.   |                 | number      | 1.0              |
| 1512  |                   |          |                         | 1512      | # of adults released to the natural environment during this contract period                  | 146                | Number of adults released to the natural environment from your facility during this contract period with the expectation that they will spawn within the next few months.  |                 | number      | 1.0              |
| 1513  |                   |          |                         | 1513      | # of female fish retained as broodstock  | 147                | Females retained for broodstock. Includes fish expected to die before spawn date   |                 | number      | 1.0              |
| 1514  |                   |          |                         | 1514      | # of male fish retained as broodstock  | 148                | Males retained for broodstock. Includes fish expected to die before spawn date   |                 | number      | 1.0              |



### Metric Guidance by Work Element

| WE ID | Work Element Name                              | Category            | Work Element Definition   | Metric ID | Metric  | Metric Guidance ID | Metric Guidance   | Metric Required | Metric Type | Metric Precision |
|-------|--|---------------------|---|-----------|---|--------------------|---|-----------------|-------------|------------------|
|       |  |                     |   | 1778      | # eggs imported from a BPA-funded facility  | 455                | Number of eggs shipped to you from another facility that is funded by BPA.  |                 | number      | 1.0              |
|       |  |                     |   | 1779      | # eggs imported from a non BPA-funded facility  | 456                | Number of eggs shipped to you from another facility that is NOT funded by BPA.  |                 | number      | 1.0              |
|       |  |                     |   | 1780      | # eggs transferred to another BPA-funded facility   | 457                | Number of eggs transferred to another facility that is funded by BPA.   |                 | number      | 1.0              |
|       |  |                     |   | 1781      | # of eggs retained in your facility at the end of this contract period                            | 458                | Number of eggs retained in your facility at the end of your contract that have not been released or transferred.  |                 | number      | 1.0              |
|       |  |                     |   | 1783      | # of juveniles imported from a BPA-funded facility  | 460                | Number of juveniles shipped to you from another facility that is funded by BPA.   |                 | number      | 1.0              |
|       |  |                     |   | 1784      | # of juveniles imported from a non BPA-funded facility  | 461                | Number of juveniles shipped to you from another facility that is NOT funded by BPA.   |                 | number      | 1.0              |
|       |  |                     |   | 1785      | # of juveniles transferred to another BPA-funded facility   | 462                | Number of juveniles transferred to another facility that is funded by BPA.  |                 | number      | 1.0              |
|       |  |                     |   | 1786      | # of juveniles retained in your facility at the end of this contract period                       | 463                | Number of juveniles retained in your facility at the end of your contract that have not been released or transferred.   |                 | number      | 1.0              |
|       |  |                     |   | 1787      | # of kelts transferred to a BPA-funded facility   | 464                | Number of kelts transferred to another facility that is funded by BPA.  |                 | number      | 1.0              |
|       |  |                     |   | 1788      | # of captively reared adults transferred to a BPA-funded facility                                 | 465                | Number of captively reared adults transferred to another facility that is funded by BPA.  |                 | number      | 1.0              |
|       |  |                     |   | 1789      | # of adults imported from a BPA-funded facility   | 466                | Number of adults shipped to you from another facility that is funded by BPA.  |                 | number      | 1.0              |
|       |  |                     |   | 1790      | # of adults imported from a non BPA-funded facility   | 467                | Number of adults shipped to you from another facility that is NOT funded by BPA.  |                 | number      | 1.0              |
|       |  |                     |   | 1791      | # of adults transferred to another BPA-funded facility  | 468                | Number of adults transferred to another facility that is funded by BPA.   |                 | number      | 1.0              |
|       |  |                     |   | 1792      | # of adults retained in your facility at the end of this contract period                          | 469                | Number of adults retained in your facility at the end of your contract that have not been released or transferred.  |                 | number      | 1.0              |
|       |  |                     |   | 1793      | # of captively reared adults retained in your facility at the end of this contract period         | 470                | Number of captively reared adults retained in your facility at the end of your contract that have not been released or transferred.   |                 | number      | 1.0              |
| 180   | Enhance Floodplain/Remove, Modify, Breach Dike | Habitat Improvement | Refers to the removal, breaching, or alteration/set-back of a dike to restore riparian/floodplain or wetland habitat. This may also involve the installation of a tidegate or culvert. Also includes re-contouring of habitat to restore or enhance wetland or floodplain functionality and connectivity. | 1441      | # of miles of habitat accessed to the next upstream barrier(s) or likely limit of habitable range | 386                | The length of stream made accessible to the next upstream barrier to fish passage in miles. To calculate miles, divide the total length of feet by 5,280 ft/per mile. Note: If this metric is captured for this barrier under another work element, put "0" here. | ✓               | number      | 0.01             |



### Metric Guidance by Work Element

| WE ID | Work Element Name | Category | Work Element Definition | Metric ID | Metric  | Metric Guidance ID | Metric Guidance  | Metric Required | Metric Type | Metric Precision |
|-------|-------------------|----------|-------------------------|-----------|---|--------------------|--|-----------------|-------------|------------------|
| 1517  |                   |          |                         |           | # of acres of riparian non-wetland habitat treated                      | 382                | <p>Identify the total acres of habitat treated in the riparian non-wetland habitat zone. To calculate acres, use a GIS program or approximate the value by multiplying the total length of the treated habitat zone times the average width of the treated habitat zone in feet / divided by 43,560 sq. ft/acre.</p> <p>-Riparian: Transition zone between aquatic and upland habitat typically within a river's floodplain. These habitats are related to and influenced by surface or subsurface waters, especially the margins of streams, lakes, ponds, wetlands, seeps, and ditches between land and a stream and above the average high watermark, or bank full height. Plant communities along the river and lake margins are called riparian vegetation, characterized by hydrophilic plants. This includes floodplain habitat, which may be restored to properly functioning conditions. (This excludes floodplain habitat influenced by the tides, which is classified as "Estuarine Habitat" for Pisces.)</p> <p>-Non-wetland: Habitat designated and regulated as non-wetland habitat, which is dominated by areas that are not inundated or saturated by surface or groundwater at a frequency and duration sufficient to support a prevalence of non-hydrophytic vegetation typically adapted for life in dry soil conditions.</p> | ✓               | number      | 0.01             |
| 1672  |                   |          |                         |           | # of acres of habitat treated by full dike removal in the Riparian zone | 309                | <p>Identify the total acres of habitat treated in this habitat zone.; Riparian: A riparian zone is the transition zone between aquatic and upland habitat typically within a rivers floodplain. These habitats are related to and influenced by surface or subsurface waters, especially the margins of streams, lakes, ponds, wetlands, seeps, and ditches between land and a stream; and above the average high watermark, or bank full height. Plant communities along the river and lake margins are called riparian vegetation, characterized by hydrophilic plants. This includes floodplain habitat, which may be restored to properly functioning conditions. (This excludes floodplain habitat influenced by the tides, which is classified as ""Estuarine Habitat"" for Pisces).; Full removal: removes the full length of dike in the project area such that full connectivity and full functionality is restored. ;</p>  | ✓               | number      | 0.01             |



### Metric Guidance by Work Element

| WE ID | Work Element Name | Category | Work Element Definition | Metric ID | Metric  | Metric Guidance ID | Metric Guidance  | Metric Required | Metric Type | Metric Precision |
|-------|-------------------|----------|-------------------------|-----------|---|--------------------|--|-----------------|-------------|------------------|
| 1673  |                   |          |                         |           | # of acres of habitat treated by full dike removal in the Estuarine zone            | 310                | Identify the total acres of habitat treated in this habitat zone.; Estuarine: Habitat that is part of a semi-enclosed coastal body of water that is subject to the ebb and flow of tides, with one or more rivers or streams flowing into it, and with a free connection to the nearshore marine zone. This includes habitat impacted by the highest high and lowest low tides of a year. Estuaries are environments whose pH, salinity, and water levels are subject to the ebb and flow of tides, and the physical and chemical properties of the river that feeds the estuary and the ocean from which it derives its salinity. This habitat includes floodplain/riparian habitat subject to inundation from the tides.; Full removal: removes the full length of dike in the project area such that full connectivity and full functionality is restored. ;  | ✓               | number      | 0.01             |
| 1674  |                   |          |                         |           | # of acres of habitat treated by full dike removal in the Freshwater Non-Tidal zone | 311                | Identify the total acres of habitat treated in this habitat zone.; Freshwater Non-Tidal: Habitat with freshwater flowing in a channel or watercourse, including lakes, ponds, and adjacent areas below the high water mark that is not subject to the tidal influence of the estuarine zone.; Full removal: removes the full length of dike in the project area such that full connectivity and full functionality is restored. ;  | ✓               | number      | 0.01             |
| 1675  |                   |          |                         |           | # of acres of habitat treated by dike breaching in the Riparian zone                | 312                | Identify the total acres of habitat treated in this habitat zone.; Riparian: A riparian zone is the transition zone between aquatic and upland habitat typically within a rivers floodplain. These habitats are related to and influenced by surface or subsurface waters, especially the margins of streams, lakes, ponds, wetlands, seeps, and ditches between land and a stream; and above the average high watermark, or bank full height. Plant communities along the river and lake margins are called riparian vegetation, characterized by hydrophilic plants. This includes floodplain habitat, which may be restored to properly functioning conditions. (This excludes floodplain habitat influenced by the tides, which is classified as ""Estuarine Habitat"" for Pisces).; Dike breaching: opens small sections or gaps in the dike to allow for hydrolic connectivity, but functionality may be impaired by the remaining large portions of the dike. ; | ✓               | number      | 0.01             |



### Metric Guidance by Work Element

| WE ID | Work Element Name | Category | Work Element Definition | Metric ID | Metric   | Metric Guidance ID | Metric Guidance  | Metric Required | Metric Type | Metric Precision |
|-------|-------------------|----------|-------------------------|-----------|--|--------------------|--|-----------------|-------------|------------------|
| 1676  |                   |          |                         |           | # of acres of habitat treated by dike breaching in the Estuarine zone            | 313                | Identify the total acres of habitat treated in this habitat zone.; Estuarine: Habitat that is part of a semi-enclosed coastal body of water that is subject to the ebb and flow of tides, with one or more rivers or streams flowing into it, and with a free connection to the nearshore marine zone. This includes habitat impacted by the highest high and lowest low tides of a year. Estuaries are environments whose pH, salinity, and water levels are subject to the ebb and flow of tides, and the physical and chemical properties of the river that feeds the estuary and the ocean from which it derives its salinity. This habitat includes floodplain/riparian habitat subject to inundation from the tides.; Dike breaching: opens small sections or gaps in the dike to allow for hydrolic connectivity, but functionality may be impaired by the remaining large portions of the dike. ;  | ✓               | number      | 0.01             |
| 1677  |                   |          |                         |           | # of acres of habitat treated by dike breaching in the Freshwater Non-Tidal zone | 314                | Identify the total acres of habitat treated in this habitat zone.; Freshwater Non-Tidal: Habitat with freshwater flowing in a channel or watercourse, including lakes, ponds, and adjacent areas below the high water mark that is not subject to the tidal influence of the estuarine zone.; Dike breaching: opens small sections or gaps in the dike to allow for hydrolic connectivity, but functionality may be impaired by the remaining large portions of the dike. ;  | ✓               | number      | 0.01             |
| 1678  |                   |          |                         |           | # of acres of habitat treated by dike setbacks in the Riparian zone              | 315                | Identify the total acres of habitat treated in this habitat zone.; Riparian: A riparian zone is the transition zone between aquatic and upland habitat typically within a rivers floodplain. These habitats are related to and influenced by surface or subsurface waters, especially the margins of streams, lakes, ponds, wetlands, seeps, and ditches between land and a stream; and above the average high watermark, or bank full height. Plant communities along the river and lake margins are called riparian vegetation, characterized by hydrophilic plants. This includes floodplain habitat, which may be restored to properly functioning conditions. (This excludes floodplain habitat influenced by the tides, which is classified as ""Estuarine Habitat"" for Pisces).; Dike Setbacks: may remove sections of a dike partially to restore habitat, but create new dikes limiting the area that is connected to the stream or riparian zone. ; | ✓               | number      | 0.01             |



### Metric Guidance by Work Element

| WE ID | Work Element Name | Category | Work Element Definition | Metric ID | Metric  | Metric Guidance ID | Metric Guidance  | Metric Required | Metric Type | Metric Precision |
|-------|-------------------|----------|-------------------------|-----------|---|--------------------|--|-----------------|-------------|------------------|
| 1679  |                   |          |                         |           | # of acres of habitat treated by dike setbacks in the Estuarine zone            | 316                | Identify the total acres of habitat treated in this habitat zone.; Estuarine: Habitat that is part of a semi-enclosed coastal body of water that is subject to the ebb and flow of tides, with one or more rivers or streams flowing into it, and with a free connection to the nearshore marine zone. This includes habitat impacted by the highest high and lowest low tides of a year. Estuaries are environments whose pH, salinity, and water levels are subject to the ebb and flow of tides, and the physical and chemical properties of the river that feeds the estuary and the ocean from which it derives its salinity. This habitat includes floodplain/riparian habitat subject to inundation from the tides.; Dike Setbacks: may remove sections of a dike partially to restore habitat, but create new dikes limiting the area that is connected to the stream or riparian zone. ;  | ✓               | number      | 0.01             |
| 1680  |                   |          |                         |           | # of acres of habitat treated by dike setbacks in the Freshwater Non-Tidal zone | 317                | Identify the total acres of habitat treated in this habitat zone.; Freshwater Non-Tidal: Habitat with freshwater flowing in a channel or watercourse, including lakes, ponds, and adjacent areas below the high water mark that is not subject to the tidal influence of the estuarine zone.; Dike Setbacks: may remove sections of a dike partially to restore habitat, but create new dikes limiting the area that is connected to the stream or riparian zone. ;  | ✓               | number      | 0.01             |
| 1681  |                   |          |                         |           | # of miles of dike removed or modified by Full removal in the Riparian zone     | 318                | The length of dike treated, or removed in miles. Report the full length of dike removed to match natural conditions. If the dike was breached report the cumulative length of openings created.; Riparian: A riparian zone is the transition zone between aquatic and upland habitat typically within a rivers floodplain. These habitats are related to and influenced by surface or subsurface waters, especially the margins of streams, lakes, ponds, wetlands, seeps, and ditches between land and a stream; and above the average high watermark, or bank full height. Plant communities along the river and lake margins are called riparian vegetation, characterized by hydrophilic plants. This includes floodplain habitat, which may be restored to properly functioning conditions. (This excludes floodplain habitat influenced by the tides, which is classified as ""Estuarine Habitat"" for Pisces).; Full removal: removes the full length of dike in the project area such that full connectivity and full functionality is restored. ; | ✓               | number      | 0.01             |



### Metric Guidance by Work Element

| WE ID | Work Element Name | Category | Work Element Definition | Metric ID | Metric  | Metric Guidance ID | Metric Guidance  | Metric Required | Metric Type | Metric Precision |
|-------|-------------------|----------|-------------------------|-----------|---|--------------------|--|-----------------|-------------|------------------|
| 1682  |                   |          |                         |           | # of miles of dike removed or modified by Dike breaching in the Riparian zone | 319                | The length of dike treated, or removed in miles. Report the full length of dike removed to match natural conditions. If the dike was breached report the cumulative length of openings created.; Riparian: A riparian zone is the transition zone between aquatic and upland habitat typically within a rivers floodplain. These habitats are related to and influenced by surface or subsurface waters, especially the margins of streams, lakes, ponds, wetlands, seeps, and ditches between land and a stream; and above the average high watermark, or bank full height. Plant communities along the river and lake margins are called riparian vegetation, characterized by hydrophilic plants. This includes floodplain habitat, which may be restored to properly functioning conditions. (This excludes floodplain habitat influenced by the tides, which is classified as ""Estuarine Habitat"" for Pisces).; Dike breaching: opens small sections or gaps in the dike to allow for hydrolic connectivity, but functionality may be impaired by the remaining large portions of the dike. ; | ✓               | number      | 0.01             |
| 1683  |                   |          |                         |           | # of miles of dike removed or modified by Dike Setbacks in the Riparian zone  | 320                | The length of dike treated, or removed in miles. Report the full length of dike removed to match natural conditions. If the dike was breached report the cumulative length of openings created.; Riparian: A riparian zone is the transition zone between aquatic and upland habitat typically within a rivers floodplain. These habitats are related to and influenced by surface or subsurface waters, especially the margins of streams, lakes, ponds, wetlands, seeps, and ditches between land and a stream; and above the average high watermark, or bank full height. Plant communities along the river and lake margins are called riparian vegetation, characterized by hydrophilic plants. This includes floodplain habitat, which may be restored to properly functioning conditions. (This excludes floodplain habitat influenced by the tides, which is classified as ""Estuarine Habitat"" for Pisces).; Dike Setbacks: may remove sections of a dike partially to restore habitat, but create new dikes limiting the area that is connected to the stream or riparian zone. ;         | ✓               | number      | 0.01             |



### Metric Guidance by Work Element

| WE ID | Work Element Name | Category | Work Element Definition | Metric ID | Metric   | Metric Guidance ID | Metric Guidance   | Metric Required | Metric Type | Metric Precision |
|-------|-------------------|----------|-------------------------|-----------|--|--------------------|---|-----------------|-------------|------------------|
| 1684  |                   |          |                         |           | # of miles of dike removed or modified by Full removal in the Estuarine zone   | 321                | The length of dike treated, or removed in miles. Report the full length of dike removed to match natural conditions. If the dike was breached report the cumulative length of openings created.; Estuarine: Habitat that is part of a semi-enclosed coastal body of water that is subject to the ebb and flow of tides, with one or more rivers or streams flowing into it, and with a free connection to the nearshore marine zone. This includes habitat impacted by the highest high and lowest low tides of a year. Estuaries are environments whose pH, salinity, and water levels are subject to the ebb and flow of tides, and the physical and chemical properties of the river that feeds the estuary and the ocean from which it derives its salinity. This habitat includes floodplain/riparian habitat subject to inundation from the tides.; Full removal: removes the full length of dike in the project area such that full connectivity and full functionality is restored. ;   | ✓               | number      | 0.01             |
| 1685  |                   |          |                         |           | # of miles of dike removed or modified by Dike breaching in the Estuarine zone | 322                | The length of dike treated, or removed in miles. Report the full length of dike removed to match natural conditions. If the dike was breached report the cumulative length of openings created.; Estuarine: Habitat that is part of a semi-enclosed coastal body of water that is subject to the ebb and flow of tides, with one or more rivers or streams flowing into it, and with a free connection to the nearshore marine zone. This includes habitat impacted by the highest high and lowest low tides of a year. Estuaries are environments whose pH, salinity, and water levels are subject to the ebb and flow of tides, and the physical and chemical properties of the river that feeds the estuary and the ocean from which it derives its salinity. This habitat includes floodplain/riparian habitat subject to inundation from the tides.; Dike breaching: opens small sections or gaps in the dike to allow for hydrolic connectivity, but functionality may be impaired by the remaining large portions of the dike. ; | ✓               | number      | 0.01             |



### Metric Guidance by Work Element

| WE ID | Work Element Name | Category | Work Element Definition | Metric ID | Metric  | Metric Guidance ID | Metric Guidance   | Metric Required | Metric Type | Metric Precision |
|-------|-------------------|----------|-------------------------|-----------|---|--------------------|---|-----------------|-------------|------------------|
| 1686  |                   |          |                         |           | # of miles of dike removed or modified by Dike Setbacks in the Estuarine zone             | 323                | The length of dike treated, or removed in miles. Report the full length of dike removed to match natural conditions. If the dike was breached report the cumulative length of openings created.; Estuarine: Habitat that is part of a semi-enclosed coastal body of water that is subject to the ebb and flow of tides, with one or more rivers or streams flowing into it, and with a free connection to the nearshore marine zone. This includes habitat impacted by the highest high and lowest low tides of a year. Estuaries are environments whose pH, salinity, and water levels are subject to the ebb and flow of tides, and the physical and chemical properties of the river that feeds the estuary and the ocean from which it derives its salinity. This habitat includes floodplain/riparian habitat subject to inundation from the tides.; Dike Setbacks: may remove sections of a dike partially to restore habitat, but create new dikes limiting the area that is connected to the stream or riparian zone. ; | ✓               | number      | 0.01             |
| 1687  |                   |          |                         |           | # of miles of dike removed or modified by Full removal in the Freshwater Non-Tidal zone   | 324                | The length of dike treated, or removed in miles. Report the full length of dike removed to match natural conditions. If the dike was breached report the cumulative length of openings created.; Freshwater Non-Tidal: Habitat with freshwater flowing in a channel or watercourse, including lakes, ponds, and adjacent areas below the high water mark that is not subject to the tidal influence of the estuarine zone.; Full removal: removes the full length of dike in the project area such that full connectivity and full functionality is restored. ;   | ✓               | number      | 0.01             |
| 1688  |                   |          |                         |           | # of miles of dike removed or modified by Dike breaching in the Freshwater Non-Tidal zone | 325                | The length of dike treated, or removed in miles. Report the full length of dike removed to match natural conditions. If the dike was breached report the cumulative length of openings created.; Freshwater Non-Tidal: Habitat with freshwater flowing in a channel or watercourse, including lakes, ponds, and adjacent areas below the high water mark that is not subject to the tidal influence of the estuarine zone.; Dike breaching: opens small sections or gaps in the dike to allow for hydrolic connectivity, but functionality may be impaired by the remaining large portions of the dike. ;   | ✓               | number      | 0.01             |



### Metric Guidance by Work Element

| WE ID | Work Element Name | Category | Work Element Definition | Metric ID | Metric   | Metric Guidance ID | Metric Guidance   | Metric Required | Metric Type | Metric Precision |
|-------|-------------------|----------|-------------------------|-----------|--|--------------------|---|-----------------|-------------|------------------|
| 1689  |                   |          |                         |           | # of miles of dike removed or modified by Dike Setbacks in the Freshwater Non-Tidal zone | 326                | The length of dike treated, or removed in miles. Report the full length of dike removed to match natural conditions. If the dike was breached report the cumulative length of openings created.; Freshwater Non-Tidal: Habitat with freshwater flowing in a channel or watercourse, including lakes, ponds, and adjacent areas below the high water mark that is not subject to the tidal influence of the estuarine zone.; Dike Setbacks: may remove sections of a dike partially to restore habitat, but create new dikes limiting the area that is connected to the stream or riparian zone. ; | ✓               | number      | 0.01             |
| 1725  |                   |          |                         |           | Full dike removal  | 394                | Select "yes" or "no" to indicate whether full removal of a dike was applied to the project area. Full removal removes the full length of dike in the project area such that full connectivity and full functionality is restored.   | ✓               | list        |                  |
| 1726  |                   |          |                         |           | Partial dike removal   | 395                | Select "yes" or "no" to indicate whether partial removal of a dike was applied to the project area. Partial removal removes major lengths of the dike but may leave some sections of the dike intact.   | ✓               | list        |                  |
| 1727  |                   |          |                         |           | Dike breaching   | 396                | Select "yes" or "no" to indicate whether breaching was applied to the project area. Dike breaching opens small sections or gaps in the dike to allow for hydraulic connectivity, but functionality may still be impaired by the remaining large portions of the dike.   | ✓               | list        |                  |
| 1728  |                   |          |                         |           | Dike setback   | 397                | Select "yes" or "no" to indicate whether dike setbacks were applied to the project area. A dike setback is used in conjunction with breaching, full removal, or partial removal in a manner where new dikes are created limiting the area of floodplain that is connected to the stream or riparian zone.   | ✓               | list        |                  |
| 1729  |                   |          |                         |           | Dike height reduction  | 398                | Select "yes" or "no" to indicate whether a dike elevation change was applied to the project area. An elevation change lowers the overall height of the dike to allow for over-topping during higher flows to help mitigate flooding effects.  | ✓               | list        |                  |
| 1730  |                   |          |                         |           | # of miles of dike removed or treated  | 399                | The length of dike treated or removed, in miles. Report the full length of dike removed or altered to match natural conditions. If the dike was breached, report the cumulative length of openings created.   |                 | number      | 0.01             |



### Metric Guidance by Work Element

| WE ID | Work Element Name                       | Category            | Work Element Definition   | Metric ID | Metric                                 | Metric Guidance ID | Metric Guidance  | Metric Required | Metric Type | Metric Precision |
|-------|---|---------------------|---|-----------|--|--------------------|--|-----------------|-------------|------------------|
| 181   | Create, Restore, and/or Enhance Wetland | Habitat Improvement | Refers to the creation, restoration, or enhancement of a wetland area or function. This may be from the installation of a water control structure, re-contouring, and excavation to improve habitat connectivity. If the wetland was created from dike removal, breaching or modification, or the installation of a tidegate or culvert to improve fish passage, also use WE#180, Enhance Floodplain/Remove, Modify, Breach Dike, or WE#184, Install Fish Passage Structure. If additional actions or techniques are implemented, make sure you properly document associated work elements, e.g., WE#35, Develop Pond, or WE#36, Develop Terrestrial Habitat Features. Habitat creation (establishment) is defined as the manipulation of the physical, chemical, or biological characteristics present to develop a wetland on a site, where a wetland did not previously exist. Creation results in a gain in wetland acres. Habitat restoration (re-establishment) is defined as the manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to former wetlands that may have been filled or subsided. Re-establishment results in rebuilding a former wetland and results in a gain in wetland acres. Restoration results in rebuilding a former wetland and results in a gain in wetland acres by re-gradation of the elevation to support wetland vegetation and function. Habitat enhancement is defined as the manipulation of the physical, chemical, or biological characteristics of a site with the goal of repairing natural/historic functions of degraded wetland. Habitat enhancement is the manipulation of a site to heighten, intensify, or improve specific function(s), to change the growth stage or composition of the vegetation present, or is undertaken for a purpose such as water quality improvement, flood water retention, or wildlife habitat. | 1690      | # of acres of riparian habitat created | 327                | Identify the total acres of wetland habitat created in the riparian habitat zone. To calculate acres, use a GIS program or approximate the value by multiplying the total length of the protected habitat zone times the average width of the protected habitat zone in feet / divided by 43,560 sq. ft./acre.<br>-Riparian: Transition zone between aquatic and upland habitat typically within a river's floodplain. These habitats are related to and influenced by surface or subsurface waters, especially the margins of streams, lakes, ponds, wetlands, seeps, and ditches between land and a stream and above the average high watermark, or bank full height. Plant communities along the river and lake margins are called riparian vegetation, characterized by hydrophilic plants. This includes floodplain habitat, which may be restored to properly functioning conditions. (This excludes floodplain habitat influenced by the tides, which is classified as "Estuarine Habitat" for Pisces.)<br>-Creation: The manipulation of the physical, chemical, or biological characteristics present to develop a wetland on an upland or deepwater site, where a wetland did not previously exist. Establishment (creation) results in a gain in wetland acres. | ✓               | number      | 0.01             |



### Metric Guidance by Work Element

| WE ID | Work Element Name | Category | Work Element Definition | Metric ID | Metric   | Metric Guidance ID | Metric Guidance   | Metric Required | Metric Type | Metric Precision |
|-------|-------------------|----------|-------------------------|-----------|--|--------------------|---|-----------------|-------------|------------------|
| 1691  |                   |          |                         |           | # of acres of riparian habitat restored/re-established | 328                | <p>Identify the total acres of wetland habitat restored in the riparian habitat zone. To calculate acres, use a GIS program or approximate the value by multiplying the total length of the protected habitat zone times the average width of the protected habitat zone in feet / divided by 43,560 sq. ft./acre.</p> <p>-Riparian: Transition zone between aquatic and upland habitat typically within a river's floodplain. These habitats are related to and influenced by surface or subsurface waters, especially the margins of streams, lakes, ponds, wetlands, seeps, and ditches between land and a stream and above the average high watermark, or bank full height. Plant communities along the river and lake margins are called riparian vegetation, characterized by hydrophilic plants. This includes floodplain habitat, which may be restored to properly functioning conditions. (This excludes floodplain habitat influenced by the tides, which is classified as "Estuarine Habitat" for Pisces.)</p> <p>-Habitat restoration/re-establishment: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to former wetland. Re-establishment results in rebuilding a former wetland and results in a gain in wetland acres.</p> | ✓               | number      | 0.01             |



### Metric Guidance by Work Element

| WE ID | Work Element Name | Category | Work Element Definition | Metric ID | Metric  | Metric Guidance ID | Metric Guidance   | Metric Required | Metric Type | Metric Precision |
|-------|-------------------|----------|-------------------------|-----------|---|--------------------|---|-----------------|-------------|------------------|
| 1692  |                   |          |                         |           | # of acres of riparian habitat rehabilitated/enhanced | 329                | <p>Identify the total acres of wetland habitat enhanced in the riparian habitat zone. To calculate acres, use a GIS program or approximate the value by multiplying the total length of the protected habitat zone times the average width of the protected habitat zone in feet / divided by 43,560 sq. ft./acre.</p> <p>-Riparian: Transition zone between aquatic and upland habitat typically within a river's floodplain. These habitats are related to and influenced by surface or subsurface waters, especially the margins of streams, lakes, ponds, wetlands, seeps, and ditches between land and a stream and above the average high watermark, or bank full height. Plant communities along the river and lake margins are called riparian vegetation, characterized by hydrophilic plants. This includes floodplain habitat, which may be restored to properly functioning conditions. (This excludes floodplain habitat influenced by the tides, which is classified as "Estuarine Habitat" for Pisces.)</p> <p>-Habitat rehabilitation/enhancement: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of repairing natural/historic functions of degraded wetland, or to heighten, intensify, or improve specific function(s) or to change the growth stage or composition of the vegetation present. It does not result in a gain in wetland acres.</p> | ✓               | number      | 0.01             |



### Metric Guidance by Work Element

| WE ID | Work Element Name | Category | Work Element Definition | Metric ID | Metric                                  | Metric Guidance ID | Metric Guidance  | Metric Required | Metric Type | Metric Precision |
|-------|-------------------|----------|-------------------------|-----------|---|--------------------|--|-----------------|-------------|------------------|
| 1693  |                   |          |                         |           | # of acres of estuarine habitat created | 330                | <p>Identify the total acres of wetland habitat created in the estuary habitat zone. To calculate acres, use a GIS program or approximate the value by multiplying the total length of the protected habitat zone times the average width of the protected habitat zone in feet / divided by 43,560 sq. ft./acre.</p> <p>-Estuarine: Habitat that is part of a semi-enclosed coastal body of water that is subject to the ebb and flow of tides, with one or more rivers or streams flowing into it, and with a free connection to the nearshore marine zone. This includes habitat impacted by the highest high and lowest low tides of a year. Estuaries are environments whose pH, salinity, and water levels are subject to the ebb and flow of tides, and the physical and chemical properties of the river that feeds the estuary and the ocean from which it derives its salinity. This habitat includes floodplain/riparian habitat subject to inundation from the tides.</p> <p>-Creation: The manipulation of the physical, chemical, or biological characteristics present to develop a wetland on an upland or deepwater site, where a wetland did not previously exist. Establishment (creation) results in a gain in wetland acres.</p> | ✓               | number      | 0.01             |



### Metric Guidance by Work Element

| WE ID | Work Element Name | Category | Work Element Definition | Metric ID | Metric  | Metric Guidance ID | Metric Guidance  | Metric Required | Metric Type | Metric Precision |
|-------|-------------------|----------|-------------------------|-----------|---|--------------------|--|-----------------|-------------|------------------|
| 1694  |                   |          |                         |           | # of acres of estuarine habitat restored/re-established | 331                | <p>Identify the total acres of wetland habitat restored in the estuary habitat zone. To calculate acres, use a GIS program or approximate the value by multiplying the total length of the protected habitat zone times the average width of the protected habitat zone in feet / divided by 43,560 sq. ft./acre.</p> <p>-Estuarine: Habitat that is part of a semi-enclosed coastal body of water that is subject to the ebb and flow of tides, with one or more rivers or streams flowing into it, and with a free connection to the nearshore marine zone. This includes habitat impacted by the highest high and lowest low tides of a year. Estuaries are environments whose pH, salinity, and water levels are subject to the ebb and flow of tides, and the physical and chemical properties of the river that feeds the estuary and the ocean from which it derives its salinity. This habitat includes floodplain/riparian habitat subject to inundation from the tides.</p> <p>-Habitat restoration/re-establishment: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to former wetland. Re-establishment results in rebuilding a former wetland and results in a gain in wetland acres.</p> | ✓               | number      | 0.01             |



### Metric Guidance by Work Element

| WE ID | Work Element Name | Category | Work Element Definition | Metric ID | Metric   | Metric Guidance ID | Metric Guidance   | Metric Required | Metric Type | Metric Precision |
|-------|-------------------|----------|-------------------------|-----------|--|--------------------|---|-----------------|-------------|------------------|
| 1695  |                   |          |                         |           | # of acres of estuarine habitat rehabilitated/enhanced | 332                | Identify the total acres of wetland habitat enhanced in the estuarine habitat zone. To calculate acres, use a GIS program or approximate the value by multiplying the total length of the protected habitat zone times the average width of the protected habitat zone in feet / divided by 43,560 sq. ft./acre.<br>-Estuarine: Habitat that is part of a semi-enclosed coastal body of water that is subject to the ebb and flow of tides, with one or more rivers or streams flowing into it, and with a free connection to the nearshore marine zone. This includes habitat impacted by the highest high and lowest low tides of a year. Estuaries are environments whose pH, salinity, and water levels are subject to the ebb and flow of tides, and the physical and chemical properties of the river that feeds the estuary and the ocean from which it derives its salinity. This habitat includes floodplain/riparian habitat subject to inundation from the tides.<br>-Habitat rehabilitation/enhancement: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of repairing natural/historic functions of degraded wetland, or to heighten, intensify, or improve specific function(s) or to change the growth stage or composition of the vegetation present. It does not result in a gain in wetland acres. | ✓               | number      | 0.01             |
| 1696  |                   |          |                         |           | # of acres of freshwater non-tidal habitat created     | 333                | Identify the total acres of wetland habitat created in the freshwater non-tidal habitat zone. To calculate acres, use a GIS program or approximate the value by multiplying the total length of the protected habitat zone times the average width of the protected habitat zone in feet / divided by 43,560 sq. ft./acre.<br>-Freshwater non-tidal: Habitat with freshwater flowing in a channel or watercourse, including lakes, ponds, and adjacent areas below the high water mark that is not subject to the tidal influence of the estuarine zone.<br>-Creation: The manipulation of the physical, chemical, or biological characteristics present to develop a wetland on an upland or deepwater site, where a wetland did not previously exist. Establishment (creation) results in a gain in wetland acres.  | ✓               | number      | 0.01             |



### Metric Guidance by Work Element

| WE ID | Work Element Name | Category | Work Element Definition | Metric ID | Metric   | Metric Guidance ID | Metric Guidance  | Metric Required | Metric Type | Metric Precision |
|-------|-------------------|----------|-------------------------|-----------|--|--------------------|--|-----------------|-------------|------------------|
| 1697  |                   |          |                         |           | # of acres of freshwater non-tidal habitat restored/re-established | 334                | Identify the total acres of wetland habitat restored in the freshwater non-tidal habitat zone. To calculate acres, use a GIS program or approximate the value by multiplying the total length of the protected habitat zone times the average width of the protected habitat zone in feet / divided by 43,560 sq. ft./acre.<br>-Freshwater non-tidal: Habitat with freshwater flowing in a channel or watercourse, including lakes, ponds, and adjacent areas below the high water mark that is not subject to the tidal influence of the estuarine zone.<br>-Habitat restoration/re-establishment: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to former wetland. Re-establishment results in rebuilding a former wetland and results in a gain in wetland acres.   | ✓               | number      | 0.01             |
| 1698  |                   |          |                         |           | # of acres of freshwater non-tidal habitat rehabilitated/enhanced  | 335                | Identify the total acres of wetland habitat enhanced in the freshwater non-tidal habitat zone. To calculate acres, use a GIS program or approximate the value by multiplying the total length of the protected habitat zone times the average width of the protected habitat zone in feet / divided by 43,560 sq. ft./acre.<br>-Freshwater non-tidal: Habitat with freshwater flowing in a channel or watercourse, including lakes, ponds, and adjacent areas below the high water mark that is not subject to the tidal influence of the estuarine zone.<br>-Habitat rehabilitation/enhancement: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of repairing natural/historic functions of degraded wetland, or to heighten, intensify, or improve specific function(s) or to change the growth stage or composition of the vegetation present. It does not result in a gain in wetland acres. | ✓               | number      | 0.01             |



### Metric Guidance by Work Element

| WE ID | Work Element Name | Category | Work Element Definition | Metric ID | Metric   | Metric Guidance ID | Metric Guidance  | Metric Required | Metric Type | Metric Precision |
|-------|-------------------|----------|-------------------------|-----------|--|--------------------|--|-----------------|-------------|------------------|
| 1699  |                   |          |                         |           | # of acres of upland habitat created                 | 336                | Identify the total acres of wetland habitat created in the upland habitat zone. To calculate acres, use a GIS program or approximate the value by multiplying the total length of the protected habitat zone times the average width of the protected habitat zone in feet / divided by 43,560 sq. ft./acre.<br>-Upland: Habitat upslope of the riparian and instream habitat zone with non-hydrophilic plants, unless part of an isolated wetland, which occurs outside the hyporheic, or floodplain/riparian zone.<br>-Creation: The manipulation of the physical, chemical, or biological characteristics present to develop a wetland on an upland or deepwater site, where a wetland did not previously exist. Establishment (creation) results in a gain in wetland acres.   | ✓               | number      | 0.01             |
| 1700  |                   |          |                         |           | # of acres of upland habitat restored/re-established | 337                | Identify the total acres of wetland habitat restored in the upland habitat zone. To calculate acres, use a GIS program or approximate the value by multiplying the total length of the protected habitat zone times the average width of the protected habitat zone in feet / divided by 43,560 sq. ft./acre.<br>-Upland: Habitat upslope of the riparian and instream habitat zone with non-hydrophilic plants, unless part of an isolated wetland, which occurs outside the hyporheic, or floodplain/riparian zone.<br>-Habitat restoration/re-establishment: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of returning natural/historic functions to former wetland. Re-establishment results in rebuilding a former wetland and results in a gain in wetland acres. | ✓               | number      | 0.01             |



### Metric Guidance by Work Element

| WE ID | Work Element Name       | Category                   | Work Element Definition  | Metric ID | Metric  | Metric Guidance ID | Metric Guidance  | Metric Required | Metric Type | Metric Precision |
|-------|-------------------------|----------------------------|--|-----------|---|--------------------|--|-----------------|-------------|------------------|
|       |                         |                            |  | 1701      | # of acres of upland habitat rehabilitated/enhanced   | 338                | Identify the total acres of wetland habitat enhanced in the upland habitat zone. To calculate acres, use a GIS program or approximate the value by multiplying the total length of the protected habitat zone times the average width of the protected habitat zone in feet / divided by 43,560 sq. ft./acre.<br>-Upland: Habitat upslope of the riparian and instream habitat zone with non-hydrophilic plants, unless part of an isolated wetland, which occurs outside the hyporheic, or floodplain/riparian zone.<br>-Habitat rehabilitation/enhancement: The manipulation of the physical, chemical, or biological characteristics of a site with the goal of repairing natural/historic functions of degraded wetland, or to heighten, intensify, or improve specific function(s) or to change the growth stage or composition of the vegetation present. It does not result in a gain in wetland acres. | ✓               | number      | 0.01             |
| 183   | Produce Journal Article | RM & E and Data Management | The "general title/subject" of an individual manuscript should be named in the WE title. This work element should only be used when either the study is complete, or when a very significant stage of the data collection and analyses are done, and the subject matter is well defined. Separate work elements should be used for each document. If you do not have a proposed title (or subject), you may not be far enough along in the data analysis to be using this work element. This work element applies only to manuscripts being submitted for possible peer-reviewed publication. Other technical analyses should be included as part of a project progress report WE#132, Produce (Annual) Progress Report. | 1468      | # of draft scientific reports submitted   | 98                 | TBD  | ✓               | number      | 1.0              |
|       |                         |                            |  | 1469      | # of draft manuscripts and draft final reports of research findings submitted for publication | 99                 | TBD  | ✓               | number      | 1.0              |



### Metric Guidance by Work Element

| WE ID | Work Element Name              | Category                     | Work Element Definition   | Metric ID | Metric   | Metric Guidance ID | Metric Guidance   | Metric Required | Metric Type | Metric Precision |
|-------|--------------------------------|------------------------------|---|-----------|--|--------------------|---|-----------------|-------------|------------------|
| 184   | Install Fish Passage Structure | Instream Passage Improvement | <p>Install, replace, or modify structures when the intent is to improve fish passage and/or flow, typically by removing or modifying a full or partial instream barrier. "Structures" include: fish ladders, bridges, culverts, jump pools, roughened channels, and weirs. "Barriers" include such obstacles to fish passage as man-made dams (including push-up diversion dams), tidegates, weirs, culverts, rock fords and road crossings, as well as natural barriers such as logjams and natural streambeds. When using this work element, if work includes removing a fish passage barrier, include that work as a milestone under this WE instead of using WE#85, Remove/Breach Fish Passage Barrier.</p> <p>Where anadromous fish are present, structures installed must meet current NOAA specifications and USFWS specifications for bull trout and lamprey. Use WE#180, Enhance Floodplain/Remove, Modify, Breach Dike if the installation of a passage structure is associated with a dike removal, breaching, and modification, and may create additional acres of habitat as well as providing access to instream habitat. Use WE#70, Install Fish Monitoring Equipment, for weirs installed primarily to restrict fish passage for the purpose of monitoring or collecting fish (e.g., picket weirs). Design of complex or large-scale fish passage structures is often a separate work element (see WE#175, Produce Design and/or Specifications).</p> | 1441      | # of miles of habitat accessed to the next upstream barrier(s) or likely limit of habitable range                        | 71                 | The length of stream made accessible to the next upstream barrier to fish passage in miles. To calculate miles, divide the total length of feet by 5,280 ft/per mile. Note: If this metric is captured for the removal of a barrier under another work element, put "0" here. | ✓               | number      | 0.01             |
|       |                                |                              |   | 1470      | If installing a ladder, does the ladder meet NOAA specifications for attraction flow, pool dimensions, jump height, etc? | 100                | Self-Explanatory  |                 | list        |                  |



### Metric Guidance by Work Element

| WE ID | Work Element Name | Category | Work Element Definition | Metric ID | Metric   | Metric Guidance ID | Metric Guidance   | Metric Required | Metric Type | Metric Precision |
|-------|-------------------|----------|-------------------------|-----------|--|--------------------|---|-----------------|-------------|------------------|
| 1702  |                   |          |                         |           | # of culverts installed in the estuarine zone  | 339                | <p>Enter the number of culverts installed to improve fish passage at a specified worksite. (Based on WE guidance this should typically be 1 structure per WE.)</p> <p>-Culvert: Conduit used to enclose a flowing body of water. It may be used to allow water to pass underneath a road, railway, or embankment for example. Culverts can be made of many different materials; steel, polyvinyl chloride (PVC) and concrete are the most common.</p> <p>-Estuarine: Habitat that is part of a semi-enclosed coastal body of water that is subject to the ebb and flow of tides, with one or more rivers or streams flowing into it, and with a free connection to the nearshore marine zone. This includes habitat impacted by the highest high and lowest low tides of a year. Estuaries are environments whose pH, salinity, and water levels are subject to the ebb and flow of tides, and the physical and chemical properties of the river that feeds the estuary and the ocean from which it derives its salinity. This habitat includes floodplain/riparian habitat subject to inundation from the tides.</p> | ✓               | number      | 1.0              |
| 1703  |                   |          |                         |           | # of tidegates installed in the estuarine zone | 340                | <p>Enter the number of tidegates installed to improve fish passage at a specified worksite. (Based on WE guidance this should typically be 1 structure per WE.)</p> <p>-Tidegate: A structure providing an opening through which water may flow freely when the tide sets in one direction, but which closes automatically and prevents the water from flowing in the other direction.</p> <p>-Estuarine: Habitat that is part of a semi-enclosed coastal body of water that is subject to the ebb and flow of tides, with one or more rivers or streams flowing into it, and with a free connection to the nearshore marine zone. This includes habitat impacted by the highest high and lowest low tides of a year. Estuaries are environments whose pH, salinity, and water levels are subject to the ebb and flow of tides, and the physical and chemical properties of the river that feeds the estuary and the ocean from which it derives its salinity. This habitat includes floodplain/riparian habitat subject to inundation from the tides.</p>  | ✓               | number      | 1.0              |



### Metric Guidance by Work Element

| WE ID | Work Element Name | Category | Work Element Definition | Metric ID | Metric  | Metric Guidance ID | Metric Guidance   | Metric Required | Metric Type | Metric Precision |
|-------|-------------------|----------|-------------------------|-----------|---|--------------------|---|-----------------|-------------|------------------|
| 1704  |                   |          |                         |           | # of bridges installed in the estuarine zone                  | 341                | <p>Enter the number of bridges installed to improve fish passage at a specified worksite. (Based on WE guidance this should typically be 1 structure per WE.)</p> <p>-Bridge: Installation, improvement/upgrade or replacement of a bridge over a stream to provide/improve salmonid passage under a road. The bridge allows for passage underneath with a semi-natural stream bed.</p> <p>-Estuarine: Habitat that is part of a semi-enclosed coastal body of water that is subject to the ebb and flow of tides, with one or more rivers or streams flowing into it, and with a free connection to the nearshore marine zone. This includes habitat impacted by the highest high and lowest low tides of a year. Estuaries are environments whose pH, salinity, and water levels are subject to the ebb and flow of tides, and the physical and chemical properties of the river that feeds the estuary and the ocean from which it derives its salinity. This habitat includes floodplain/riparian habitat subject to inundation from the tides.</p> | ✓               | number      | 1.0              |
| 1705  |                   |          |                         |           | # of natural stream crossings installed in the estuarine zone | 342                | <p>Enter the number of natural stream crossings (road crossing removal) installed to improve fish passage at a specified worksite. (Based on WE guidance this should typically be 1 structure per WE.)</p> <p>-Removal of stream road crossing and the affiliated road structures so that the stream flows unimpeded with a natural stream bed.</p> <p>-Estuarine: Habitat that is part of a semi-enclosed coastal body of water that is subject to the ebb and flow of tides, with one or more rivers or streams flowing into it, and with a free connection to the nearshore marine zone. This includes habitat impacted by the highest high and lowest low tides of a year. Estuaries are environments whose pH, salinity, and water levels are subject to the ebb and flow of tides, and the physical and chemical properties of the river that feeds the estuary and the ocean from which it derives its salinity. This habitat includes floodplain/riparian habitat subject to inundation from the tides.</p>                                     | ✓               | number      | 1.0              |



### Metric Guidance by Work Element

| WE ID | Work Element Name                                 | Category | Work Element Definition | Metric ID | Metric | Metric Guidance ID | Metric Guidance   | Metric Required | Metric Type | Metric Precision |
|-------|---|----------|-------------------------|-----------|--------|--------------------|---|-----------------|-------------|------------------|
| 1706  | # of rock fords installed in the estuarine zone   |          |                         | 343       |        |                    | <p>Enter the number of rock fords installed to improve fish passage at a specified worksite. (Based on WE guidance this should typically be 1 structure per WE.)</p> <p>-Rock ford: Placement of a crushed gravel reinforced track through stream that still allows unimpeded stream flow.</p> <p>-Estuarine: Habitat that is part of a semi-enclosed coastal body of water that is subject to the ebb and flow of tides, with one or more rivers or streams flowing into it, and with a free connection to the nearshore marine zone. This includes habitat impacted by the highest high and lowest low tides of a year. Estuaries are environments whose pH, salinity, and water levels are subject to the ebb and flow of tides, and the physical and chemical properties of the river that feeds the estuary and the ocean from which it derives its salinity. This habitat includes floodplain/riparian habitat subject to inundation from the tides.</p>  | ✓               | number      | 1.0              |
| 1707  | # of fish ladders installed in the estuarine zone |          |                         | 344       |        |                    | <p>Enter the number of fish ladders installed to improve fish passage at a specified worksite. (Based on WE guidance this should typically be 1 structure per WE.)</p> <p>-Fish ladder installed or improved: A fishway with a series of shallow steps down or chutes which water is allowed to flow; designed to permit salmon to circumvent artificial barriers such as power dams and locks as the salmon migrate to the ocean or upstream to spawn.</p> <p>-Estuarine: Habitat that is part of a semi-enclosed coastal body of water that is subject to the ebb and flow of tides, with one or more rivers or streams flowing into it, and with a free connection to the nearshore marine zone. This includes habitat impacted by the highest high and lowest low tides of a year. Estuaries are environments whose pH, salinity, and water levels are subject to the ebb and flow of tides, and the physical and chemical properties of the river that feeds the estuary and the ocean from which it derives its salinity. This habitat includes floodplain/riparian habitat subject to inundation from the tides.</p> | ✓               | number      | 1.0              |



### Metric Guidance by Work Element

| WE ID | Work Element Name   | Category | Work Element Definition | Metric ID | Metric | Metric Guidance ID | Metric Guidance   | Metric Required | Metric Type | Metric Precision |
|-------|---|----------|-------------------------|-----------|--------|--------------------|---|-----------------|-------------|------------------|
| 1708  | # of weirs or fishway chutes or pools installed in the estuarine zone |          |                         | 345       |        |                    | <p>Enter the number of weirs or fishway chutes or pools installed to improve fish passage at a specified worksite. (Based on WE guidance this should typically be 1 structure per WE.)</p> <p>-Weirs or fishway chutes or pools: Placement of an engineered bypass for salmonids to pass more safely around a barrier (other than fish ladder). This includes bedrock chutes, weirs, rock boulder step pools, and chutes constructed/roughened in bed rock.</p> <p>-Estuarine: Habitat that is part of a semi-enclosed coastal body of water that is subject to the ebb and flow of tides, with one or more rivers or streams flowing into it, and with a free connection to the nearshore marine zone. This includes habitat impacted by the highest high and lowest low tides of a year. Estuaries are environments whose pH, salinity, and water levels are subject to the ebb and flow of tides, and the physical and chemical properties of the river that feeds the estuary and the ocean from which it derives its salinity. This habitat includes floodplain/riparian habitat subject to inundation from the tides.</p> | ✓               | number      | 1.0              |
| 1709  | # of culverts installed in the freshwater non-tidal zone              |          |                         | 346       |        |                    | <p>Enter the number of culverts installed to improve fish passage at a specified worksite. (Based on WE guidance this should typically be 1 structure per WE.)</p> <p>-Culvert: Conduit used to enclose a flowing body of water. It may be used to allow water to pass underneath a road, railway, or embankment for example.</p> <p>-Freshwater non-tidal: Habitat with freshwater flowing in a channel or watercourse, including lakes, ponds, and adjacent areas below the high water mark that is not subject to the tidal influence of the estuarine zone.</p>   | ✓               | number      | 1.0              |



### Metric Guidance by Work Element

| WE ID | Work Element Name | Category | Work Element Definition | Metric ID | Metric   | Metric Guidance ID | Metric Guidance  | Metric Required | Metric Type | Metric Precision |
|-------|-------------------|----------|-------------------------|-----------|--|--------------------|--|-----------------|-------------|------------------|
| 1711  |                   |          |                         |           | # of bridges installed in the freshwater non-tidal zone                  | 348                | Enter the number of bridges installed to improve fish passage at a specified worksite. (Based on WE guidance this should typically be 1 structure per WE.)<br>-Bridge: Installation, improvement/upgrade or replacement of a bridge over a stream to provide/improve salmonid passage under a road. The bridge allows for passage underneath with a semi-natural stream bed.<br>-Freshwater non-tidal: Habitat with freshwater flowing in a channel or watercourse, including lakes, ponds, and adjacent areas below the high water mark that is not subject to the tidal influence of the estuarine zone. | ✓               | number      | 1.0              |
| 1712  |                   |          |                         |           | # of natural stream crossings installed in the freshwater non-tidal zone | 349                | Enter the number of natural stream crossings (road crossing removal) installed to improve fish passage at a specified worksite. (Based on WE guidance this should typically be 1 structure per WE.)<br>-Road crossing removal: Removal of stream road crossing and the affiliated road structures so that the stream flows unimpeded with a natural stream bed.<br>-Freshwater non-tidal: Habitat with freshwater flowing in a channel or watercourse, including lakes, ponds, and adjacent areas below the high water mark that is not subject to the tidal influence of the estuarine zone.              | ✓               | number      | 1.0              |
| 1713  |                   |          |                         |           | # of rock fords installed in the freshwater non-tidal zone               | 350                | Enter the number of rock fords installed to improve fish passage at a specified worksite. (Based on WE guidance this should typically be 1 structure per WE.)<br>-Rock ford: Placement of a crushed gravel reinforced track through stream that still allows unimpeded stream flow.<br>-Freshwater non-tidal: Habitat with freshwater flowing in a channel or watercourse, including lakes, ponds, and adjacent areas below the high water mark that is not subject to the tidal influence of the estuarine zone.  | ✓               | number      | 1.0              |



### Metric Guidance by Work Element

| WE ID | Work Element Name | Category | Work Element Definition | Metric ID | Metric   | Metric Guidance ID | Metric Guidance  | Metric Required | Metric Type | Metric Precision |
|-------|-------------------|----------|-------------------------|-----------|--|--------------------|--|-----------------|-------------|------------------|
| 1714  |                   |          |                         |           | # of fish ladders installed in the freshwater non-tidal zone                     | 351                | Enter the number of fish ladders installed to improve fish passage at a specified worksite. (Based on WE guidance this should typically be 1 structure per WE.)<br>-Fish ladder installed or improved: A fishway with a series of shallow steps down or chutes which water is allowed to flow; designed to permit salmon to circumvent artificial barriers such as power dams and locks as the salmon migrate to the ocean or upstream to spawn.<br>-Freshwater non-tidal: Habitat with freshwater flowing in a channel or watercourse, including lakes, ponds, and adjacent areas below the high water mark that is not subject to the tidal influence of the estuarine zone.     | ✓               | number      | 1.0              |
| 1715  |                   |          |                         |           | # of weirs or fishway chutes or pools installed in the freshwater non-tidal zone | 352                | Enter the number of weirs or fishway chutes or pools installed to improve fish passage at a specified worksite. (Based on WE guidance this should typically be 1 structure per WE.)<br>-Weirs or fishway chutes or pools: Placement of an engineered bypass for salmonids to pass more safely around a barrier (other than fish ladder). This includes bedrock chutes, weirs, rock boulder step pools, and chutes constructed/roughened in bed rock.<br>-Freshwater non-tidal: Habitat with freshwater flowing in a channel or watercourse, including lakes, ponds, and adjacent areas below the high water mark that is not subject to the tidal influence of the estuarine zone. | ✓               | number      | 1.0              |



### Metric Guidance by Work Element

| WE ID | Work Element Name                              | Category            | Work Element Definition  | Metric ID | Metric  | Metric Guidance ID | Metric Guidance  | Metric Required | Metric Type | Metric Precision |
|-------|--|---------------------|--|-----------|---|--------------------|--|-----------------|-------------|------------------|
| 186   | Operate and Maintain Habitat/Passage/Structure | Habitat/Passage O&M | The inspection, operation, and maintenance of habitat features including, but not limited to, fences, instream structures, passage facilities, sediment control structures, and off-site water developments. Inspection includes visual surveys, photo points, and physical parameters to assure habitat structure is functioning as intended. Also includes the maintenance of residences, sheds, barns, and other buildings associated with habitat/passage projects. Use WE#188, Provide Access and Public Information for maintenance of access roads, parking areas, signs, and kiosks. Use WE#61, Maintain Artificial Production Facility/Infrastructure, for operation and maintenance of facilities and structures associated with hatcheries. Use WE#198, Maintain Vegetation for vegetation maintenance. | 1731      | # of miles of streambank protected by fence maintenance | 400                | This metric is required only when O&M maintains a fence. Measure the streambank length maintained by using the route of the center of channel. The measurement should reflect the center of channel counted for the right side, if looking downstream; or left side looking downstream; or both, if both banks are protected. This excludes the length of streambank associated with side channel or inlets. |                 | number      | 0.01             |
|       |  |                     |  | 1733      | # of acres protected by fence maintenance               | 402                | This is only required when O&M maintains a fence and there is no active lease associated with the land under WE# 92, Lease Land. To calculate acres, use the average length x width in feet / divided by 43,560 sq. ft/acre.   |                 | number      | 0.01             |
| 187   | Put and Take Fisheries                         | Hatchery O&M        | The stocking of a pond, lake or reservoir with hatchery reared fish for recreational fishing purposes. This includes the transport and stocking of the fish, and the operation and maintenance of the recreational facilities, e.g., bathrooms and access roads. Use a separate work element for each species.   | 1500      | # of fish stocked                                       | 133                | Number of fish you transport and release to your put and take fishery.   | ✓               | number      | 1.0              |
|       |  |                     |  | 1501      | Total weight of fish stocked in kilograms               | 134                | Weight, to the nearest 0.1 kilogram, of the fish you transport and release to your put and take fishery.   | ✓               | number      | 0.1              |



### Metric Guidance by Work Element

| WE ID | Work Element Name                       | Category            | Work Element Definition   | Metric ID | Metric                   | Metric Guidance ID | Metric Guidance   | Metric Required | Metric Type | Metric Precision |
|-------|---|---------------------|---|-----------|--------------------------|--------------------|---|-----------------|-------------|------------------|
| 190   | Remove, Exclude and/or Relocate Animals | Habitat Improvement | <p>Removal or relocation of fish and wildlife species and/or any actions employed to exclude non-native or undesirable fish and wildlife species from a particular area.</p> <p>Roundup and exclusion of animals protected by the Wild Free-Roaming Horses and Burros Protection Act of 1971 is not approved under the BPA Fish and Wildlife Mitigation Program.</p> <p>For California sea lions, "removal" and "exclusion" only includes non-lethal hazing. For trapping California sea lions for the sole purpose of tagging, use WE#158, Mark/Tag Animals. Examples of "removal" of fish and wildlife species include the removal of bullfrog egg masses and adults or removal of northern pikeminnows. Examples of "exclusion" activities include the installation of a fish passage barrier to exclude non-native fish from high mountain lakes. Fencing activities designed to "exclude" livestock should use WE#40, Install Fence. An example of a "relocation" activity includes the relocation of beavers.</p> | 1767      | # of beavers released    | 436                | Refers to the number of beavers (Castor canadensis) physically released into the wild; beavers trapped/captured, held and/or transported are not considered "released" for purposes of this metric. |                 | number      | 1.0              |
|       |   |                     |   | 1770      | Targeted animal          | 439                | Identify the piscivorous animal targeted.   | ✓               | list        |                  |
|       |   |                     |   | 1496      | # of patrol hours logged | 129                | Officer would count number of hours on patrol as opposed to total number of hours on duty.  | ✓               | number      | 1.0              |
| 192   | Law Enforcement                         | Habitat/Passage O&M | <p>Provide enforcement activities on mainstems and tributaries, including two primary components: (1) reduce illegal take of Columbia Basin fish &amp; wildlife, and (2) enforce habitat rules and regulations. Enforcement officers will enforce fisheries and habitat regulations, providing protection against illegal takes on resident fish, anadromous fish, and Columbia River salmon species throughout their life cycle, i.e., "gravel to gravel," with an emphasis on weak stocks passing through the hydro-power corridor into tributary streams and critical habitats. This WE should also be used when purchasing enforcement support equipment, e.g., boats, vehicles, radios, etc.</p>   | 1497      | # of arrests made        | 130                | Officer would count # of arrests regardless of type or outcome.   | ✓               | number      | 1.0              |



### Metric Guidance by Work Element

| WE ID | Work Element Name   | Category            | Work Element Definition   | Metric ID | Metric                      | Metric Guidance ID | Metric Guidance   | Metric Required | Metric Type | Metric Precision |
|-------|---------------------|---------------------|---|-----------|-----------------------------|--------------------|---|-----------------|-------------|------------------|
|       |                     |                     |   | 1498      | # of seizures made          | 131                | Officer would count the event as one seizure as opposed to the number of items seized and or confiscated. A seizer is considered confiscated equipment, or illegal take such as pelts and fish.   | ✓               | number      | 1.0              |
|       |                     |                     |   | 1499      | # of citations issued       | 132                | Officer would count number of citations issued regardless of type or outcome.   | ✓               | number      | 1.0              |
| 198   | Maintain Vegetation | Habitat/Passage O&M | <p>Maintain planted or pre-existing vegetation through physical, chemical, mechanical, and/or biological activities such as scalping, installing mats or mulch, mowing, irrigating, fertilizing, applying herbicide(s), burning, using Integrated Pest Management (IPM), preventing or reducing animal damage (browse repellents, tree tubes). This includes using different, or the same, treatment techniques in previously treated areas the second year, or later, of planting.</p> <p>Vegetation maintenance activities which occur during the first (initial) year of planting (such as installing tree tubes, fertilizing, animal repellents, etc.) should be a milestone under WE#47, Plant Vegetation.</p> | 1406      | # of riparian miles treated | 373                | <p>To calculate the length of riparian bank habitat treated in miles, the measurement should reflect the center of channel counted for the right side, if looking downstream; or left side looking downstream; or both, if both banks are protected. This excludes the length of streambank associated with side channels or inlets.</p> <p>- Riparian: Transition zone between aquatic and upland habitat typically within a river's floodplain. These habitats are related to and influenced by surface or subsurface waters, especially the margins of streams, lakes, ponds, wetlands, seeps, and ditches between land and a stream and above the average high watermark, or bank full height. Plant communities along the river and lake margins are called riparian vegetation, characterized by hydrophilic plants. This includes floodplain habitat, which may be restored to properly functioning conditions. (This excludes floodplain habitat influenced by the tides, which is classified as "Estuarine Habitat" for Pisces.)</p> | ✓               | number      | 0.01             |



### Metric Guidance by Work Element

| WE ID | Work Element Name | Category | Work Element Definition | Metric ID | Metric   | Metric Guidance ID | Metric Guidance  | Metric Required | Metric Type | Metric Precision |
|-------|-------------------|----------|-------------------------|-----------|--|--------------------|--|-----------------|-------------|------------------|
| 1515  |                   |          |                         |           | # of acres of upland non-wetland habitat treated | 370                | <p>Identify the total acres of habitat treated in the upland habitat zone. Identify the total acres of habitat treated in the riparian habitat zone. The treatment area is the unit area where plant removal techniques are applied in the upland non-wetland zone. (Spot treatment of chemicals or other techniques should only report the area chemicals are actually applied.)</p> <p>To calculate acres, use a GIS program or approximate the value by multiplying the total length of the treated habitat zone times the average width of the treated habitat zone in feet / divided by 43,560 sq. ft/acre.</p> <p>-Upland: Habitat upslope of the riparian and instream habitat zone with non-hydrophilic plants, unless part of an isolated wetland, which occurs outside the hyporheic, or floodplain/riparian zone.</p> <p>-Non-wetland: Habitat designated and regulated as non-wetland habitat, which is dominated by areas that are not inundated or saturated by surface or groundwater at a frequency and duration sufficient to support a prevalence of non-hydrophytic vegetation typically adapted for life in dry soil conditions.</p> | ✓               | number      | 0.01             |



### Metric Guidance by Work Element

| WE ID | Work Element Name | Category | Work Element Definition | Metric ID | Metric                                       | Metric Guidance ID | Metric Guidance  | Metric Required | Metric Type | Metric Precision |
|-------|-------------------|----------|-------------------------|-----------|--|--------------------|--|-----------------|-------------|------------------|
| 1516  |                   |          |                         | 366       | # of acres of upland wetland habitat treated | 366                | <p>Identify the total acres of habitat treated in the upland wetland habitat zone. The treatment area is the unit area where plant removal techniques are applied in the upland wetland zone. (Spot treatment of chemicals or other techniques should only report the area chemicals are actually applied.)</p> <p>To calculate acres, use a GIS program or approximate the value by multiplying the total length of the treated habitat zone times the average width of the treated habitat zone in feet / divided by 43,560 sq. ft/acre.</p> <p>-Upland: Habitat upslope of the riparian and instream habitat zone with non-hydrophilic plants, unless part of an isolated wetland, which occurs outside the hyporheic, or floodplain/riparian zone.</p> <p>-Wetland: Habitat designated and regulated as wetland habitat, which is dominated by areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support a prevalence of hydrophytic vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs and similar areas. For more information consult the USFWS National Wetland Inventory at <a href="http://www.fws.gov/wetlands/">http://www.fws.gov/wetlands/</a> or EPA wetland information at <a href="http://www.epa.gov/wetlands/">http://www.epa.gov/wetlands/</a>.</p> | ✓               | number      | 0.01             |



### Metric Guidance by Work Element

| WE ID | Work Element Name | Category | Work Element Definition | Metric ID | Metric   | Metric Guidance ID | Metric Guidance  | Metric Required | Metric Type | Metric Precision |
|-------|-------------------|----------|-------------------------|-----------|--|--------------------|--|-----------------|-------------|------------------|
| 1517  |                   |          |                         |           | # of acres of riparian non-wetland habitat treated | 450                | <p>Identify the total acres of habitat treated in the riparian habitat zone. The treatment area is the unit area where plant maintenance techniques are applied in the riparian non-wetland zone. (Spot treatment of chemicals or other techniques should only report the area chemicals are actually applied.)</p> <p>To calculate acres, use a GIS program or approximate the value by multiplying the total length of the treated habitat zone times the average width of the treated habitat zone in feet / divided by 43,560 sq. ft/acre.</p> <p>-Riparian: Transition zone between aquatic and upland habitat typically within a river's floodplain. These habitats are related to and influenced by surface or subsurface waters, especially the margins of streams, lakes, ponds, wetlands, seeps, and ditches between land and a stream and above the average high watermark, or bank full height. Plant communities along the river and lake margins are called riparian vegetation, characterized by hydrophilic plants. This includes floodplain habitat, which may be restored to properly functioning conditions. (This excludes floodplain habitat influenced by the tides, which is classified as "Estuarine Habitat" for Pisces.)</p> <p>-Non-wetland: Habitat designated and regulated as non-wetland habitat, which is dominated by areas that are not inundated or saturated by surface or groundwater at a frequency and duration sufficient to support a prevalence of non-hydrophytic vegetation typically adapted for life in dry soil conditions.</p> | ✓               | number      | 0.01             |



### Metric Guidance by Work Element

| WE ID | Work Element Name | Category | Work Element Definition | Metric ID | Metric   | Metric Guidance ID | Metric Guidance  | Metric Required | Metric Type | Metric Precision |
|-------|-------------------|----------|-------------------------|-----------|--|--------------------|--|-----------------|-------------|------------------|
| 1518  |                   |          |                         |           | # of acres of riparian wetland habitat treated       | 452                | <p>Identify the total acres of habitat treated in the riparian habitat zone. The treatment area is the unit area where plant maintenance techniques are applied in the riparian wetland habitat zone. (Spot treatment of chemicals or other techniques should only report the area chemicals are actually applied.)</p> <p>To calculate acres, use a GIS program or approximate the value by multiplying the total length of the treated habitat zone times the average width of the treated habitat zone in feet / divided by 43,560 sq. ft/acre.</p> <p>-Riparian: Transition zone between aquatic and upland habitat typically within a river's floodplain. These habitats are related to and influenced by surface or subsurface waters, especially the margins of streams, lakes, ponds, wetlands, seeps, and ditches between land and a stream and above the average high watermark, or bank full height. Plant communities along the river and lake margins are called riparian vegetation, characterized by hydrophilic plants. This includes floodplain habitat, which may be restored to properly functioning conditions. (This excludes floodplain habitat influenced by the tides, which is classified as "Estuarine Habitat" for Pisces.)</p> <p>-Wetland: Habitat designated and regulated as wetland habitat, which is dominated by areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support a prevalence of hydrophytic vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs and similar areas. For more information consult the USFWS National Wetland Inventory at <a href="http://www.fws.gov/wetlands/">http://www.fws.gov/wetlands/</a> or EPA wetland information at <a href="http://www.epa.gov/wetlands/">http://www.epa.gov/wetlands/</a>.</p> | ✓               | number      | 0.01             |
| 1519  |                   |          |                         |           | # of acres of freshwater non-wetland habitat treated | 453                | <p>Identify the total acres of habitat treated in the riparian habitat zone. The treatment area is the unit area where plant maintenance techniques are applied in the freshwater non-tidal non-wetland zone. (Spot treatment of chemicals or other techniques should only report the area chemicals are actually applied.)</p>  | ✓               | number      | 0.01             |



### Metric Guidance by Work Element

| WE ID | Work Element Name | Category | Work Element Definition | Metric ID | Metric   | Metric Guidance ID | Metric Guidance  | Metric Required | Metric Type | Metric Precision |
|-------|-------------------|----------|-------------------------|-----------|--|--------------------|--|-----------------|-------------|------------------|
| 1520  |                   |          |                         |           | # of acres of freshwater wetland habitat treated | 368                | <p>Identify the total acres of habitat treated in the riparian habitat zone. The treatment area is the unit area where plant removal techniques are applied in the freshwater non-tidal wetland zone. (Spot treatment of chemicals or other techniques should only report the area chemicals are actually applied.)</p> <p>To calculate acres, use a GIS program or approximate the value by multiplying the total length of the treated habitat zone times the average width of the treated habitat zone in feet / divided by 43,560 sq. ft/acre.</p> <p>-Freshwater non-tidal: Habitat with freshwater flowing in a channel or watercourse, including lakes, ponds, and adjacent areas below the high water mark that is not subject to the tidal influence of the estuarine zone.</p> <p>-Wetland: Habitat designated and regulated as wetland habitat, which is dominated by areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support a prevalence of hydrophytic vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs and similar areas. For more information consult the USFWS National Wetland Inventory at <a href="http://www.fws.gov/wetlands/">http://www.fws.gov/wetlands/</a> or EPA wetland information at <a href="http://www.epa.gov/wetlands/">http://www.epa.gov/wetlands/</a>.</p> | ✓               | number      | 0.01             |



### Metric Guidance by Work Element

| WE ID | Work Element Name | Category | Work Element Definition | Metric ID | Metric  | Metric Guidance ID | Metric Guidance   | Metric Required | Metric Type | Metric Precision |
|-------|-------------------|----------|-------------------------|-----------|---|--------------------|---|-----------------|-------------|------------------|
| 1521  |                   |          |                         |           | # of acres of estuarine wetland habitat treated | 451                | <p>Identify the total acres of habitat treated in the riparian habitat zone. The treatment area is the unit area where plant maintenance techniques are applied in the estuarine non-wetland zone. (Spot treatment of chemicals or other techniques should only report the area chemicals are actually applied.)</p> <p>To calculate acres, use a GIS program or approximate the value by multiplying the total length of the treated habitat zone times the average width of the treated habitat zone in feet / divided by 43,560 sq. ft/acre.</p> <p>-Estuarine: Habitat that is part of a semi-enclosed coastal body of water that is subject to the ebb and flow of tides, with one or more rivers or streams flowing into it, and with a free connection to the nearshore marine zone. This includes habitat impacted by the highest high and lowest low tides of a year. Estuaries are environments whose pH, salinity, and water levels are subject to the ebb and flow of tides, and the physical and chemical properties of the river that feeds the estuary and the ocean from which it derives its salinity. This habitat includes floodplain/riparian habitat subject to inundation from the tides.</p> <p>-Non-wetland: Habitat designated and regulated as non-wetland habitat, which is dominated by areas that are not inundated or saturated by surface or groundwater at a frequency and duration sufficient to support a prevalence of non-hydrophytic vegetation typically adapted for life in dry soil conditions.</p> | ✓               | number      | 0.01             |



### Metric Guidance by Work Element

| WE ID | Work Element Name | Category | Work Element Definition | Metric ID | Metric  | Metric Guidance ID | Metric Guidance   | Metric Required | Metric Type | Metric Precision |
|-------|-------------------|----------|-------------------------|-----------|---|--------------------|---|-----------------|-------------|------------------|
| 1522  |                   |          |                         |           | # of acres of estuarine non-wetland habitat treated | 454                | <p>Identify the total acres of habitat treated in the riparian habitat zone. The treatment area is the unit area where plant maintenance techniques are applied in the estuarine wetland zone. (Spot treatment of chemicals or other techniques should only report the area chemicals are actually applied.)</p> <p>To calculate acres, use a GIS program or approximate the value by multiplying the total length of the treated habitat zone times the average width of the treated habitat zone in feet / divided by 43,560 sq. ft/acre.</p> <p>-Estuarine: Habitat that is part of a semi-enclosed coastal body of water that is subject to the ebb and flow of tides, with one or more rivers or streams flowing into it, and with a free connection to the nearshore marine zone. This includes habitat impacted by the highest high and lowest low tides of a year. Estuaries are environments whose pH, salinity, and water levels are subject to the ebb and flow of tides, and the physical and chemical properties of the river that feeds the estuary and the ocean from which it derives its salinity. This habitat includes floodplain/riparian habitat subject to inundation from the tides.</p> <p>-Wetland: Habitat designated and regulated as wetland habitat, which is dominated by areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support a prevalence of hydrophytic vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs and similar areas. For more information consult the USFWS National Wetland Inventory at <a href="http://www.fws.gov/wetlands/">http://www.fws.gov/wetlands/</a> or EPA wetland information at <a href="http://www.epa.gov/wetlands/">http://www.epa.gov/wetlands/</a>.</p> | ✓               | number      | 0.01             |



### Metric Guidance by Work Element

| WE ID | Work Element Name             | Category | Work Element Definition | Metric ID | Metric | Metric Guidance ID | Metric Guidance  | Metric Required | Metric Type | Metric Precision |
|-------|-------------------------------|----------|-------------------------|-----------|--------|--------------------|--|-----------------|-------------|------------------|
| 1636  | # of estuarine miles treated  |          |                         | 273       |        |                    | To calculate the length of estuarine bank habitat in miles treated add the length treated on both sides of the main channel when both sides are treated. Add one side when only one side is treated.<br>-Estuarine: Habitat that is part of a semi-enclosed coastal body of water that is subject to the ebb and flow of tides, with one or more rivers or streams flowing into it, and with a free connection to the nearshore marine zone. This includes habitat impacted by the highest high and lowest low tides of a year. Estuaries are environments whose pH, salinity, and water levels are subject to the ebb and flow of tides, and the physical and chemical properties of the river that feeds the estuary and the ocean from which it derives its salinity. This habitat includes floodplain/riparian habitat subject to inundation from the tides. | ✓               | number      | 0.01             |
| 1637  | # of freshwater miles treated |          |                         | 274       |        |                    | To calculate the length of freshwater non-tidal habitat treated in miles, add the length of the main channel treated.<br>-Freshwater non-tidal: Habitat with freshwater flowing in a channel or watercourse, including lakes, ponds, and adjacent areas below the high water mark that is not subject to the tidal influence of the estuarine zone.  | ✓               | number      | 0.01             |
| 1723  | # of years treated            |          |                         | 392       |        |                    | Enter the number of years a plant maintenance treatment has been applied to the worksite.  | ✓               | number      | 1.0              |
| 1734  | # of acres maintained         |          |                         | 403       |        |                    | This is required when O&M maintains vegetation to support growth for beneficial plant species. Identify the total acres of habitat treated. The treatment area is the unit area where maintenance techniques are applied. (Spot treatment of chemicals or other techniques should only report the area chemicals are actually applied.)<br>To calculate acres, use a GIS program or approximate the value by multiplying the total length of the treated habitat zone times the average width of the treated habitat zone in feet / divided by 43,560 sq. ft/acre.   | ✓               | number      | 0.01             |
| 1737  | Biological plant removal      |          |                         | 446       |        |                    | Select "yes" or "no" to indicate whether a biological treatment was used to maintain plant species.  | ✓               | list        |                  |
| 1738  | Herbicide plant removal       |          |                         | 447       |        |                    | Select "yes" or "no" to indicate whether herbicide was used to maintain plant species.   | ✓               | list        |                  |



### Metric Guidance by Work Element

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|-------|-------------------|---------------------|---|-----------|-----------------------------|--------------------|---|-----------------|-------------|------------------|
|       |                   |                     |   | 1739      | Mechanical plant removal    | 448                | Select "yes" or "no" to indicate whether mechanical treatment (mowing, weed eating, scalping, or manually digging) was used to maintain plant species.  | ✓               | list        |                  |
|       |                   |                     |   | 1740      | Conduct controlled burn     | 449                | Select "yes" or "no" to indicate whether a controlled burn was used to maintain plant species.  | ✓               | list        |                  |
| 199   | Remove Vegetation | Habitat Improvement | <p>Use during the initial year of treating a site if removing one or more plant species, or a number of individuals of a plant species, by mechanical, biological, and/or chemical means, or by controlled burn.</p> <p>Target species are often exotic or non-native plants, naturalized plants, or undesirable native plants, all of which may be considered to be noxious, invasive or "weeds". Includes the removal of both aquatic and terrestrial plants as well as tree stand manipulation due to encroachment or to create forage openings.</p> | 1406      | # of riparian miles treated | 373                | <p>To calculate the length of riparian bank habitat treated in miles, the measurement should reflect the center of channel counted for the right side, if looking downstream; or left side looking downstream; or both, if both banks are protected. This excludes the length of streambank associated with side channels or inlets.</p> <p>- Riparian: Transition zone between aquatic and upland habitat typically within a river's floodplain. These habitats are related to and influenced by surface or subsurface waters, especially the margins of streams, lakes, ponds, wetlands, seeps, and ditches between land and a stream and above the average high watermark, or bank full height. Plant communities along the river and lake margins are called riparian vegetation, characterized by hydrophilic plants. This includes floodplain habitat, which may be restored to properly functioning conditions. (This excludes floodplain habitat influenced by the tides, which is classified as "Estuarine Habitat" for Pisces.)</p> | ✓               | number      | 0.01             |



### Metric Guidance by Work Element

| WE ID | Work Element Name | Category | Work Element Definition | Metric ID | Metric   | Metric Guidance ID | Metric Guidance  | Metric Required | Metric Type | Metric Precision |
|-------|-------------------|----------|-------------------------|-----------|--|--------------------|--|-----------------|-------------|------------------|
| 1515  |                   |          |                         |           | # of acres of upland non-wetland habitat treated | 370                | <p>Identify the total acres of habitat treated in the upland habitat zone. Identify the total acres of habitat treated in the riparian habitat zone. The treatment area is the unit area where plant removal techniques are applied in the upland non-wetland zone. (Spot treatment of chemicals or other techniques should only report the area chemicals are actually applied.)</p> <p>To calculate acres, use a GIS program or approximate the value by multiplying the total length of the treated habitat zone times the average width of the treated habitat zone in feet / divided by 43,560 sq. ft/acre.</p> <p>-Upland: Habitat upslope of the riparian and instream habitat zone with non-hydrophilic plants, unless part of an isolated wetland, which occurs outside the hyporheic, or floodplain/riparian zone.</p> <p>-Non-wetland: Habitat designated and regulated as non-wetland habitat, which is dominated by areas that are not inundated or saturated by surface or groundwater at a frequency and duration sufficient to support a prevalence of non-hydrophytic vegetation typically adapted for life in dry soil conditions.</p> | ✓               | number      | 0.01             |



### Metric Guidance by Work Element

| WE ID | Work Element Name | Category | Work Element Definition | Metric ID | Metric                                       | Metric Guidance ID | Metric Guidance  | Metric Required | Metric Type | Metric Precision |
|-------|-------------------|----------|-------------------------|-----------|--|--------------------|--|-----------------|-------------|------------------|
| 1516  |                   |          |                         | 366       | # of acres of upland wetland habitat treated | 366                | <p>Identify the total acres of habitat treated in the upland wetland habitat zone. The treatment area is the unit area where plant removal techniques are applied in the upland wetland zone. (Spot treatment of chemicals or other techniques should only report the area chemicals are actually applied.)</p> <p>To calculate acres, use a GIS program or approximate the value by multiplying the total length of the treated habitat zone times the average width of the treated habitat zone in feet / divided by 43,560 sq. ft/acre.</p> <p>-Upland: Habitat upslope of the riparian and instream habitat zone with non-hydrophilic plants, unless part of an isolated wetland, which occurs outside the hyporheic, or floodplain/riparian zone.</p> <p>-Wetland: Habitat designated and regulated as wetland habitat, which is dominated by areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support a prevalence of hydrophytic vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs and similar areas. For more information consult the USFWS National Wetland Inventory at <a href="http://www.fws.gov/wetlands/">http://www.fws.gov/wetlands/</a> or EPA wetland information at <a href="http://www.epa.gov/wetlands/">http://www.epa.gov/wetlands/</a>.</p> | ✓               | number      | 0.01             |



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| WE ID | Work Element Name | Category | Work Element Definition | Metric ID | Metric   | Metric Guidance ID | Metric Guidance  | Metric Required | Metric Type | Metric Precision |
|-------|-------------------|----------|-------------------------|-----------|--|--------------------|--|-----------------|-------------|------------------|
| 1517  |                   |          |                         |           | # of acres of riparian non-wetland habitat treated | 387                | <p>Identify the total acres of habitat treated in the riparian habitat zone. The treatment area is the unit area where plant removal techniques are applied in the riparian non-wetland zone. (Spot treatment of chemicals or other techniques should only report the area chemicals are actually applied.)</p> <p>To calculate acres, use a GIS program or approximate the value by multiplying the total length of the treated habitat zone times the average width of the treated habitat zone in feet / divided by 43,560 sq. ft/acre.</p> <p>-Riparian: Transition zone between aquatic and upland habitat typically within a river's floodplain. These habitats are related to and influenced by surface or subsurface waters, especially the margins of streams, lakes, ponds, wetlands, seeps, and ditches between land and a stream and above the average high watermark, or bank full height. Plant communities along the river and lake margins are called riparian vegetation, characterized by hydrophilic plants. This includes floodplain habitat, which may be restored to properly functioning conditions. (This excludes floodplain habitat influenced by the tides, which is classified as "Estuarine Habitat" for Pisces.)</p> <p>-Non-wetland: Habitat designated and regulated as non-wetland habitat, which is dominated by areas that are not inundated or saturated by surface or groundwater at a frequency and duration sufficient to support a prevalence of non-hydrophytic vegetation typically adapted for life in dry soil conditions.</p> | ✓               | number      | 0.01             |



### Metric Guidance by Work Element

| WE ID | Work Element Name | Category | Work Element Definition | Metric ID | Metric   | Metric Guidance ID | Metric Guidance  | Metric Required | Metric Type | Metric Precision |
|-------|-------------------|----------|-------------------------|-----------|--|--------------------|--|-----------------|-------------|------------------|
| 1518  |                   |          |                         |           | # of acres of riparian wetland habitat treated | 367                | <p>Identify the total acres of habitat treated in the riparian habitat zone. The treatment area is the unit area where plant removal techniques are applied in the riparian wetland habitat zone. (Spot treatment of chemicals or other techniques should only report the area chemicals are actually applied.)</p> <p>To calculate acres, use a GIS program or approximate the value by multiplying the total length of the treated habitat zone times the average width of the treated habitat zone in feet / divided by 43,560 sq. ft/acre.</p> <p>-Riparian: Transition zone between aquatic and upland habitat typically within a river's floodplain. These habitats are related to and influenced by surface or subsurface waters, especially the margins of streams, lakes, ponds, wetlands, seeps, and ditches between land and a stream and above the average high watermark, or bank full height. Plant communities along the river and lake margins are called riparian vegetation, characterized by hydrophilic plants. This includes floodplain habitat, which may be restored to properly functioning conditions. (This excludes floodplain habitat influenced by the tides, which is classified as "Estuarine Habitat" for Pisces.)</p> <p>-Wetland: Habitat designated and regulated as wetland habitat, which is dominated by areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support a prevalence of hydrophytic vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs and similar areas. For more information consult the USFWS National Wetland Inventory at <a href="http://www.fws.gov/wetlands/">http://www.fws.gov/wetlands/</a> or EPA wetland information at <a href="http://www.epa.gov/wetlands/">http://www.epa.gov/wetlands/</a>.</p> | ✓               | number      | 0.01             |



### Metric Guidance by Work Element

| WE ID | Work Element Name | Category | Work Element Definition | Metric ID | Metric   | Metric Guidance ID | Metric Guidance  | Metric Required | Metric Type | Metric Precision |
|-------|-------------------|----------|-------------------------|-----------|--|--------------------|--|-----------------|-------------|------------------|
| 1519  |                   |          |                         |           | # of acres of freshwater non-wetland habitat treated | 371                | <p>Identify the total acres of habitat treated in the riparian habitat zone. The treatment area is the unit area where plant removal techniques are applied in the freshwater non-tidal non-wetland zone. (Spot treatment of chemicals or other techniques should only report the area chemicals are actually applied.)</p> <p>To calculate acres, use a GIS program or approximate the value by multiplying the total length of the treated habitat zone times the average width of the treated habitat zone in feet / divided by 43,560 sq. ft/acre.</p> <p>-Freshwater non-tidal: Habitat with freshwater flowing in a channel or watercourse, including lakes, ponds, and adjacent areas below the high water mark that is not subject to the tidal influence of the estuarine zone.</p> <p>-Non-wetland: Habitat designated and regulated as non-wetland habitat, which is dominated by areas that are not inundated or saturated by surface or groundwater at a frequency and duration sufficient to support a prevalence of non-hydrophytic vegetation typically adapted for life in dry soil conditions.</p> | ✓               | number      | 0.01             |



### Metric Guidance by Work Element

| WE ID | Work Element Name | Category | Work Element Definition | Metric ID | Metric   | Metric Guidance ID | Metric Guidance  | Metric Required | Metric Type | Metric Precision |
|-------|-------------------|----------|-------------------------|-----------|--|--------------------|--|-----------------|-------------|------------------|
| 1520  |                   |          |                         | 368       | # of acres of freshwater wetland habitat treated | 368                | <p>Identify the total acres of habitat treated in the riparian habitat zone. The treatment area is the unit area where plant removal techniques are applied in the freshwater non-tidal wetland zone. (Spot treatment of chemicals or other techniques should only report the area chemicals are actually applied.)</p> <p>To calculate acres, use a GIS program or approximate the value by multiplying the total length of the treated habitat zone times the average width of the treated habitat zone in feet / divided by 43,560 sq. ft/acre.</p> <p>-Freshwater non-tidal: Habitat with freshwater flowing in a channel or watercourse, including lakes, ponds, and adjacent areas below the high water mark that is not subject to the tidal influence of the estuarine zone.</p> <p>-Wetland: Habitat designated and regulated as wetland habitat, which is dominated by areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support a prevalence of hydrophytic vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs and similar areas. For more information consult the USFWS National Wetland Inventory at <a href="http://www.fws.gov/wetlands/">http://www.fws.gov/wetlands/</a> or EPA wetland information at <a href="http://www.epa.gov/wetlands/">http://www.epa.gov/wetlands/</a>.</p> | ✓               | number      | 0.01             |



### Metric Guidance by Work Element

| WE ID | Work Element Name | Category | Work Element Definition | Metric ID | Metric  | Metric Guidance ID | Metric Guidance   | Metric Required | Metric Type | Metric Precision |
|-------|-------------------|----------|-------------------------|-----------|---|--------------------|---|-----------------|-------------|------------------|
| 1521  |                   |          |                         | 365       | # of acres of estuarine wetland habitat treated | 365                | <p>Identify the total acres of habitat treated in the riparian habitat zone. The treatment area is the unit area where plant removal techniques are applied in the estuarine non-wetland zone. (Spot treatment of chemicals or other techniques should only report the area chemicals are actually applied.)</p> <p>To calculate acres, use a GIS program or approximate the value by multiplying the total length of the treated habitat zone times the average width of the treated habitat zone in feet / divided by 43,560 sq. ft/acre.</p> <p>-Estuarine: Habitat that is part of a semi-enclosed coastal body of water that is subject to the ebb and flow of tides, with one or more rivers or streams flowing into it, and with a free connection to the nearshore marine zone. This includes habitat impacted by the highest high and lowest low tides of a year. Estuaries are environments whose pH, salinity, and water levels are subject to the ebb and flow of tides, and the physical and chemical properties of the river that feeds the estuary and the ocean from which it derives its salinity. This habitat includes floodplain/riparian habitat subject to inundation from the tides.</p> <p>-Non-wetland: Habitat designated and regulated as non-wetland habitat, which is dominated by areas that are not inundated or saturated by surface or groundwater at a frequency and duration sufficient to support a prevalence of non-hydrophytic vegetation typically adapted for life in dry soil conditions.</p> | ✓               | number      | 0.01             |



### Metric Guidance by Work Element

| WE ID | Work Element Name | Category | Work Element Definition | Metric ID | Metric  | Metric Guidance ID | Metric Guidance   | Metric Required | Metric Type | Metric Precision |
|-------|-------------------|----------|-------------------------|-----------|---|--------------------|---|-----------------|-------------|------------------|
| 1522  |                   |          |                         | 372       | # of acres of estuarine non-wetland habitat treated | 372                | <p>Identify the total acres of habitat treated in the riparian habitat zone. The treatment area is the unit area where plant removal techniques are applied in the estuarine wetland zone. (Spot treatment of chemicals or other techniques should only report the area chemicals are actually applied.)</p> <p>To calculate acres, use a GIS program or approximate the value by multiplying the total length of the treated habitat zone times the average width of the treated habitat zone in feet / divided by 43,560 sq. ft/acre.</p> <p>-Estuarine: Habitat that is part of a semi-enclosed coastal body of water that is subject to the ebb and flow of tides, with one or more rivers or streams flowing into it, and with a free connection to the nearshore marine zone. This includes habitat impacted by the highest high and lowest low tides of a year. Estuaries are environments whose pH, salinity, and water levels are subject to the ebb and flow of tides, and the physical and chemical properties of the river that feeds the estuary and the ocean from which it derives its salinity. This habitat includes floodplain/riparian habitat subject to inundation from the tides.</p> <p>-Wetland: Habitat designated and regulated as wetland habitat, which is dominated by areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support a prevalence of hydrophytic vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs and similar areas. For more information consult the USFWS National Wetland Inventory at <a href="http://www.fws.gov/wetlands/">http://www.fws.gov/wetlands/</a> or EPA wetland information at <a href="http://www.epa.gov/wetlands/">http://www.epa.gov/wetlands/</a>.</p> | ✓               | number      | 0.01             |



### Metric Guidance by Work Element

| WE ID | Work Element Name | Category | Work Element Definition | Metric ID | Metric                        | Metric Guidance ID | Metric Guidance  | Metric Required | Metric Type | Metric Precision |
|-------|-------------------|----------|-------------------------|-----------|-------------------------------|--------------------|--|-----------------|-------------|------------------|
| 1636  |                   |          |                         |           | # of estuarine miles treated  | 273                | To calculate the length of estuarine bank habitat in miles treated add the length treated on both sides of the main channel when both sides are treated. Add one side when only one side is treated.<br>-Estuarine: Habitat that is part of a semi-enclosed coastal body of water that is subject to the ebb and flow of tides, with one or more rivers or streams flowing into it, and with a free connection to the nearshore marine zone. This includes habitat impacted by the highest high and lowest low tides of a year. Estuaries are environments whose pH, salinity, and water levels are subject to the ebb and flow of tides, and the physical and chemical properties of the river that feeds the estuary and the ocean from which it derives its salinity. This habitat includes floodplain/riparian habitat subject to inundation from the tides. | ✓               | number      | 0.01             |
| 1637  |                   |          |                         |           | # of freshwater miles treated | 274                | To calculate the length of freshwater non-tidal habitat treated in miles, add the length of the main channel treated.<br>-Freshwater non-tidal: Habitat with freshwater flowing in a channel or watercourse, including lakes, ponds, and adjacent areas below the high water mark that is not subject to the tidal influence of the estuarine zone.  | ✓               | number      | 0.01             |
| 1737  |                   |          |                         |           | Biological plant removal      | 406                | Select "yes" or "no" to indicate whether a biological treatment was used to remove plant species.  | ✓               | list        |                  |
| 1738  |                   |          |                         |           | Herbicide plant removal       | 407                | Select "yes" or "no" to indicate whether herbicide was used to remove plant species.   | ✓               | list        |                  |
| 1739  |                   |          |                         |           | Mechanical plant removal      | 408                | Select "yes" or "no" to indicate whether mechanical treatment (mowing, weed eating, scalping, or manually digging) was used to remove plant species.   | ✓               | list        |                  |
| 1740  |                   |          |                         |           | Conduct controlled burn       | 409                | Select "yes" or "no" to indicate whether a controlled burn was used to remove plant species.   | ✓               | list        |                  |



### Metric Guidance by Work Element

| WE ID | Work Element Name                  | Category                                    | Work Element Definition   | Metric ID | Metric   | Metric Guidance ID | Metric Guidance  | Metric Required | Metric Type | Metric Precision |
|-------|------------------------------------|---|---|-----------|--|--------------------|--|-----------------|-------------|------------------|
| 203   | Install Water Conservation Measure | Water Conservation and Irrigation Practices | <p>This work element is for work designed to provide irrigation efficiencies which result in increased instream flow, such as installing a pipeline, sprinkler, and/or lining a diversion ditch. Other options should have already been considered to accomplish this purpose, such as water transactions or obtaining cost-share for this work element and subsequently transferring conserved water instream.</p> <p>To cover initial work to put conserved water instream, including coordinating with the Columbia Basin Water Transactions Program, also use WE#154, Develop and Negotiate Water Right Transaction and WE#164, Acquire Water Instream.</p> <p>If the conservation measure is part of a larger irrigation consolidation project that involves eliminating a diversion, then you must also use WE#84, Remove/Install Diversion. If installing a pipeline to provide water to livestock, use WE#34, Develop Alternative Water Source instead.</p> | 1438      | # of miles of primary stream reach improvement   | 67                 | This work is designed to eliminate an irrigation diversion or to provide irrigation efficiencies. The # of miles refers to the distance (0.1 miles) from the point of diversion being addressed to the next downstream diversion or confluence with the next major order stream, whichever comes first.                | ✓               | number      | 0.1              |
|       |                                    |   |   | 1439      | # of miles of total stream reach improvement   | 69                 | This work is designed to eliminate an irrigation diversion or to provide irrigation efficiencies. The # of miles refers to the distance (0.1 miles) from the point of diversion being addressed to the confluence of the next major order stream. The term "total" includes both primary and secondary stream reaches. | ✓               | number      | 0.01             |
|       |                                    |   |   | 1440      | Amount of unprotected water flow returned to the stream by conservation in acre-feet/year              | 70                 | This is the seasonal volume of water left instream due to irrigation efficiencies; this water is "unprotected" until an official water transaction is recorded.  | ✓               | number      | 0.1              |
|       |                                    |   |   | 1451      | Amount of unprotected water flow returned to the stream by conservation in cubic-feet per second (cfs) | 81                 | This is the rate of flow of water left instream due to irrigation efficiencies or the removal of a diversion; this water is "unprotected" unless and until an official water transaction is recorded.  | ✓               | number      | 0.1              |



### Metric Guidance by Work Element

| WE ID | Work Element Name    | Category                                 | Work Element Definition  | Metric ID | Metric   | Metric Guidance ID | Metric Guidance | Metric Required | Metric Type | Metric Precision |
|-------|----------------------|--|--|-----------|--|--------------------|-----------------|-----------------|-------------|------------------|
| 6     | TBL Work             | Land Acquisition / Conservation Easement | This is a BPA Internal-use only work element. BPA uses this work element for any work the Transmission Business Line (TBL) provides in support of a fish and wildlife project. May include appraisal review, appraisals, help in development of an MOA, real estate negotiations, survey/photogrammetry, and GIS work. Additionally, relocation costs associated with a land purchase are captured here. |           | <i>No metrics needed for this work element</i> |                    |                 |                 |             |                  |
| 26    | Investigate Trespass | Habitat/Passage O&M                      | Efforts involved with establishing whether trespass is occurring (human or livestock). For fence maintenance use WE#186, Operate and Maintain Habitat/Passage/Structure.   |           | <i>No metrics needed for this work element</i> |                    |                 |                 |             |                  |
| 35    | Develop Pond         | Habitat Improvement                      | Develop a pond and its surrounding habitat for resident fish and/or waterfowl. May involve the installation of a water control structure or excavation. Does not apply to sediment control ponds (WE#55, Erosion and Sedimentation Control), acclimation ponds (WE#171, Build, Modify, and/or Refurbish Artificial Production Facility), or wetlands (WE#181, Create, Restore, and/or Enhance Wetland).  |           | <i>No metrics needed for this work element</i> |                    |                 |                 |             |                  |
| 60    | Maintain Fish Health | Hatchery O&M                             | Includes the work performed under contracts solely for fish health maintenance, such as fish health monitoring, pathology sampling, laboratory processing of samples, and consultation with fish health professionals. If the full range of hatchery fish culture activities is performed under a contract, use WE#176, Produce Hatchery Fish instead.   |           | <i>No metrics needed for this work element</i> |                    |                 |                 |             |                  |



### Metric Guidance by Work Element

| WE ID | Work Element Name                                      | Category     | Work Element Definition  | Metric ID | Metric   | Metric Guidance ID | Metric Guidance | Metric Required | Metric Type | Metric Precision |
|-------|--|--------------|--|-----------|--|--------------------|-----------------|-----------------|-------------|------------------|
| 61    | Maintain Artificial Production Facility/Infrastructure | Hatchery O&M | <p>Includes all minor maintenance and repair activities associated with fish production facilities, including maintenance of buildings, grounds, raceways, acclimation ponds, net pens, water treatment facilities, equipment, vehicles, etc.</p> <p>Do NOT use WE#61, Maintain Artificial Production Facility/Infrastructure if you are hiring a subcontractor to replace existing infrastructure (e.g., re-grade a road, replace house windows, remove and rebuild a raceway wall), instead, please use WE#171, Build, Modify, and/or Refurbish Artificial Production Facility. 61. Maintain Hatchery is intended to include activities related to care of physical structures and grounds and not the care of fish. Work to produce fish would be under WE#176, Produce Hatchery Fish.</p> <p>All significant actions in response to emergencies must be reported to the CO and COTR by email and phone call as soon as is practical (i.e., after life and property are secured).</p> |           | <i>No metrics needed for this work element</i> |                    |                 |                 |             |                  |



### Metric Guidance by Work Element

| WE ID | Work Element Name                 | Category                                 | Work Element Definition   | Metric ID | Metric   | Metric Guidance ID | Metric Guidance | Metric Required | Metric Type | Metric Precision |
|-------|-----------------------------------|--|---|-----------|--|--------------------|-----------------|-----------------|-------------|------------------|
| 70    | Install Fish Monitoring Equipment | RM & E and Data Management               | <p>This work element should be used as little as possible and has been reserved almost exclusively for the PTAGIS project, which installs fish monitoring equipment for use by NOAA Fisheries and the Army Corps of Engineers. Please contact your COTR before adding this work element into your SOW.</p> <p>In most instances, rotary screw trap installation (and removal) should be a milestone under the WE for which the equipment will be used, typically 157. Collect/Generate/Validate Field and Lab Data, or 158. Mark/Tag Animals.</p> <p>This work element should be used as little as possible, since BPA needs to track the true cost and effort needed to collect data or mark animals. The PTAGIS project is the exception to this, which installs fish monitoring equipment for use by NOAA Fisheries and the Army Corps of Engineers.</p> |           | <i>No metrics needed for this work element</i> |                    |                 |                 |             |                  |
| 80    | Install Siphon                    | Instream Passage Improvement             | <p>Covers work that installs a siphon, flume, or other structure to separate canal flow from stream flow where the two have been intermingled as part of past water diversion development, resulting in fish using the natural stream course for passage and rearing. If additional fish barriers are needed, include these as a milestone. This WE is specific to modifying existing structures; the design of these structures is typically a separate work element and should use WE#175, Produce Design and/or Specifications.</p>  |           | <i>No metrics needed for this work element</i> |                    |                 |                 |             |                  |
| 87    | Prepare HEP Report                | Land Acquisition / Conservation Easement | <p>Efforts leading to a report to present the findings of the Habitat Evaluation Procedure (HEP) survey conducted by the Regional HEP team.</p>   |           | <i>No metrics needed for this work element</i> |                    |                 |                 |             |                  |



### Metric Guidance by Work Element

| WE ID | Work Element Name       | Category                      | Work Element Definition  | Metric ID | Metric   | Metric Guidance ID | Metric Guidance | Metric Required | Metric Type | Metric Precision |
|-------|-------------------------|-------------------------------|--|-----------|--|--------------------|-----------------|-----------------|-------------|------------------|
| 98    | Other                   | Other                         | <p>In rare instances, a contractor may be performing a type of work that is fundamentally different than anything described by existing work elements. In such a case, the contractor should consult with his or her BPA project manager to determine if using the "Other" work element is appropriate.</p> <p>Do NOT use "Other" to account for costs that will help you achieve other planned work. For example, equipment rental that will help with data collection should be included in WE#157, Collect/Generate/Validate Field and Lab Data, and purchasing large wood for future habitat work, even if it's in a subsequent contract, should be captured under WE#29, Increase Aquatic and/or Floodplain Complexity. This allows BPA to more accurately track spending on different types of work.</p>               |           | <i>No metrics needed for this work element</i> |                    |                 |                 |             |                  |
| 100   | Construction Management | Hatchery / Major Construction | <p>Oversight of construction, including activities ranging from conducting daily construction observation, to providing professional on-site inspection services, to construction management support, including contractor daily-log review; RFI review and responses; submittal review and responses; and key site observations, such as reinforcement inspection, concrete pour observation, and facility start-up. Usually this WE is used only on larger construction activities (\$250,000 or greater value) and/or where construction management is deemed to be important or complex enough to warrant splitting it out in a separate contract from the actual construction work.</p> <p>ALSO USE THIS WE IF THE ON-THE-GROUND WORK IS BEING DONE WITH NON-BPA FUNDS, AND THE BPA CONTRIBUTION IS OVERSIGHT ONLY.</p> |           | <i>No metrics needed for this work element</i> |                    |                 |                 |             |                  |



### Metric Guidance by Work Element

| WE ID | Work Element Name               | Category                  | Work Element Definition   | Metric ID | Metric   | Metric Guidance ID | Metric Guidance | Metric Required | Metric Type | Metric Precision |
|-------|---------------------------------|---------------------------|---|-----------|--|--------------------|-----------------|-----------------|-------------|------------------|
| 114   | Identify and Select Projects    | Planning and Coordination | Covers work by the contractor to identify, prioritize, assess, and ultimately select projects. Often associated with Model Watersheds, or habitat restoration programs that coordinate multiple projects within a larger umbrella project. Coordination work that helps identify and select projects or sites should be covered under this work element.  |           | <i>No metrics needed for this work element</i> |                    |                 |                 |             |                  |
| 115   | Produce Inventory or Assessment | Planning and Coordination | Covers inventories and assessments specifically designed to support future implementation actions. Can include passage inventories, habitat condition inventories, or watershed assessments. Does not cover ongoing passage and habitat monitoring.   |           | <i>No metrics needed for this work element</i> |                    |                 |                 |             |                  |
| 119   | Manage and Administer Projects  | Planning and Coordination | <p>Covers the administrative and technical work by the contractor to fulfill BPA's programmatic and contractual requirements such as financial reporting (accruals), and development of a contract renewal package (includes SOW, budget, property inventory).</p> <p>Excel Budget - Documentation of subcontract estimates in the line-item (Excel) budget must conform to BPA's requirements for budget detail (i.e., the same as the contractor). BPA highly recommends that solicitations for bids/estimates require subcontractors to conform to BPA standards for detail (rates and units - hours/quantities/volumes, etc.). BPA recommends subcontractor bids be submitted to the contractor electronically in spreadsheet format, and already include actual calculations (e.g., rates * hours, not just textual numbers in cells), so that the contractor can cut and paste subcontract estimates directly into their budget spreadsheet. For more information, see <a href="https://www.bpa.gov/efw/FishWildlife/InformationforContractors/IFCDocuments/Guidance_on_subcontracts.doc">https://www.bpa.gov/efw/FishWildlife/InformationforContractors/IFCDocuments/Guidance_on_subcontracts.doc</a>.</p> |           | <i>No metrics needed for this work element</i> |                    |                 |                 |             |                  |



### Metric Guidance by Work Element

| WE ID | Work Element Name                             | Category                  | Work Element Definition   | Metric ID | Metric   | Metric Guidance ID | Metric Guidance | Metric Required | Metric Type | Metric Precision |
|-------|---|---------------------------|---|-----------|--|--------------------|-----------------|-----------------|-------------|------------------|
| 122   | Provide Technical Review                      | Planning and Coordination | The review of technical details, including but not limited to engineering plans, restoration plans, project selection, RM&E methods, and deliverable approval.  |           | <i>No metrics needed for this work element</i> |                    |                 |                 |             |                  |
| 141   | Produce Other Report                          | Reporting                 | This work element covers any report required or produced for a contract, except those specifically covered under other work elements (e.g., WE#132, Produce (Annual) Progress Report, WE#183, Produce Journal Article, WE#185, Produce Pisces Status Report, or WE#202, Produce BiOp RPA Report). If this work element is used for multiple reports in the same contract, then each report should be listed as a separate milestone.  |           | <i>No metrics needed for this work element</i> |                    |                 |                 |             |                  |
| 154   | Develop and Negotiate Water Right Transaction | Water Transactions        | Covers initial aspects of completing water right transactions from preliminary evaluation of the viability of a specific transaction opportunity to preparing the water transaction. May include: negotiating, proposing, and review of water deals through the Columbia Basin Water Transactions Program ( <a href="http://www.CBWTP.org">www.CBWTP.org</a> ) process. Entities seeking to do a water transaction or conserve water should contact the CBWTP to acquire or transfer water instream. Work element does not include general landowner coordination before any transaction opportunity is identified. Includes development of transactions to put more water instream such as split season leases, long-term leases, diversion reduction agreements, permanent water transfers, stored water agreements to increase stream flows, conserved water, and water exchanges. |           | <i>No metrics needed for this work element</i> |                    |                 |                 |             |                  |



### Metric Guidance by Work Element

| WE ID | Work Element Name                | Category                   | Work Element Definition  | Metric ID | Metric   | Metric Guidance ID | Metric Guidance | Metric Required | Metric Type | Metric Precision |
|-------|----------------------------------|----------------------------|--|-----------|--|--------------------|-----------------|-----------------|-------------|------------------|
| 156   | Develop RM&E Methods and Designs | RM & E and Data Management | <p>Work to identify and/or develop monitoring methods, designs, or associated tools. This includes statistical and sampling designs; protocols for field or remote sampling, data analysis, lab procedure, reporting standards, and quality assurance/quality control; development of data definitions and metadata; conceptual or simulation models; software development; tagging and other monitoring equipment; and generally any other work that prepares for the implementation of actual data collection/generation. Protocols, including temporal and spatial designs, data collection and analysis methods, and related metrics or indicators, will be "Published" in monitoringmethods.org. Does not apply to producing an RM&amp;E plan itself (see WE#174, Produce Plan). Does not apply to models that are developed in the course of analyzing and interpreting existing data, such as multivariate models (see WE#162, Analyze/Interpret Data). Do not use this WE to describe field training activities. Instead, use the WE that applies to the activity to be conducted. Eg. Electrofishing should be in WE #157</p> |           | <i>No metrics needed for this work element</i> |                    |                 |                 |             |                  |



### Metric Guidance by Work Element

| WE ID | Work Element Name                                 | Category                   | Work Element Definition   | Metric ID | Metric   | Metric Guidance ID | Metric Guidance | Metric Required | Metric Type | Metric Precision |
|-------|---|----------------------------|---|-----------|--|--------------------|-----------------|-----------------|-------------|------------------|
| 159   | Transfer/Consolidate Regionally Standardized Data | RM & E and Data Management | <p>This work is for transferring or reformatting data from one spreadsheet/database to another, typically primary data from a field or lab site to a higher-level, secondary regional or national database. This may also include derived data if such data are calculated by entities other than the secondary database. It includes both the act of sending and receiving, hardware/software needs for automated uploads/downloads (e.g., transmission and relay links for regular nightly uploads from remote telemonitoring sites), the development and application of data exchange protocols (including QA/QC), and any formatting and documentation required to make the transfer. It does not include initial data entry but it does include manipulating (e.g., reformatting and, if appropriate, georeferencing) data at the receiving end.</p> <p>This work element explicitly reinforces the importance of transferring data to databases where they will be maintained and accessible. Capturing data above the field or lab level includes acquisition in electronic formats, entering data into a computer from historical records, digitizing images, and other methods for converting information to digital format for later dissemination or analysis. This work element may include generating secondary/derived data when those data are stored in regional databases for access and use by other parties.</p> |           | <i>No metrics needed for this work element</i> |                    |                 |                 |             |                  |



### Metric Guidance by Work Element

| WE ID | Work Element Name                        | Category                   | Work Element Definition   | Metric ID | Metric   | Metric Guidance ID | Metric Guidance | Metric Required | Metric Type | Metric Precision |
|-------|--|----------------------------|---|-----------|--|--------------------|-----------------|-----------------|-------------|------------------|
| 160   | Create/Manage/Maintain Database          | RM & E and Data Management | Any work that maintains or improves the security, quality, accessibility, or utility of data. Includes creation of relational databases; creation of computer applications to manage data, creation of standardized data formats, management of the data within the database, database hardware/software maintenance and improvement, QA/QC, building and maintaining connectivity with interrelated applications (e.g., GIS), integrating with distributed information management systems using industry standards for discovery (i.e., web portals) and creation of metadata/documentation and user-support materials for the consolidated data, etc. This applies both to larger regional, secondary databases and to local primary databases (can include spreadsheets) maintained on desktops for individual projects. Does not include generation of data queries or reports, except for internal data management and QA. |           | <i>No metrics needed for this work element</i> |                    |                 |                 |             |                  |
| 161   | Disseminate Raw/Summary Data and Results | RM & E and Data Management | All work that makes data and information available to others, except for written products covered specifically by other work elements. Includes maps, data query systems, internet data distribution (including online data query systems and web services), development and use of online data display tools, library and archival services, integration with distributed information management systems using industry standards for data display and analysis, and oral and abstract presentations of results to professional audiences. For regional data management projects this can include dissemination of information about the purpose, functions and tools of the data management projects themselves. For outreach and education to students, the general public, and other non-professional audiences, see WE#99, Outreach and Education.   |           | <i>No metrics needed for this work element</i> |                    |                 |                 |             |                  |



### Metric Guidance by Work Element

| WE ID | Work Element Name  | Category                                 | Work Element Definition  | Metric ID | Metric   | Metric Guidance ID | Metric Guidance | Metric Required | Metric Type | Metric Precision |
|-------|--|--|--|-----------|--|--------------------|-----------------|-----------------|-------------|------------------|
| 171   | Build, Modify, and/or Refurbish Artificial Production Facility | Hatchery / Major Construction            | This work element covers all work associated with the planning and construction of a new hatchery, or modification, major maintenance, or addition to an existing facility. This includes construction of any structural component of an artificial production facility, and real property alterations associated with the site or satellite facilities. For example: incubation rooms, rearing tanks/ponds, raceways, acclimation ponds, holding ponds, pumps, wells or other water supply, hatchery offices, staff housing, roads, asphalt, etc. |           | <i>No metrics needed for this work element</i> |                    |                 |                 |             |                  |
| 172   | Conduct Pre-Acquisition Activities                             | Land Acquisition / Conservation Easement | This work element includes the majority of the steps that are required before fee title or a conservation easement can be acquired for a tract of land. The steps include: perform appraisal, title searches, hazardous waste assessment, and land boundary surveys; provide legal descriptions; and identify minimum habitat units. For easements, this work element would also define the easement terms and conditions.   |           | <i>No metrics needed for this work element</i> |                    |                 |                 |             |                  |



### Metric Guidance by Work Element

| WE ID | Work Element Name                    | Category                   | Work Element Definition   | Metric ID | Metric   | Metric Guidance ID | Metric Guidance | Metric Required | Metric Type | Metric Precision |
|-------|--------------------------------------|----------------------------|---|-----------|--|--------------------|-----------------|-----------------|-------------|------------------|
| 174   | Produce Plan                         | Planning and Coordination  | Covers a wide range of planning activities including but not limited to operation plans, management plans, maintenance plans, implementation plans, restoration plans, research, monitoring, and evaluation (RM&E) plans, Hatchery Genetic Management Plans (HGMPs), hatchery master plans, hatchery fish production plans, feasibility studies, and surveys (does not include land management plans; see WE#193, Produce Land Management Plan). Covers both strategic plans that will influence multiple projects and site-specific plans. Use WE#196, Council Step Process to cover labor and materials for the submission of documents required by the NPCC's 3-step process. Where WE#174, Produce Plan is used in a contract SOW for production of a Hatchery Master Plan, the contractor should review the NPCC's requirements under their 2001 Step Document, Section V., Elements A & B ( <a href="http://www.nwcouncil.org/media/27877/2001_29.pdf">http://www.nwcouncil.org/media/27877/2001_29.pdf</a> ) to be sure this content is covered in the plan. |           | <i>No metrics needed for this work element</i> |                    |                 |                 |             |                  |
| 175   | Produce Design and/or Specifications | Planning and Coordination  | Covers all work associated with the preparation of engineering or technical drawings, specifications and/or budgets required for the construction/installation of any structure or facility. May include ancillary work such as land surveying, photogrammetric surveys, field surveys, etc. For construction work not requiring a formal design (e.g., installation of a barbed-wire fence), this work may be included as a milestone under the corresponding work element.  |           | <i>No metrics needed for this work element</i> |                    |                 |                 |             |                  |
| 182   | PIT Tags                             | RM & E and Data Management | This is a BPA Internal-use only work element. BPA uses this work element to capture the cost of PIT tags purchased by BPA on behalf of the contractor(s). While this work element is not included in the contractor's statement of work, it is a project expense. Use WE#158, Mark/Tag Animals, for contractor expenses associated with ordering and/or implanting the tags in fish or wildlife.  |           | <i>No metrics needed for this work element</i> |                    |                 |                 |             |                  |



### Metric Guidance by Work Element

| WE ID | Work Element Name                     | Category                  | Work Element Definition  | Metric ID | Metric   | Metric Guidance ID | Metric Guidance | Metric Required | Metric Type | Metric Precision |
|-------|---------------------------------------|---------------------------|--|-----------|--|--------------------|-----------------|-----------------|-------------|------------------|
| 185   | Produce Pisces Status Report          | Reporting                 | This work element covers the reporting of status of milestones and deliverables in each contract. These milestone status reports shall be completed either monthly or quarterly as negotiated between the contractor and COTR. For any other type of status report required or produced for a contract, use WE#141, Produce Other Report - except those specifically covered under other work elements (e.g., WE#132, Produce (Annual) Progress Report, or WE#183, Produce Journal Article). |           | <i>No metrics needed for this work element</i> |                    |                 |                 |             |                  |
| 188   | Provide Access and Public Information | Habitat/Passage O&M       | Installation and/or maintenance of signs, kiosks, information boards, access roads, trails, road closures, and parking areas. You should use this WE for trespass signing rather than WE#26, Investigate Trespass. Also, WE#61, Maintain Artificial Production Facility/Infrastructure, should be used for this kind of work pertaining to hatchery operations and WE#38, Improve Road, should be used for road work associated with habitat improvement by reducing erosion.                |           | <i>No metrics needed for this work element</i> |                    |                 |                 |             |                  |
| 189   | Coordination-Columbia Basinwide       | Planning and Coordination | Refers to coordination work that covers a large portion of the Columbia River Basin. Coordination which directly supports other project work should be covered in the details of the associated work element. Coordination work which helps identify or select projects and/or sites should be covered under WE#114, Identify and Select Projects. Coordination work related to a subbasin or other small region should be covered under WE#191, Watershed Coordination.                     |           | <i>No metrics needed for this work element</i> |                    |                 |                 |             |                  |
| 191   | Watershed Coordination                | Planning and Coordination | Refers to coordination work focused on a local watershed or subbasin. Coordination which directly supports other project work should be covered in the details of the associated work element. Coordination work which helps identify or select projects and/or sites should be covered under WE#114, Identify and Select Projects.  |           | <i>No metrics needed for this work element</i> |                    |                 |                 |             |                  |



### Metric Guidance by Work Element

| WE ID | Work Element Name            | Category                  | Work Element Definition   | Metric ID | Metric   | Metric Guidance ID | Metric Guidance | Metric Required | Metric Type | Metric Precision |
|-------|------------------------------|---------------------------|---|-----------|--|--------------------|-----------------|-----------------|-------------|------------------|
| 193   | Produce Land Management Plan | Planning and Coordination | <p>The Land management plans (LMP) will guide management of any real property interest that BPA funds to ensure compliance with the underlying mitigation agreement, if one exists, and any conservation easement granted over that property. BPA typically expects a management plan be prepared for real property interests secured with ratepayer funds. Where properties are near or similar to each other, BPA will support a programmatic planning approach.</p> <p><b>DURING CREATION OF THE DRAFT LMP USE THE MOST RECENT TEMPLATE LOCATED:</b><br/> <a href="https://www.cbfish.org/Help.mvc/GuidanceDocuments">https://www.cbfish.org/Help.mvc/GuidanceDocuments</a>. Using the template will ensure smoother acceptance by BPA of the Final plan.</p> <p>Land Management Plans will serve several purposes. First, they become the blueprint for how, when, and where a new property will be enhanced or improved, if necessary. Project proposals, MOAs, and easements provide broad parameters for how a sponsor will manage a site, but in most instances they don't provide much detail--the management plan does.</p> <p>Land management plans should identify each species or habitat of interest on the property, each prohibition in the easement, each reserved right or allowed action in the easement, and any restrictions or reservations from applicable MOAs. The management plan should then discuss each of those elements and explain how the sponsor will manage for that element. For a sensitive species, for example, the plan should state where and when the manager will take specific actions to protect and enhance that species. For specific prohibitions in an easement—for example, no livestock grazing—the plan will discuss any limited and approved exceptions to the prohibition; e.g., the manager might plan to try using goats to control Himalayan blackberries.</p> |           | <i>No metrics needed for this work element</i> |                    |                 |                 |             |                  |



### Metric Guidance by Work Element

| WE ID | Work Element Name           | Category                      | Work Element Definition  | Metric ID | Metric   | Metric Guidance ID | Metric Guidance | Metric Required | Metric Type | Metric Precision |
|-------|-----------------------------|-------------------------------|--|-----------|--|--------------------|-----------------|-----------------|-------------|------------------|
| 194   | Income-Producing Activities | Other                         | <p>Includes all benefits and income-producing activity taking place on, or associated with property purchased with BPA funds. Benefits are actions that take place (such as grazing contractor-owned cattle) which have value to the recipient, but for which income is not received by the contractor. Income (including interest) must be placed in a separate account for this project, and not intermingled with other funds. Benefits, Income and a Spending Plan must be documented in a stand-alone report.</p> <p>The Work Element Budget for this WE should reflect all costs, including indirect, required to administer all benefits, income-producing actions and completion of a Spending Plan for which the contractor requests BPA reimbursement as part of this contract.</p>  |           | <i>No metrics needed for this work element</i> |                    |                 |                 |             |                  |
| 196   | Council Step Process        | Hatchery / Major Construction | <p>Projects that fall under the Council's 3-Step Review Process include artificial production programs/facilities, other major or complex construction programs, programs that address an entire watershed, or actions that substantially deviate from a subbasin plan.</p> <p>Step 1 - conceptual planning, represented under the Program primarily by master plan development and approval.</p> <p>Step 2 - preliminary design and cost estimation, and environmental (NEPA and ESA) review.</p> <p>Step 3 - final design review and detailed cost estimation prior to construction and operation.</p> <p>Activities necessary to coordinate through the review process include submitting required documents, responding to Council/ISRP questions, developing and providing additional materials, attending meetings with Council/ISRP, and making appropriate revisions to receive acceptance and approvals to proceed to next steps.</p> |           | <i>No metrics needed for this work element</i> |                    |                 |                 |             |                  |



### Metric Guidance by Work Element

| WE ID | Work Element Name           | Category                | Work Element Definition  | Metric ID | Metric   | Metric Guidance ID | Metric Guidance | Metric Required | Metric Type | Metric Precision |
|-------|-----------------------------|-------------------------|--|-----------|--|--------------------|-----------------|-----------------|-------------|------------------|
| 200   | Stewardship Funding         | BPA Internal Operations | This is a BPA Internal-use only work element. For some acquisitions, BPA will provide stewardship funding (a one-time, lump-sum payment for O&M) at the time of closing or closely thereafter. Typically, BPA and the party receiving the stewardship funding will develop a letter agreement or contract to stipulate how the funding will be provided and how the funding will be used. The stewardship funding is typically wired to escrow.  |           | <i>No metrics needed for this work element</i> |                    |                 |                 |             |                  |
| 201   | Construction - Non-Hatchery | Other                   | This work element should be used only on a limited basis. This work element covers all work associated with the planning and construction, or modification, major maintenance, or addition to an existing building or facility that is not part of a hatchery. This includes construction of any structural component of the building, and associated with the site. For example: office buildings, shop, equipment storage sheds, maintenance buildings, etc. This work element is meant to be used only for construction that cannot fit into another work element. For example: nursery construction should use WE#47, Plant Vegetation, bridge construction should use WE#184, Install Fish Passage Structure. Instream work should use the work element that best describes it, such as WE#29, Increase Aquatic and/or Floodplain Complexity or WE#30, Realign, Connect, and/or Create Channel. |           | <i>No metrics needed for this work element</i> |                    |                 |                 |             |                  |
| 202   | Produce BiOp RPA Report     | Reporting               | For projects associated with reasonable and prudent alternatives (RPAs) supporting research, monitoring, and evaluation (i.e., RPAs 50-73), submit an online report through cbfish.org describing how your project helps BPA demonstrate ESA Biological Opinion (BiOp) compliance for your associated RPAs. For projects with multiple contractors, all contracts will need to contribute, but only one report for each project is needed.   |           | <i>No metrics needed for this work element</i> |                    |                 |                 |             |                  |



### Metric Guidance by Work Element

| WE ID | Work Element Name            | Category                                    | Work Element Definition   | Metric ID | Metric   | Metric Guidance ID | Metric Guidance | Metric Required | Metric Type | Metric Precision |
|-------|------------------------------|---|---|-----------|--|--------------------|-----------------|-----------------|-------------|------------------|
| 204   | Electricity (BPA Direct Pay) | BPA Internal Operations                     | This is a BPA Internal-use only work element. BPA uses this work element to directly pay the utility bill for existing structures.  |           | <i>No metrics needed for this work element</i> |                    |                 |                 |             |                  |
| 205   | Aquifer Recharge             | Water Conservation and Irrigation Practices | This work element should be used for any aquifer recharge work in support of a fish and wildlife project  |           | <i>No metrics needed for this work element</i> |                    |                 |                 |             |                  |
| 206   | TERO Reimbursement           | BPA Internal Operations                     | Reimburse Tribal Employment Rights Ordinance (TERO) fees. In instances where TERO fees are charged, this work element will track the following: All Spreadsheet Budgets must clearly identify the work (type of work), amount, and location(s) of the subcontract work, along with the TERO rate (%) and amount for each subcontract, and cumulative projected TERO fee; Invoices must clearly indicate any amount that is being charged for each subcontract (to which TERO is being applied), the percentage being applied and the amount for that specific subcontract, consistent with the Budget (so as to allow adequate Invoice review). |           | <i>No metrics needed for this work element</i> |                    |                 |                 |             |                  |



## Metric Guidance by Work Element

This report summarizes 426 data records available for independent analysis in

[structured text \(.TXT\)](#) and in [Excel 2003 \(.XLS\)](#) format.