

High Gradient Bioassessment Stream Visit Sheet

| | | | | | |
|--|-----------------------|---|--|---|-----------------|
| STREAM NAME: | | | LOCATION: | | |
| STATION #: | | | COUNTY: | | PROGRAM: |
| INVESTIGATORS: | | | DATE: | | PROJECT: |
| Verify Site LAT/LONG vs GPS <input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> N/A | | | TIME (24hr) | | Start: |
| | | | | | Finish: |
| Station | | | Reach | | |
| | | | Downstream | | Upstream |
| LAT | | | | | |
| LONG | | | | | |
| WEATHER | | | LOCAL WATERSHED FEATURES (Predominant Surrounding Land Use): | | |
| Now Past 24 hours Has there been a scouring rain in the last 14 days? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Now <input type="checkbox"/> Past 24 hours <input type="checkbox"/> Heavy rain <input type="checkbox"/> Steady rain <input type="checkbox"/> Intermittent showers <input type="checkbox"/> Clear/sunny <input type="checkbox"/> Cloudy | | | <input type="checkbox"/> Surface Mining <input type="checkbox"/> Construction <input type="checkbox"/> Deep Mining <input type="checkbox"/> Commercial <input type="checkbox"/> Forest <input type="checkbox"/> Oil Wells <input type="checkbox"/> Industrial <input type="checkbox"/> Pasture/Grazing <input type="checkbox"/> Land Disposal <input type="checkbox"/> Row Crops <input type="checkbox"/> Silviculture <input type="checkbox"/> Residential <input type="checkbox"/> Urban Runoff/Storm Sewers | | |
| INSTREAM FEATURES | | HYDRAULIC STRUCTURES | | STREAM FLOW | |
| Stream Width _____ ft Maximum Depth _____ ft Reach Length _____ m Riffle/Run/Pool Sequence (No. Sampled in Reach) _____ Riffle _____ Run _____ Pool | | <input type="checkbox"/> Dams <input type="checkbox"/> Bridge Abutments <input type="checkbox"/> Island <input type="checkbox"/> Waterfalls <input type="checkbox"/> Other: | | <input type="checkbox"/> Dry <input type="checkbox"/> Pooled <input type="checkbox"/> Low <input type="checkbox"/> High <input type="checkbox"/> Normal | |
| | | | RIPARIAN VEGETATION | | |
| | | | Dominate Type: <input type="checkbox"/> Trees <input type="checkbox"/> Herbaceous <input type="checkbox"/> Grasses <input type="checkbox"/> Shrubs Number of strata ____ Dom. Tree/Shrub Taxa | | |
| | | | CHANNEL ALTERATIONS | | |
| | | | <input type="checkbox"/> Dredging <input type="checkbox"/> Channelization (<input type="checkbox"/> Full <input type="checkbox"/> Partial) | | |
| P-CHEM | | | | | |
| Instrument Used: _____ | | | Date Calibrated: _____ | | |
| Temp(°C) _____ D.O. (mg/l) _____ %Saturation _____ pH(S.U.) _____ Cond. _____ Turb. _____ | | | | | |
| Sample Collection Verification | | | | | |
| Algae Sample: <input type="checkbox"/> QualMHC <input type="checkbox"/> Other <input type="checkbox"/> Visual Assessment Lead Collector: _____ | | | | | |
| Fish <input type="checkbox"/> BPEF <input type="checkbox"/> Seine <input type="checkbox"/> Other Time: BPEF Seine Lead Collector: _____ | | | | | |
| Habitat <input type="checkbox"/> RBP <input type="checkbox"/> Substrate <input type="checkbox"/> Other: Lead Collector: _____ | | | | | |
| Invertebrates <input type="checkbox"/> 1m ² <input type="checkbox"/> Qual <input type="checkbox"/> Other: Lead Collector: _____ | | | | | |
| <input type="checkbox"/> 20 Jab (#Jabs: Cobble _____ Snags _____ Veg. Banks _____ Sand _____ Macrophytes _____ Other _____) | | | | | |
| Tissue: No. of Samples collected _____ Sp: Lead Collector: _____ | | | | | |
| Water Chem <input type="checkbox"/> Acid/Alk <input type="checkbox"/> Bulk <input type="checkbox"/> Nutrients <input type="checkbox"/> Metals <input type="checkbox"/> Low Hg Lead Collector: _____ | | | | | |
| <input type="checkbox"/> Herbicides <input type="checkbox"/> Pesticides <input type="checkbox"/> Ortho P <input type="checkbox"/> Other: | | | | | |
| Duplicate Samples Taken: | | | | | |
| Substrate Characterization | | | | | |
| Substrate <input type="checkbox"/> Est. <input type="checkbox"/> P.C. | Riffle _____ % | Run _____ % | Pool _____ % | Reach Total | |
| Silt/Clay (<0.06 mm) | | | | | |
| Sand (0.06 – 2 mm) | | | | | |
| Gravel (2-64 mm) | | | | | |
| Cobble (64 – 256 mm) | | | | | |
| Boulders (>256 mm) | | | | | |
| Bedrock | | | | | |

NOTES/COMMENTS:

| | |
|--|--|
| SITE NOT SAMPLED: | |
| <input type="checkbox"/> Land owner denial | <input type="checkbox"/> Dry <input type="checkbox"/> Too deep/Impounded |
| <input type="checkbox"/> Site not found/Secluded | <input type="checkbox"/> Unsafe |
| <input type="checkbox"/> Other (indicate under comments) | |

RBP High Gradient Habitat

| Habitat Parameter | Condition Category | | | | | | | | | | | | | | | | | | | | | |
|---|---|----|----|----|----|---|----|----|----|----|---|----|---|---|---|---|---|---|---|---|---|---|
| | Optimal | | | | | Suboptimal | | | | | Marginal | | | | | Poor | | | | | | |
| SCORE | 20 | 19 | 18 | 17 | 16 | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | |
| 1. Epifaunal Substrate/ Available Cover Score | Greater than 70% of substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs/snags that are <u>not</u> new fall and <u>not</u> transient). | | | | | 40-70% mix of stable habitat; well-suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of new fall, but not yet prepared for colonization (may rate at high end of scale). | | | | | 20-40% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed. | | | | | Less than 20% stable habitat; lack of habitat is obvious; substrate unstable or lacking. | | | | | | |
| 2. Embeddedness Score | Gravel, cobble, and boulder particles are 0-25% surrounded by fine sediment. Layering of cobble provides diversity of niche space. | | | | | Gravel, cobble, and boulder particles are 25-50% surrounded by fine sediment. | | | | | Gravel, cobble, and boulder particles are 50-75% surrounded by fine sediment. | | | | | Gravel, cobble, and boulder particles are more than 75% surrounded by fine sediment. | | | | | | |
| 3. Velocity/ Depth Regime Score | All four velocity/depth regimes present (slow-deep, slow-shallow, fast-deep, fast-shallow). (Sow is < 0.3 m/s, deep is > 0.5 m.) | | | | | Only 3 of the 4 regimes present (if fast-shallow is missing, score lower than if missing other regimes). | | | | | Only 2 of the 4 habitat regimes present (if fast-shallow or slow-shallow are missing, score low). | | | | | Dominated by 1 velocity/depth regime (usually slow-deep). | | | | | | |
| 4. Sediment Deposition Score | Little or no enlargement of islands or point bars and less than 5% (<20% for low-gradient streams) of the bottom affected by sediment deposition. | | | | | Some new increase in bar formation, mostly from gravel, sand or fine sediment; 5-30% (20-50% for low-gradient) of the bottom affected; slight deposition in pools. | | | | | Moderate deposition of new gravel, sand or fine sediment on old and new bars; 30-50% (50-80% for low-gradient) of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent. | | | | | Heavy deposits of fine material, increased bar development; more than 50% (80% for low-gradient) of the bottom changing frequently; pools almost absent due to substantial sediment deposition. | | | | | | |
| 5. Channel Flow Status Score | Water reaches base of both lower banks, and minimal amount of channel substrate is exposed. | | | | | Water fills >75% of the available channel; or <25% of channel substrate is exposed. | | | | | Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed. | | | | | Very little water in channel and mostly present as standing pools. | | | | | | |
| 6. Channel Alteration Score | Channelization or dredging absent or minimal; stream with normal pattern. | | | | | Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (greater than past 20 yr.) may be present, but recent channelization is not present. | | | | | Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted. | | | | | Banks shored with gabion or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely. | | | | | | |
| 7. Frequency of Riffles (or bends) Score | Occurrence of riffles relatively frequent; ratio of distance between riffles divided by width of the stream <7:1 (generally 5 to 7); variety of habitat is key. In streams where riffles are continuous, placement of boulders or other large, natural obstruction is important. | | | | | Occurrence of riffles infrequent; distance between riffles divided by the width of the stream is between 7 to 15. | | | | | Occasional riffle or bend; bottom contours provide some habitat; distance between riffles divided by the width of the stream is between 15 to 25. | | | | | Generally all flat water or shallow riffles; poor habitat; distance between riffles divided by the width of the stream is a ratio of >25. | | | | | | |
| Left/Right Bank | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
| 8. Bank Stability LB ----- RB ----- | Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected. | | | | | Moderately stable; infrequent, small areas of erosion mostly healed over. 5-30% of bank in reach has areas of erosion. | | | | | Moderately unstable; 30-60% of bank in reach has areas of erosion; high erosion potential during floods. | | | | | Unstable; many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60-100% of bank has erosional scars. | | | | | | |
| 9. Vegetative Protection LB ----- RB ----- | More than 90% of the stream bank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally. | | | | | 70-90% of the stream bank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining. | | | | | 50-70% of the stream bank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining. | | | | | Less than 50% of the stream bank surfaces covered by vegetation; disruption of stream bank vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height. | | | | | | |
| 10. Riparian Vegetative Zone Width LB ----- RB ----- | Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone. | | | | | Width of riparian zone 12-18 meters; human activities have impacted zone only minimally. | | | | | Width of riparian zone 6-12 meters; human activities have impacted zone a great deal. | | | | | Width of riparian zone <6 meters; little or no riparian vegetation due to human activities. | | | | | | |

Total Score

NOTES/COMMENTS:

Low Gradient Bioassessment Stream Visit Sheet

| | | | | | |
|--|--|--|--|--|--|
| STREAM NAME: | | | LOCATION: | | |
| STATION #: | | | COUNTY: | | PROGRAM: |
| INVESTIGATORS: | | | DATE: | | PROJECT: |
| Verify Site LAT/LONG vs GPS <input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> N/A | | | TIME (24hr) | | Start: |
| | | | | | Finish: |
| Station | | | Reach | | |
| | | | Downstream | | Upstream |
| LAT | | | CANOPY COVER: <input type="checkbox"/> Fully Exposed (0-25%) <input type="checkbox"/> Partially Exposed (25-50%) <input type="checkbox"/> Partially Shaded (50-75%) <input type="checkbox"/> Fully Shaded (75-100%) | | STREAM TYPE: <input type="checkbox"/> Perennial <input type="checkbox"/> Ephemeral <input type="checkbox"/> Intermittent |
| LONG | | | | | |
| WEATHER Has there been a scouring rain in the last 14 days? <input type="checkbox"/> Yes <input type="checkbox"/> No | | | LOCAL WATERSHED FEATUREES (Predominant Surrounding Land Use): | | |
| Now <input type="checkbox"/> Past 24 hours <input type="checkbox"/> Heavy rain <input type="checkbox"/> Steady rain <input type="checkbox"/> Intermittent showers <input type="checkbox"/> Clear/sunny <input type="checkbox"/> Cloudy <input type="checkbox"/> | | | <input type="checkbox"/> Surface Mining <input type="checkbox"/> Deep Mining <input type="checkbox"/> Oil Wells <input type="checkbox"/> Land Disposal <input type="checkbox"/> Residential <input type="checkbox"/> Construction <input type="checkbox"/> Commercial <input type="checkbox"/> Industrial <input type="checkbox"/> Row Crops <input type="checkbox"/> Forest <input type="checkbox"/> Pasture/Grazing <input type="checkbox"/> Silviculture <input type="checkbox"/> Urban Runoff/Storm Sewers | | |
| INSTREAM FEATURES Stream Width _____ ft Maximum Depth _____ ft Reach Length _____ m Riffle/Run/Pool Sequence (No. Sampled in Reach) _____ Riffle _____ Run _____ Pool | | HYDRAULIC STRUCTURES <input type="checkbox"/> Dams <input type="checkbox"/> Bridge Abutments <input type="checkbox"/> Island <input type="checkbox"/> Waterfalls <input type="checkbox"/> Other: | STREAM FLOW <input type="checkbox"/> Dry <input type="checkbox"/> Pooled <input type="checkbox"/> Low <input type="checkbox"/> High <input type="checkbox"/> Normal | RIPARIAN VEGETATION Dominate Type: <input type="checkbox"/> Trees <input type="checkbox"/> Herbaceous <input type="checkbox"/> Grasses <input type="checkbox"/> Shrubs Number of strata _____ Dom. Tree/Shrub Taxa | CHANNEL ALTERATIONS <input type="checkbox"/> Dredging <input type="checkbox"/> Channelization (<input type="checkbox"/> Full <input type="checkbox"/> Partial) |
| P-CHEM Instrument Used: _____ Date Calibrated: _____ Temp(°C) _____ D.O. (mg/l) _____ %Saturation _____ pH(S.U.) _____ Cond. _____ Turb. _____ | | | | | |
| Sample Collection Verification | | | | | |
| Algae | Sample: <input type="checkbox"/> QualMHC <input type="checkbox"/> Other | | <input type="checkbox"/> Visual Assessment | | Lead Collector: |
| Fish | <input type="checkbox"/> BPEF <input type="checkbox"/> Seine <input type="checkbox"/> Other | | Time: BPEF Seine | | Lead Collector: |
| Habitat | <input type="checkbox"/> RBP <input type="checkbox"/> Substrate <input type="checkbox"/> Other: | | | | Lead Collector: |
| Invertebrates | <input type="checkbox"/> 1m ² <input type="checkbox"/> Qual <input type="checkbox"/> Other: | | | | Lead Collector: |
| | <input type="checkbox"/> 20 Jab (#Jabs: Cobble _____ Snags _____ Veg. Banks _____ Sand _____ Macrophytes _____ Other _____) | | | | |
| Tissue: | No. of Samples collected _____ Sp: | | | | Lead Collector: |
| Water Chem | <input type="checkbox"/> Acid/Alk <input type="checkbox"/> Bulk <input type="checkbox"/> Nutrients <input type="checkbox"/> Metals <input type="checkbox"/> Low Hg | | | | Lead Collector: |
| | <input type="checkbox"/> Herbicides <input type="checkbox"/> Pesticides <input type="checkbox"/> Ortho P <input type="checkbox"/> Other: | | | | |
| Duplicate Samples Taken: | | | | | |
| Substrate Characterization | | | | | |
| Substrate <input type="checkbox"/> Est. <input type="checkbox"/> P.C. | Riffle _____ % | Run _____ % | Pool _____ % | Reach Total | |
| Silt/Clay (<0.06 mm) | | | | | |
| Sand (0.06 – 2 mm) | | | | | |
| Gravel (2-64 mm) | | | | | |
| Cobble (64 – 256 mm) | | | | | |
| Boulders (>256 mm) | | | | | |
| Bedrock | | | | | |

NOTES/COMMENTS:

SITE NOT SAMPLED:

- Land owner denial Dry Too deep/Impounded
- Site not found/Secluded Unsafe
- Other (indicate under comments)

RBP Low Gradient Habitat

| Habitat Parameter | Condition Category | | | | | | | | | | | | | | | | | | | | |
|--|---|----|----|----|----|---|----|----|----|----|---|---|---|---|---|---|---|---|---|---|---|
| | Optimal | | | | | Suboptimal | | | | | Marginal | | | | Poor | | | | | | |
| SCORE | 20 | 19 | 18 | 17 | 16 | 15 | 14 | 13 | 12 | 11 | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
| 1. Epifaunal Substrate/ Available Cover Score | Greater than 50% of substrate favorable for epifaunal colonization and fish cover; mix of snags, submerged logs, undercut banks, cobble or other stable habitat and at stage to allow full colonization potential (i.e., logs/snags that are <u>not</u> new and transient). | | | | | 30-50% mix of stable habitat; well-suited for full colonization potential; adequate habitat for maintenance of populations; presence of additional substrate in the form of newfall, but not yet prepared for colonization (may rate at high end of scale). | | | | | 10-30% mix of stable habitat; habitat availability less than desirable; substrate frequently disturbed or removed. | | | | Less than 10% stable habitat; lack of habitat is obvious; substrate unstable or lacking. | | | | | | |
| 2. Pool Substrate Characterization Score | Mixture of substrate materials, with gravel and firm sand prevalent; root mats and submerged vegetation common. | | | | | Mixture of soft sand, mud, or clay; mud may be dominant; some root mats and submerged vegetation present. | | | | | All mud or clay or sand bottom; little or no root mat; no submerged vegetation. | | | | Hard-pan clay or bedrock; no root mat or vegetation. | | | | | | |
| 3. Pool Variability | Even mix of large-shallow, large-deep, small-shallow, small-deep pools present. | | | | | Majority of pools large-deep; very few shallow. | | | | | Shallow pools much more prevalent than deep pools. | | | | Majority of pools small-shallow or pools absent. | | | | | | |
| 4. Sediment Deposition Score | Little or no enlargement of islands or point bars and less than 20% of the bottom affected by sediment deposition. | | | | | Some new increase in bar formation, mostly from gravel, sand or fine sediment; 20-50% of the bottom affected; slight deposition in pools. | | | | | Moderate deposition of new gravel, sand or fine sediment on old and new bars; 50-80% of the bottom affected; sediment deposits at obstructions, constrictions, and bends; moderate deposition of pools prevalent. | | | | Heavy deposits of fine material, increased bar development; 80% of the bottom changing frequently; pools almost absent due to substantial sediment deposition. | | | | | | |
| 5. Channel Flow Status Score | Water reaches base of both lower banks, and minimal amount of channel substrate is exposed. | | | | | Water fills >75% of the available channel; or <25% of channel substrate is exposed. | | | | | Water fills 25-75% of the available channel, and/or riffle substrates are mostly exposed. | | | | Very little water in channel and mostly present as standing pools. | | | | | | |
| 6. Channel Alteration Score | Channelization or dredging absent or minimal; stream with normal pattern. | | | | | Some channelization present, usually in areas of bridge abutments; evidence of past channelization, i.e., dredging, (>20 yr.) may be present, but recent channelization is not present. | | | | | Channelization may be extensive; embankments or shoring structures present on both banks; and 40 to 80% of stream reach channelized and disrupted. | | | | Banks shored with gabion or cement; over 80% of the stream reach channelized and disrupted. In stream habitat greatly altered or removed entirely. | | | | | | |
| 7. Channel Sinuosity Score | The bends in the stream increase the stream length 3 to 4 times longer than if it was in a straight line. (Note - channel braiding is considered normal in coastal plains and other low-lying areas. This parameter is not easily rated in these areas. | | | | | The bends in the stream increase the stream length 2 to 3 times longer than if it was in a straight line. | | | | | The bends in the stream increase the stream length 2 to 1 times longer than if it was in a straight line. | | | | Channel straight; waterway has been channelized for a long distance. | | | | | | |
| Left/Right Bank | 10 | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 8. Bank Stability LB ----- RB | Banks stable; evidence of erosion or bank failure absent or minimal; little potential for future problems. <5% of bank affected. | | | | | Moderately stable; infrequent, small areas of erosion mostly healed over. 5-30% of bank in reach has areas of erosion. | | | | | Moderately unstable; 30-60% of bank in reach has areas of erosion; high erosion potential during floods. | | | | Unstable; many eroded areas; "raw" areas frequent along straight sections and bends; obvious bank sloughing; 60-100% of bank has erosional scars. | | | | | | |
| 9. Vegetative Protection LB ----- RB | More than 90% of the stream bank surfaces and immediate riparian zone covered by native vegetation, including trees, understory shrubs, or nonwoody macrophytes; vegetative disruption through grazing or mowing minimal or not evident; almost all plants allowed to grow naturally. | | | | | 70-90% of the stream bank surfaces covered by native vegetation, but one class of plants is not well-represented; disruption evident but not affecting full plant growth potential to any great extent; more than one-half of the potential plant stubble height remaining. | | | | | 50-70% of the stream bank surfaces covered by vegetation; disruption obvious; patches of bare soil or closely cropped vegetation common; less than one-half of the potential plant stubble height remaining. | | | | Less than 50% of the stream bank surfaces covered by vegetation; disruption of stream bank vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height. | | | | | | |
| 10. Riparian Vegetative Zone Width LB ----- RB | Width of riparian zone >18 meters; human activities (i.e., parking lots, roadbeds, clear-cuts, lawns, or crops) have not impacted zone. | | | | | Width of riparian zone 12-18 meters; human activities have impacted zone only minimally. | | | | | Width of riparian zone 6-12 meters; human activities have impacted zone a great deal. | | | | Width of riparian zone <6 meters: little or no riparian vegetation due to human activities. | | | | | | |

Total Score

NOTES/COMMENTS: