		South (Ki
	KS CREEK	LOCATION ST-21 HEADWATERS EAST S
STATION #57-2/1	RIVERMILE	STREAM CLASS
LATL	ONG	RIVER BASIN
STORET#		AGENCY
INVESTIGATORS 5	Douglas	S
FORM COMPLETED BY	ruglas	DATE 12/2018 REASON FOR SURVEY
WEATHER CONDITIONS SITE LOCATION/MAP	Draw a map of the si	Past 24 Has there been a heavy rain in the last 7 days? hours
2	PASIURE RE	RIFFLE RESIDENTIAL RESIDENTIAL (MOWEO TO (MOWEO TO EDGE) RUN EXPOSED BE DIRCCK RIFFLE
STREAM CHARACTERIZATION	Stream Subsystem Perennial Inte Stream Origin Glacial Non-glacial montane Swamp and bog	termittent Tidal Stream Type Coldwater Warmwater Spring-fed U Mixture of origins O Other

Agricultural O Oth			nercial trial	Local Watershed NP No evidence So Obvious sources	S Pollution me potential sources
	₫R	esidential		Local Watershed Ero ☐ None ☐ Moderate	e Heavy
RIPARIAN VEGETAT (18 meter b	ffam)	cate the dominant type a rees inant species present <u>S</u>	ad record the d Shrubs YCAMORE	ominant species present Grasses WALNUT	Herbaceous
INSTREAM FEATURES	Esti Sam Are: Esti Surf	SE OF BUILDINGS STORY	0 m m² km² · 1.0 mft	Canopy Cover Partly open Partl	A ⁺ m Represented by Stream □ Run_30_% □ No
LARGE WO			m²/km² (LWD/	- 10 - 20 - 20 - 20 - 20 - 20 - 20 - 20	
AQUATIC VEGETATI	dom	inant species present	Kooted submerge Attached Algae	ominant species present ent De Rooted floating	☐ Free floating
WATER QU	WATER QUALITY Temperature ° C Specific Conductance Dissolved Oxygen pH Turbidity WQ Instrument Used			Water Odors ☐ Normal/None ☐ Sew ☐ Petroleum	/age Chemical Chemical Cher
SEDIMENT/ SUBSTRATE Odors Normal Sewage Chemical Anaerobic Other Oile		Looking at stones which are not deep		☐ Paper fiber ☐ Sand ☐ Other	
INOR		sent Slight Modera	ate 🗆 Profu	se 🗆 Yes 🔎 No	
INOR	GANIC SUBSTRAT (should add up t	E COMPONENTS o 100%)		ORGANIC SUBSTRATE C (does not necessarily add	COMPONENTS up to 100%)
Substrate Type	Diameter	% Composition in Sampling Reach	Substrate Type	Characteristic	% Composition in Sampling Area
Bedrock		409	Detritue	21 1	

INC	ORGANIC SUBSTRATE (should add up to	COMPONENTS 100%)		ORGANIC SUBSTRATE C (does not necessarily add	OMPONENTS up to 100%)
Substrate Type	Diameter	% Composition in Sampling Reach	Substrate Type	Characteristic	% Composition in Sampling Area
Bedrock		40%	Detritus	sticks, wood, coarse plant	
Boulder	> 256 mm (10")	5	1	materials (CPOM)	45%
Cobble	64-256 mm (2.5"-10")	30%	Muck-Mud	black, very fine organic	
Gravel	2-64 mm (0.1"-2.5")	15		(FPOM)	
Sand	0.06-2mm (gritty)	5	Marl	grey, shell fragments	
Silt	0.004-0.06 mm		1		
Clay	< 0.004 mm (slick)		1		

STREAM NAME COOKS CR	FER LOCATION ST-1 HEADWATERS SOUTH /KEWSMY
STATION #57-/ RIVERMILE	STREAM CLASS
LATLONG	RIVER BASIN COOKS (REEK - DELAWARE
STORET#	AGENCY
INVESTIGATORS S.DOL	GUAS
FORM COMPLETED BY	las DATE 12/2018 REASON FOR SURVEY

1	Habitat		Condition	n Category	
L	Parameter	Optimal	Suboptimal	Marginal	Poor
18	1. Epifaunal Substrate/ Available Cover	Greater than 70% of substrate favorable for epifatunal 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 not new fall and not 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 newfall, 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	SCORE	20 19 18 17 16	15 14 13 12 (11)	10 9 8 7 6	5 4 3 2 1 0
S S S	2. Embeddedness	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 mon than 75% surrounded by fine sediment.
S	CORE	20 19 18 17 (16)	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
	. Velocity/Depth Regime	All four velocity/depth regimes present (slow-deep, slow-shallow, fast-deep, fast-shallow). (Slow 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).
s	CORE	20 19 18 17 (16)	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
4	. Sediment Deposition	Little or no enlargement of islands or point bars and less than 5% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 5-30% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 30-50% 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% of the bottom changing frequently; pools almost absent due to substantial sediment deposition.
S	CORE	20 19 18 17 16	15 14 13 12 (11)	10 9 8 7 6	5 4 3 2 1 0
1	. Channel Flow tatus	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
S	CORE	20 19 18 17 16	15 14 (13) 12 11	10 9 8 7 6	5 4 3 2 1 0

Habitat		Condition	n Category	
Parameter	Optimal	Suboptimal	Marginal	Poor
6. Channel Alteration	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 gabio 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
7. Frequency of Riffles (or bends)	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 of shallow riffles; poor habitat; distance between riffles divided by the width of the stream is a ratio of >25.
SCORE	20 19 18 17 (16)	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
8. Bank Stability (score each bank) Note: determine left or right side by facing downstream.	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.
SCORE(LB)	Left Bank 10 9	8 7 6	5 4 3	(2) 1 0
SCORE (RB)	Right Bank 10 .9	8 7 6	5 4 3	2 1 0
9. Vegetative Protection (score each bank)	More than 90% of the streambank 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 streambank 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 streambank 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 streambank surfaces covered by vegetation; disruption of streambank vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.
SCORE(LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0
SCORE(RB)	Right Bank 10 (9)	8 7 6	5 4 3	2 1 0
10. Riparian Vegetative Zone Width (score each bank riparian zone)	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 < meters: little or no riparian vegetation due to human activities.
SCORE(LB)	Left Bank 10 9	8 7 6	5 4 3	2 (1) 0
SCORE (RB)	Right Bank 10 9	8 7 6		

I GIAI DEGIC	tal Score
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0	EAST (SL
STREAM NAME COOPS CREEK	LOCATION ST-2 HEADWATERS SOUTH (X)
STATION# ST-2 RIVERMILE	_ STREAM CLASS
LATLONG	RIVER BASIN COOKS CREEK - DELAWARE
STORET#	AGENCY
INVESTIGATORS S. DOUGLA	2
FORM COMPLETED BY	DATE 12/22/8 REASON FOR SURVEY
rai show	Past 24 hours Yes 270 Yes 270 Air Temperature Clear/sunny Other
	site and indicate the areas sampled (or attach a photograph) 28 28 28 28 28 28 28 28 28 2
STREAM CHARACTERIZATION Stream Subsystem Perennial In Stream Origin Glacial Non-glacial montar Swamp and bog	stermittent

	The second secon			THE RESERVE OF THE PERSON NAMED IN COLUMN TWO IS NOT THE PERSON NAMED IN COLUMN TWO IS NAMED IN COLUMN TW				
WATERSHED FEATURES		Predominant Surrounding Landuse Grest Gommercial Field/Pasture Gindustrial Agricultural Other Residential			Local Watershed NI No evidence So Obvious sources	PS Pollution ome potential sources		
		U Kes	idential		Local Watershed Er	osion te 🖸 Heavy		
RIPARIAN VEGETATION (18 meter buffer)			Indicate the dominant type and record the dominant species present Grasses Grasses Gominant species present OAK, BEECH, DSH					
Estimated Reach Length DD m Canopy Cover Partly shaded DD m Canopy Cover Partly open Partly shaded DD m Sampling Reach Area m² Proportion of Reach Represented Morphology Types Proportion of Reach Represented Morphology Types Run DD m Proportion of Reach Represented Morphology Types Run DD m Proportion of Reach Represented Morphology Types Run DD m Proportion of Reach Represented Morphology Types Run DD m Proportion of Reach Represented Morphology Types Run DD m Proportion of Reach Represented Morphology Types Run DD m Proportion of Reach Represented Morphology Types Run DD m Proportion of Reach Represented Morphology Types DD m DD m			∠ 1 m Represented by Stream □ Run 30 % S No					
LARGE DEBRIS	WOODY	LWD Density	y of LWD	m²/km² (LWD				
AQUAT VEGET		Indicat Root Float domina	te the dominant type ar	nd record the d Rooted submers Attached Algae	lominant species present gent			
WATER QUALITY		Temperature°C Specific Conductance Dissolved Oxygen pH			Water Odors Normal/None Sev Petroleum Fishy Water Surface Oils	Chemical Other		
			ity strument Used		None U Other	Slick Sheen Globs Flecks None Other Turbidity (If not measured) Clear Slightly turbid Turbid Opaque Stained Other		
SEDIME SUBSTR	IMENT/ Oders Panasita		D Describer 76					
		Oils Abser	Oils Absent Slight Moderate Profuse Looking at stones which are not deeply embedder are the undersides black in color? Yes No			ch are not deeply embedded, ck in color?		
· IN	ORGANIC SUBS		COMPONENTS		ORGANIC SUBSTRATE (does not necessarily add	COMPONENTS		
Substrate Diameter Type		er	% Composition in Sampling Reach	Substrate Type	Characteristic	% Composition in Sampling Area		
Bedrock Boulder	> 256 mm (10")	***************************************	5	Detritus	sticks, wood, coarse plant materials (CPOM)	20		
Cobble	64-256 mm (2.5	"-10")	50 40	Muck-Mud	black, very fine organic			
Gravel	2-64 mm (0.1"-2	.5")	403040	1	(FPOM)			
Sand	0.06-2mm (gritty	<i>i</i>)	15	Marl	grey, shell fragments			
Silt	0.004-0.06 mm			1	gy, shou nagments			

Clay

0.004-0.06 mm

< 0.004 mm (slick)

STREAM NAME COOKS CREEK	LOCATION ST-2'	JEADWATERS EAST (SUIFE	R		
STATION # 57-2 RIVERMILE	STREAM CLASS				
LAT LONG	RIVER BASIN				
STORET#	AGENCY				
INVESTIGATORS S. DOUGLAS					
FORM COMPLETED BY	DATE 12/2018 TIME AM PM	REASON FOR SURVEY			

Habitat		Condition Category					
Parameter	Optimal	Suboptimal	Marginal	Poor			
1. Epifaunal Substrate/ Available Cover	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 not new fall and not 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 newfall, 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.			
SCORE	20 19 18 17 (16)	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0			
2. Embeddedness	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 mor than 75% surrounded by fine sediment.			
SCORE	20 19 18 17 16	15 (14) 13 12 11	10 9 8 7 6	5 4 3 2 1 0			
3. Velocity/Depth Regime	All four velocity/depth regimes present (slow-deep, slow-shallow, fast-deep, fast-shallow). (Slow 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).			
SCORE	20 19 (18) 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0			
4. Sediment Deposition	Little or no enlargement of islands or point bars and less than 5% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 5-30% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 30-50% 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% of the bottom changing frequently; pools almost absent due t substantial sediment deposition.			
SCORE	20 19 18 17 16	15 14 13 12 (11)	10 9 8 7 6	5 4 3 2 1 0			
5. Channel Flow Status	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			
SCORE	20 19 18 17 16	15 14 13 (12) 11	10 9 8 7 6	5 4 3 2 1 0			



Habitat		Condition Category						
Paramete	r Optimal	Suboptimal	Marginal	Poor				
6. Channel Alteration	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 gabi or cement; over 80% of the stream reach channelized and disrupted. Instream habitat greatly altered o removed entirely.				
SCORE	20 19 (18) 17 16		10 9 8 7 6	5 4 3 2 1 6				
				3 4 3 2 1				
7. Frequency o Riffles (or bend		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 shallow riffles; poor habitat; distance betwee riffles divided by the width of the stream is a ratio of >25.				
SCORE -	20 19 (18) 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 (
				3 4 3 2 1				
8. Bank Stabilit (score each ban Note: determine or right side by facing downstrea	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.				
SCORE(LE) Left Bank 10 9	8 B .6	(5) 4 3	2 1 0				
SCORE(RE	Right Bank 10 9	8 (7) 6	5 4 3	2 1 0				
9. Vegetative Protection (scoreach bank)	More than 90% of the streambank 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 streambank 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 streambank 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 streambank surfaces covered by vegetation; disruption of streambank vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.				
SCORE(LB	Left Bank 10 (9)	8 7 6	5 4 3	2 1 0				
SCORE(RB	Right Bank 10 (9)	8 7 6	5 4 3	2 1 0				
10. Riparian Vegetative Zone Width (score each bank riparian zon	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 < meters: little or no riparian vegetation due to human activities.				
		The second secon						
SCORE(LB)	Left Bank (10) 9	8 7 6	5 4 3	2 1 0				

Total	Score	

STREAM NAME Cook	LS CREEK	LOCATION S	7-3	BRUNSWICK	
STATION # ST 3 RIVERMILE LAT LONG STORET #		STREAM CLASS	3		
		RIVER BASIN COOKS CREEK WATERSHED - DELAWA			
		AGENCY			
nvestigators S .	DOUGLAS,	£ .			
FORM COMPLETED BY	nglas	DATE 12/20	AM PM	REASON FOR SURVEY	
WEATHER CONDITIONS	☐ rai	rm (heavy rain) in (steady rain) vers (intermittent) %cloud cover	Past 24 hours	Has there been a heavy rain in the last 7 days? Yes TNo Air Temperature 15° F Other	
SITE LOCATION/MAP	Draw a map of the	site and indicate the	areas sampl	oled (or attach a photograph)	
		:65			
		Doni			
		POOL			
	Short C	RUN	2	COBLE	
ised	3	hank		BAK	
	.~	RIFF	LE \	drees wild exposed at pank	
ard	r				
.e		- 1			
STREAM CHARACTERIZATION	Stream Subsystem	Intermittent 🗆 Tidal	e	Streem Type Coldwater	
	Stream Origin Glacial Non-glacial mont	Spring-fed Mixture of	origins	Catchment Areakm ²	

WATERSHED FEATURES	Predominant Surrounding Landuse Forest	Local Watershed NPS Pollution No evidence Some potential sources Obvious sources		
AND	Residential	Local Watershed Erosion None Moderate Heavy		
RIPARIAN VEGETATION (18 meter buffer)	Indicate the dominant type and record the dominant species present ASH	inant species present		
INSTREAM FEATURES	Estimated Reach Length 100 m Estimated Stream Width 35 m Sampling Reach Area m² Area in km² (m²x1000) km² Estimated Stream Depth 1-2½ m Surface Velocity m/sec (at thalweg)	Charly Cover Partly open Partly shaded Shaded High Water Mark		
LARGE WOODY DEBRIS	LWDm² Density of LWDm²/km² (LWD/ rea	Some des-		
AQUATIC VEGETATION	Indicate the dominant type and record the dominant of Rooted emergent Rooted submergent Attached Algae dominant species present Portion of the reach with aquatic vegetation	nant species present ☐ Rooted floating ☐ Free floating		
WATER QUALITY	Temperature ° C Specific Conductance Dissolved Oxygen pH Turbidity WQ Instrument Used	Water Odors Normal/None Sewage Petroleum Chemical Fishy Other Water Surface Oils Slick Sheen Globs Flecks None Other Turbidity (if not measured) Clear Slightly turbid Turbid Opaque Stained Other		
SEDIMENT/ SUBSTRATE	Odgrs Normal	Deposits ☐ Sludge ☐ Sawdust ☐ Paper fiber ☐ Sand ☐ Relict shells ☐ Other_		
Manuscript, 183, 193, 193, 193, 193, 193, 193, 193, 19	Oils Absent Slight Moderate Profuse	Looking at stones which are not deeply embedded, are the undersides black in color?		

INC	ORGANIC SUBSTRATE (should add up to	COMPONENTS 100%)		ORGANIC SUBSTRATE Co	OMPONENTS up to 100%)
Substrate Type	Diameter	% Composition in Sampling Reach	Substrate Type	Characteristic	% Composition in Sampling Area
Bedrock			Detritus	sticks, wood, coarse plant	10
Boulder	> 256 mm (10")	10%	1	sticks, wood, coarse plant materials (CPOM)	
Cobble	64-256 mm (2.5"-10")	50%	Muck-Mud	black, very fine organic (FPOM)	5
Gravel	2-64 mm (0.1"-2.5")	20%	1		
Sand	0.06-2mm (gritty)	15%	Marl	grey, shell fragments	
Silt	0.004-0.06 mm	5%	1		
Clay	< 0.004 mm (slick)		1		

STREAM NAME COOKS C	ZEER LOCATION ST-3 BRUNSWICK
STATION #513 RIVERN	
LAT LONG _	RIVER BASIN COOKS CREEK - DELAWARE
STORET#	AGENCY
INVESTIGATORS S. DOV	GLAS
FORM COMPLETED BY	DATE 12/2018 REASON FOR SURVEY

Habitat	Condition Category							
Parameter	Optimal	Suboptimal	Marginal	Poor				
1. Epifaunal Substrate/ Available Cover	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 not new fall and not 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 newfall, but not yet prepared for		Less than 20% stable habitat; 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				
2. Embeddedness	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 mor than 75% surrounded by fine sediment.				
SCORE	20 19 18 17 16	15 14 (13) 12 11	10 9 8 7 6	5 4 3 2 1 0				
3. Velocity/Depth Regime	All four velocity/depth regimes present (slow-deep, slow-shallow, fast-deep, fast-shallow). (Slow 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).				
SCORE	20 19 (18) 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0				
4. Sediment Deposition	Little or no enlargement of islands or point bars and less than 5% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 5-30% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 30-50% 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% of the bottom changing frequently; pools almost absent due t substantial sediment deposition.				
SCORE	20 19 18 17 16	15 (14) 13 12 11	10 9 8 7 6	5 4 3 2 1 0				
5. Channel Flow Status	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				
SCORE	20 19 18 17 16	15 14 (13) 12 11	10 9 8 7 6	5 4 3 2 1 0				

Habitat	-	Condition	n Category	
Parameter	Optimal	Suboptimal	Marginal	Poor
6. Channel Alteration	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 gabic 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 (
7. Frequency of Riffles (or bends)	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 of shallow riffles; poor habitat; distance between riffles divided by the width of the stream is a ratio of >25.
SCORE	20 19 18 (17) 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
8. Bank Stability (score each bank) Note: determine left or right side by facing downstream.	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.
SCORE(LB)	Left Bank 10 9	8 7 6	5 (4) 3	2 1 0
SCORE (RB)	Right Bank 10 9	(8) 7 6	5 4 3	2 1 0
9. Vegetative		50-70% of the streambank 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 streambank surfaces covered by vegetation; disruption of streambant vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.	
SCORE(LB)	Left Bank (10) 9	8 7 6	5 4 3	2 1 0
SCORE(RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0
10. Riparian Vegetative Zone Width (score each bank riparian zone)	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 < meters: little or no riparian vegetation due thuman activities.
SCORE(LB)	Left Bank (10) 9	8 7 6	5 4 3	2 1 0
	Determine the second se	Edward Inchite Committee C		

Total Score

STREAM NAME COOK	S CREEK	LOCATION ST	-4 SILVER	CREEK		
STATION#57-4 R		STREAM CLASS				
LATLG	ONG	RIVER BASIN COOKS CREEK - DELAWARE				
STORET#	The first	AGENCY	CORO CROEK	- Decimanice		
INVESTIGATORS S.	DOUGLAS					
FORM COMPLETED BY	glax	DATE 12/2018	AM PM REASON FOR	SURVEY		
WEATHER CONDITIONS	□ ra □ show	127.77	Has there been a lurs Yes Yoo Air Temperature Other	neavy rain in the last 7 da	ys?	
SITE LOCATION/MAP	Draw a map of the	site and indicate the are	eas sampled (or attach a pho	otograph)		
	GOOR RIPA CORRIDO LITLE OR EROSION	R 2 NO	EN CON	FARMETTE MOSTLY ÂUK RIFFIE/RUM PANKS OVERHANGING BRUSH/VIDER. MULTIFEORA IS	K S	
STREAM CHARACTERIZATION	Stream Subsystem	Intermittent 🗅 Tidal	Stream Type Coldwater	Warmwater		
	Stream Origin Glacial Non-glacial mont Swamp and bog	☐ Spring-fed ane ☐ Mixture of orig	Catchment Area_	km²	Time	

WATERSHED FEATURES	Predominant Surrounding Landuse Protest	Local Watershed NPS Pollution No evidence Some potential sources Obvious sources Local Watershed Erosion (CA MAINSTEM. IN None Moderate Heavy
RIPARIAN VEGETATION (18 meter buffer)	Indicate the dominant type and record the dominal Trees dominant species present ASH/OAK	
INSTREAM FEATURES	Estimated Reach Length	Canopy Cover Partly shaded Shaded High Water Mark m Proportion of Reach Represented by Stream Morphology Types
LARGE WOODY DEBRIS	LWDm² Density of LWDm²/km² (LWD/ reac	h area)
AQUATIC VEGETATION	Indicate the dominant type and record the domin Rooted emergent Rooted submergent Attached Algae dominant species present Portion of the reach with aquatic vegetation	☐ Rooted floating ☐ Free floating
WATER QUALITY	Temperature ° C Specific Conductance Dissolved Oxygen pH Turbidity WQ Instrument Used	Water Odors Normal/None Sewage Petroleum Chemical Fishy Other Water Surface Oils Slick Sheen Globs Flecks None Other Turbidity (if not measured) Clear Slightly turbid Turbid Opaque Stained Other
SEDIMENT/ SUBSTRATE	Oders Normal Sewage Betroleum Chemical Anaerobic None Other Oils Absent Slight Moderate Profuse	Deposits Sludge Sawdust Paper fiber Sand Relict shells Other Council Sand Looking at stones which are not deeply embedded, are the undersides black in color?

INORGANIC SUBSTRATE COMPONENTS (should add up to 100%)				ORGANIC SUBSTRATE CO (does not necessarily add to		
Substrate Type	Diameter	% Composition in Sampling Reach	Substrate Type	Characteristic	% Composition in Sampling Area	
Bedrock		l management of the second	Detritus	sticks, wood, coarse plant	10	
Boulder	> 256 mm (10")	10	1	materials (CPOM)	10	
Cobble	64-256 mm (2.5"-10")	45	Muck-Mud	black, very fine organic	^	
Gravel	2-64 mm (0.1"-2.5")	20		(FPOM)	\mathcal{O}	
Sand	0.06-2mm (gritty)	5	Mari	grey, shell fragments	S-20	
Silt	0.004-0.06 mm				0	
Clay	< 0.004 mm (slick)		1			

STREAM NAME COOKS CREEK	LOCATION ST-4' SILVER CREEK				
STATION # 57-4 RIVERMILE	STREAM CLASS				
LATLONG	RIVER BASIN COOKS CREEK - DELAWARE				
STORET#	AGENCY				
INVESTIGATORS S. DOVGLAS					
FORM COMPLETED BY USDandas	DATE 12/26/8 TIME AM PM REASON FOR SURVEY				

Habitat	Condition Category							
Parameter	Optimal	Suboptimal	Marginal	Poor				
1. Epifaunal Substrate/ Available Cover	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 not new fall and not 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 newfall, 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.				
SCORE	20 19 (18) 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0				
2. Embeddedness	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 mo than 75% surrounded by fine sediment.				
SCORE	20 19 (18) 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 (
3. Velocity/Depth Regime	All four velocity/depth regimes present (slow-deep, slow-shallow, fast-deep, fast-shallow). (Slow 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).				
SCORE	20 19 18 17 16	15 14 13 12 11	(10) 9 8 7 6	5 4 3 2 1				
4. Sediment Deposition	Little or no enlargement of islands or point bars and less than 5% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 5-30% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 30-50% 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% of the bottom changing frequently; pools almost absent due substantial sediment deposition.				
SCORE	20 19 18 17 (16)	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 (
5. Channel Flow Status	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 pool				
SCORE	(20) 19 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1				

Habitat		Conditio	n Category	
Parameter	Optimal	Suboptimal	Marginal	Poor
6. Channel Alteration	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 gabic 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
7. Frequency of Riffles (or bends)	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 of shallow riffles; poor habitat; distance between riffles divided by the width of the stream is a ratio of >25.
SCORE	20 19 18 17 (16)	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
8. Bank Stability (score each bank) Note: determine left or right side by facing downstream.	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.
SCORE(LB)	Left Bank 10 9	(8) 7 6	5 4 3	2 1 0
SCORE (RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0
9. Vegetative Protection (score each bank)	More than 90% of the streambank 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 streambank 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 streambank 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 streambank surfaces covered by vegetation; disruption of streambank vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.
SCORE(LB)	Left Bank 10 (9)	8 7 6	5 4 3	2 1 0
SCORE(RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0
10. Riparian Vegetative Zone Width (score each bank riparian zone)	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 < meters: little or no riparian vegetation due t human activities.
SCORE(LB)	Left Bank 10 9	8 7 6	5 4 3	2 1 0
SCORE(RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0

Total	Score	

ST-5

STREAM NAME POOK	SCPER	LOCATION ST-Z	5 RED BRIDGE
STATION # 57-5 RI		STREAM CLASS	<i>y</i>
	DNG		US CREEK - DELAWARE
STORET#		AGENCY	
INVESTIGATORS S,	DOLGLAS		
FORM COMPLETED BY	Dauglos	DATE ILIUIS AM	PM REASON FOR SURVEY
WEATHER CONDITIONS	ain (shower cle	ear/sunny	O Yes ANO Air Temperature 15° F % Other
SITE LOCATION/MAP	Draw a map of the sit	te and indicate the areas s	nampled (or attach a photograph)
	CAL MACRE	1 RUM	Savel Barz
STREAM	Stream Subsystem	RIFFEE	Stream Type
CHARACTERIZATION	Stream Subsystem Perennial O Int	ermittent 🔾 Tidal	Stream Type Coldwater
	Stream Origin Glacial Non-glacial montane Swamp and bog	Spring-fed Mixture of origins Other	Catchment Areakm ²

WATERSHE FEATURES	□ Fie	ld/Pasture	ercial	Local Watershed NPS No evidence Som Obvious sources Local Watershed Eros None Moderate	e potential sources	
RIPARIAN VEGETATIO (18 meter but	ON ffer) Indicate Ind	ate the dominant type an es	d record the d hrubs	ominant species present Grasses He	erbaceous	
INSTREAM FEATURES	Estim Samp Area Estim Surfa	Estimated Reach Lengthm Estimated Stream Widthm Sampling Reach Aream² Area in km² (m²x1000)km² Estimated Stream Depthm Surface Velocitym/sec (at thalweg)		High Water Mark Proportion of Reach R Morphology Types Riffle 6 % Pool 8	Partly open Partly shaded Shaded High Water Mark	
LARGE WO	ODY LWD Densi	ty of LWDr	m²/km² (LWD/	reach area)	NE IN WATER	
AQUATIC VEGETATIO	D Flor	ate the dominant type and toted emergent Reference Refer	ooted submerge ttached Algae	ent	☐ Free floating	
WATER QUA	ALITY Temp Specif Dissol pH_ Turbi	erature° C Tic Conductance ved Oxygen dity nstrument Used	-:	Water Odors ☐ Normal/None ☐ Sew: ☐ Petroleum	Chemical Other Globs □ Flecks	
SEDIMENT/ SUBSTRATE	☑ Nor □ Che □ Oth Oils	mal Sewage mical Anaerobic		Deposits Sludge Sawdust Relict shells Looking at stones whic	☐ Paper fiber ☐ Sand Other	
INORG	GANIC SUBSTRATI			ORGANIC SUBSTRATE C		
Substrate Diameter Type		% Composition in Sampling Reach	Substrate Type	Characteristic	% Composition in Sampling Area	
Bedrock Poulder	256 mm (10")	W 00	Detritus	sticks, wood, coarse plant materials (CPOM)	45%	

INORGANIC SUBSTRATE COMPONENTS (should add up to 100%)			ORGANIC SUBSTRATE COMPONENTS (does not necessarily add up to 100%)		
Substrate Diameter Type		% Composition in Sampling Reach	Substrate Type	Characteristic	% Composition in Sampling Area
Bedrock	Detritus sticks, wood, coarse plant		159		
Boulder	> 256 mm (10")	# 20	1	materials (CPOM)	2010
Cobble	64-256 mm (2.5"-10")	40	Muck-Mud	black, very fine organic	
Gravel	2-64 mm (0.1"-2.5")	20		(FPOM)	
Sand	0.06-2mm (gritty)	20	Marl	grey, shell fragments	
Silt	0.004-0.06 mm		1	F-10-10-10-10-10-10-10-10-10-10-10-10-10-	
Clay	< 0.004 mm (slick)		1		



STREAM NAME COOKS CREEK	LOCATION ST-5 RED BRIDGE
STATION # 57-5 RIVERMILE	STREAM CLASS
LAT LONG	RIVER BASIN COOKS CREEK - DELAWARE
STORET#	AGENCY
INVESTIGATORS S. DOUGLAS	
FORM COMPLETED BY Louglas	DATE 12/2018 REASON FOR SURVEY

Habitat		Condition Category						
TOTAL TOTAL CO.	Parameter .	Optimal	Suboptimal	Marginal	Poor			
I. Epifaunal Substrate/ Available Co	ver	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 not new fall and not 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 newfall, 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.			
SCORE		20 19 (18) 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0			
2. Embedded	lness	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 mo than 75% surrounded by fine sediment.			
SCORE		20 (19) 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0			
3. Velocity/D Regime	epth	All four velocity/depth regimes present (slow-deep, slow-shallow, fast-deep, fast-shallow). (Slow 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).			
SCORE		20 19 18 17 16	(15) 14 13 12 11	10 9 8 7 6	5 4 3 2 1 (
4. Sediment Deposition		Little or no enlargement of islands or point bars and less than 5% of the bottom affected by sediment deposition.	Some new increase in bar formation, mostly from gravel, sand or fine sediment; 5-30% of the bottom affected; slight deposition in pools.	Moderate deposition of new gravel, sand or fine sediment on old and new bars; 30-50% 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% of the bottom changing frequently; pools almost absent due substantial sediment deposition.			
SCORE		20 (19) 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 (
5. Channel F Status	low	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 pool			
SCORE		20 (19) 18 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1			



	Habitat		Condition	on Category	
	Parameter	Optimal	Suboptimal	Marginal	Poor
	6. Channel Alteration	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 gabio 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
mas read	7. Frequency of Riffles (or bends)	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 of shallow riffles; poor habitat; distance between riffles divided by the width of the stream is a ratio of >25.
	SCORE	20 19 (18) 17 16	15 14 13 12 11	10 9 8 7 6	5 4 3 2 1 0
man i Sundania mini mana na	8. Bank Stability (score each bank) Note: determine left or right side by facing downstream.	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.
	SCORE(LB)	Left Bank 10 9	8 7 6	5 (4) 3	2 1 0
	SCORE(RB)	Right Bank 10 9	8 7 (6)	5 4 3	2 1 0
	9. Vegetative Protection (score each bank)	More than 90% of the streambank 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 streambank 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 streambank 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 streambank surfaces covered by vegetation; disruption of streambank vegetation is very high; vegetation has been removed to 5 centimeters or less in average stubble height.
	SCORE(LB)	Left Bank (10) 9	8 7 6	5 4 3	2 1 0
	SCORE(RB)	Right Bank 10 9	8 7 6	5 4 3	2 1 0
	10. Riparian Vegetative Zone Width (score each bank riparian zone)	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.
1	SCORE(LB)	Left Bank (10) 9	8 7 6	5 4 3	2 1 0

Takal	0	
Total	Score	