|  |
| --- |
| Barrier Evaluation Form–Single Culvert at Crossing |
| **Location Information** |
| Project Name:  | SRFB Project #:       | County:       |
| HPA #:       | Parcel #:       |
| GPS Location: Datum - WGS84 -decimal degrees  | Latitude:       | Longitude:       |
| ¼ Section:       | Section:       | Township:       | Range:       [ ]  East [ ]  West |
| Stream Name:       | Tributary To:       | WRIA #:       |
| Driving Directions:       |
| **Landowner Information** |
| Landowner:  | Mailing Address:  |
| City:  | State:  | Zip:  | Telephone: ()  |
| Cell: () | Fax: ()  | E-mail:  |
| Landowner Agent:  | Mailing Address:  |
| City:  | State:  | Zip:  | Telephone: ()  |
| Cell: () | Fax: ()  | E-mail:  |
| **Evaluator Information** |
| Evaluator Name:  | Affiliation:  |
| Mailing Address:  | City:  | State:  | Zip:  |
| Telephone:       | Fax:  | Cell:  | E-mail:  |
| **Barrier Information (measurements in meters)** |
| Is the Stream Fish-bearing? [ ]  Yes [ ]  No [ ]  Unknown | Species:       | Date of Visit:       |
| Fish-bearing Criteria: [ ]  Fish Observation [ ]  Stream Type [ ]  SalmonScape [ ]  Physical Criteria [ ]  Other:        |
| Stream Flow: [ ]  Perennial [ ]  Intermittent [ ]  Unknown Source of Information:       |
| Will this Culvert be Entered into the WDFW-FPDSI (formerly SSHEAR) Database? [ ]  Yes [ ]  No If yes, Site ID #:       |
| Shape:  | Material:  | Apron: [ ]  None [ ]  Upstream [ ]  Downstream [ ]  Both | Span:  |
| Rise:  | Length:  | Water Depth in Culvert:  | Water Surface Drop:  |
| Drop Location: **[ ]** Outlet **[ ]** Inlet **[ ]** Inside  | Countersunk: **[ ]**  Yes **[ ]**  No **[ ]** Unknown | Culvert Slope(%):   |
| Is the Culvert Backwatered? **[ ]** Yes [ ]  No [ ]  Unknown |
| Bankfull Width (outside influence of culvert):  | Culvert Span/Bankfull Width Ratio:  |
| Plunge Pool: Length (culvert to tail-out): OHW width: Max depth:  | Road Fill DS:  | Road Width:  |
| Fishway Present? **[ ]** Yes [ ]  No (if yes, describe in Comments) | Tide Gate Present? [ ] Yes **[ ]** No **[ ]** Unknown |
| Is this Culvert a Fish Passage Barrier? [ ]  Yes [ ]  No [ ]  Unknown [ ]  Level B needed |
| Problem with Culvert: [ ] WS drop [ ] Slope [ ] Velocity [ ]  Depth | Percent Passability: **[ ]** 0% **[ ]** 33% **[ ]** 67% **[ ]** 100% |
| Habitat Quality: **[ ]**  Excellent **[ ]**  Good **[ ]** Poor **[ ]** Unknown |
| Comments (describe crossing condition, fish observations, habitat quality etc):        |
| Barrier Evaluation Form–Multiple Culverts at Crossing |
| **Location Information** |
| Project Name:       | SRFB Project #:       | County:       |
| Parcel #:       | HPA #:       |
| GPS Location: Datum - WGS84 - decimal degrees | Latitude:       | Longitude:       |
| ¼ Section:       | Section:       | Township:       | Range:       [ ]  East [ ]  West |
| Stream Name:       | Tributary To:       | WRIA #:       |
| Driving Directions:        |
| **Landowner Information** |
| Landowner Name:       | Mailing Address:       |
| City:       | State:    | Zip:       | Telephone: (   )       |
| Cell: (   )       | Fax: (   )       | E-mail:       |
| Landowner Agent:       | Mailing Address:       |
| City:       | State:    | Zip:       | Telephone: (   )       |
| Cell: (   )       | Fax: (   )       | E-mail:       |
| **Evaluator Information** |
| Evaluator Name:       | Affiliation:       |
| Mailing Address:       | City:       | State:    | Zip:       |
| Telephone:       | Fax:       | Cell:       | E-mail:       |
| **Barrier Information (measurements in meters)** |
| Is the Stream Fish-bearing? [ ]  Yes [ ]  No [ ]  Unknown  | Species, if Known:       | Date of Visit:       |
| Fish-bearing Criteria: [ ]  Fish Observation [ ]  Stream Type [ ]  SalmonScape [ ]  Physical Criteria [ ]  Other:        |
| Stream Flow: [ ]  Perennial [ ]  Intermittent [ ]  Unknown Source of information:       |
| Will this Culvert be Entered into the WDFW-FPDSI Database? [ ]  Yes [ ]  No If Yes, Site ID #:       | Culvert 1 of       |
| Shape:       | Material:       | Apron: [ ]  None [ ]  Upstream [ ]  Downstream [ ]  Both | Span/Diam:       |
| Rise:       | Length:       | Water Depth in Culvert:       | Water Surface Drop(WSD):       |
| Drop Location: [ ]  Outlet [ ]  Inlet [ ]  Inside | Countersunk: [ ]  Yes [ ]  No [ ] Unknown  | Culvert Slope(%):       |
| Is the culvert backwatered? **[ ]** Yes [ ]  No [ ]  Unknown |
| Bankfull Width (upstream of culvert):        | Culvert Span/Bankfull Width Ratio:       (add all spans, divide by bankfull width) |
| Plunge Pool: Length to Tailout:       OHW Width:       Max Depth:       | Road Fill at DS End:       | Road Width:       |
| Fishway Present? [ ]  Yes [ ]  No [ ]  Unknown (if yes, describe in comments) | Tide Gate Present? [ ]  Yes [ ]  No [ ]  Unknown  |
| Is this Culvert a Fish Passage Barrier? [ ]  Yes [ ]  No [ ]  Unknown [ ]  Level B Needed |
| Problem with Culvert: [ ]  WSD [ ]  Slope [ ]  Velocity [ ]  Depth  | Percent Passability: [ ]  0% [ ]  33% [ ]  67% [ ]  100% |
| Habitat Quality: [ ]  Excellent [ ]  Good [ ]  Poor [ ]  Unknown |
| Comments (describe crossing condition, fish observations, habitat quality etc):       |
| Barrier Evaluation Form–Dam |
| **Location Information** |
| Project Name:       | SRFB Project #:       | County:       |
| HPA #:       | Parcel #:       |
| GPS Location: Datum - WGS84; Decimal Degrees  | Latitude:       | Longitude:       |
| ¼ Section:       | Section:       | Township:       | Range:       [ ]  East [ ]  West |
| Stream Name:       | Tributary To:       | WRIA #:       |
| Driving Directions:        |
| **Landowner Information** |
| Landowner:  | Mailing Address:  |
| City:       | State:    | Zip:  | Telephone: ()  |
| Cell: () | Fax: ()  | E-mail:       |
| Landowner Agent:  | Mailing Address:  |
| City:  | State:  | Zip:  | Telephone: ()  |
| Cell: () | Fax: ()  | E-mail:  |
| **Evaluator Information** |
| Evaluator Name:  | Affiliation:  |
| Mailing Address:  | City:  | State:  | Zip:  |
| Telephone:  | Fax:  | Cell:  | E-mail:  |
| **Barrier Information (measurements in meters)** |
| Is There a Road on Top of the Dam? [ ] Yes [ ]  No If No, Stop, the Dam Does Not Qualify for the FFFPP, if Yes Continue. |
| Is the Stream Fish-bearing? [ ] Yes [ ]  No [ ]  Unknown  | Species, if Known:  | Date of Visit:  |
| Fish-bearing Criteria: [ ]  Fish Observation [ ]  Stream Type [ ]  SalmonScape [ ]  Physical Criteria [ ]  Other:        |
| Stream flow: [ ]  Perennial [ ]  Intermittent [ ]  Unknown Source of Information:       |
| Primary Purpose: [ ]  Debris Control [ ]  Flood Control [ ]  Hydroelectric [ ]  Irrigation [ ]  Navigation [ ]  Stock Pond [ ]  Water Quality [ ]  Recreation [ ]  Water Supply [ ]  Tailings [ ]  Other (describe)       |
| Type: [ ] Concrete [ ]  Earth [ ]  Rock [ ]  Masonry [ ]  Metal [ ]  Timber [ ] Other       | Span: [ ]  Full [ ]  Partial |
| Outlet Type: [ ]  Spillway [ ]  Standpipe [ ]  Flashboard Riser [ ]  Culvert | Operation Timing: [ ]  Year-round [ ]  Seasonal |
| Length:  | Height:  | Water Surface Difference:  | Plunge Pool Depth:   | Fishway Present? **[ ]** Yes [ ]  No |
| Description/comments:       |
| Is this Dam a Fish Passage Barrier? [ ]  Yes [ ]  No [ ]  Unknown | Problem with Dam: [ ] WS drop [ ] Depth [ ] Other [ ]  Unspecified |
| Percent Passability: [ ] 0% [ ] 33% [ ] 67% [ ] 100% | Bankfull Width (outside of dam influence):  | Road Width:  |
| Will this Dam be Entered into the WDFW-FPDSI (formerly SSHEAR) Database? [ ]  Yes [ ]  No If Yes, Site ID #:  |
| Barrier Evaluation Form–Non Culvert Crossing |
| **Location Information** |
| Project Name:       | SRFB Project #:       | County:       |
| Parcel #:       | HPA #:       |
| GPS Location: Datum - WGS84; Format - Decimal Degrees  | Latitude:       | Longitude:       |
| ¼ Section:       | Section:       | Township:       | Range:       [ ]  East [ ]  West |
| Stream Name:       | Tributary To:       | WRIA #:       |
| Driving Directions:        |
| **Landowner Information** |
| Landowner:  | Mailing Address:  |
| City:  | State:  | Zip:  | Telephone: ()  |
| Cell: () | Fax: ()  | E-mail:  |
| Landowner Agent:  | Mailing Address:  |
| City:  | State:  | Zip:  | Telephone: ()  |
| Cell: () | Fax: ()  | E-mail:  |
| **Evaluator Information** |
| Evaluator Name:  | Affiliation:  |
| Mailing Address:  | City:  | State:  | Zip:  |
| Telephone:       | Fax:  | Cell:  | E-mail:  |
| **Barrier Information (measurements in meters)** |
| Is the Stream Fish-bearing? [ ]  Yes [ ]  No [ ]  Unknown  | Species:       | Date of Visit:       |
| Fish-bearing Criteria: [ ]  Fish Observation [ ]  Stream Type [ ]  SalmonScape [ ]  Physical Criteria [ ]  Other:        |
| Stream Flow: [ ]  Perennial [ ]  Intermittent [ ]  Unknown Source of Information:  |
| Will this Structure be Entered into the WDFW-FPDSI (formerly SSHEAR) Database? [ ]  Yes [ ]  No If Yes, Site ID #:       |
| Crossing Type: [ ]  Bridge [ ]  Ford **[ ]** Puncheon/Fill [ ]  Abandoned [ ]  Washout [ ]  Undefined |
| Bankfull Width (outside influence of structure):  | Fishway Present? **[ ]** Yes [ ]  No (if yes, describe in Comments) |
| Is this Structure a Fish Passage Barrier? [ ]  Yes [ ]  No [ ]  Unknown [ ]  Fishway |
| Road Width (with shoulders):  | Percent Passability: **[ ]** 0% **[ ]** 33% **[ ]** 67% **[ ]** 100% |
| Habitat Quality (describe in Comments): **[ ]**  Excellent **[ ]**  Good **[ ]**  Poor **[ ]**  Unknown |
| Comments (describe crossing condition, fish observations, habitat quality etc):       |

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| --- |
| Expanded Barrier Evaluation Form |
| Project Information |
| Project Name:        | SRFB Project #:       | Date:        |
| Evaluator Information |
| Evaluator Name:  | Affiliation:  |
| Mailing Address:  | City:  | State:  | Zip:  |
| Telephone:  | FAX:  | Cell:  | E-mail:  |
| Watershed Information |
| Amount of Habitat Upstream:      (m) [ ]  Map Measure [ ]  Hip Chain  | Basin Area (square miles above culvert):       |
| Stream Flow: [ ]  Perennial [ ]  Intermittent [ ]  Unknown Source of Information:       |
| Has a Barrier Inventory Been Conducted in the Watershed? [ ]  Yes (road) [ ]  Yes (stream survey) [ ]  No [ ]  UnknownIf Yes, List Source and Date Completed:       |
| Distance Walked DS:       (m) | Walked to: [ ]  Known Anadromous [ ]  Natural Barrier [ ]  Human-made Barrier [ ]  Other:       |
| List Downstream Culverts, Dams, Bridges, and Natural Barriers. Include Passable Features. Attach Additional Pages if Needed.Distance DS:       % Passable:     Site ID#:       Location:      Distance DS:       % Passable:     Site ID#:       Location:      Distance DS:       % Passable:     Site ID#:       Location:      Distance DS:       % Passable:     Site ID#:       Location:       |
| Distance walked US:       (m) | Walked to: [ ]  Physical End of Fish Use [ ]  Natural Barrier [ ]  Human-made Barrier [ ]  Other:      |
| List Upstream Culverts, Dams, Bridges and Natural Barriers. Include Passable Features. Attach Additional Pages if Needed.Distance US:       % Passable:     Site ID#:       Location:      Distance US:       % Passable:     Site ID#:       Location:      Distance US:       % Passable:     Site ID#:       Location:      Distance US:       % Passable:     Site ID#:       Location:       |
| Fish Species/Habitat Quality |
| What Species are Currently Blocked, at Least Partially, by this Barrier? Include Juvenile Life Stages.[ ] Sockeye [ ] Chum [ ] Pink [ ]  Coho [ ] Chinook [ ]  Steelhead [ ]  Searun Cutthroat [ ]  Resident Cutthroat[ ]  Anadromous Bull [ ]  Resident Bull [ ]  Rainbow Trout [ ]  Brook Trout [ ]  Brown Trout [ ] Resident TroutInformation Source (including on-site observations):       |
| Range of Gradient Downstream:       | Range of Gradient Upstream:       | Size of any US Lake/Wetlands:       (sq. m) |
| Predominant Land Use: [ ]  Forest [ ]  Agriculture [ ]  Rural residential [ ]  Urban | % Canopy Cover:       |
| In-stream Cover: [ ]  High [ ]  Medium [ ]  Low  | Channel Stability: [ ]  High [ ]  Medium [ ]  Low  |
| Rearing Quality: [ ]  Excellent [ ]  Good [ ]  Poor  | Spawning Quality: [ ]  Excellent [ ]  Good [ ]  Poor  |
| Describe Habitat Upstream from Barrier:       |

# Barrier Evaluation Form Instructions

## How to Fill Out this Form

Following are definitions, descriptions, and standards for information to be included in the Barrier Evaluation Form. Four types of Barrier Evaluation Forms are available. These are for a single culvert at a road crossing, multiple culverts at a road crossing, non-culvert crossings, and dams.

**Location Information–**Project name: This is the landowner’s last name followed by the creek name. If more than one site per landowner is evaluated on the same creek, designate each site with a letter, e.g. Franklin – Boulder Creek Site A.

**SRFB Project Number–**This will be provided by PRISM database.

**Other Location Information–**Please provide the Hydraulic Project Approval tracking number for the existing culvert if available. Record the GPS coordinates of each site in decimal degrees using the WGS84 Datum. Record the stream name, the tributary it flows into, Watershed Resource Inventory Area number, and stream number if known as well as detailed driving directions to the site.

**Landowner Information–**This can be found on the Landowner Application and work order.

**Evaluator Information–**Provide contact information for the people assessing the site.

**Barrier Information–**All measurements should be in meters.

**Is the Stream Fish-bearing?–**If unknown, fish-bearing status will be determined by Washington Department of Fish and Wildlife, or individuals trained in the department’s Fish Passage Protocol.

**Fish-bearing Criteria–**Check Fish Observation if fish are observed upstream or downstream of the culvert. If mapped as a Type S, F, 1, 2, or 3 by the Department of Natural Resources, check stream type. Check the SalmonScape box if fish use is based on information in SalmonScape;or the Statewide Integrated Fish Distribution. SalmonScape is available at <http://apps.wdfw.wa.gov/salmonscape/>. If based on Washington Administrative Code 222-16-031, Interim Water Typing System, check the physical criteria box.

**Fish Passage Diversion and Screening Inventory (FPDSI) Database Entry–**Provide FPDSI site ID number assigned to the site, if available.

**Culvert Shape–**Choices are: RND (round); BOX; ARCH (bottomless arch); SQSH (squash); ELL (elliptical); or OTH (other). Other can be two different shapes joined end to end. Describe in Comments.

**Culvert Material–**Choices are: PCC (precast concrete); CST (corrugated steel); CAL (corrugated aluminum); CPC (cast-in-place concrete); SPS (structural plate steel); SST (smooth steel); PVC (plastic); SPA (structural plate aluminum); TMB (timber); MRY (masonry); OTH (other – often two different materials joined end to end, describe in Comments).

**Apron–**Horizontal extension of culvert invert with human-made materials.

**Culvert Size–***Span*: measure inside diameter, *rise*: measure inside dimension from culvert invert to crown of non-circular culverts, l*ength:* measure culvert length including aprons, if present.

**Water Depth in Culvert–**Measure at downstream end, about 6 inches inside culvert.

**Water Surface Drop–**A drop may occur at the culvert inlet, outlet or inside the culvert. Measure the difference in water surfaces at the top and bottom of the drop. Indicate drop location.

**Countersunk–**A yes indicates streambed material is present throughout the entire culvert length. The downstream invert is countersunk below the channel bed a minimum of 20 percent of the culvert rise.

**Backwatered–**Little to no visible flow throughout the entire length of the culvert.

**Culvert Slope–**Measure the vertical difference between the culvert invert or apron elevations at inlet and outlet. Divide this value by the culvert length (including aprons) and multiply by 100. If slope varies within culvert, provide the overall measurement and describe how the slope varies in the comments.

**Bankfull Width–**The stream width measured perpendicular to flow at the stage at which water begins to overflow into the active floodplain. Bankfull width requires a floodplain or a bench not present in many channels. In those cases, use ordinary high water (see below). Enter the average of several bankfull width measurements taken upstream and/or downstream of the culvert, outside the influence of the culvert.

**Culvert Span to Bankfull Width Ratio–**Divide the culvert span by the stream channel bankfull width. If there are multiple culverts, add the spans of each culvert together then divide by the stream channel bankfull width. Enter as a number to two decimals, not a percent.

**Plunge Pool–***Length to tail-out*: Distance from the culvert outlet to the plunge pool tail-out (downstream control).

**Ordinary High Water** (**OHW) Width–**Ordinary high water width is the widest part of the plunge pool measured at the ordinary high water mark. Ordinary high water is where the regular stream flow makes a line on the bank marking soil or vegetation with a character distinct from that of the abutting upland. Also defined as the lowest point at which perennial vegetation grows on the stream bank.

**Max depth–**Maximum depth is measured at the deepest point in the plunge pool.

**Road Width–**Measurement should include shoulders.

**Road Fill–**Measure height of material from top of culvert to top of fill at downstream end.

**Fishway or Tide Gate Present–**If either of these structures are present, they affect the way barrier status is determined. Tide gates are automatic barriers. Fishways require specialized training and must be done by Washington Department of Fish and Wildlife. Measure and record water surface drops and pool depths at each step in comments

**Is this Culvert a Fish Passage Barrier?–**This is concluded from the collected data, according to Washington Department of Fish and Wildlife Level A assessment protocol.

**Problem with Culvert–**Check water surface drop if greater than .24 meter, check slope if equal to or greater than 1 percent. If a Level B was done, check the depth or velocity boxes corresponding to the results of the Level B analysis.

**Percent Passability–**Based on professional judgment. Generally, 67 percent passable blocks juvenile salmonids; 33 percent passable blocks juveniles and some adults; 0 percent passable has a water surface drop of at least 4 feet and/or a slope greater than 5 percent.

**Habitat Quality–**Within site of the culvert, how does the quality of the habitat rate? Consider water clarity and temperature, canopy and in-stream cover, sedimentation of gravels, surrounding land use, number of fish observed.

**Comments–**Provide any additional information such as culvert condition, fish use/observation, landowner comments, habitat quality, and site conditions.

**Attachments** **Photos–**Please attach photographs of culvert inlet, outlet, upstream habitat, downstream habitat, road and surrounding land use. Name the jpg files using project name, site letter, and description, Examples: Jones\_A\_inlet; Jones\_B\_DShab.

**Level A Assessment–**If available, please attach the Level A assessment. Level A assessment protocol is described in the [*Fish Passage Barrier and Surface Water Diversion Screening Assessment and Prioritization Manual*](http://wdfw.wa.gov/publications/00061/), Washington Department of Fish and Wildlife, December 2009, available online.

**Site Map–**A site map is needed to help verify project location. Plot and label each site on a map.

# Non Culvert Evaluation Form Instructions

**Crossing Type–**Choose the type that best fits the situation. A bridge has footings outside the ordinary high water line. A Ford is intended to be driven across. A Puncheon/Fill is logs laid in the stream channel with dirt piled on top. Eventually the logs rot away leaving a tunnel or the road fill collapses into the channel and the water perks through. An abandoned crossing has had the culvert removed and the road fill pulled back so the stream runs freely. Often the road also has been abandoned or put to bed. A washout is a structure intended to provide water flow under a road but the road and or the structure has been washed out by high flows.

# Dam Evaluation Form Instructions

**Is There a Road on Top of the Dam?–**To be eligible the barrier must have a road associated with the dam.

**Primary Purpose–**What is the primary purpose for the dam?

**Type–**What materials were used to construct the dam, check all that apply.

**Span–**Check **‘**Full’ if the dam spans the entire width of the stream, ‘Partial’ if it does not.

**Spillway Type–**What type of structure allows water to pass the dam? Spillway applies if water flows over the top of the dam or down a flume, standpipe with horizontal culvert. Flashboard risers are removable boards placed vertically in concrete or metal slots. Often there is just a culvert for overflow.

**Operation Timing–**Dams with flashboard risers can be opened up allowing for seasonal operation. This information is obtained from the dam owner/operator.

**Length–**Length of the dam span from bank to bank.

**Height–**Measured from the front base (DS side) of the dam to the crest.

**Water Surface Difference–**If water is flowing over the crest of the dam, measure the difference between the water surface elevations above and below the dam. Leave blank if equipped with a standpipe or culvert.

**Plunge Pool Depth–**Maximum depth of the plunge pool below the dam crest.

**Fishway Present–**If yes,passability is based on the fishway attached to the dam if present (see below).

**Description/Comments–**Describe the dam and spillway and why it is a barrier.

**Is this Dam a Barrier/Percent Passability–**If equipped with a standpipe or it has a water surface drop of at least 12 feet, it is 0 percent passable. If the drop is less than 12 feet, the plunge pool depth should be at least 1.3 times the water surface difference to be passable. Use a culvert evaluation if it has a culvert spillway. If there is a fishway present, base passability on the water surface difference to plunge pool depth ratio for each step. Every dam is different, use your best judgment.

**Problem with Dam–**Check ‘Water Surface Drop’ if drop is greater than .24 meter (.80 feet), check ‘Depth’ if there is a fishway present and pool depth is less than 1.3 times the water surface difference for any step.

# Expanded Barrier Evaluation Form Instructions

This form will be used by the Fish Passage Team to assess the potential benefit of correcting the barrier. Primary factors are the number and type of fish species using the stream, the number, passability and location of other barriers, and the quality and amount of upstream habitat. Following are definitions, descriptions, and standards for information to be included in the Expanded Barrier Evaluation Form.

## Project Information

**Project Name–**This is the landowner’s last name followed by the creek name. If more than one site per landowner is evaluated on the same creek, designate each site with a letter, e.g. Franklin – Boulder Creek A.

**RCO/SRFB Project Number–**This will be provided by PRISM database.

**Evaluator Information–**Provide contact information for the person completing the Expanded Barrier Evaluation Form.

## Watershed Information

**Amount of Habitat–**Length of fish-bearing habitat, in meters, that would be made available by barrier correction.

**Basin Area–**This is the area, in square miles, that drains into this tributary upstream from the project.

**Stream Flow–**Indicate whether stream is perennial or intermittent, if known. Include source of information.

**Barrier Inventory–**This is an inventory conducted using Washington Department of Fish and Wildlife’s *Fish Passage Barrier and Surface Water Diversion Screening Assessment and Prioritization Manual*, Washington Department of Fish and Wildlife, August 2000. It may cover a county or watershed, and be road or stream-based (indicating the stream was walked and all other barriers located).

**Stream Walked to–**Indicate end point of the upstream and downstream surveys. *Plot the main stem and tributary end points on the map provided.*

**Known Upstream and Downstream Barriers–**Record the distance, passability, and site idenitification numbers of other culverts, dams, bridges, and natural barriers upstream and downstream of the site, in meters. Location can be a road or private landowner name. Discuss any scheduled corrections and time frames. List information source.

## Fish Species and Habitat Quality

**Species Present at the Site–**Identify fish species known to reach the site. Include source of information. If species are blocked by a human-made structure downstream, please describe.

**Range of Gradient Downstream–**Some species are limited by gradient. This information may explain why some species are not present.

**Range of Gradient Upstream–**Gradient may limit which species can use upstream habitat.

**Upstream Lakes and Wetlands–**Estimate the size, in square meters, of any upstream lakes or wetlands.

**Predominant Land Use–**Land use impacts habitat, and helps describe spawning and rearing habitat quality.

**Canopy Cover–**Estimate the overall percentage of canopy cover for the upstream habitat.

**In-stream Cover–**Estimate the overall amount of in-stream cover from boulders, overhanging vegetation and woody material for the upstream habitat as low, medium, or high.

**Channel Stability–**Estimate the overall channel stability for upstream habitat as low, medium, or high. Signs of instability include numerous debris jams, subsurface flows, streambed material piled up on the banks, braiding, incisement, dredging spoils, lack of large woody materials, excess fines in the spawning gravel, scour, and fill.

**Rearing Quality–**Based on flow duration, off-channel areas, water quality and temperature, shade, cover, riffle and pool ratio, large woody materials, channel complexity and stability.

**Spawning Quality–**Quality is based on the amount of fines present in spawning gravels. Some low gradient streams are naturally high in fines, which reflects quantity of fines, rather than spawning quality. An unstable stream is likely to have poor quality.

**Describe Habitat Upstream from Barrier–**Include any significant features not captured in the above questions.