

CHANNEL CONDITION

***indicates term is defined in Glossary**

Natural channel; no structures, dikes. No evidence of downcutting* or excessive lateral cutting.	Evidence of past channel alteration, but with significant recovery of channel, banks. Any dikes/levies are set back to provide access to adequate floodplain.	Altered channel: <50% of reach with riprap, channelization*. Excess aggradation*; braided channel. Dikes or levees restrict floodplain.	Channel actively downcutting* or widening. >50% of reach with riprap, channelization*. Dikes or levees prevent access to floodplain.
10	A 7	B 3	1

Page 7

HYDROLOGIC ALTERATION

Flooding every 1.5 to 2 yrs. No dams, no water withdrawal, no dikes or structures limiting the stream's access to the floodplain. Channel is not incised*.	Flooding occurs only once every 3 to 5 years; limited channel incision. OR Withdrawals although present do not affect avail. habitat for biota.	Flooding occurs only once every 6-10 yrs; channel deeply incised* OR withdrawals significantly affect available low flow habitat for biota.	No flooding, channel deeply incised*, structures prevent access to floodplain, dam prevents floods OR withdrawals= severe loss of low flow habitat OR floods occur with 1 yr. Rain event or less.
10	7	3	C 1

Page 8

RIPARIAN ZONE (left and right, facing upstream)

Natural, diverse vegetation extends at least two active channel widths*, (understory AND canopy present)	Natural vegetation extends one active channel width* OR if less, covers entire flood plain.	Natural vegetation extends half of the active channel width*.	Natural vegetation extends 1/3 active channel* width OR filtering function moderately compromised.	Natural vegetation less than 1/3 active channel width* OR lack of regeneration OR filtering function severely compromised.
D 10	8	5	3	E 1

Page 9

Natural vegetation would occur in this habitat naturally. A lawn planted by a human is not natural. An oak tree is native to this area, so even if a human planted it, we would consider it natural vegetation. Think: does it look natural/native, and is there species diversity?

BANK STABILITY (left and right, facing upstream)

Banks are stable, low, at elev. of active flood plain; 1/3 or more of the erosion on outside bend banks is protected by roots that extend to baseflow* elevation.	Moderately stable; banks are low, at elev. of active flood plain, less than 1/3 of the erosion on outside bend banks is protected by roots that extend to baseflow* elevation	Moderately unstable, banks low or high, floods every 5 years or less often, active erosion on outside bends, overhanging vegetation, falling mature trees.	Unstable, banks usually high, straight reaches and inside bends actively eroding, as well as outside banks, bare banks, overhanging vegetation, many falling trees.
10	F (8) 7	3	G 1

Page 10

WATER APPEARANCE

Very clear, or clear but tea-colored; objects visible at depth 3-6 ft, less if slightly colored; no oil sheen, no film on submerged objects or rocks.	Occasionally cloudy especially after storm event, but clears rapidly; objects visible at depth 1.5-3 ft; may have slight green color; no oil sheen.	Considerable cloudiness most of time, objects visible .5-1.5 ft, slow sections may be pea-green; bottom rocks or submerged objects covered with heavy green film. OR odor of ammonia, eggs	Very muddy color most of time; objects only visible to 0.5 ft; slow sections may be bright green; floating algae, scum, sheen, heavy foam OR strong odor of chemical, oil, sewage, pollutants.
10 H	7	I 3	1

Page 11

NUTRIENT ENRICHMENT

Clear water in whole reach; diverse aquatic plant community- low quantity of many species of plants; little algae growth present.	Fairly clear or slightly greenish water in whole reach; moderate algal growth on stream substrates.	Greenish water in whole reach; overabundance of lush green aquatic plants; abundant algal growth, especially during warmer months.	Pea green, gray or brown water in whole reach; dense stands of plants clog stream; severe algal blooms create thick algal mats in stream.
10	7	3 J	1 K

Page 12

BARRIERS TO FISH MOVEMENT

No Barriers.	Seasonal water withdrawals inhibit movement within the reach.	Drop structures, culverts, dams or diversions (less than 1 foot drop) within 3 miles of the reach.	Drop structures, culverts, dams or diversions (more than 1 ft. drop within 3 miles of the reach.	Drop structures, culverts, dams or diversions (more than 1 ft drop) within the reach.
10	8	5	3	1 L

Page 12

**A****Active Channel**

Width: the width of the stream at the bankfull discharge. Permanent vegetation generally does not become established in the active channel.

Aggradation: geologic process by which a stream bottom or flood plain is raised in elevation by the deposition of material.

Bankfull Discharge: The stream discharge that forms and controls the shape and size of the active channel and creates the flood plain. This discharge generally occurs once every 1.5 years on average.

Baseflow: The portion of streamflow that is derived from natural storage; average stream discharge during low flow conditions.

Channelization: straightening of a streamchannel to make water move faster.

Degradation, Downcutting: Geologic process by which a stream bottom is lowered in elevation due to the net loss of substrate material.

Emergent Plants: aquatic plants that extend out of the water.

Flood Plain: the flat area of land adjacent to a stream that is formed by current flood processes.

Habitat: The area in which an organism lives.

Incised channel: A channel with a streambed lower in elevation than its historic elevation in relation to the flood plain.

Intermittent Stream: a stream in contact with the ground water table that flows only certain times of the year, such as when the ground water table is high or when it receives water from surface sources.

**B****E****C****G****D****F**

INSTREAM FISH COVER Example: **M**

7+ cover types available.	6-7 cover types available.	4-5 cover types available.	2-3 cover types available.	0-1 cover type available.
10	8	5	3	1

Page 13

Cover Types: logs, large woody debris, deep pools, overhanging vegetation, boulders/cobble, riffles, undercut banks, thick root mats, dense plant beds, isolated/backwater pools, other: _____

POOLS* Example: **N**

When depth is not certain, use a stick to measure the bottom.

Deep and shallow pools abundant; greater than 30% of pool bottom is obscure due to depth, or pools are more than 5 ft. deep.	Pools present, but not abundant; 10-30% of pool bottom is obscure due to depth, or pools are at least 3 ft deep.	Pools present, but shallow; 5-10% of pool bottom is obscure due to depth, or pools are less than 3 ft. deep.	Pools absent or the entire bottom is discernible.
10	7	3	1

Page 14

INSECT/INVERTEBRATE HABITAT* Example: **O**

At least 5 types of habitat, at stage to allow full insect colonization (not freshly fallen)	3-4 types of habitat. Some potential habitat exists such as overhanging trees which have not yet fallen.	1-2 types of habitat. Substrate is often disturbed, covered, or removed by high stream velocity, scour, or sediment deposition.	0-1 types of habitat.
10	7	3	1

Page 14

Cover types: fine woody debris, submerged logs, leaf packs, undercut banks, cobble, boulders, coarse gravel, other: _____

CANOPY COVER (warm water fishery) Do no assess if active channel width is greater than 50 ft, or if woody vegetation is naturally absent.

25-90% of water surface shaded; mixture of conditions-shaded and sunny.	Greater than 90% shaded; full canopy; same shading condition throughout the reach.	(Intentionally blank)	Less than 25% of water surface is shaded within reach.
10 P	7	3	1 Q

Page 15

CANOPY COVER (cold water fishery) Do no assess if active channel width is greater than 50 ft, or if there is no naturally woody vegetation.

Greater than 75% of water surface shaded and upstream 2-3 miles generally well shaded.	>50% shaded in reach. OR >75% in breach but upstream 2-3 miles poorly shaded.	20-50% shaded.	Less than 20% of water surface in reach shaded.
10	7	3	1

Page 15

MANURE PRESENCE (if applicable)

(Intentionally blank.)	Evidence of livestock access to riparian zone.	Occasional manure in stream or waste storage structure located on the flood plain.	Extensive amount of manure on banks or in stream. OR Untreated human waste discharge pipes present.
	5	3	1

Page 16

RIFFLE EMBEDDEDNESS* (if applicable)

Gravel or cobble particles are less than 20% embedded.	Gravel or cobble particles are 20-30% embedded.	Gravel or cobble particles are 30-40% embedded.	Gravel or cobble particles are more than 40% embedded.	Riffle is completely embedded.
10	8	5	3	1

Page 17

MACROINVERTEBRATES* OBSERVED (if applicable)

Community dominated by Group I or intolerant species with good diversity: caddisflies, mayflies, stoneflies, hellgrammites.	Community dominated by Group II or facultative species: damselflies, dragonflies, sowbugs, blackflies, crayfish.	Community dominated by Group III or tolerant species: midges, craneflies, horseflies, leeches, aquatic earthworms, tubificid worms.	Very reduced number of species or near absence of all macroinvertebrates.
15	6	2	-3

Page 17

Macrophyte Bed: a section of stream covered by a dense mat of aquatic plants.

Meander: A winding section of stream with many bends that is at least 1.2 times longer than its straight line distance

Macro-invertebrate: A spineless animal visible to the naked eye or larger than 0.5mm.

Pool: Deeper area of a stream with slow moving water.

Reach: A section of stream.

Riffle: A shallow section in a stream where water is breaking over rocks, wood, or other partly submerged debris and producing surface agitation. (When the rocks creating the riffle are buried in sediment, it is **embedded**.)

Riparian: The zone adjacent to a stream or any other waterbody.

Riprap: Rock material of varying size used to stabilize streambanks and other slopes.

Run: a fast moving section of a stream with a defined thalweg and little surface agitation.

Scouring: The erosive removal of material from the stream bottom and banks.

Sedge: A grasslike fibrous rooted herb with a triangular to round stem and leaves that are mostly three ranked and with close sheaths; flowers are in spikes or spikelets, axillary to single bracts.

Substrate: The mineral or organic material that forms the bed of the stream; the surface on which aquatic organisms live.

Surface fines: The portion of streambed surface consisting of sand/silt.

Thalweg: The line followed by the majority of the streamflow. Also, the line connecting the lowest or deepest points along the streambed.

Turbidity: Murkiness or cloudiness of water caused by particles such as fine sediments and algae.

Watershed: A ridge of high land dividing two areas that are drained by different river systems. The land area draining to a waterbody or point in a river system; catchment area, drainage basin, drainage area.



If you find hazardous material, illegal dumps, see a spill impacting surface water, etc. call the DEP hotline: 1-