## REACH DOCUMENTATION

Standard Reach Length (wetted width ≤ 10 m) = 150 m Distance between transects = 15 m
Alternate Reach Length (wetted width >10 m) = 250 m Distance between transects = 25 m

| | | |
|---|---|---|
| Project Name: | Date: / / 2015 | Sample Collection Time: |
| Stream Name: | Site Name/ Description: | |
| Site Code: | Crew Members: | |
| Latitude (actual – decimal degrees): ºN | datum: NAD83 | |
| Longitude (actual – decimal degrees): ºW | *other:* | GPS Device: |

## AMBIENT WATER QUALITY MEASUREMENTS

** Turbidity, silica, oxygen saturation, and air temp are optional; calibration date required on page 24*

| Water Temp (Deg C) | pH | Alkalinity (mg/L) | Turbidity (ntu)* | Oxygen Sat. (%)* |
|---|---|---|---|---|
| | | | | |

| Dissolved $O^2$ (mg/L) | Specific. Conduct (uS/cm) | Salinity (ppt) | Silica (mg/L)* | Air Temp (Deg C)* |
|---|---|---|---|---|
| | | | | |

**Actual Reach Length (m)** *(see reach length guidelines at top of form)*

Explanation:

## DISCHARGE MEASUREMENTS

1st measurement = left bank (looking downstream)

**check if discharge measurements not possible** (explain in field notes section) ☐

### VELOCITY AREA METHOD (preferred)

cal. date | **Transect Width (m):**

| | Distance from Left Bank (cm) | Depth (cm) | Velocity (ft/sec) | | Distance from Left Bank (cm) | Depth (cm) | Velocity (ft/sec) |
|---|---|---|---|---|---|---|---|
| 1 | | | | 11 | | | |
| 2 | | | | 12 | | | |
| 3 | | | | 13 | | | |
| 4 | | | | 14 | | | |
| 5 | | | | 15 | | | |
| 6 | | | | 16 | | | |
| 7 | | | | 17 | | | |
| 8 | | | | 18 | | | |
| 9 | | | | 19 | | | |
| 10 | | | | 20 | | | |

### BUOYANT OBJECT METHOD (use ONLY if velocity area method not possible)

| | Float 1 | Float 2 | Float 3 |
|---|---|---|---|
| Distance (m) | | | |
| Float Time (sec) | | | |

**Float Reach Cross Section**

| width (m) depth(cm) | Upper Section | Middle Section | Lower Section |
|---|---|---|---|
| Width | | | |
| Depth 1 | | | |
| Depth 2 | | | |
| Depth 3 | | | |
| Depth 4 | | | |
| Depth 5 | | | |

## NOTABLE FIELD CONDITIONS (check one box per topic)

| | | | | | | |
|---|---|---|---|---|---|---|
| **Evidence of recent rainfall (enough to increase surface runoff)** | NO | ☐ | minimal | ☐ | >10% flow increase | ☐ |
| **Evidence of fires in reach or immediately upstream (<500 m)** | NO | ☐ | < 1 year | ☐ | < 5 years | ☐ |
| **Dominant landuse/ landcover in area surrounding reach** | Agriculture | ☐ | Forest | ☐ | Rangeland | ☐ |
| | Urban/ Industrial | ☐ | Suburb/Town | ☐ | Other | ☐ |

## ADDITIONAL COBBLE EMBEDDEDNESS MEASURES

(carry over from transect forms if needed to attain target count of 25; measure in %)

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | |
| 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | |
| | | | | | | | | | | | | |

| Site Code: | Date: __ __ / __ __ / 2015 | |
|---|---|---|

## SLOPE and BEARING FORM (transect based - for Full PHAB only)

| AUTOLEVEL | |
|---|---|
| CLINOMETER | |
| HANDLEVEL | |
| OTHER | |

| Starting Transect | MAIN SEGMENT (record percent of inter-transect distance in each segment if supplemental segments are used) | | | | | | SUPPLEMENTAL SEGMENT (record percent of inter-transect distance in each segment if supplemental segments are used) | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Stadia rod measurements | | Slope (%) or Elevation Difference cm ☐ % ☐ | Segment Length (m) | Bearing (0°-359°) | Percent of Total Length (%) | Stadia rod measurements | | Slope or Elevation Difference cm ☐ % ☐ | Segment Length (m) | Bearing (0°-359°) | Percent of Total Length (%) |
| **K** | | | | | | | | | | | | |
| **J** | | | | | | | | | | | | |
| **I** | | | | | | | | | | | | |
| **H** | | | | | | | | | | | | |
| **G** | | | | | | | | | | | | |
| **F** | | | | | | | | | | | | |
| **E** | | | | | | | | | | | | |
| **D** | | | | | | | | | | | | |
| **C** | | | | | | | | | | | | |
| **B** | | | | | | | | | | | | |
| **A** | | | | | | | | | | | | |
| **additional calculation area** | | | | | | | | | | | | |

## ADDITIONAL HABITAT CHARACTERIZATION

High Gradient ☐ Low Gradient ☐

| Parameter | Optimal | Suboptimal | Marginal | Poor |
|---|---|---|---|---|
| **Epifaunal Substrate/ Cover** | Greater than 70% of substrate favorable for epifaunal colonization and fish cover (50% for low-gradient streams); mix of submerged logs, undercut banks, cobble or other stable habitat | 40-70% mix of stable habitat (30-50% for low-gradient streams); well-suited for full colonization potential | 20-40% mix of stable habitat (10-30% in low-gradient streams); substrate frequently disturbed or removed | Less than 20% stable habitat (10% in low-gradient streams); lack of habitat is obvious; substrate unstable or lacking |
| **Score:** | 20 19 18 17 16 | 15 14 13 12 11 | 10 9 8 7 6 | 5 4 3 2 1 0 |
| **Sediment Deposition** | Little or no enlargement of islands or point bars and less than 5% of the bottom affected by sediment deposition (<20% in low-gradient streams) | Some new increase in bar formation, mostly from gravel, sand, or fine sediment; 5-30% of the bottom affected (20-50% in low-gradient streams) | Moderate deposition of new gravel, sand, or fine sediment on bars; 30-50% of the bottom affected (50 - 80% in low-gradient streams) | Heavy deposits of fine material, increased bar development; more than 50% of the bottom changing frequently (>80% in low-gradient streams) |
| **Score:** | 20 19 18 17 16 | 15 14 13 12 11 | 10 9 8 7 6 | 5 4 3 2 1 0 |
| **Channel Alteration** | Channelization or dredging absent or minimal; stream with normal pattern | Some channelization present, (e.g., bridge abutments); evidence of past channelization (> 20yrs) may be present but recent channelization not present | Channelization may be extensive: embankments or shoring structures present on both banks; 40 to 80% of stream reach disrupted | Banks shored with gabian or cement; Over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered or removed entirely |
| **Score:** | 20 19 18 17 16 | 15 14 13 12 11 | 10 9 8 7 6 | 5 4 3 2 1 0 |

| Site Code: | Site Name: | | Date: __ __ / __ __ / 2015 |
|---|---|---|---|
| Wetted Width (m): | Bankfull Width (m): | Bankfull Height (m): | **Transect A** |

## Transect Substrates

| Position | Dist from LB (m) | Depth (cm) | mm/ size class | % Cobble Embed. | CPOM | Microalgae Thickness Code | Macroalgae Attached | Macroalgae Unattached | Macrophytes |
|---|---|---|---|---|---|---|---|---|---|
| Left Bank | | | | | P A D | | P A D | P A D | P A D |
| Left Center | | | | | P A D | | P A D | P A D | P A D |
| Center | | | | | P A D | | P A D | P A D | P A D |
| Right Center | | | | | P A D | | P A D | P A D | P A D |
| Right Bank | | | | | P A D | | P A D | P A D | P A D |
| | Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred) | | | | | | | | |

**Microalgae Thickness Codes**
**0** = No microalgae present, Feels rough, not slimy;
**1** = Present but not visible, Feels slimy;
**2** = Present and visible but <1mm; Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail.
**3** = 1-5mm;
**4** = 5-20mm;
**5** = >20mm;
**UD** = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code).
**D** = Dry, not assessed

## RIPARIAN VEGETATION
(facing downstream, 5 m u/s, 5 m d/s, 10 m from wetted width)

0 = Absent (0%) 3 = Heavy (40-75%)
1 = Sparse (<10%) 4 = Very Heavy (>75%)
2 = Moderate (10-40%)

| Vegetation Class | Left Bank | Right Bank |
|---|---|---|
| **Upper Canopy (>5 m high)** | | |
| Trees and saplings >5 m high | 0 1 2 3 4 | 0 1 2 3 4 |
| **Lower Canopy (0.5 m-5 m high)** | | |
| All vegetation 0.5 m to 5 m | 0 1 2 3 4 | 0 1 2 3 4 |
| **Ground Cover (<0.5 m high)** | | |
| Woody shrubs & saplings <0.5 m | 0 1 2 3 4 | 0 1 2 3 4 |
| Herbs/ grasses | 0 1 2 3 4 | 0 1 2 3 4 |
| Barren, bare soil/ duff | 0 1 2 3 4 | 0 1 2 3 4 |

## INSTREAM HABITAT COMPLEXITY
(5 m u/s, 5 m d/s)

0 = Absent (0%)
1 = Sparse (<10%)
2 = Moderate (10-40%)
3 = Heavy (40-75%)
4 = Very Heavy (>75%)

| | |
|---|---|
| Filamentous Algae | 0 1 2 3 4 |
| Aquatic Macrophytes/ Emergent Vegetation | 0 1 2 3 4 |
| Boulders | 0 1 2 3 4 |
| Woody Debris >0.3 m | 0 1 2 3 4 |
| Woody Debris <0.3 m | 0 1 2 3 4 |
| Undercut Banks | 0 1 2 3 4 |
| Overhang. Vegetation | 0 1 2 3 4 |
| Live Tree Roots | 0 1 2 3 4 |
| Artificial Structures | 0 1 2 3 4 |

## DENSIOMETER READINGS (0-17)
*count covered dots*

| | |
|---|---|
| Center Left | |
| Center Upstream | |
| Center Right | |
| Center Downstream | |
| Optional | |
| Left Bank | |
| Right Bank | |

## HUMAN INFLUENCE
**(circle only the closest to wetted channel; assess 5 m u/s, 5 m d/s)**

**0** = Not Present;
**B** = On Bank;
**C** = Between Bank & 10m from Channel;
**P** = >10m+<50m from Channel;
**Channel** (record Yes or No; if Y for an analyte, do not assess banks)

| | Left Bank | Channel | Right Bank |
|---|---|---|---|
| Walls/ Rip-rap/ Dams | P C B 0 | Y N | 0 B C P |
| Buildings | P C B 0 | Y N | 0 B C P |
| Pavement/ Cleared Lot | P C B 0 | | 0 B C P |
| Road/ Railroad | P C B 0 | Y N | 0 B C P |
| Pipes (Inlet/ Outlet) | P C B 0 | Y N | 0 B C P |
| Landfill/ Trash | P C B 0 | Y N | 0 B C P |
| Park/ Lawn | P C B 0 | | 0 B C P |
| Row Crop | P C B 0 | | 0 B C P |
| Pasture/ Range | P C B 0 | | 0 B C P |
| Logging Operations | P C B 0 | | 0 B C P |
| Mining Activity | P C B 0 | Y N | 0 B C P |
| Vegetation Management | P C B 0 | | 0 B C P |
| Bridges/ Abutments | P C B 0 | Y N | 0 B C P |
| Orchards/ Vineyards | P C B 0 | | 0 B C P |

## BANK STABILITY
(score zone 5m upstream and 5m downstream of transect between bankfull - wetted width)

| | | | |
|---|---|---|---|
| **Left Bank** | eroded | vulnerable | stable |
| **Right Bank** | eroded | vulnerable | stable |

## *TAKE PHOTOGRAPHS*
***(check box if taken & record photo code)***

Downstream (**optional**) ☐

Upstream (**required**) ☐

## Inter-Transect: AB

Wetted Width (m):

**Inter-Transect Substrates**

| Position | Dist from LB (m) | Depth (cm) | mm/ size class | % Cobble Embed. | CPOM | Microalgae Thickness Code | Macroalgae Attached | Macroalgae Unattached | Macrophytes |
|---|---|---|---|---|---|---|---|---|---|
| Left Bank | | | | | P A D | | P A D | P A D | P A D |
| Left Center | | | | | P A D | | P A D | P A D | P A D |
| Center | | | | | P A D | | P A D | P A D | P A D |
| Right Center | | | | | P A D | | P A D | P A D | P A D |
| Right Bank | | | | | P A D | | P A D | P A D | P A D |
| | Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred) | | | | | | | | |

**Microalgae Thickness Codes**

**0** = No microalgae present, Feels rough, not slimy;
**1** = Present but not visible, Feels slimy;
**2** = Present and visible but <1mm; Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail.
**3** = 1-5mm;
**4** = 5-20mm;
**5** = >20mm;
**UD** = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code).
**D** = Dry, not assessed

**FLOW HABITATS**
(% between transects, total=100%)

| Channel Type | % |
|---|---|
| Cascade/ Falls | |
| Rapid | |
| Riffle | |
| Run | |
| Glide | |
| Pool | |
| Dry | |

| Site Code: | Site Name: | Date: __ __ / __ __ / 2015 |
|---|---|---|
| Wetted Width (m): | Bankfull Width (m): / Bankfull Height (m): | **Transect B** |

## Transect Substrates

| Position | Dist from LB (m) | Depth (cm) | mm/ size class | % Cobble Embed. | CPOM | Microalgae Thickness Code | Macroalgae Attached | Macroalgae Unattached | Macrophytes |
|---|---|---|---|---|---|---|---|---|---|
| Left Bank | | | | | P A D | | P A D | P A D | P A D |
| Left Center | | | | | P A D | | P A D | P A D | P A D |
| Center | | | | | P A D | | P A D | P A D | P A D |
| Right Center | | | | | P A D | | P A D | P A D | P A D |
| Right Bank | | | | | P A D | | P A D | P A D | P A D |
| | Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred) | | | | | | | | |

**Microalgae Thickness Codes**
**0** = No microalgae present, Feels rough, not slimy;
**1** = Present but not visible, Feels slimy;
**2** = Present and visible but <1mm; Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail.
**3** = 1-5mm;
**4** = 5-20mm;
**5** = >20mm;
**UD** = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code).
**D** = Dry, not assessed

## RIPARIAN VEGETATION
(facing downstream, 5 m u/s, 5 m d/s, 10 m from wetted width)

0 = Absent (0%) 3 = Heavy (40-75%)
1 = Sparse (<10%) 4 = Very Heavy (>75%)
2 = Moderate (10-40%)

| Vegetation Class | Left Bank | Right Bank |
|---|---|---|
| **Upper Canopy (>5 m high)** | | |
| Trees and saplings >5 m high | 0 1 2 3 4 | 0 1 2 3 4 |
| **Lower Canopy (0.5 m-5 m high)** | | |
| All vegetation 0.5 m to 5 m | 0 1 2 3 4 | 0 1 2 3 4 |
| **Ground Cover (<0.5 m high)** | | |
| Woody shrubs & saplings <0.5 m | 0 1 2 3 4 | 0 1 2 3 4 |
| Herbs/ grasses | 0 1 2 3 4 | 0 1 2 3 4 |
| Barren, bare soil/ duff | 0 1 2 3 4 | 0 1 2 3 4 |

## INSTREAM HABITAT COMPLEXITY
(5 m u/s, 5 m d/s)

0 = Absent (0%)
1 = Sparse (<10%)
2 = Moderate (10-40%)
3 = Heavy (40-75%)
4 = Very Heavy (>75%)

| | |
|---|---|
| Filamentous Algae | 0 1 2 3 4 |
| Aquatic Macrophytes/ Emergent Vegetation | 0 1 2 3 4 |
| Boulders | 0 1 2 3 4 |
| Woody Debris >0.3 m | 0 1 2 3 4 |
| Woody Debris <0.3 m | 0 1 2 3 4 |
| Undercut Banks | 0 1 2 3 4 |
| Overhang. Vegetation | 0 1 2 3 4 |
| Live Tree Roots | 0 1 2 3 4 |
| Artificial Structures | 0 1 2 3 4 |

## DENSIOMETER READINGS (0-17)
*count covered dots*

| | |
|---|---|
| Center Left | |
| Center Upstream | |
| Center Right | |
| Center Downstream | |
| Optional | |
| Left Bank | |
| Right Bank | |

## HUMAN INFLUENCE
**(circle only the closest to wetted channel; assess 5 m u/s, 5 m d/s)**

**0** = Not Present;
**B** = On Bank;
**C** = Between Bank & 10m from Channel;
**P** = >10m+<50m from Channel;
**Channel** (record Yes or No; if Y for an analyte, do not assess banks)

| | Left Bank | Channel | Right Bank |
|---|---|---|---|
| Walls/ Rip-rap/ Dams | P C B 0 | Y N | 0 B C P |
| Buildings | P C B 0 | Y N | 0 B C P |
| Pavement/ Cleared Lot | P C B 0 | | 0 B C P |
| Road/ Railroad | P C B 0 | Y N | 0 B C P |
| Pipes (Inlet/ Outlet) | P C B 0 | Y N | 0 B C P |
| Landfill/ Trash | P C B 0 | Y N | 0 B C P |
| Park/ Lawn | P C B 0 | | 0 B C P |
| Row Crop | P C B 0 | | 0 B C P |
| Pasture/ Range | P C B 0 | | 0 B C P |
| Logging Operations | P C B 0 | | 0 B C P |
| Mining Activity | P C B 0 | Y N | 0 B C P |
| Vegetation Management | P C B 0 | | 0 B C P |
| Bridges/ Abutments | P C B 0 | Y N | 0 B C P |
| Orchards/ Vineyards | P C B 0 | | 0 B C P |

## BANK STABILITY
(score zone 5m upstream and 5m downstream of transect between bankfull - wetted width)

| | | | |
|---|---|---|---|
| **Left Bank** | eroded | vulnerable | stable |
| **Right Bank** | eroded | vulnerable | stable |

## Inter-Transect: BC

Wetted Width (m):

**Inter-Transect Substrates**

| Position | Dist from LB (m) | Depth (cm) | mm/ size class | % Cobble Embed. | CPOM | Microalgae Thickness Code | Macroalgae Attached | Macroalgae Unattached | Macrophytes |
|---|---|---|---|---|---|---|---|---|---|
| Left Bank | | | | | P A D | | P A D | P A D | P A D |
| Left Center | | | | | P A D | | P A D | P A D | P A D |
| Center | | | | | P A D | | P A D | P A D | P A D |
| Right Center | | | | | P A D | | P A D | P A D | P A D |
| Right Bank | | | | | P A D | | P A D | P A D | P A D |
| | Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred) | | | | | | | | |

**Microalgae Thickness Codes**

**0** = No microalgae present, Feels rough, not slimy;
**1** = Present but not visible, Feels slimy;
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**3** = 1-5mm;
**4** = 5-20mm;
**5** = >20mm;
**UD** = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code).
**D** = Dry, not assessed

**FLOW HABITATS**
(% between transects, total=100%)

| Channel Type | % |
|---|---|
| Cascade/ Falls | |
| Rapid | |
| Riffle | |
| Run | |
| Glide | |
| Pool | |
| Dry | |

| Site Code: | Site Name: | | Date: __ __ / __ __ / 2015 |
|---|---|---|---|
| Wetted Width (m): | Bankfull Width (m): | Bankfull Height (m): | **Transect C** |

## Transect Substrates

| Position | Dist from LB (m) | Depth (cm) | mm/ size class | % Cobble Embed. | CPOM | Microalgae Thickness Code | Macroalgae Attached | Macroalgae Unattached | Macrophytes |
|---|---|---|---|---|---|---|---|---|---|
| Left Bank | | | | | P A D | | P A D | P A D | P A D |
| Left Center | | | | | P A D | | P A D | P A D | P A D |
| Center | | | | | P A D | | P A D | P A D | P A D |
| Right Center | | | | | P A D | | P A D | P A D | P A D |
| Right Bank | | | | | P A D | | P A D | P A D | P A D |
| | Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred) | | | | | | | | |

**Microalgae Thickness Codes**
**0** = No microalgae present, Feels rough, not slimy;
**1** = Present but not visible, Feels slimy;
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**3** = 1-5mm;
**4** = 5-20mm;
**5** = >20mm;
**UD** = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code).
**D** = Dry, not assessed

## Riparian Vegetation
(facing downstream, 5 m u/s, 5 m d/s, 10 m from wetted width)

0 = Absent (0%) 3 = Heavy (40-75%)
1 = Sparse (<10%) 4 = Very Heavy (>75%)
2 = Moderate (10-40%)

| Vegetation Class | Left Bank | Right Bank |
|---|---|---|
| **Upper Canopy (>5 m high)** | | |
| Trees and saplings >5 m high | 0 1 2 3 4 | 0 1 2 3 4 |
| **Lower Canopy (0.5 m-5 m high)** | | |
| All vegetation 0.5 m to 5 m | 0 1 2 3 4 | 0 1 2 3 4 |
| **Ground Cover (<0.5 m high)** | | |
| Woody shrubs & saplings <0.5 m | 0 1 2 3 4 | 0 1 2 3 4 |
| Herbs/ grasses | 0 1 2 3 4 | 0 1 2 3 4 |
| Barren, bare soil/ duff | 0 1 2 3 4 | 0 1 2 3 4 |

## Instream Habitat Complexity
(5 m u/s, 5 m d/s)

0 = Absent (0%)
1 = Sparse (<10%)
2 = Moderate (10-40%)
3 = Heavy (40-75%)
4 = Very Heavy (>75%)

| | |
|---|---|
| Filamentous Algae | 0 1 2 3 4 |
| Aquatic Macrophytes/ Emergent Vegetation | 0 1 2 3 4 |
| Boulders | 0 1 2 3 4 |
| Woody Debris >0.3 m | 0 1 2 3 4 |
| Woody Debris <0.3 m | 0 1 2 3 4 |
| Undercut Banks | 0 1 2 3 4 |
| Overhang. Vegetation | 0 1 2 3 4 |
| Live Tree Roots | 0 1 2 3 4 |
| Artificial Structures | 0 1 2 3 4 |

## Densiometer Readings (0-17)
*count covered dots*

| | |
|---|---|
| Center Left | |
| Center Upstream | |
| Center Right | |
| Center Downstream | |
| Optional | |
| Left Bank | |
| Right Bank | |

## Human Influence
**(circle only the closest to wetted channel; assess 5 m u/s, 5 m d/s)**

**0** = Not Present;
**B** = On Bank;
**C** = Between Bank & 10m from Channel;
**P** = >10m+<50m from Channel;
**Channel** (record Yes or No; if Y for an analyte, do not assess banks)

| | Left Bank | Channel | Right Bank |
|---|---|---|---|
| Walls/ Rip-rap/ Dams | P C B 0 | Y N | 0 B C P |
| Buildings | P C B 0 | Y N | 0 B C P |
| Pavement/ Cleared Lot | P C B 0 | | 0 B C P |
| Road/ Railroad | P C B 0 | Y N | 0 B C P |
| Pipes (Inlet/ Outlet) | P C B 0 | Y N | 0 B C P |
| Landfill/ Trash | P C B 0 | Y N | 0 B C P |
| Park/ Lawn | P C B 0 | | 0 B C P |
| Row Crop | P C B 0 | | 0 B C P |
| Pasture/ Range | P C B 0 | | 0 B C P |
| Logging Operations | P C B 0 | | 0 B C P |
| Mining Activity | P C B 0 | Y N | 0 B C P |
| Vegetation Management | P C B 0 | | 0 B C P |
| Bridges/ Abutments | P C B 0 | Y N | 0 B C P |
| Orchards/ Vineyards | P C B 0 | | 0 B C P |

## Bank Stability
(score zone 5m upstream and 5m downstream of transect between bankfull - wetted width)

| | | | |
|---|---|---|---|
| **Left Bank** | eroded | vulnerable | stable |
| **Right Bank** | eroded | vulnerable | stable |

| **Inter-Transect: CD** | Wetted Width (m): |
|---|---|

**Inter-Transect Substrates**

| Position | Dist from LB (m) | Depth (cm) | mm/ size class | % Cobble Embed. | CPOM | Microalgae Thickness Code | Macroalgae Attached | Macroalgae Unattached | Macrophytes |
|---|---|---|---|---|---|---|---|---|---|
| Left Bank | | | | | P A D | | P A D | P A D | P A D |
| Left Center | | | | | P A D | | P A D | P A D | P A D |
| Center | | | | | P A D | | P A D | P A D | P A D |
| Right Center | | | | | P A D | | P A D | P A D | P A D |
| Right Bank | | | | | P A D | | P A D | P A D | P A D |
| | Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred) | | | | | | | | |

**Microalgae Thickness Codes**

**0** = No microalgae present, Feels rough, not slimy;
**1** = Present but not visible, Feels slimy;
**2** = Present and visible but <1mm; Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail.
**3** = 1-5mm;
**4** = 5-20mm;
**5** = >20mm;
**UD** = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code).
**D** = Dry, not assessed

**FLOW HABITATS**
(% between transects, total=100%)

| Channel Type | % |
|---|---|
| Cascade/ Falls | |
| Rapid | |
| Riffle | |
| Run | |
| Glide | |
| Pool | |
| Dry | |

| Site Code: | Site Name: | | Date: __ __ / __ __ / 2015 |
|---|---|---|---|
| Wetted Width (m): | Bankfull Width (m): | Bankfull Height (m): | **Transect D** |

## Transect Substrates

| Position | Dist from LB (m) | Depth (cm) | mm/ size class | % Cobble Embed. | CPOM | Microalgae Thickness Code | Macroalgae Attached | Macroalgae Unattached | Macrophytes |
|---|---|---|---|---|---|---|---|---|---|
| Left Bank | | | | | P A D | | P A D | P A D | P A D |
| Left Center | | | | | P A D | | P A D | P A D | P A D |
| Center | | | | | P A D | | P A D | P A D | P A D |
| Right Center | | | | | P A D | | P A D | P A D | P A D |
| Right Bank | | | | | P A D | | P A D | P A D | P A D |
| | Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred) | | | | | | | | |

**Microalgae Thickness Codes**
**0** = No microalgae present, Feels rough, not slimy;
**1** = Present but not visible, Feels slimy;
**2** = Present and visible but <1mm; Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail.
**3** = 1-5mm;
**4** = 5-20mm;
**5** = >20mm;
**UD** = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code).
**D** = Dry, not assessed

## RIPARIAN VEGETATION
(facing downstream, 5 m u/s, 5 m d/s, 10 m from wetted width)

0 = Absent (0%) 3 = Heavy (40-75%)
1 = Sparse (<10%) 4 = Very Heavy (>75%)
2 = Moderate (10-40%)

| Vegetation Class | Left Bank | Right Bank |
|---|---|---|
| **Upper Canopy (>5 m high)** | | |
| Trees and saplings >5 m high | 0 1 2 3 4 | 0 1 2 3 4 |
| **Lower Canopy (0.5 m-5 m high)** | | |
| All vegetation 0.5 m to 5 m | 0 1 2 3 4 | 0 1 2 3 4 |
| **Ground Cover (<0.5 m high)** | | |
| Woody shrubs & saplings <0.5 m | 0 1 2 3 4 | 0 1 2 3 4 |
| Herbs/ grasses | 0 1 2 3 4 | 0 1 2 3 4 |
| Barren, bare soil/ duff | 0 1 2 3 4 | 0 1 2 3 4 |

## INSTREAM HABITAT COMPLEXITY
(5 m u/s, 5 m d/s)

0 = Absent (0%)
1 = Sparse (<10%)
2 = Moderate (10-40%)
3 = Heavy (40-75%)
4 = Very Heavy (>75%)

| | |
|---|---|
| Filamentous Algae | 0 1 2 3 4 |
| Aquatic Macrophytes/ Emergent Vegetation | 0 1 2 3 4 |
| Boulders | 0 1 2 3 4 |
| Woody Debris >0.3 m | 0 1 2 3 4 |
| Woody Debris <0.3 m | 0 1 2 3 4 |
| Undercut Banks | 0 1 2 3 4 |
| Overhang. Vegetation | 0 1 2 3 4 |
| Live Tree Roots | 0 1 2 3 4 |
| Artificial Structures | 0 1 2 3 4 |

## DENSIOMETER READINGS (0-17)
*count covered dots*

| | |
|---|---|
| Center Left | |
| Center Upstream | |
| Center Right | |
| Center Downstream | |
| Optional | |
| Left Bank | |
| Right Bank | |

## HUMAN INFLUENCE
**(circle only the closest to wetted channel; assess 5 m u/s, 5 m d/s)**

**0** = Not Present;
**B** = On Bank;
**C** = Between Bank & 10m from Channel;
**P** = >10m+<50m from Channel;
**Channel** (record Yes or No; if Y for an analyte, do not assess banks)

| | Left Bank | Channel | Right Bank |
|---|---|---|---|
| Walls/ Rip-rap/ Dams | P C B 0 | Y N | 0 B C P |
| Buildings | P C B 0 | Y N | 0 B C P |
| Pavement/ Cleared Lot | P C B 0 | | 0 B C P |
| Road/ Railroad | P C B 0 | Y N | 0 B C P |
| Pipes (Inlet/ Outlet) | P C B 0 | Y N | 0 B C P |
| Landfill/ Trash | P C B 0 | Y N | 0 B C P |
| Park/ Lawn | P C B 0 | | 0 B C P |
| Row Crop | P C B 0 | | 0 B C P |
| Pasture/ Range | P C B 0 | | 0 B C P |
| Logging Operations | P C B 0 | | 0 B C P |
| Mining Activity | P C B 0 | Y N | 0 B C P |
| Vegetation Management | P C B 0 | | 0 B C P |
| Bridges/ Abutments | P C B 0 | Y N | 0 B C P |
| Orchards/ Vineyards | P C B 0 | | 0 B C P |

## BANK STABILITY
(score zone 5m upstream and 5m downstream of transect between bankfull - wetted width)

| | | | |
|---|---|---|---|
| **Left Bank** | eroded | vulnerable | stable |
| **Right Bank** | eroded | vulnerable | stable |

| **Inter-Transect: DE** | Wetted Width (m): |
|---|---|

**Inter-Transect Substrates**

| Position | Dist from LB (m) | Depth (cm) | mm/ size class | % Cobble Embed. | CPOM | Microalgae Thickness Code | Macroalgae Attached | Macroalgae Unattached | Macrophytes |
|---|---|---|---|---|---|---|---|---|---|
| Left Bank | | | | | P A D | | P A D | P A D | P A D |
| Left Center | | | | | P A D | | P A D | P A D | P A D |
| Center | | | | | P A D | | P A D | P A D | P A D |
| Right Center | | | | | P A D | | P A D | P A D | P A D |
| Right Bank | | | | | P A D | | P A D | P A D | P A D |
| | Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred) | | | | | | | | |

**Microalgae Thickness Codes**

**0** = No microalgae present, Feels rough, not slimy;
**1** = Present but not visible, Feels slimy;
**2** = Present and visible but <1mm; Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail.
**3** = 1-5mm;
**4** = 5-20mm;
**5** = >20mm;
**UD** = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code).
**D** = Dry, not assessed

**FLOW HABITATS**
(% between transects, total=100%)

| Channel Type | % |
|---|---|
| Cascade/ Falls | |
| Rapid | |
| Riffle | |
| Run | |
| Glide | |
| Pool | |
| Dry | |

| Site Code: | Site Name: | | Date: __ __ / __ __ / 2015 |
|---|---|---|---|
| Wetted Width (m): | Bankfull Width (m): | Bankfull Height (m): | **Transect E** |

## Transect Substrates

| Position | Dist from LB (m) | Depth (cm) | mm/ size class | % Cobble Embed. | CPOM | Microalgae Thickness Code | Macroalgae Attached | Macroalgae Unattached | Macrophytes |
|---|---|---|---|---|---|---|---|---|---|
| Left Bank | | | | | P A D | | P A D | P A D | P A D |
| Left Center | | | | | P A D | | P A D | P A D | P A D |
| Center | | | | | P A D | | P A D | P A D | P A D |
| Right Center | | | | | P A D | | P A D | P A D | P A D |
| Right Bank | | | | | P A D | | P A D | P A D | P A D |
| | Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred) | | | | | | | | |

**Microalgae Thickness Codes**
**0** = No microalgae present, Feels rough, not slimy;
**1** = Present but not visible, Feels slimy;
**2** = Present and visible but <1mm; Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail.
**3** = 1-5mm;
**4** = 5-20mm;
**5** = >20mm;
**UD** = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code).
**D** = Dry, not assessed

## RIPARIAN VEGETATION
(facing downstream, 5 m u/s, 5 m d/s, 10 m from wetted width)

0 = Absent (0%) 3 = Heavy (40-75%)
1 = Sparse (<10%) 4 = Very Heavy (>75%)
2 = Moderate (10-40%)

| Vegetation Class | Left Bank | Right Bank |
|---|---|---|
| **Upper Canopy (>5 m high)** | | |
| Trees and saplings >5 m high | 0 1 2 3 4 | 0 1 2 3 4 |
| **Lower Canopy (0.5 m-5 m high)** | | |
| All vegetation 0.5 m to 5 m | 0 1 2 3 4 | 0 1 2 3 4 |
| **Ground Cover (<0.5 m high)** | | |
| Woody shrubs & saplings <0.5 m | 0 1 2 3 4 | 0 1 2 3 4 |
| Herbs/ grasses | 0 1 2 3 4 | 0 1 2 3 4 |
| Barren, bare soil/ duff | 0 1 2 3 4 | 0 1 2 3 4 |

## INSTREAM HABITAT COMPLEXITY
(5 m u/s, 5 m d/s)

0 = Absent (0%)
1 = Sparse (<10%)
2 = Moderate (10-40%)
3 = Heavy (40-75%)
4 = Very Heavy (>75%)

| | |
|---|---|
| Filamentous Algae | 0 1 2 3 4 |
| Aquatic Macrophytes/ Emergent Vegetation | 0 1 2 3 4 |
| Boulders | 0 1 2 3 4 |
| Woody Debris >0.3 m | 0 1 2 3 4 |
| Woody Debris <0.3 m | 0 1 2 3 4 |
| Undercut Banks | 0 1 2 3 4 |
| Overhang. Vegetation | 0 1 2 3 4 |
| Live Tree Roots | 0 1 2 3 4 |
| Artificial Structures | 0 1 2 3 4 |

## DENSIOMETER READINGS (0-17)
*count covered dots*

| | |
|---|---|
| Center Left | |
| Center Upstream | |
| Center Right | |
| Center Downstream | |
| Optional | |
| Left Bank | |
| Right Bank | |

## HUMAN INFLUENCE
**(circle only the closest to wetted channel; assess 5 m u/s, 5 m d/s)**

**0** = Not Present;
**B** = On Bank;
**C** = Between Bank & 10m from Channel;
**P** = >10m+<50m from Channel;
**Channel** (record Yes or No; if Y for an analyte, do not assess banks)

| | Left Bank | Channel | Right Bank |
|---|---|---|---|
| Walls/ Rip-rap/ Dams | P C B 0 | Y N | 0 B C P |
| Buildings | P C B 0 | Y N | 0 B C P |
| Pavement/ Cleared Lot | P C B 0 | | 0 B C P |
| Road/ Railroad | P C B 0 | Y N | 0 B C P |
| Pipes (Inlet/ Outlet) | P C B 0 | Y N | 0 B C P |
| Landfill/ Trash | P C B 0 | Y N | 0 B C P |
| Park/ Lawn | P C B 0 | | 0 B C P |
| Row Crop | P C B 0 | | 0 B C P |
| Pasture/ Range | P C B 0 | | 0 B C P |
| Logging Operations | P C B 0 | | 0 B C P |
| Mining Activity | P C B 0 | Y N | 0 B C P |
| Vegetation Management | P C B 0 | | 0 B C P |
| Bridges/ Abutments | P C B 0 | Y N | 0 B C P |
| Orchards/ Vineyards | P C B 0 | | 0 B C P |

## BANK STABILITY
(score zone 5m upstream and 5m downstream of transect between bankfull - wetted width)

| | | | |
|---|---|---|---|
| **Left Bank** | eroded | vulnerable | stable |
| **Right Bank** | eroded | vulnerable | stable |

| **Inter-Transect: EF** | Wetted Width (m): |
|---|---|

**Inter-Transect Substrates**

| Position | Dist from LB (m) | Depth (cm) | mm/ size class | % Cobble Embed. | CPOM | Microalgae Thickness Code | Macroalgae Attached | Macroalgae Unattached | Macrophytes |
|---|---|---|---|---|---|---|---|---|---|
| Left Bank | | | | | P A D | | P A D | P A D | P A D |
| Left Center | | | | | P A D | | P A D | P A D | P A D |
| Center | | | | | P A D | | P A D | P A D | P A D |
| Right Center | | | | | P A D | | P A D | P A D | P A D |
| Right Bank | | | | | P A D | | P A D | P A D | P A D |
| | Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred) | | | | | | | | |

**Microalgae Thickness Codes**

**0** = No microalgae present, Feels rough, not slimy;
**1** = Present but not visible, Feels slimy;
**2** = Present and visible but <1mm; Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail.
**3** = 1-5mm;
**4** = 5-20mm;
**5** = >20mm;
**UD** = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code).
**D** = Dry, not assessed

**FLOW HABITATS**
(% between transects, total=100%)

| Channel Type | % |
|---|---|
| Cascade/ Falls | |
| Rapid | |
| Riffle | |
| Run | |
| Glide | |
| Pool | |
| Dry | |

| Site Code: | Site Name: | | Date: __ __ / __ __ / 2015 |
|---|---|---|---|
| Wetted Width (m): | Bankfull Width (m): | Bankfull Height (m): | **Transect F** |

## Transect Substrates

| Position | Dist from LB (m) | Depth (cm) | mm/ size class | % Cobble Embed. | CPOM | Microalgae Thickness Code | Macroalgae Attached | Macroalgae Unattached | Macrophytes |
|---|---|---|---|---|---|---|---|---|---|
| Left Bank | | | | | P A D | | P A D | P A D | P A D |
| Left Center | | | | | P A D | | P A D | P A D | P A D |
| Center | | | | | P A D | | P A D | P A D | P A D |
| Right Center | | | | | P A D | | P A D | P A D | P A D |
| Right Bank | | | | | P A D | | P A D | P A D | P A D |
| | Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred) | | | | | | | | |

**Microalgae Thickness Codes**
**0** = No microalgae present, Feels rough, not slimy;
**1** = Present but not visible, Feels slimy;
**2** = Present and visible but <1mm; Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail.
**3** = 1-5mm;
**4** = 5-20mm;
**5** = >20mm;
**UD** = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code).
**D** = Dry, not assessed

## RIPARIAN VEGETATION
(facing downstream, 5 m u/s, 5 m d/s, 10 m from wetted width)

0 = Absent (0%) 3 = Heavy (40-75%)
1 = Sparse (<10%) 4 = Very Heavy (>75%)
2 = Moderate (10-40%)

| Vegetation Class | Left Bank | Right Bank |
|---|---|---|
| **Upper Canopy (>5 m high)** | | |
| Trees and saplings >5 m high | 0 1 2 3 4 | 0 1 2 3 4 |
| **Lower Canopy (0.5 m-5 m high)** | | |
| All vegetation 0.5 m to 5 m | 0 1 2 3 4 | 0 1 2 3 4 |
| **Ground Cover (<0.5 m high)** | | |
| Woody shrubs & saplings <0.5 m | 0 1 2 3 4 | 0 1 2 3 4 |
| Herbs/ grasses | 0 1 2 3 4 | 0 1 2 3 4 |
| Barren, bare soil/ duff | 0 1 2 3 4 | 0 1 2 3 4 |

## INSTREAM HABITAT COMPLEXITY
(5 m u/s, 5 m d/s)

0 = Absent (0%)
1 = Sparse (<10%)
2 = Moderate (10-40%)
3 = Heavy (40-75%)
4 = Very Heavy (>75%)

| | |
|---|---|
| Filamentous Algae | 0 1 2 3 4 |
| Aquatic Macrophytes/ Emergent Vegetation | 0 1 2 3 4 |
| Boulders | 0 1 2 3 4 |
| Woody Debris >0.3 m | 0 1 2 3 4 |
| Woody Debris <0.3 m | 0 1 2 3 4 |
| Undercut Banks | 0 1 2 3 4 |
| Overhang. Vegetation | 0 1 2 3 4 |
| Live Tree Roots | 0 1 2 3 4 |
| Artificial Structures | 0 1 2 3 4 |

## DENSIOMETER READINGS (0-17)
*count covered dots*

| | |
|---|---|
| Center Left | |
| Center Upstream | |
| Center Right | |
| Center Downstream | |
| Optional | |
| Left Bank | |
| Right Bank | |

## HUMAN INFLUENCE
**(circle only the closest to wetted channel; assess 5 m u/s, 5 m d/s)**

**0** = Not Present;
**B** = On Bank;
**C** = Between Bank & 10m from Channel;
**P** = >10m+<50m from Channel;
**Channel** (record Yes or No; if Y for an analyte, do not assess banks)

| | Left Bank | Channel | Right Bank |
|---|---|---|---|
| Walls/ Rip-rap/ Dams | P C B 0 | Y N | 0 B C P |
| Buildings | P C B 0 | Y N | 0 B C P |
| Pavement/ Cleared Lot | P C B 0 | | 0 B C P |
| Road/ Railroad | P C B 0 | Y N | 0 B C P |
| Pipes (Inlet/ Outlet) | P C B 0 | Y N | 0 B C P |
| Landfill/ Trash | P C B 0 | Y N | 0 B C P |
| Park/ Lawn | P C B 0 | | 0 B C P |
| Row Crop | P C B 0 | | 0 B C P |
| Pasture/ Range | P C B 0 | | 0 B C P |
| Logging Operations | P C B 0 | | 0 B C P |
| Mining Activity | P C B 0 | Y N | 0 B C P |
| Vegetation Management | P C B 0 | | 0 B C P |
| Bridges/ Abutments | P C B 0 | Y N | 0 B C P |
| Orchards/ Vineyards | P C B 0 | | 0 B C P |

## BANK STABILITY
(score zone 5m upstream and 5m downstream of transect between bankfull - wetted width)

| | | | |
|---|---|---|---|
| **Left Bank** | eroded | vulnerable | stable |
| **Right Bank** | eroded | vulnerable | stable |

## *TAKE PHOTOGRAPHS*
***(check box if taken & record photo code)***

| | |
|---|---|
| Downstream (**required**) | ☐ |
| Upstream (**required**) | ☐ |

| **Inter-Transect: FG** | Wetted Width (m): |
|---|---|

**Inter-Transect Substrates**

| Position | Dist from LB (m) | Depth (cm) | mm/ size class | % Cobble Embed. | CPOM | Microalgae Thickness Code | Macroalgae Attached | Macroalgae Unattached | Macrophytes |
|---|---|---|---|---|---|---|---|---|---|
| Left Bank | | | | | P A D | | P A D | P A D | P A D |
| Left Center | | | | | P A D | | P A D | P A D | P A D |
| Center | | | | | P A D | | P A D | P A D | P A D |
| Right Center | | | | | P A D | | P A D | P A D | P A D |
| Right Bank | | | | | P A D | | P A D | P A D | P A D |
| | Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred) | | | | | | | | |

**Microalgae Thickness Codes**

**0** = No microalgae present, Feels rough, not slimy;
**1** = Present but not visible, Feels slimy;
**2** = Present and visible but <1mm; Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail.
**3** = 1-5mm;
**4** = 5-20mm;
**5** = >20mm;
**UD** = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code).
**D** = Dry, not assessed

**FLOW HABITATS**
(% between transects, total=100%)

| Channel Type | % |
|---|---|
| Cascade/ Falls | |
| Rapid | |
| Riffle | |
| Run | |
| Glide | |
| Pool | |
| Dry | |

| Site Code: | Site Name: | Date: __ __ / __ __ / 2015 |
|---|---|---|
| Wetted Width (m): | Bankfull Width (m): / Bankfull Height (m): | **Transect G** |

## Transect Substrates

| Position | Dist from LB (m) | Depth (cm) | mm/ size class | % Cobble Embed. | CPOM | Microalgae Thickness Code | Macroalgae Attached | Macroalgae Unattached | Macrophytes |
|---|---|---|---|---|---|---|---|---|---|
| Left Bank | | | | | P A D | | P A D | P A D | P A D |
| Left Center | | | | | P A D | | P A D | P A D | P A D |
| Center | | | | | P A D | | P A D | P A D | P A D |
| Right Center | | | | | P A D | | P A D | P A D | P A D |
| Right Bank | | | | | P A D | | P A D | P A D | P A D |
| | Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred) | | | | | | | | |

**Microalgae Thickness Codes**
**0** = No microalgae present, Feels rough, not slimy;
**1** = Present but not visible, Feels slimy;
**2** = Present and visible but <1mm; Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail.
**3** = 1-5mm;
**4** = 5-20mm;
**5** = >20mm;
**UD** = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code).
**D** = Dry, not assessed

## RIPARIAN VEGETATION
(facing downstream, 5 m u/s, 5 m d/s, 10 m from wetted width)

0 = Absent (0%) 3 = Heavy (40-75%)
1 = Sparse (<10%) 4 = Very Heavy (>75%)
2 = Moderate (10-40%)

| Vegetation Class | Left Bank | Right Bank |
|---|---|---|
| **Upper Canopy (>5 m high)** | | |
| Trees and saplings >5 m high | 0 1 2 3 4 | 0 1 2 3 4 |
| **Lower Canopy (0.5 m-5 m high)** | | |
| All vegetation 0.5 m to 5 m | 0 1 2 3 4 | 0 1 2 3 4 |
| **Ground Cover (<0.5 m high)** | | |
| Woody shrubs & saplings <0.5 m | 0 1 2 3 4 | 0 1 2 3 4 |
| Herbs/ grasses | 0 1 2 3 4 | 0 1 2 3 4 |
| Barren, bare soil/ duff | 0 1 2 3 4 | 0 1 2 3 4 |

## INSTREAM HABITAT COMPLEXITY
(5 m u/s, 5 m d/s)

0 = Absent (0%)
1 = Sparse (<10%)
2 = Moderate (10-40%)
3 = Heavy (40-75%)
4 = Very Heavy (>75%)

| | |
|---|---|
| Filamentous Algae | 0 1 2 3 4 |
| Aquatic Macrophytes/ Emergent Vegetation | 0 1 2 3 4 |
| Boulders | 0 1 2 3 4 |
| Woody Debris >0.3 m | 0 1 2 3 4 |
| Woody Debris <0.3 m | 0 1 2 3 4 |
| Undercut Banks | 0 1 2 3 4 |
| Overhang. Vegetation | 0 1 2 3 4 |
| Live Tree Roots | 0 1 2 3 4 |
| Artificial Structures | 0 1 2 3 4 |

## DENSIOMETER READINGS (0-17)
*count covered dots*

| | |
|---|---|
| Center Left | |
| Center Upstream | |
| Center Right | |
| Center Downstream | |
| Optional | |
| Left Bank | |
| Right Bank | |

## HUMAN INFLUENCE
**(circle only the closest to wetted channel; assess 5 m u/s, 5 m d/s)**

**0** = Not Present;
**B** = On Bank;
**C** = Between Bank & 10m from Channel;
**P** = >10m+<50m from Channel;
**Channel** (record Yes or No; if Y for an analyte, do not assess banks)

| | Left Bank | Channel | Right Bank |
|---|---|---|---|
| Walls/ Rip-rap/ Dams | P C B 0 | Y N | 0 B C P |
| Buildings | P C B 0 | Y N | 0 B C P |
| Pavement/ Cleared Lot | P C B 0 | | 0 B C P |
| Road/ Railroad | P C B 0 | Y N | 0 B C P |
| Pipes (Inlet/ Outlet) | P C B 0 | Y N | 0 B C P |
| Landfill/ Trash | P C B 0 | Y N | 0 B C P |
| Park/ Lawn | P C B 0 | | 0 B C P |
| Row Crop | P C B 0 | | 0 B C P |
| Pasture/ Range | P C B 0 | | 0 B C P |
| Logging Operations | P C B 0 | | 0 B C P |
| Mining Activity | P C B 0 | Y N | 0 B C P |
| Vegetation Management | P C B 0 | | 0 B C P |
| Bridges/ Abutments | P C B 0 | Y N | 0 B C P |
| Orchards/ Vineyards | P C B 0 | | 0 B C P |

## BANK STABILITY
(score zone 5m upstream and 5m downstream of transect between bankfull - wetted width)

| | | | |
|---|---|---|---|
| **Left Bank** | eroded | vulnerable | stable |
| **Right Bank** | eroded | vulnerable | stable |

| **Inter-Transect: GH** | Wetted Width (m): |
|---|---|

**Inter-Transect Substrates**

| Position | Dist from LB (m) | Depth (cm) | mm/ size class | % Cobble Embed. | CPOM | Microalgae Thickness Code | Macroalgae Attached | Macroalgae Unattached | Macrophytes |
|---|---|---|---|---|---|---|---|---|---|
| Left Bank | | | | | P A D | | P A D | P A D | P A D |
| Left Center | | | | | P A D | | P A D | P A D | P A D |
| Center | | | | | P A D | | P A D | P A D | P A D |
| Right Center | | | | | P A D | | P A D | P A D | P A D |
| Right Bank | | | | | P A D | | P A D | P A D | P A D |
| | Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred) | | | | | | | | |

**Microalgae Thickness Codes**

**0** = No microalgae present, Feels rough, not slimy;
**1** = Present but not visible, Feels slimy;
**2** = Present and visible but <1mm; Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail.
**3** = 1-5mm;
**4** = 5-20mm;
**5** = >20mm;
**UD** = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code).
**D** = Dry, not assessed

**FLOW HABITATS**
(% between transects, total=100%)

| Channel Type | % |
|---|---|
| Cascade/ Falls | |
| Rapid | |
| Riffle | |
| Run | |
| Glide | |
| Pool | |
| Dry | |

| Site Code: | Site Name: | Date: __ __ / __ __ / 2015 |
|---|---|---|
| Wetted Width (m): | Bankfull Width (m): / Bankfull Height (m): | **Transect H** |

## Transect Substrates

| Position | Dist from LB (m) | Depth (cm) | mm/ size class | % Cobble Embed. | CPOM | Microalgae Thickness Code | Macroalgae Attached | Macroalgae Unattached | Macrophytes |
|---|---|---|---|---|---|---|---|---|---|
| Left Bank | | | | | P A D | | P A D | P A D | P A D |
| Left Center | | | | | P A D | | P A D | P A D | P A D |
| Center | | | | | P A D | | P A D | P A D | P A D |
| Right Center | | | | | P A D | | P A D | P A D | P A D |
| Right Bank | | | | | P A D | | P A D | P A D | P A D |
| | Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred) | | | | | | | | |

**Microalgae Thickness Codes**
**0** = No microalgae present, Feels rough, not slimy;
**1** = Present but not visible, Feels slimy;
**2** = Present and visible but <1mm; Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail.
**3** = 1-5mm;
**4** = 5-20mm;
**5** = >20mm;
**UD** = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code).
**D** = Dry, not assessed

## RIPARIAN VEGETATION
(facing downstream, 5 m u/s, 5 m d/s, 10 m from wetted width)

0 = Absent (0%) 3 = Heavy (40-75%)
1 = Sparse (<10%) 4 = Very Heavy (>75%)
2 = Moderate (10-40%)

| Vegetation Class | Left Bank | Right Bank |
|---|---|---|
| **Upper Canopy (>5 m high)** | | |
| Trees and saplings >5 m high | 0 1 2 3 4 | 0 1 2 3 4 |
| **Lower Canopy (0.5 m-5 m high)** | | |
| All vegetation 0.5 m to 5 m | 0 1 2 3 4 | 0 1 2 3 4 |
| **Ground Cover (<0.5 m high)** | | |
| Woody shrubs & saplings <0.5 m | 0 1 2 3 4 | 0 1 2 3 4 |
| Herbs/ grasses | 0 1 2 3 4 | 0 1 2 3 4 |
| Barren, bare soil/ duff | 0 1 2 3 4 | 0 1 2 3 4 |

## INSTREAM HABITAT COMPLEXITY
(5 m u/s, 5 m d/s)

0 = Absent (0%)
1 = Sparse (<10%)
2 = Moderate (10-40%)
3 = Heavy (40-75%)
4 = Very Heavy (>75%)

| | |
|---|---|
| Filamentous Algae | 0 1 2 3 4 |
| Aquatic Macrophytes/ Emergent Vegetation | 0 1 2 3 4 |
| Boulders | 0 1 2 3 4 |
| Woody Debris >0.3 m | 0 1 2 3 4 |
| Woody Debris <0.3 m | 0 1 2 3 4 |
| Undercut Banks | 0 1 2 3 4 |
| Overhang. Vegetation | 0 1 2 3 4 |
| Live Tree Roots | 0 1 2 3 4 |
| Artificial Structures | 0 1 2 3 4 |

## DENSIOMETER READINGS (0-17)
*count covered dots*

| | |
|---|---|
| Center Left | |
| Center Upstream | |
| Center Right | |
| Center Downstream | |
| Optional | |
| Left Bank | |
| Right Bank | |

## HUMAN INFLUENCE
**(circle only the closest to wetted channel; assess 5 m u/s, 5 m d/s)**

**0** = Not Present;
**B** = On Bank;
**C** = Between Bank & 10m from Channel;
**P** = >10m+<50m from Channel;
**Channel** (record Yes or No; if Y for an analyte, do not assess banks)

| | Left Bank | Channel | Right Bank |
|---|---|---|---|
| Walls/ Rip-rap/ Dams | P C B 0 | Y N | 0 B C P |
| Buildings | P C B 0 | Y N | 0 B C P |
| Pavement/ Cleared Lot | P C B 0 | | 0 B C P |
| Road/ Railroad | P C B 0 | Y N | 0 B C P |
| Pipes (Inlet/ Outlet) | P C B 0 | Y N | 0 B C P |
| Landfill/ Trash | P C B 0 | Y N | 0 B C P |
| Park/ Lawn | P C B 0 | | 0 B C P |
| Row Crop | P C B 0 | | 0 B C P |
| Pasture/ Range | P C B 0 | | 0 B C P |
| Logging Operations | P C B 0 | | 0 B C P |
| Mining Activity | P C B 0 | Y N | 0 B C P |
| Vegetation Management | P C B 0 | | 0 B C P |
| Bridges/ Abutments | P C B 0 | Y N | 0 B C P |
| Orchards/ Vineyards | P C B 0 | | 0 B C P |

## BANK STABILITY
(score zone 5m upstream and 5m downstream of transect between bankfull - wetted width)

| | | | |
|---|---|---|---|
| **Left Bank** | eroded | vulnerable | stable |
| **Right Bank** | eroded | vulnerable | stable |

| **Inter-Transect: HI** | Wetted Width (m): |
|---|---|

**Inter-Transect Substrates**

| Position | Dist from LB (m) | Depth (cm) | mm/ size class | % Cobble Embed. | CPOM | Microalgae Thickness Code | Macroalgae Attached | Macroalgae Unattached | Macrophytes |
|---|---|---|---|---|---|---|---|---|---|
| Left Bank | | | | | P A D | | P A D | P A D | P A D |
| Left Center | | | | | P A D | | P A D | P A D | P A D |
| Center | | | | | P A D | | P A D | P A D | P A D |
| Right Center | | | | | P A D | | P A D | P A D | P A D |
| Right Bank | | | | | P A D | | P A D | P A D | P A D |
| | Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred) | | | | | | | | |

**Microalgae Thickness Codes**

**0** = No microalgae present, Feels rough, not slimy;
**1** = Present but not visible, Feels slimy;
**2** = Present and visible but <1mm; Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail.
**3** = 1-5mm;
**4** = 5-20mm;
**5** = >20mm;
**UD** = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code).
**D** = Dry, not assessed

**FLOW HABITATS**
(% between transects, total=100%)

| Channel Type | % |
|---|---|
| Cascade/ Falls | |
| Rapid | |
| Riffle | |
| Run | |
| Glide | |
| Pool | |
| Dry | |

| Site Code: | Site Name: | | Date: __ __ / __ __ / 2015 |
|---|---|---|---|
| Wetted Width (m): | Bankfull Width (m): | Bankfull Height (m): | **Transect I** |

## Transect Substrates

| Position | Dist from LB (m) | Depth (cm) | mm/ size class | % Cobble Embed. | CPOM | Microalgae Thickness Code | Macroalgae Attached | Macroalgae Unattached | Macrophytes |
|---|---|---|---|---|---|---|---|---|---|
| Left Bank | | | | | P A D | | P A D | P A D | P A D |
| Left Center | | | | | P A D | | P A D | P A D | P A D |
| Center | | | | | P A D | | P A D | P A D | P A D |
| Right Center | | | | | P A D | | P A D | P A D | P A D |
| Right Bank | | | | | P A D | | P A D | P A D | P A D |
| | Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred) | | | | | | | | |

**Microalgae Thickness Codes**
**0** = No microalgae present, Feels rough, not slimy;
**1** = Present but not visible, Feels slimy;
**2** = Present and visible but <1mm; Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail.
**3** = 1-5mm;
**4** = 5-20mm;
**5** = >20mm;
**UD** = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code).
**D** = Dry, not assessed

## RIPARIAN VEGETATION
(facing downstream, 5 m u/s, 5 m d/s, 10 m from wetted width)

0 = Absent (0%) 3 = Heavy (40-75%)
1 = Sparse (<10%) 4 = Very Heavy (>75%)
2 = Moderate (10-40%)

| Vegetation Class | Left Bank | Right Bank |
|---|---|---|
| **Upper Canopy (>5 m high)** | | |
| Trees and saplings >5 m high | 0 1 2 3 4 | 0 1 2 3 4 |
| **Lower Canopy (0.5 m-5 m high)** | | |
| All vegetation 0.5 m to 5 m | 0 1 2 3 4 | 0 1 2 3 4 |
| **Ground Cover (<0.5 m high)** | | |
| Woody shrubs & saplings <0.5 m | 0 1 2 3 4 | 0 1 2 3 4 |
| Herbs/ grasses | 0 1 2 3 4 | 0 1 2 3 4 |
| Barren, bare soil/ duff | 0 1 2 3 4 | 0 1 2 3 4 |

## INSTREAM HABITAT COMPLEXITY
(5 m u/s, 5 m d/s)

0 = Absent (0%)
1 = Sparse (<10%)
2 = Moderate (10-40%)
3 = Heavy (40-75%)
4 = Very Heavy (>75%)

| | |
|---|---|
| Filamentous Algae | 0 1 2 3 4 |
| Aquatic Macrophytes/ Emergent Vegetation | 0 1 2 3 4 |
| Boulders | 0 1 2 3 4 |
| Woody Debris >0.3 m | 0 1 2 3 4 |
| Woody Debris <0.3 m | 0 1 2 3 4 |
| Undercut Banks | 0 1 2 3 4 |
| Overhang. Vegetation | 0 1 2 3 4 |
| Live Tree Roots | 0 1 2 3 4 |
| Artificial Structures | 0 1 2 3 4 |

## DENSIOMETER READINGS (0-17)
*count covered dots*

| | |
|---|---|
| Center Left | |
| Center Upstream | |
| Center Right | |
| Center Downstream | |
| Optional | |
| Left Bank | |
| Right Bank | |

## HUMAN INFLUENCE
**(circle only the closest to wetted channel; assess 5 m u/s, 5 m d/s)**

**0** = Not Present;
**B** = On Bank;
**C** = Between Bank & 10m from Channel;
**P** = >10m+<50m from Channel;
**Channel** (record Yes or No; if Y for an analyte, do not assess banks)

| | Left Bank | Channel | Right Bank |
|---|---|---|---|
| Walls/ Rip-rap/ Dams | P C B 0 | Y N | 0 B C P |
| Buildings | P C B 0 | Y N | 0 B C P |
| Pavement/ Cleared Lot | P C B 0 | | 0 B C P |
| Road/ Railroad | P C B 0 | Y N | 0 B C P |
| Pipes (Inlet/ Outlet) | P C B 0 | Y N | 0 B C P |
| Landfill/ Trash | P C B 0 | Y N | 0 B C P |
| Park/ Lawn | P C B 0 | | 0 B C P |
| Row Crop | P C B 0 | | 0 B C P |
| Pasture/ Range | P C B 0 | | 0 B C P |
| Logging Operations | P C B 0 | | 0 B C P |
| Mining Activity | P C B 0 | Y N | 0 B C P |
| Vegetation Management | P C B 0 | | 0 B C P |
| Bridges/ Abutments | P C B 0 | Y N | 0 B C P |
| Orchards/ Vineyards | P C B 0 | | 0 B C P |

## BANK STABILITY
(score zone 5m upstream and 5m downstream of transect between bankfull - wetted width)

| | | | |
|---|---|---|---|
| **Left Bank** | eroded | vulnerable | stable |
| **Right Bank** | eroded | vulnerable | stable |

| **Inter-Transect: IJ** | Wetted Width (m): |
|---|---|

**Inter-Transect Substrates**

| Position | Dist from LB (m) | Depth (cm) | mm/ size class | % Cobble Embed. | CPOM | Microalgae Thickness Code | Macroalgae Attached | Macroalgae Unattached | Macrophytes |
|---|---|---|---|---|---|---|---|---|---|
| Left Bank | | | | | P A D | | P A D | P A D | P A D |
| Left Center | | | | | P A D | | P A D | P A D | P A D |
| Center | | | | | P A D | | P A D | P A D | P A D |
| Right Center | | | | | P A D | | P A D | P A D | P A D |
| Right Bank | | | | | P A D | | P A D | P A D | P A D |
| | Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred) | | | | | | | | |

**Microalgae Thickness Codes**

**0** = No microalgae present, Feels rough, not slimy;
**1** = Present but not visible, Feels slimy;
**2** = Present and visible but <1mm; Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail.
**3** = 1-5mm;
**4** = 5-20mm;
**5** = >20mm;
**UD** = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code).
**D** = Dry, not assessed

**FLOW HABITATS**
(% between transects, total=100%)

| Channel Type | % |
|---|---|
| Cascade/ Falls | |
| Rapid | |
| Riffle | |
| Run | |
| Glide | |
| Pool | |
| Dry | |

| Site Code: | Site Name: | | Date: __ __ / __ __ / 2015 |
|---|---|---|---|
| Wetted Width (m): | Bankfull Width (m): | Bankfull Height (m): | **Transect J** |

## Transect Substrates

| Position | Dist from LB (m) | Depth (cm) | mm/ size class | % Cobble Embed. | CPOM | Microalgae Thickness Code | Macroalgae Attached | Macroalgae Unattached | Macrophytes |
|---|---|---|---|---|---|---|---|---|---|
| Left Bank | | | | | P A D | | P A D | P A D | P A D |
| Left Center | | | | | P A D | | P A D | P A D | P A D |
| Center | | | | | P A D | | P A D | P A D | P A D |
| Right Center | | | | | P A D | | P A D | P A D | P A D |
| Right Bank | | | | | P A D | | P A D | P A D | P A D |
| | Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred) | | | | | | | | |

**Microalgae Thickness Codes**
**0** = No microalgae present, Feels rough, not slimy;
**1** = Present but not visible, Feels slimy;
**2** = Present and visible but <1mm; Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail.
**3** = 1-5mm;
**4** = 5-20mm;
**5** = >20mm;
**UD** = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code).
**D** = Dry, not assessed

## RIPARIAN VEGETATION
(facing downstream, 5 m u/s, 5 m d/s, 10 m from wetted width)

0 = Absent (0%) 3 = Heavy (40-75%)
1 = Sparse (<10%) 4 = Very Heavy (>75%)
2 = Moderate (10-40%)

| Vegetation Class | Left Bank | Right Bank |
|---|---|---|
| **Upper Canopy (>5 m high)** | | |
| Trees and saplings >5 m high | 0 1 2 3 4 | 0 1 2 3 4 |
| **Lower Canopy (0.5 m-5 m high)** | | |
| All vegetation 0.5 m to 5 m | 0 1 2 3 4 | 0 1 2 3 4 |
| **Ground Cover (<0.5 m high)** | | |
| Woody shrubs & saplings <0.5 m | 0 1 2 3 4 | 0 1 2 3 4 |
| Herbs/ grasses | 0 1 2 3 4 | 0 1 2 3 4 |
| Barren, bare soil/ duff | 0 1 2 3 4 | 0 1 2 3 4 |

## INSTREAM HABITAT COMPLEXITY
(5 m u/s, 5 m d/s)

0 = Absent (0%)
1 = Sparse (<10%)
2 = Moderate (10-40%)
3 = Heavy (40-75%)
4 = Very Heavy (>75%)

| | |
|---|---|
| Filamentous Algae | 0 1 2 3 4 |
| Aquatic Macrophytes/ Emergent Vegetation | 0 1 2 3 4 |
| Boulders | 0 1 2 3 4 |
| Woody Debris >0.3 m | 0 1 2 3 4 |
| Woody Debris <0.3 m | 0 1 2 3 4 |
| Undercut Banks | 0 1 2 3 4 |
| Overhang. Vegetation | 0 1 2 3 4 |
| Live Tree Roots | 0 1 2 3 4 |
| Artificial Structures | 0 1 2 3 4 |

## DENSIOMETER READINGS (0-17)
*count covered dots*

| | |
|---|---|
| Center Left | |
| Center Upstream | |
| Center Right | |
| Center Downstream | |
| Optional | |
| Left Bank | |
| Right Bank | |

## HUMAN INFLUENCE
**(circle only the closest to wetted channel; assess 5 m u/s, 5 m d/s)**

**0** = Not Present;
**B** = On Bank;
**C** = Between Bank & 10m from Channel;
**P** = >10m+<50m from Channel;
**Channel** (record Yes or No; if Y for an analyte, do not assess banks)

| | Left Bank | Channel | Right Bank |
|---|---|---|---|
| Walls/ Rip-rap/ Dams | P C B 0 | Y N | 0 B C P |
| Buildings | P C B 0 | Y N | 0 B C P |
| Pavement/ Cleared Lot | P C B 0 | | 0 B C P |
| Road/ Railroad | P C B 0 | Y N | 0 B C P |
| Pipes (Inlet/ Outlet) | P C B 0 | Y N | 0 B C P |
| Landfill/ Trash | P C B 0 | Y N | 0 B C P |
| Park/ Lawn | P C B 0 | | 0 B C P |
| Row Crop | P C B 0 | | 0 B C P |
| Pasture/ Range | P C B 0 | | 0 B C P |
| Logging Operations | P C B 0 | | 0 B C P |
| Mining Activity | P C B 0 | Y N | 0 B C P |
| Vegetation Management | P C B 0 | | 0 B C P |
| Bridges/ Abutments | P C B 0 | Y N | 0 B C P |
| Orchards/ Vineyards | P C B 0 | | 0 B C P |

## BANK STABILITY
(score zone 5m upstream and 5m downstream of transect between bankfull - wetted width)

| | | | |
|---|---|---|---|
| **Left Bank** | eroded | vulnerable | stable |
| **Right Bank** | eroded | vulnerable | stable |

| **Inter-Transect: JK** | Wetted Width (m): |
|---|---|

**Inter-Transect Substrates**

| Position | Dist from LB (m) | Depth (cm) | mm/ size class | % Cobble Embed. | CPOM | Microalgae Thickness Code | Macroalgae Attached | Macroalgae Unattached | Macrophytes |
|---|---|---|---|---|---|---|---|---|---|
| Left Bank | | | | | P A D | | P A D | P A D | P A D |
| Left Center | | | | | P A D | | P A D | P A D | P A D |
| Center | | | | | P A D | | P A D | P A D | P A D |
| Right Center | | | | | P A D | | P A D | P A D | P A D |
| Right Bank | | | | | P A D | | P A D | P A D | P A D |
| | Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred) | | | | | | | | |

**Microalgae Thickness Codes**

**0** = No microalgae present, Feels rough, not slimy;
**1** = Present but not visible, Feels slimy;
**2** = Present and visible but <1mm; Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail.
**3** = 1-5mm;
**4** = 5-20mm;
**5** = >20mm;
**UD** = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code).
**D** = Dry, not assessed

**FLOW HABITATS**
(% between transects, total=100%)

| Channel Type | % |
|---|---|
| Cascade/ Falls | |
| Rapid | |
| Riffle | |
| Run | |
| Glide | |
| Pool | |
| Dry | |

| Site Code: | Site Name: | | Date: __ __ / __ __ / 2015 |
|---|---|---|---|
| Wetted Width (m): | Bankfull Width (m): | Bankfull Height (m): | **Transect K** |

## Transect Substrates

| Position | Dist from LB (m) | Depth (cm) | mm/ size class | % Cobble Embed. | CPOM | Microalgae Thickness Code | Macroalgae Attached | Macroalgae Unattached | Macrophytes |
|---|---|---|---|---|---|---|---|---|---|
| Left Bank | | | | | P A D | | P A D | P A D | P A D |
| Left Center | | | | | P A D | | P A D | P A D | P A D |
| Center | | | | | P A D | | P A D | P A D | P A D |
| Right Center | | | | | P A D | | P A D | P A D | P A D |
| Right Bank | | | | | P A D | | P A D | P A D | P A D |
| | Note: Substrate sizes can be recorded either as direct measures of the median axis of each particle or one of the size class categories listed on the supplemental page (direct measurements preferred) | | | | | | | | |

**Microalgae Thickness Codes**
**0** = No microalgae present, Feels rough, not slimy;
**1** = Present but not visible, Feels slimy;
**2** = Present and visible but <1mm; Rubbing fingers on surface produces a brownish tint on them, scraping leaves visible trail.
**3** = 1-5mm;
**4** = 5-20mm;
**5** = >20mm;
**U** = Cannot determine if microalgae present, substrate too small or covered with silt (formerly Z code).
**D** = Dry, not assessed

## RIPARIAN VEGETATION
(facing downstream, 5 m u/s, 5 m d/s, 10 m from wetted width)

0 = Absent (0%) 3 = Heavy (40-75%)
1 = Sparse (<10%) 4 = Very Heavy (>75%)
2 = Moderate (10-40%)

| Vegetation Class | Left Bank | Right Bank |
|---|---|---|
| **Upper Canopy (>5 m high)** | | |
| Trees and saplings >5 m high | 0 1 2 3 4 | 0 1 2 3 4 |
| **Lower Canopy (0.5 m-5 m high)** | | |
| All vegetation 0.5 m to 5 m | 0 1 2 3 4 | 0 1 2 3 4 |
| **Ground Cover (<0.5 m high)** | | |
| Woody shrubs & saplings <0.5 m | 0 1 2 3 4 | 0 1 2 3 4 |
| Herbs/ grasses | 0 1 2 3 4 | 0 1 2 3 4 |
| Barren, bare soil/ duff | 0 1 2 3 4 | 0 1 2 3 4 |

## INSTREAM HABITAT COMPLEXITY
(5 m u/s, 5 m d/s)

0 = Absent (0%)
1 = Sparse (<10%)
2 = Moderate (10-40%)
3 = Heavy (40-75%)
4 = Very Heavy (>75%)

| | |
|---|---|
| Filamentous Algae | 0 1 2 3 4 |
| Aquatic Macrophytes/ Emergent Vegetation | 0 1 2 3 4 |
| Boulders | 0 1 2 3 4 |
| Woody Debris >0.3 m | 0 1 2 3 4 |
| Woody Debris <0.3 m | 0 1 2 3 4 |
| Undercut Banks | 0 1 2 3 4 |
| Overhang. Vegetation | 0 1 2 3 4 |
| Live Tree Roots | 0 1 2 3 4 |
| Artificial Structures | 0 1 2 3 4 |

## DENSIOMETER READINGS (0-17)
*count covered dots*

| | |
|---|---|
| Center Left | |
| Center Upstream | |
| Center Right | |
| Center Downstream | |
| Optional | |
| Left Bank | |
| Right Bank | |

## HUMAN INFLUENCE
**(circle only the closest to wetted channel; assess 5 m u/s, 5 m d/s)**

**0** = Not Present;
**B** = On Bank;
**C** = Between Bank & 10m from Channel;
**P** = >10m+<50m from Channel;
**Channel** (record Yes or No; if Y for an analyte, do not assess banks)

| | Left Bank | Channel | Right Bank |
|---|---|---|---|
| Walls/ Rip-rap/ Dams | P C B 0 | Y N | 0 B C P |
| Buildings | P C B 0 | Y N | 0 B C P |
| Pavement/ Cleared Lot | P C B 0 | | 0 B C P |
| Road/ Railroad | P C B 0 | Y N | 0 B C P |
| Pipes (Inlet/ Outlet) | P C B 0 | Y N | 0 B C P |
| Landfill/ Trash | P C B 0 | Y N | 0 B C P |
| Park/ Lawn | P C B 0 | | 0 B C P |
| Row Crop | P C B 0 | | 0 B C P |
| Pasture/ Range | P C B 0 | | 0 B C P |
| Logging Operations | P C B 0 | | 0 B C P |
| Mining Activity | P C B 0 | Y N | 0 B C P |
| Vegetation Management | P C B 0 | | 0 B C P |
| Bridges/ Abutments | P C B 0 | Y N | 0 B C P |
| Orchards/ Vineyards | P C B 0 | | 0 B C P |

## BANK STABILITY
(score zone 5m upstream and 5m downstream of transect between bankfull - wetted width)

| | | | |
|---|---|---|---|
| **Left Bank** | eroded | vulnerable | stable |
| **Right Bank** | eroded | vulnerable | stable |

## *TAKE PHOTOGRAPHS*
***(check box if taken & record photo code)***

Downstream ( **required**) ☐

Upstream (**optional**) ☐

| Site Code: | Date: __ __ / __ __ / 2015 |
|---|---|

## BENTHIC INVERTEBRATE SAMPLES

| Collection Method (indicate standard or margin-center-margin) | | | Replicate | # Jars |
|---|---|---|---|---|
| **RWB** (standard) | **RWB** (MCM) | **TRC** | **1** | |
| **RWB** (standard) | **RWB** (MCM) | **TRC** | **2** | |
| **RWB** (standard) | **RWB** (MCM) | **TRC** | | |
| **RWB** (standard) | **RWB** (MCM) | **TRC** | | |

**Field Notes/ Comments:**

Was macroalgae (e.g., filamentous algae) collected in the composite algae sample? Yes / No
If YES, how many of the 11 transect samples contained macroalgae? _____
If YES, what was the original size of the macroalgae cylinder roll before sectioning into ¼ and ¾ pieces? _____ mm length x _____ mm diameter

| Analyte | Equipment & Calibration Date |
|---|---|
| pH | Cal date: / / |
| Wat temp | Cal date: / / |
| dissolved oxygen | Cal date: / / |
| oxygen sat | Cal date: / / |
| specific cond | Cal date: / / |
| Salinity | Cal date: / / |
| Alkalinity | Cal date: / / |
| Turbidity | Cal date: / / |
| Silica | Cal date: / / |
| Air temp | Cal date: / / |
| Velocity | Cal date: / / |

## ALGAE SAMPLES

| Collection Method (circle one or write new method if applicable) | SWAMP EMAP | SWAMP EMAP | SWAMP EMAP | SWAMP EMAP |
|---|---|---|---|---|
| **Collection Device** (sum # of transects per device) | **Rep. 1** | **Rep. 2** | **Rep.** | **Rep.** |
| Rubber Delimiter (area=12.6cm$^2$) | | | | |
| PVC Delimiter (area=12.6cm$^2$) | | | | |
| Syringe Scrubber (area=5.3cm$^2$) | | | | |
| Other area= | | | | |
| Number of transects sampled (0-11) | | | | |
| Composite Volume (mL) | | | | |
| Assemblage ID volume **(diatoms)** (50 mL tube) | | | | |
| Assemblage ID volume **(soft algae)** (50 mL tube) | | | | |
| Check if Qualitative Algae sample was collected with soft algae/diatom sample (required even if macroalgae not visible) | ☐ | ☐ | ☐ | ☐ |
| Check if a water chem. **integrated** sample was collected (chl, AFDM) | ☐ | ☐ | ☐ | ☐ |
| Chlorophyll a volume use GF/F filter (25 mL **(preferred volume)** | | | | |
| Ash Free Dry Mass (AFDM) volume use GF/F filter (25 mL **(preferred vol)** | | | | |

## Water and Sediment Chemistry Samples

| | |
|---|---|
| Check if a WATER chemistry **grab** sample was collected (nutrients, SSC, etc.) | ☐ |
| Check if a DUPLICATE WATER chemistry **grab** sample was collected | ☐ |
| Check if a SEDIMENT chemistry sample was collected | ☐ |
| Check if a DUPLICATE SED chemistry sample was collected | ☐ |

Sed Coll Device: SCOOP CORE GRAB

Material: Stainless Steel Polyethylene Polycarbonate Other

Sediment Collection Depth (cm): 2 or 5

Create Lab Collection records for each checked box for integrated and grab water chemistry samples

## ADDITIONAL PHOTOGRAPHS

| Description | Photo Code | Description | Photo Code |
|---|---|---|---|
| | | | |
| | | | |

| Flow Habitat Type | DESCRIPTION |
|---|---|
| **Cascades** | Short, high gradient drop in stream bed elevation often accompanied by boulders and considerable turbulence |
| **Falls** | High gradient drop in elevation of the stream bed associated with an abrupt change in the bedrock |
| **Rapids** | Sections of stream with swiftly flowing water and considerable surface turbulence. Rapids tend to have larger substrate sizes than riffles |
| **Riffles** | Shallow sections where the water flows over coarse stream bed particles that create mild to moderate surface turbulence; (< 0.5 m deep, > 0.3 m/s). |
| **Runs** | Long, relatively straight, low-gradient sections without flow obstructions. The stream bed is typically even and the water flows faster than it does in a pool; (> 0.5 m deep, > 0.3 m/s). A **step-run** is a series of runs separated by short riffles or flow obstructions that cause discontinuous breaks in slope |
| **Glides** | A section of stream with little or no turbulence, but faster velocity than pools; (< 0.5 m deep, < 0.3 m/s) |
| **Pools** | A reach of stream that is characterized by deep, low-velocity water and a smooth surface; (> 0.5 m deep, < 0.3 m/s) |

| Size Class Code | Size Class Range | Size Class Description | Common Size Reference |
|---|---|---|---|
| **RS** | > 4 m | bedrock, smooth | larger than a car |
| **RR** | > 4 m | bedrock, rough | larger than a car |
| **XB** | 1 - 4 m | boulder, large | meter stick to car |
| **SB** | 25 cm - 1.0 m | boulder, small | basketball to meter stick |
| **CB** | 64 - 250 mm | cobble | tennis ball to basketball |
| **GC** | 16 - 64 mm | gravel, coarse | marble to tennis ball |
| **GF** | 2 – 16 mm | gravel, fine | ladybug to marble |
| **SA** | 0.06 – 2 mm | sand | gritty to ladybug |
| **FN** | < 0.06 mm | fines | not gritty |
| **HP** | < 0.06 mm | hardpan (consolidated fines) | |
| **WD** | NA | wood | |
| **RC** | NA | concrete/ asphalt | |
| **OT** | NA | other | |

**BANK STABILITY**

Although this measure of the degree of erosive potential is subjective, it can provide clues to the erosive potential of the banks within the reach. Assign the category whose description best fits the conditions in the area between the wetted channel and bankfull channel (see figure below)

| | |
|---|---|
| **Eroded** | Banks show obvious signs of erosion from the current or previous water year; banks are usually bare or nearly bare |
| **Vulnerable** | Banks have some vegetative protection (usually annual growth), but not enough to prevent erosion during flooding |
| **Stable** | Bank vegetation has well-developed roots that protect banks from erosion; alternately, bedrock or artificial structures (e.g., concrete/ rip-rap) prevent bank erosion |

**CPOM/ COBBLE EMBEDDEDNESS**

**CPOM:** Record presence (P) or absence (A) of coarse particulate organic matter (>1.0 mm particles) within 1 cm of each substrate particle; if point is dry, record Dry (D)

**Cobble Embeddedness:** Visually estimate % embedded by fine particles (record to nearest 5%)

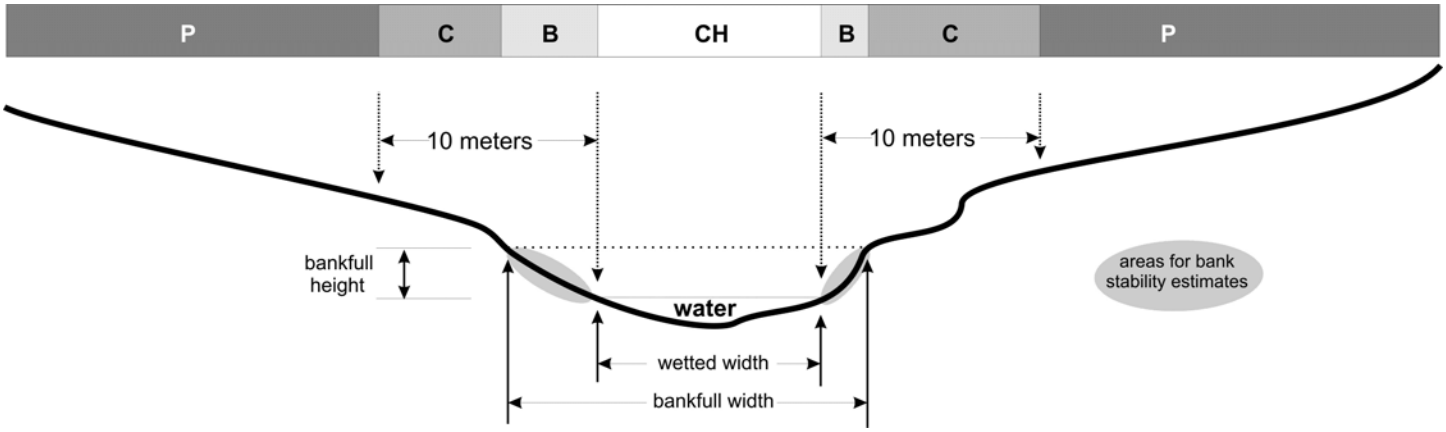


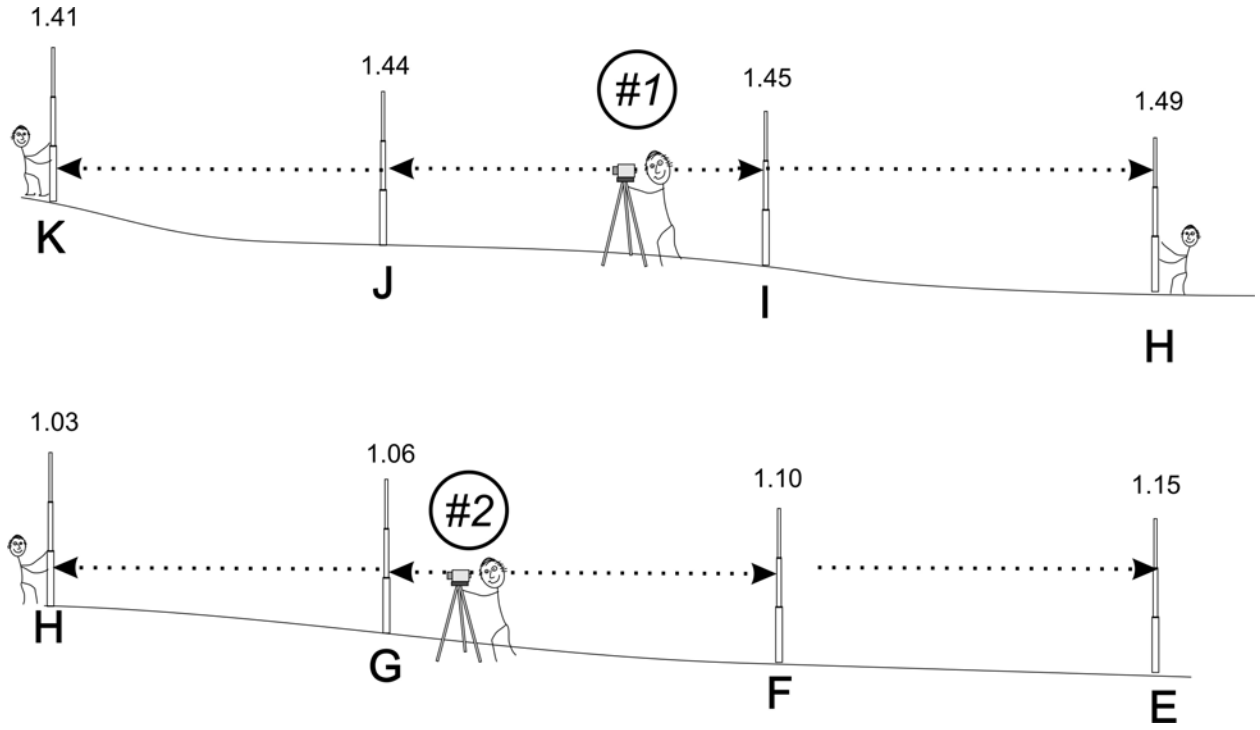

Figure 1. Cross-sectional diagram of stream transect indicating regions for assessing human influence measures:

- The measurement zone extends 5 meters upstream and 5 meters downstream of each transect
- Record one category for each bank and for the wetted channel (3 values possible)
- In reaches with wide banks, region "C" may be entirely overlapped by region "B"; in these cases, circle "B"
- Region "P" extends from 10 meters to the distance that can be seen from the channel, but not greater than 50 m

## SLOPE and BEARING FORM — *EXAMPLE*

| | |
|---|---|
| AUTOLEVEL | X |
| CLINOMETER | |
| HANDLEVEL | |

| Starting Transect | MAIN SEGMENT (record percent of inter-transect distance in each segment if supplemental segments are used) | | | | | | SUPPLEMENTAL SEGMENT (record percent of inter-transect distance in each segment if supplemental segments are used) | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | Stadia rod measurements | | Slope (%) or Elevation Difference cm ■ % □ | Segment Length (m) | Bearing (0°-359°) | Percent of Total Length (%) | Stadia rod measurements | | Slope or Elevation Difference cm □ % □ | Segment Length (m) | Bearing (0°-359°) | Percent of Total Length (%) |
| K | 1.41 | | | | | | | | | | | |
| J | 1.44 | | 3 | 15 | 140 | 100 | | | | | | |
| I | 1.45 | | 1 | 15 | 145 | 100 | | | | | | |
| H | 1.49 | 1.03 | 4 | 15 | 150 | 100 | | | | | | |
| G | | 1.06 | 3 | 15 | 143 | 100 | | | | | | |
| F | | 1.10 | 4 | 15 | 187 | 100 | | | | | | |
| E | | 1.15 | 5 | 15 | 195 | 100 | | | | | | |




1. Level the autolevel at Position #1
2. Place base of stadia rod at water level every time
3. Sight to stadia rod at Transect K, then Transect J
4. Rotate scope and sight to Transects I and H.
5. Move level to Position #2 and re-level
6. Re-sight to stadia rod at Transect H, then Transect G
7. Rotate scope and sight to Transects F and E

***Note: Sites will vary in the number of separate level positions needed to survey the reach***.