HBRW Tiers 2 & 3

Physical Survey / Habitat Assessment

Assess a 200 foot segment up & down stream from your sample site

Name(s)_____ Date_____ Time_____

School/Group_____ Stream_____ Site_____

Weather: Today: _____Past 2 days_____ **Temperature:** Air_____°_____

UTM Coordinates:_____ Water _____°_____

Sampling Site Type (Check one from each row)									
Stream Size	Headwater Tributaries (<20 cfs)		**Creeks and Streams (20-150 cfs)**		**Larger Rivers (>150 cfs)**				
Gradient	FAST (primarily riffle)		VARIED (pools and riffles)		SLOW (low gradient)				
Surrounding Land Use	Forested		Agricultural		Residential			Urban	
	dense	sparse	pasture-land	crop-land	rural	village	suburban	resident-ial	commercial/ industrial

Upstream Dam: ☐ Yes ☐ No The stream is on average _____meters wide and _____ meters deep
How far up stream: _____

Compared to the height of the stream channel, the water level seems relatively: ☐ High ☐ Low ☐ Average

Turbidity is substantially greater than natural conditions: ☐ Yes ☐ No Describe_____

Algal or weed growth: _____% of bottom covered

Oily film, grease globules, or unusual odor or color present ☐ Yes ☐ No
Describe:_____

Average velocity: average time it takes to flow 3 meters: a) 3 m / _____ = v1 _____

b) 3 m / _____ = v2 _____

AVERAGE: _____ m/sec

NOTE: 0.45 – 0.75 m/sec is optimal for macroinvertebrate collection sites.

Additional Notes:

Assessment Factors: *Check the box that best applies for each assessment factor. Site _____ Date_____*

Assessment Factor	Excellent	Good	Fair	Poor
Riffle Size	Well-developed riffle, as wide as stream & as long as 2x stream width;	Riffle as wide as stream but riffle length < 2x stream width	Riffle not as wide as stream and length < 2x stream width	Riffles or run virtually nonexistent
Substrate Size	Cobble predominates; boulders, gravel common	Cobble less abundant; boulders and gravel common	Gravel, boulders or bedrock prevalent; some cobble	Large boulders and bedrock or sand & silt prevalent; cobble lacking
Shelter for Fish	Snags, submerged logs, undercut banks, or other stable habitat are found in over 50% of the site	Snags, submerged logs, undercut banks, or other stable habitat are found in 30-50% of the site	Snags, submerged logs, undercut banks, or other stable habitat are found in 10-30% of the site	Snags, submerged logs, undercut banks, or other stable habitat are found in < 10% of the site
Embeddedness (for tier 3, use *Stream Bottom Survey*)	Rocks in stream <25% embedded; very little sand, silt, or mud	Rocks 25-50% embedded; can easily turn over rocks	Rocks 50-75% embedded and firmly stuck in sediments	Rocks >75% embedded; bottom mostly sand, silt, or mud
Flow Pattern (deep is > 2 ft)	All 4 patterns present: slow/deep, fast/shallow fast/deep, slow/shallow	Only 3 of 4 flow patterns present	Only 2 of 4 flow patterns present	Dominated by 1 flow pattern
Channel Alteration	Stream straightening, dredging, artificial embankments, dams or bridge abutments absent or minimal; stream with meandering pattern	Some stream straightening, dredging, artificial embankments, or dams present, usually near bridge abutments; no recent channel alteration	Artificial embankments present to some extent on both banks; and 40-80% of stream site straightened, dredged, or otherwise altered	Banks shored with gabion or cement; over 80% of the stream site straightened and disrupted
Stream bank cover and stability *	Banks stable; no evidence of erosion; bank covered by vegetation or rock	Moderately stable; small areas of erosion; most of bank covered by vegetation or rock	Largely unstable; almost half of bank has areas of erosion or is not covered by vegetation or rock	Unstable, eroded; < half of bank covered by vegetation or rock, or rock slumping into creek
Disruption of riparian bank coverage* (land bordering stream bank)	Mature trees and vegetation; most growing naturally; no disturbance by forestry, grazing, or mowing	Trees, woody plants, soft green plants dominate; some disruption but not affecting full plant growth potential	Obvious disruption; patches of bare soil, cultivated fields or closely cropped vegetation are the norm	Not much natural vegetation left or it has been removed to 3″ or less in height
Width of riparian vegetation zone*	More than 35 yards wide; human activities have not impacted zone	Zone 12-35 yards wide; marginal impact from human activities	Zone 6-12 yards wide; impact from human activities evident	Zone <6 yards; lots of nearby human activities
Litter	No litter (metal or plastic) in area	Very little litter; accidentally dropped	Litter fairly common; purposely dropped	Lots of litter present; obviously dumped

*if the two banks are very different, assess the worse side

Given the assessment above, how would you rate your habitat? _____

Describe how land uses / human activities may be impacting the stream:

Site Photos: *Site _____ Date_____*

Include photos of the 200' long segment of your river up and downstream from your stream site, recording specific physical and habitat features, including:

1. Your sampling sites—include where you collected water quality and macroinvertebrate samples and measured velocity and cross section area.
2. In-Stream Habitat – riffles, pools, runs, large woody debris, boulders, organic material, aquatic plants, overhanging vegetation, etc.
3. Streambanks – steep & gently sloping areas, naturally vegetated areas, bare, eroding, clear-cut, or mowed areas, artificially protected areas, etc.
4. Channel – wide & narrow areas, meanders, shaded & exposed areas, unnatural alterations, dams, culverts, etc.
5. Human Land Uses – roads, houses, driveways, parking lots, storm drain pipes, sewage pipes, factories, farms, livestock crossings, recreational use, logging, etc.

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