

Diagnostic Study of Pigeon Creek Watershed

Harza Engineering, Inc.

May 2000 Data Sheets:

Qualitative Habitat Evaluation Index

Rapid Bioassessment Protocol II for Macroinvertebrates

Flow measurements, on-site tests, physical description

Procedure No. WQPA-SWS-3
 Revision No. 5

Date Issued 2-30-89
 Date Effective 9-30-89

HC-1
 5/5/00

re V-4-B. Reverse side of the Ohio EPA Site Description Sheet for evaluating the geographical and physical characteristics of fish sampling locations. This is used to record additional information about the sampling site and adjacent area.

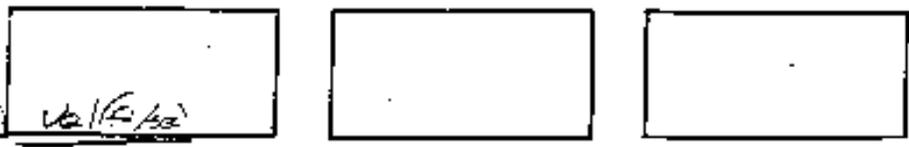
Is Reach Representative of Stream? (CR) Y No: _____
 Additional Comments/Problem Report: _____

FIRST PASS _____ DEBRIS _____ WATER CLARITY _____ WATER STAGE _____
 SECOND PASS _____
 THIRD PASS _____
 CANOPY (OPEN) _____ GRADIENT: 0-LOW 0-MODERATE 0-HIGH _____
 SUBJECTIVE RATING (1-10) _____
 AESTHETIC RATING (1-10) _____
 FACTOR: US-2 DS-1 Cam ①

STREAM MEASUREMENTS: AVERAGE WIDTH: 6' AVERAGE DEPTH: 9" MAX. DEPTH: 16"

LENGTH	WIDTH	DEPTH						POOL/SLUDG/DEBRIS
200	6'	8"	14"	14"				Pool
10	5'	3"	2"	4"				RIF
20	6'	5"	6"	4"				RUN
10	4'	3"	3"	4"				RIF
100	6'	7"	10"	8"				Pool

CROSS-SECTIONS OF STREAM



DRAWING OF STREAM

$\frac{0.5}{.7} = .71$
 $\frac{.7}{1.0} = .7$
 $\frac{1.0}{1.1} = .91$
 $\frac{1.0}{1.0} = 1.0$
 $\frac{1.0}{1.0} = 1.0$
 $\frac{1.0}{1.0} = 1.0$
 $\frac{0.8}{0.7} = 1.14$
 $\frac{0.5}{0.5} = 1.0$
 $\frac{0.3}{0.3} = 1.0$
 RWE

Procedure No. WOPA-SWS-3
 Revision No. 6

Date Issued 9-30-89
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WF-3
 5/5/00

V-4-6. Reverse side of the Ohio EPA Site Description Sheet for evaluating the geographical and physical characteristics of fish sampling locations. This is used to record additional information about the sampling site and adjacent area.

Is Reach Representative of Stream? (Yes) Y (No) N

Additional Comments/Notes: _____

Photos 27 + 26 of Soft-shell Turtle



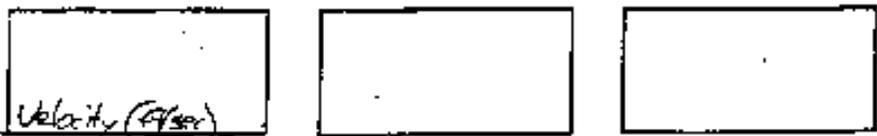
FIRST PASS	GEAR	DISTANCE	WATER CLARITY	WATER STAGE	<input type="checkbox"/>	<input type="checkbox"/>
SECOND PASS					SUBJECTIVE RATING (1-10)	AESTHETIC RATING (1-10)
THIRD PASS					PHOTOS	

CANOPY (OPEN) 85 GRADIENT (DOWN) (MODERATE) (HIGH) 25 AUS 24-DS Can (2)

STREAM MEASUREMENTS: AVERAGE WIDTH 10" AVERAGE DEPTH 8" MAX DEPTH 16"

LENGTH	WIDTH	DEPTH	POOL	GLD	RF	SRM
300	12	10"	14"	8"		
50	6	3"	5"	2"		

CROSS-SECTIONS OF STREAM



DRAWING OF STREAM



Procedure No. WOP-5WS-3 Date Issued 9-30-89
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WF-2
5/5/00

V-4-5. Reverse side of the Ohio EPA Site Description Sheet for evaluating the geographical and physical characteristics of fish sampling locations. This is used to record additional information about the sampling site and adjacent area.

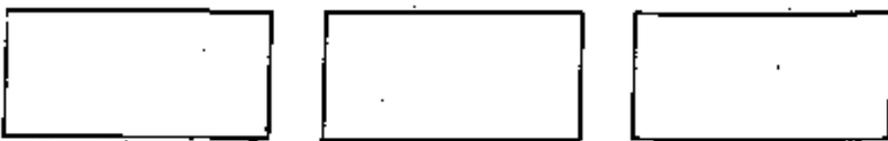
Is Reach Representative of Stream? (Y/N) Y 8 No. _____
 Additional Comments/Photos: _____

FIRST PASS _____ DEAR _____ DISTANC _____ WATER CLARITY _____ WATER STAGE _____
 SECOND PASS _____
 THIRD PASS _____
 CANOPY COVER 90 GRADIENT: LOW 0-MODERATE 0-HIGH
 SUBJECTIVE RATING (1-10) _____ AESTHETIC RATING (1-10) _____
 PHOTOS: 23-45 22-45

STREAM MEASUREMENTS: AVERAGE WIDTH: 15' AVERAGE DEPTH: 8" MAX DEPTH: 16"

LENGTH	WIDTH	DEPTH D			POOL/OBSTRUCTION		
300	15'	10"	14"	8"			POOL
50	10'	4"	6"	3"			RUN

CROSS-SECTIONS OF STREAM



DRAWING OF STREAM

Depth (ft)	Velocity (ft/sec)
0.6	-0.07
0.6	+0.80
0.6	0.69
0.6	2.90
0.6	1.01
0.6	0.95
0.6	0.88
0.6	0.80
0.6	0.79
0.6	0.62
0.6	0.30
0.6	0.02
0.6	-0.14
0.3	-0.15

RWE

Procedure No. WCPA-SWS-3
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WF-1
 5/5/00

re V-4-6. Reverse side of the Ohio EPA Site Description Sheet for evaluating the geographical and physical characteristics of fish sampling locations. This is used to record additional information about the sampling site and adjacent area.

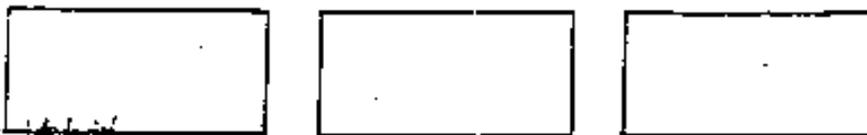
Is Reach Representative of Stream? (Y/N) Y # 1
 Additional Comments/Pollution Sources:

	GEAR	DISTANCE	WATER CLARITY	WATER STAGE	<input type="checkbox"/>	<input type="checkbox"/>
FIRST PASS	_____	_____	_____	_____		
SECOND PASS	_____	_____	_____	_____		
THIRD PASS	_____	_____	_____	_____		
CANOPY COVER:	<u>90</u>	GRADIENT: <u>LOW</u> (MODERATE) (HIGH)			SUBJECTIVE RATING (1-10) <u>4-4.5</u>	ESTHETIC RATING (1-10) <u>3-2.5</u>

STREAM MEASUREMENTS: AVERAGE WIDTH: 20' AVERAGE DEPTH: 8" MAX DEPTH: 16"

LENGTH	WIDTH	DEPTH:			POOL/LOG/SUM
150	16	2"	4"	6"	FLY
100	12	10"	3"	13"	POOL
80	18	5"	7"	6"	RUN

CROSS-SECTIONS OF STREAM



DRAWING OF STREAM

Velocity
 1.18
 1.18
 1.32
 1.52
 1.04
 1.21
 1.86
 1.80
 1.76
 1.68
 1.10

Procedure No. WCPA-SYS-3
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SF-3
 5/7/00
 2nd Duplicate for
 water samples

Figure V-4-8. Reverse side of the Ohio EPA Site Description Sheet for evaluating the geographical and physical characteristics of fish sampling locations. This is used to record additional information about the sampling site and adjacent area.

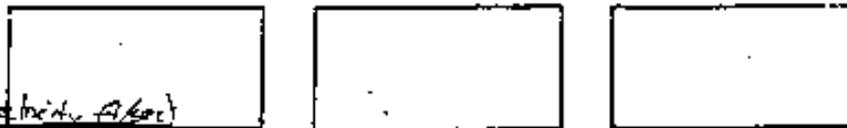
Is Reach Representative of Stream? (Y/N) If Not:
 Additional Comments/Problems Encountered:

GEAR DISTANCE WATER CLARITY WATER STAGE
 FIRST PASS
 SECOND PASS
 THIRD PASS
 CANOPY (SCOPEN) GRADIENT: 0-LOW 0-MODERATE 0-HIGH
 SUBJECTIVE RATING (1-10) AESTHETIC RATING (1-10)
 PHOTO: 11-45710-DS ^{Cam 2}

STREAM MEASUREMENTS: AVERAGE WIDTH 25" AVERAGE DEPTH 2" MAX DEPTH 24"

LENGTH	WIDTH	DEPTH (ft)			POOL	OLD	NEW	FLUM
300	25"	23"	16"	8"				POOL
15	20"	3"	4"	3"				S.P.

CROSS-SECTIONS OF STREAM



DRAWING OF STREAM

Velocity (ft/sec)

0.14
0.20
0.23
0.40
0.60
0.67
0.64
0.19
0.51
0.5
0.5
0.24
0.25
0.14
0.0
-0.06
-0.06
0.2
0.1

RWE

Procedure No. WOPA-SYS-3
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SF-1
 5/9/00

Figure V-4-6. Reverse side of the Ohio EPA Site Description Sheet for evaluating the geographical and physical characteristics of fish sampling locations. This is used to record additional information about the sampling site and adjacent area.

Is Reach Representative of Stream? (RSC) Y / N
 Additional Comments/Referral Request: _____

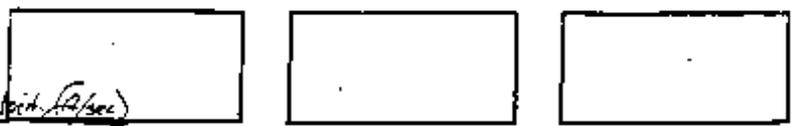
GEAR	DEPTH	WATER CLARITY	WATER TEMPERATURE	<input type="checkbox"/>	<input type="checkbox"/>
FIRST PASS				SUBJECTIVE RATING	ESTHETIC RATING
SECOND PASS				1-10	0-10
THIRD PASS				FACTORS	26-49/25-D3

GARDY FLOWERS 10 LOW MODERATE HIGH

STREAM MEASUREMENTS: AVERAGE WIDTH: 20 AVERAGE DEPTH: 1 MAX DEPTH: 18

LENGTH	WIDTH	DEPTH (D)			POOL CLASSIFICATION	
300	30	10"	16"	8"		POOL
100	25	4"	6"	4"		RUN
30	30	2"	3"	2"		RIF

CROSS-SECTIONS OF STREAM



DRAWING OF STREAM

(A) Velocity (ft/sec)

0.0	0.0
0.1	0.1
0.2	0.2
0.3	0.3
0.4	0.4
0.5	0.5
0.6	0.6
0.7	0.7
0.8	0.8
0.9	0.9
1.0	1.0
1.1	1.1
1.2	1.2
1.3	1.3
1.4	1.4
1.5	1.5
1.6	1.6
1.7	1.7
1.8	1.8
1.9	1.9
2.0	2.0

Procedure No. WOPA-SYS-3 Date Issued 9-30-89
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BG 1
5/11/00

Figure V-4-6. Reverse side of the Ohio EPA Site Description Sheet for evaluating the geographical and physical characteristics of fish sampling locations. This is used to record additional information about the sampling site and adjacent area.

Is Reach Representative of Stream? (YES Y / NO) _____
 Additional Comments/Pollution Sources: _____

	GEAR	DISTANC	WATER CLARITY	WATER STAGE	<input type="checkbox"/>	<input type="checkbox"/>
FIRST PASS	_____	_____	_____	_____		
SECOND PASS	_____	_____	_____	_____		
THIRD PASS	_____	_____	_____	_____		

CANOPY (PROM) 75 GRADIENT: LOW (MODERATE 0-HIGH) SUBJECTIVE RATING (1-10) PHOTO: 115-3/25-6

STREAM MEASUREMENTS: AVERAGE WIDTH 210 AVERAGE DEPTH 10" MAX DEPTH 30"

LENGTH	WIDTH	DEPTH			POOL/OLD/DEEP RUN
300	25"	10"	24"	8"	POOL
50	15"	4"	6"	6"	RUN

CROSS-SECTIONS OF STREAM



DRAWING OF STREAM

(A) Velocity

0.5	0.16
0.7	0.42
1.0	1.01
1.2	1.24
1.4	1.41
1.0	1.00
1.2	0.80
1.5	0.34
1.6	0.56
1.4	0.70
1.2	0.62
1.1	0.66
1.2	1.01
0.8	1.01
0.6	1.04
0.5	1.24
0.4	0.62
0.1	

FWE

UNY-1
5/4/00

Procedure No. WOPA-SWC-3 Date Issued 2-30-89
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Figure V-4-6. Reverse side of the Ohio EPA Site Description Sheet for evaluating the geographical and physical characteristics of fish sampling locations. This is used to record additional information about the sampling site and adjacent area.

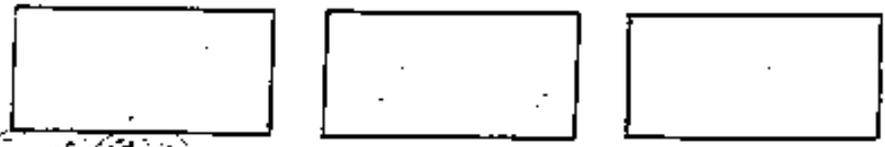
Is Reach Representative of Stream? Y If Not _____
Additional Comments/Problems Encountered:
Raining

WATER CLARITY: _____ WATER STAGE: _____
SUBJECTIVE RATING: (1-10) AESTHETIC RATING: (1-10)
CANDY PROPHET: 40 GRADIENT: X LOW 0-MODERATE 0-100H PHOTO: 15-4 (1-5)

STREAM MEASUREMENTS: AVERAGE WIDTH: 6' AVERAGE DEPTH: 5" MAX DEPTH: 10"

LENGTH	WIDTH	DEPTH	FEET		INCHES		PERCENT OF RUN
10'	7'	5"	10	7	5		10%
10'	6'	5"	10	6	5		10%
10'	6'	5"	10	6	5		10%
10'	6'	5"	10	6	5		10%
10'	6'	5"	10	6	5		10%
10'	6'	5"	10	6	5		10%
10'	6'	5"	10	6	5		10%
10'	6'	5"	10	6	5		10%
10'	6'	5"	10	6	5		10%
10'	6'	5"	10	6	5		10%

CROSS-SECTIONS OF STREAM



DRAWING OF STREAM

Handwritten notes and a vertical scale on the left side of the page, including the number 0.84.

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Date Effective 9-30-99

SD-1
5-4-00

is V-4-5. Reverse side of the Ohio EPA Site Description Sheet for evaluating the geographical and physical characteristics of fish sampling locations. This is used to record additional information about the sampling site and adjacent area.

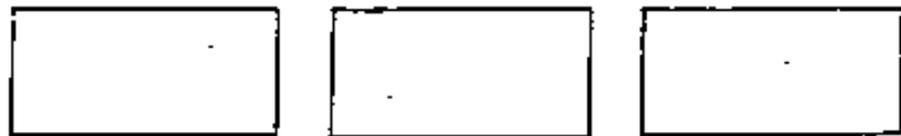
is Reach Representative of Stream? (RR) Y 100%
Additional Comments/Pollution Inputs: Down stream of Industrial Discharge
Bad Smell
A lot of fine silt like silt

FIRST PASS _____ GEAR _____ DISTANCE _____ WATER CLARITY _____ WATER STAGE _____
SECOND PASS _____
THIRD PASS _____
CANOPY (%OPEN) 5 GRADIENT: ~~LOW~~ MODERATE ~~LOW~~ HIGH
SUBJECTIVE RATING (1-10) _____ AESTHETIC RATING (1-10) _____
PHOTO: B-45/12-DS Can ①

STREAM MEASUREMENTS: AVERAGE WIDTH 15 AVERAGE DEPTH 8" MAX DEPTH 18"

LENGTH	WIDTH	DEPTH			POOL/GRASS/SHRUB		
300	12'	8"	14"	10"			Pool
20	10'	3"	4"	2"			RIF

CROSS-SECTIONS OF STREAM



DRAWING OF STREAM

(6) Vel (ft/sec)

1.1	0.14
1.2	0.18
1.3	0.22
1.4	0.19
1.5	0.60
1.6	0.20
1.7	0.18
1.8	0.11
1.9	0.08
2.0	0.06
2.1	0.02
2.2	0.04
2.3	0.06
2.4	0.03
RWE	

Procedure No. WOPA-SWS-3 Date Issued 9-30-89
 Revision No. B Date Effective 9-30-89

LP-1
5-6-00

Figure V-4-6. Reverse side of the Ohio EPA Site Description Sheet for evaluating the geographical and physical characteristics of fish sampling locations. This is used to record additional information about the sampling site and adjacent area.

Is Reach Representative of Stream? (Y/N) Y If No: _____
 Additional Comments/Pollution Sources: 2 kids throw rocks at us

GEAR DISTANCE WATER CLARITY WATER STAGE
 FIRST PASS _____
 SECOND PASS _____
 THIRD PASS _____
 SUBJECTIVE RATING (1-10) _____
 AESTHETIC RATING (1-10) _____
 CANOPY (SLOPE) 10 GRADIENT: LOW & MODERATE & HIGH FACTOR: 15-US/14-DS

STREAM MEASUREMENTS: AVERAGE WIDTH 30 AVERAGE DEPTH 12" MAX DEPTH 4"

LENGTH	WIDTH	DEPTH (D)			POOL/CLIFF/RUN	
300	25	16"	30"	20"		POOL
50	25	5"	4"	18"		RUN

CROSS-SECTIONS OF STREAM



DRAWING OF STREAM

2 (A) Velocity (ft/sec)

2, also has concrete tripping hazards

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LC-2
 5/6/00

Figure V-4-6. Reverse side of the Ohio EPA Site Description Sheet for evaluating the geographical and physical characteristics of fish sampling locations. This is used to record additional information about the sampling site and adjacent area.

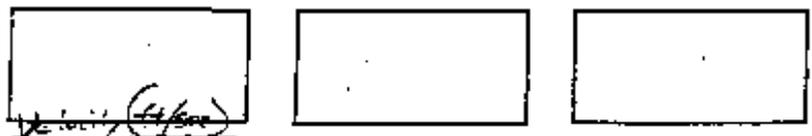
Is Reach Representative of Stream? Y If Not: Mostly Duck of Ducklings
 Additional Comments/Pollution Impacts:

FRIST PASS _____ GEAR _____ DISTANCE _____ WATER CLARITY _____ WATER STAGE
 SECOND PASS _____ SUBJECTIVE RATING (1-10) _____ AESTHETIC RATING (1-10) _____
 THIRD PASS _____ PHOTO: 19-15 18-D5
 CANOPY COVER: 65 GRADIENT: LOW O-MODERATE O-HIGH

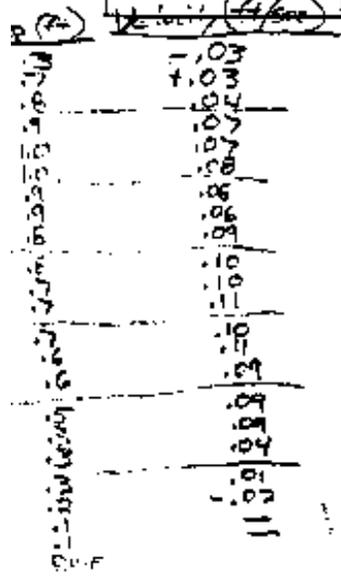
STREAM MEASUREMENTS: AVERAGE WIDTH: 13' AVERAGE DEPTH: 6" MAX. DEPTH: 12"

LENGTH	WIDTH	DEPTH			POOL/SLUDG/RUN
80	17	8"	10"	12"	POOL
20	10	3"	4"	5"	RUN
200	16	6"	8"	12"	POOL

CROSS-SECTIONS OF STREAM



DRAWING OF STREAM



Procedure No. WOPA-SYS-3
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PC-15
5/2/90

Figure V-4-B. Reverse side of the Ohio EPA Site Description Sheet for evaluating the geographical and physical characteristics of fish sampling locations. This is used to record additional information about the sampling site and adjacent area.

Is Reach Representative of Stream? (Yes) Y if No: _____

Additional Comments/Pollution Impacts: _____

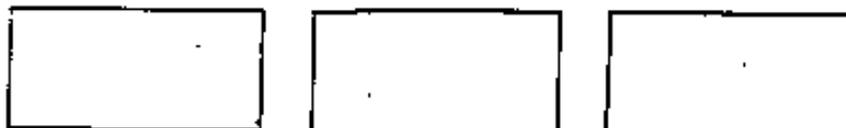
Field tiles on both banks with discharge to stream

GEAR _____ DISTANCE _____ WATER CLARITY _____ WATER TEMPERATURE _____
 FIRST PASS _____ SECOND PASS _____ THIRD PASS _____
 CANOPY (PERCENT) 90 GRADIENT DOWN DISCHARGE DOWN
 SUBJECTIVE RATING (1-10) _____ AESTHETIC RATING (1-10) _____
 PHOTO: US-27 DS-26 Ca. 1000 ①

STREAM MEASUREMENTS: AVERAGE WIDTH: 7 AVERAGE DEPTH: 6" MAX DEPTH: 18"

LENGTH	WIDTH	DEPTH	POOL	CLASSIFICATION	
45'	5'	4"	5"	3"	RUN
65'	10'	12"	8"	6"	POOL
40'	7'	4"	6"	3"	RUN
170'	10'	12"	8"	5"	POOL
25'	4'	8"	8"	4"	RUN

CROSS-SECTIONS OF STREAM



DRAWING OF STREAM

Depth (ft)	Vel (ft/sec)	Depth (ft)	Vel (ft/sec)
.2	-0.36	4.3	.8 1.2
.3	-0.33	4.7	.7 0.64
.5	-0.13	5.0	.4 0.20
.5	0.14	5.3	- RWE
.6	0.68		
.6	1.23		
.7	1.84		
.8	2.10		
.8	2.18		
.8	2.03		
.8	1.99		
.8	1.74		

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PC-14
 5/2/00

Figure V-4-6. Reverse side of the Ohio EPA Site Description Sheet for evaluating the geographical and physical characteristics of fish sampling locations. This is used to record additional information about the sampling site and adjacent area.

Is Reach Representative of Stream? (Yes) Y If Not: _____
 Additional Comments/Photos/Notes: _____

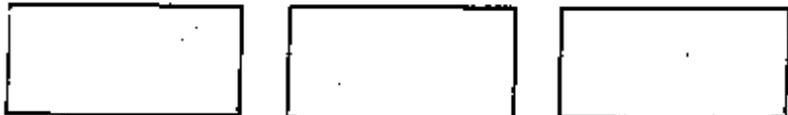
	GEAR	NETTING	WATER CLARITY	WATER STAGE	<input type="checkbox"/>	<input type="checkbox"/>
FIRST PASS	_____	_____	_____	_____		
SECOND PASS	_____	_____	_____	_____		
THIRD PASS	_____	_____	_____	_____		

GRADIENT: 0-LOW 0-MODERATE 0-HIGH
 SUBJECTIVE RATING: P-18
 ESTIMATED RATING: P-18
 PHOTO: MS-23 DS-22 ^{Cam 1}

STREAM MEASUREMENTS: AVERAGE WIDTH: 10' AVERAGE DEPTH: 6" MAX DEPTH: 18"

LENGTH	WIDTH	DEPTH			POOL	OLD	DRIF	RUN
300	10'	6"	14"	7"				Pool
20	8'	6"	8"	4"				Run
20	6'	2"	4"	4"				R.F.

CROSS-SECTIONS OF STREAM



on L Bank

Depth	Vel
0.3'	0.03
0.6'	0.60
1.0'	0.76
1.0'	0.52
0.9'	0.75
1.0'	0.70
1.0'	0.86
1.0'	0.93
1.0'	0.94
0.9'	0.81
0.8'	0.81
0.9'	0.78
0.8'	0.84
0.8'	0.86
0.6'	0.48
0.6'	0.27
0.4'	0.08

on R Bank

DRAWING OF STREAM

Procedure No. WOPA-SWS-3
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PC-13
 5/8/00

Figure V-4-5. Reverse side of the Ohio EPA Site Description Sheet for evaluating the geographical and physical characteristics of fish sampling locations. This is used to record additional information about the sampling site and adjacent area.

Is Reach Representative of Stream (RRR) Y No

Additional Comments/Photos Support:

WINDY PACE	<u> </u>	SEMI	<u> </u>	WATER CLARITY	<u> </u>	WATER STAGE	<u> </u>	<input type="checkbox"/>	<input type="checkbox"/>
SECOND PACE	<u> </u>	ENTIRE	<u> </u>					SUBJECTIVE RATING (1-10)	AESTHETIC RATING (1-10)
THIRD PACE	<u> </u>		<u> </u>						
CANOPY (PROP)	<u>65</u>	BRIGHT: 0-LOW 0-MODERATE 0-HIGH				PHOTOS <u>Gen 2-105/Gen 3-270</u>			

STREAM MEASUREMENTS: AVERAGE WIDTH 40 AVERAGE DEPTH 2' MAX DEPTH 3'

LENGTH	WIDTH	DEPTH			POOL/OLD/RIP RUN	
<u>300</u>	<u>40</u>	<u>1.5'</u>	<u>2'</u>	<u>3'</u>		<u>Pool</u>

CROSS-SECTIONS OF STREAM

DRAWING OF STREAM

Left (ft) Velocity (ft/sec)

1.8	.05
1.1	.05
1.1	.24
1.4	.24
1.4	.24
1.5	.24
1.7	.66
1.7	.66
1.7	.71
1.7	.62
2.1	.58
1.9	.62
1.8	.59
2.2	.45
1.8	.42
1.8	.51
1.4	.50
1.4	.27

RWE

Procedure No. WOPA-SWS-3
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PC-12
 5/10/00

Figure V-4-6. Reverse side of the Ohio EPA Site Description Sheet for evaluating the geographical and physical characteristics of fish sampling locations. This is used to record additional information about the sampling site and adjacent area.

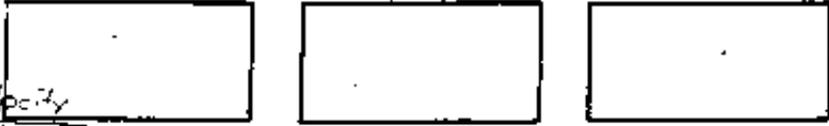
Is Reach Representative of Stream? (R/R) Y
 Additional Comments/Photos (space):

FIRST PASS _____ GEAR _____ DISTANCE _____ WATER CLARITY _____ WATER TEMPERATURE _____
 SECOND PASS _____
 THIRD PASS _____
 CANOPY (FLOPER) 65 GRABBER: X LOW (ACCELERATE) 0-HIGH FACTOR: 16-U/275-DS

STREAM MEASUREMENTS: AVERAGE WIDTH 35' AVERAGE DEPTH 2" MAX DEPTH 24"

LENGTH	WIDTH	DEPTH			POOL/CLIFF/RUN
300		6"	10"	6"	Run
300		10"	20"	18"	Pool

CROSS-SECTIONS OF STREAM



DRAWING OF STREAM

Dep (ft)	Velocity
0.4	1.76
0.5	2.10
0.6	1.98
0.7	1.66
0.8	1.94
0.9	1.78
0.7	1.84
0.8	1.86
0.6	1.95
0.7	1.74
0.7	1.59
0.5	1.67
0.6	2.00
0.9	2.44
1.1	2.01
1.0	2.37
0.8	2.56
0.7	2.30
0.8	2.00
0.5	1.29
0.3	0.60
RWE	

Procedure No. WQCA-675-3
 Revision No. 3

Date Issued 9-30-88
 Date Effective 9-30-88

PC-11
 5/10/00

Figure V-4-6. Reverse side of the Ohio EPA Site Description Sheet for evaluating the geographical and physical characteristics of fish sampling locations. This is used to record additional information about the sampling site and adjacent area.

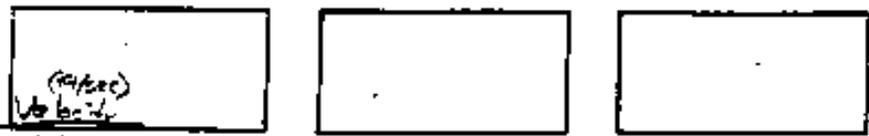
Is Reach Representative of Stream (Y/N) Y 8 Hrs.
 Additional Comments/Photos Impact: _____

DEAR _____ DISTANC _____ WATER CLARITY _____ WATER STAGE _____
 FIRST PASS _____ SECOND PASS _____ THIRD PASS _____
 SUBJECTIVE RATING (1-10) _____ AESTHETIC RATING (1-10) _____
 CATCHY (NO/YES) NO SPENDING LOW CALCULATE 0-HIGH PHOTO: 19-43/18-05

STREAM MEASUREMENTS: AVERAGE WIDTH: 35' AVERAGE DEPTH: 1.5' MAX DEPTH: 3'

LENGTH	WIDTH	DEPTH	POOL/DROP/FLOW
500	30'	1.5' 2.5' 1.0'	POOL

CROSS-SECTIONS OF STREAM



DRAWING OF STREAM

Depth (ft)	Velocity (ft/sec)
1.0	1.09
1.3	0.88
1.1	1.27
1.4	1.67
1.6	1.55
2.0	1.48
2.0	1.88
2.0	1.88
2.0	1.65
1.9	1.70
2.2	1.68
1.8	1.51
1.2	1.20
1.3	0.75
1.3	0.09
0.8	-0.05

Procedure No. WOPA-SYS-3
 Revision No. 6

Date Issued 9-30-89
 Date Effective 9-30-89

PC-9
 5/10/00

Figure V-4-8. Reverse side of the Ohio EPA Site Description Sheet for evaluating the geographical and physical characteristics of fish sampling locations. This is used to record additional information about the sampling site and adjacent area.

In Reach Representative of Stream? Y if not: _____
 Additional Comments/Pollution Impact: _____

	DEBRIS	DETritus	WATER CLARITY	WATER STAGE	<input type="checkbox"/>	<input type="checkbox"/>
FIRST PASS	_____	_____	_____	_____		
SECOND PASS	_____	_____	_____	_____		
THIRD PASS	_____	_____	_____	_____		

CANOPY (%OPEN) 85 GRADIENT: LOW 0-MODERATE 0-HIGH PHOTO: _____
 SUBJECTIVE RATING (1-10) _____ AESTHETIC RATING (1-10) _____

STREAM MEASUREMENTS: AVERAGE WIDTH: 60 AVERAGE DEPTH: 3' MAX DEPTH: 5' feet

LENGTH	WIDTH	DEPTH			POOL OR DRAIN		
<u>300</u>	<u>60</u>	<u>3'</u>	<u>5'</u>	<u>3'</u>			<u>YDS</u>

CROSS-SECTIONS OF STREAM

pp for flow measurements DRAWING OF STREAM

Procedure No. WCPA-SWIS-2
 Revision No. 6

Date Issued 9-30-89
 Date Effective 9-30-89

PC-6
 5/14/00

Figure V-4-6. Reverse side of the Ohio EPA Site Description Sheet for evaluating the geographical and physical characteristics of fish sampling locations. This is used to record additional information about the sampling site and adjacent area.

Is Reach Representative of Stream? (R/R) Y

Additional Comments/Photos taken: _____

GEAR _____ DISTANCE _____ WATER CLARITY _____ WATER STAGE _____
 FIRST PASS _____
 SECOND PASS _____
 THIRD PASS _____

SANDY (R/R) 20 SPAN: X LOW MODERATE HIGH
 SUBJECTIVE RATING (1-4) _____ AESTHETIC RATING (1-10) _____
 PHOTO: 15-03/14-DS

STREAM MEASUREMENTS: AVERAGE WIDTH 75' AVERAGE DEPTH 3' MAX DEPTH 5'

LENGTH	WIDTH	DEPTH			POOL/DROP/FLOW	
		3'	5'	15'		
300	75					POOL

CROSS-SECTIONS OF STREAM

DRAWING OF STREAM

for Velocity readings

Procedure No. WOPA-SYS-3
 Revision No. 6

Date Issued 9-30-89
 Date Effective 9-30-89

PL-5
 5/12/00

Figure V-4-6. Reverse side of the Ohio EPA Site Description Sheet for evaluating the geographical and physical characteristics of fish sampling locations. This is used to record additional information about the sampling site and adjacent area.

Survey
 4

to Reach Representation of Segment (CRS) Y if No: _____
 Additional Comments/Politeness Impacts: _____

NET PASS GEAR DISTANCE WATER CLARITY WATER STAGE
 SECOND PASS _____
 THIRD PASS _____
 CANNY (NO. PER) 25 GRADE: X LOW ON CORNERS 0-MIN SUBJECTIVE RATING (1-10) _____ AESTHETIC RATING (1-10) _____
 PHOTO: 27-45/26-DS

STREAM MEASUREMENTS: AVERAGE WIDTH: 80 AVERAGE DEPTH: 1.5 MAX DEPTH: 3

LENGTH	WIDTH	DEPTH			POOL/GLOW/FLOW
300	90	5"	14"	6"	POOL
25	70	4"	3"	6"	RIF

CROSS-SECTIONS OF STREAM



DRAWING OF STREAM

Do(A) Velocity (ft/sec)

1.4	0.69
1.6	1.08
1.0	1.06
1.0	1.24
0.8	1.04
0.7	1.18
0.7	0.89
0.6	0.89
0.5	1.11
0.5	1.16
0.5	0.97
0.5	0.74
0.6	1.11
0.3	0.74

RWE

Procedure No. WOPA-SNS-3
 Revision No. 1

Date Issued 9-30-89
 Date Effective 9-30-89

PC-4
 5/14/00

Figure V-4.6. Reverse side of the Ohio EPA Site Description Sheet for evaluating the geographical and physical characteristics of fish sampling locations. This is used to record additional information about the sampling site and adjacent area.

Is Reach Representative of Stream? (Yes) Y / No: _____
 Additional Comments/Notes: _____

FIRST PASS _____ DEBRIS _____ WATER CLARITY _____ WATER STAGE _____
 SECOND PASS _____
 THIRD PASS _____

CANOPY COVER: 60 GRADIENT: LOW CONCENTRATE: LOW
 SUBJECTIVE RATING (1-10) _____
 AESTHETIC RATING (1-10) _____
 FACTOR: 13-14/12-15

STREAM MEASUREMENTS: AVERAGE WIDTH: 6.5 AVERAGE DEPTH: _____ MAX DEPTH: 3'

LENGTH	WIDTH	DEPTH			POOL	OBSTACLE	FLUM
300	6.5	2'	3'	2.5'			
300	6.5	1'	1.5'	1'			

CROSS-SECTIONS OF STREAM

Dep (ft)	Velocity (ft/sec)
0.7	1.25
0.7	1.77
0.7	3.16
0.8	2.86
1.0	2.47
1.3	2.11
1.5	2.27
1.8	1.66
2.1	1.76
1.6	1.94
1.1	2.02
0.6	0.54

DRAWING OF STREAM

Procedure No. MOFA-SWS-3
Revision No. 6

Date Issued 9-30-89
Date Effective 9-30-89

PC-3
5/8/00

Figure V-4-6. Reverse side of the Ohio EPA Site Description Sheet for evaluating the geographical and physical characteristics of fish sampling locations. This is used to record additional information about the sampling site and adjacent area.

Is Reach Representative of Stream? (Yes) Y No N
Additional Comments/Physical Features:

FIRST PASS _____ WEAR _____ DISTANCE _____ WATER CLARITY _____ WATER STAGE _____
SECOND PASS _____
THIRD PASS _____
CANOPY (L0P0H) SS GRADIENT: LOW DISBURSEMENT 0-100% SUBJECTIVE RATING (1-10) _____ AESTHETIC RATING (1-10) _____
PHOTOS: SU-140

STREAM MEASUREMENTS: AVERAGE WIDTH 40' AVERAGE DEPTH _____ MAX DEPTH 4'
LENGTH _____ WIDTH _____ DEPTH _____ POOL/SLOW/FLOW

LENGTH	WIDTH	DEPTH	POOL/SLOW/FLOW

CROSS-SECTIONS OF STREAM

DRAWING OF STREAM

B Dep Velocity

sp and precarious

Procedure No. WOPA-SWS-3
 Revision No. II

Date Issued 8-30-88
 Date Effective 8-30-88

PC-1
 5/12/00

Figure V-4-5. Reverse side of the Ohio EPA Site Description Sheet for evaluating the geographical and physical characteristics of fish sampling locations. This is used to record additional information about the sampling site and adjacent area.

Is Reach Representative of Stream? (Y/N) Y Yes No

Additional Comments/Photos Impact:

DEBRIS	DETUNG	WATER CLARITY	WATER STAGE	<input type="checkbox"/>	<input type="checkbox"/>
FIRST PASS				SUBJECTIVE RATING (1-98)	ASTHETIC RATING (1-98)
SECOND PASS					
THIRD PASS					
CANOPY (NOFISH) <u>90</u>	SHADEN: <u>LOW</u> 0=LOW 0=HIGH		PHOTOS: <u>4-45/3-DS</u>		

STREAM MEASUREMENTS: AVERAGE WIDTH 70' AVERAGE DEPTH 5' MAX DEPTH 5'

LENGTH	WIDTH	DEPTH			POOL/OVERFLOW					
300	70	4'	6'	5'						



DRAWING OF STREAM

locity readings, too deep.

5A-1
5/2/00

Rapid Bioassessment Protocol II

Braunvey Field Data Sheet

RELATIVE ABUNDANCE OF AQUATIC BIOTA

Periphyton	0	1	2	3	4	Slimes	0	1	2	3	4
Filamentous Algae	0	1	2	3	4	Macrobenthos	0	1	2	3	4
Macrophytes	0	1	2	3	4	Fish	0	1	2	3	4

0 = Absent/Not Observed 1 = Rare 2 = Common 3 = Abundant 4 = Dominant

MACROBENTHOS QUALITATIVE SAMPLE LIST

Macroinvertebrate Group	Abundance
Oligochaeta	
Isopoda	
Amphipoda	
Crustacea	
Anisopoda	
Copepoda	
Cladocera	
Zygotea	
Diptera	
Blattellidae	
Diptera	
Simuliidae	
Trichoptera	
Other	

RIFLE SAMPLE

FUNCTIONAL FEEDING GROUPS Indicate No. of Individuals Representing Group

SCORERS Filtering Collectors

CPOM SAMPLE FUNCTIONAL FEEDING GROUPS Indicate No. of Individuals Representing Group

Shredders 8 Total Org. in Sample 58

Observations: *Gyrinidae* - water bug
Coeloptera - water stinger

Water temp 27.1 °C
Cond = 507
DO = 13.2
%DO = 193%
pH = 8.56

WF-2
5/5/00

Rapid Bioassessment Protocol II

Biosurvey Field Data Sheet

RELATIVE ABUNDANCE OF AQUATIC BIOTA

Periphyton	0	1	2	3	4	Slimes	0	1	2	3	4
Filamentous Algae	0	1	2	3	4	Macroinvertebrates	0	1	2	3	4
Macrophytes	0	1	2	3	4	Fish	0	1	2	3	4

0 = Absent/Not Observed 1 = Rare 2 = Common 3 = Abundant 4 = Dominant

MACROBENTHOS QUALITATIVE SAMPLE LIST

Organisms	List Families Represented/Relative Abundance
Amphipods - 1 (1)	Amphipod - 1 (1)
Planarians - 1 (3)	Planarian - 1 (3)
Gastropods - 1 (1)	Gastropods - 1 (1)
Collembola - 1 (1)	Collembola - 1 (1)
Zooplankton - 1 (1)	Zooplankton - 1 (1)
Crustaceans - 1 (1)	Crustaceans - 1 (1)
Rotifers - 1 (1)	Rotifers - 1 (1)
Hydracarina - 1 (1)	Hydracarina - 1 (1)
Hydroptera - 1 (1)	Hydroptera - 1 (1)
Trichoptera - 1 (1)	Trichoptera - 1 (1)
Diptera - 1 (1)	Diptera - 1 (1)
Simuliidae - 1 (1)	Simuliidae - 1 (1)
Chironomidae - 1 (1)	Chironomidae - 1 (1)
Other	

AQFLE SAMPLE FUNCTIONAL FEEDING GROUPS

Shredders Filtering Collectors

CPOM SAMPLE FUNCTIONAL FEEDING GROUPS

Shredders Total Org. in Sample 50

Observations

Water temp = 24°C
 DO = 15.6 mg/L
 %DO = 188%
 pH = 7.89
 Cond = 636 µmhos

SF-3 X
5/7/00
add Duplicate

Rapid Bioassessment Protocol II

Biosurvey Field Data Sheet

RELATIVE ABUNDANCE OF AQUATIC BIOTA

Periphyton	0	1	2	3	4	Swims	0	1	2	3	4
Filamentous Algae	0	1	2	3	4	Macroinvertebrates	0	1	2	3	4
Macrophytes	0	1	2	3	4	Fish	0	1	2	3	4

0 = Absent/Not Observed 1 = Rare 2 = Common 3 = Abundant 4 = Dominant

MACROBENTHOS QUALITATIVE SAMPLE LIST

Organism Group	List Species Present/Indicate Abundance
Oligochaete	Isopod - 1 (1) ✓ Tubificoides - 1 (1) ✓
Amphipoda	
Crustacea	Copepoda Hairy - 1 (1) ✓ 2 species - 1 (1) ✓
Diptera	Diptera Br. Chin - 1 (1) ✓
Plecoptera	Kamoharuiidae - 1 (1) ✓
Ephemeroptera	Blood Red - 1 (1) ✓
Trichoptera	
Other	

RIFFLE SAMPLE

FUNCTIONAL FEEDING GROUPS	Indicate No. of Individuals Representing Group
Scrapers	Filtering Collectors

CPOM SAMPLE

FUNCTIONAL FEEDING GROUPS	Indicate No. of Individuals Representing Group
Shredders	Total Org. in Sample

Observations

Water temp = 22.5
DO = 19 mg/L
% DO = 252%
Cond = 1703 µmhos
pH = 8.34

SF-2
5/7/00

Rapid Bioassessment Protocol II

Biosurvey Field Data Sheet

RELATIVE ABUNDANCE OF AQUATIC BIOTA

Pengynton	0	①	2	3	4	Slimes	①	1	2	3	4
Filamentous Algae	0	1	②	3	4	Macroinvertebrates	0	1	②	3	4
Macrophytes	①	1	2	3	4	Fish	0	1	2	③	4

0 = Absent/Not Observed 1 = Rare 2 = Common 3 = Abundant 4 = Dominant

Shad
Common
Bass
Large Carp
Sunfish
Gambusia/Catfish

MACROBENTHOS QUALITATIVE SAMPLE LIST

Order	Family	Abundance
Diglossini	Isopoda - <i>Hyalella</i>	16
	Ameletidae (1)	
Amphipoda	Amphipoda - <i>Stygia</i>	1
	Coleoptera - <i>Dytiscid</i>	1
	Zygoptera - <i>Callibaetis</i>	1
Bivalvia	Diglossini - <i>Simulidae</i>	36
	Bivalvia - <i>Chiron</i>	1
	Bivalvia - <i>Blattellid</i>	1
Ephemeroptera	Ceratopogonidae	11
	Trichoptera - <i>Hydropsychid</i>	1
Other		

RIFFLE SAMPLE FUNCTIONAL FEEDING GROUPS	Indicate No. of Individuals Representing Group
Sifters	Filtering Collectors
GRON SAMPLE FUNCTIONAL FEEDING GROUPS	Indicate No. of Individuals Representing Group
Sifters	Total Org. in Sample

Water temp = 22.3°C
Cond = 1693 µmhos
DO = 24.0 mg/L
%DO = 305%
pH = 8.46

SF-7 X
5/9/00

Rapid Bioassessment Protocol II

Biosurvey Field Data Sheet

RELATIVE ABUNDANCE OF AQUATIC BIOTA

Periphyton	0	1	2	3	4	Slimes	0	1	2	3	4
Filamentous Algae	0	1	2	3	4	Macrobenthos	0	1	2	3	4
Macrophytes	0	1	2	3	4	Fish	0	1	2	3	4

0 = Absent/Not Observed 1 = Rare 2 = Common 3 = Abundant 4 = Dominant

MACROBENTHOS QUALITATIVE SAMPLE LIST

Macroinvertebrate Group	Relative Abundance	List Positive Percentabundance
Oligochaeta - 1	1	Aspogon - 100% (6) ✓
Amphipods		
Gastropods - 1	1	Colymba - 100% (1) ✓
Zygopoda - 1	1	Elm. ... - 100% (1) ✓
Bivalvia - 1	1	D. ... - 100% (1) ✓
Planorbis - 1	1	Diplo. ... - 100% (1) ✓
Ephemeroptera - 1	1	... - 100% (1) ✓
Trichoptera - 1	1	... - 100% (1) ✓

Other

RIFLE SAMPLE FUNCTIONAL FEEDING GROUPS	Indicate No. of Individuals Representing Group
Scrapers	Filtering Collectors
CROM SAMPLE FUNCTIONAL FEEDING GROUPS	Indicate No. of Individuals Representing Group
Shredders	Total Org. in Sample

Observations

Water temp = 20.4°C
DO = 17.0 mg/L
%DO = 110%
pH = 8.04
Cond = 1,670 µmhos

5/10/00
SC-1

Rapid Bioassessment Protocol II

Biosurvey Field Data Sheet

RELATIVE ABUNDANCE OF AQUATIC BIOTA

Periphyton	0	1	2	3	4						
Filamentous Algae	0	1	2	3	4						
Macrophytes	0	1	2	3	4						
						Bilms	0	1	2	3	4
						Macromicrobials	0	1	2	3	4
						Fish	0	1	2	3	4

0 - Absent/Not Observed 1 - Rare 2 - Common 3 - Abundant 4 - Common

MACROBENTHOS QUALITATIVE SAMPLE LIST

Order	Class	Genus/Species	Abundance
Chironomidae	Chironomidae	Chironomus tentaculatus (50)	10
	Amphipoda	Amphipoda (10)	1
Gastropoda	Gastropoda	Gastropoda (10)	1
	Coleoptera	Coleoptera (10)	1
	Hydrata	Hydrata (10)	1
Bivalvia	Bivalvia	Bivalvia (10)	1
	Diptera	Diptera (10)	1
	Trichoptera	Trichoptera (10)	1
	Phlebotomidae	Phlebotomidae (10)	1
Ephemeroptera	Ephemeroptera	Ephemeroptera (10)	1
Caddisfly	Caddisfly	Caddisfly (10)	1
Other			

FUNCTIONAL FEEDING GROUPS	Number of Individuals Representing Group
Scrapers	
Filtering Collectors	
FUNCTIONAL FEEDING GROUPS	Number of Individuals Representing Group
Shredders	26
Other	
Total Org. in Sample	50

water temp = 17.9°C
 DO = 23 mg/L
 %DO = 286%
 Cond = 3,295 µmhos
 PH = 8.08

UN-1 X
5/4/00

Rapid Bioassessment Protocol II

Biosurvey Field Data Sheet

RELATIVE ABUNDANCE OF AQUATIC BIOTA

Periphyton	0	1	2	3	4
Algalenous Algae	0	1	2	3	4
Macrophytes	0	1	2	3	4

Slimes	0	1	2	3	4
Macroinvertebrates	0	1	2	3	4
Fish	0	1	2	3	4

0 = Absent/Not Observed 1 = Rare 2 = Common 3 = Abundant 4 = Dominant

MACROINVERTIBRATE QUALITATIVE SAMPLE LIST

Class	Order	Family	Abundance
Oligochaeta	Anisobdella	Hydropsyche	11 (10)
		Hydropsyche	11 (7)
Gastropoda	Zygoptera	Coenagrionidae	11 (3)
		Libellulidae	11 (1)
Bivalvia	Plecoptera	Diptera Simuliidae	11 (1)
		Braconidae	11 (1)
Ephemeroptera	Trichoptera	Blattellidae	11 (1)

RIFFLE SAMPLE

FUNCTIONAL FEEDING GROUPS	Indicate No. of Individuals Representing Group
Scrapers	Filtrating Collectors

CPOM SAMPLE FUNCTIONAL FEEDING GROUPS	Indicate No. of Individuals Representing Group
Shredders	Total Org. in Sample

Observations

Water temp = 18.5°C
DO = 14.0 mg/L
DO% = 152%
pH = 7.58
Cond = 1070 µmhos

SD-1 X
5-4-00

Rapid Bioassessment Protocol II

Biosurvey Field Data Sheet

RELATIVE ABUNDANCE OF AQUATIC BIOTA

Periphyton	0	1	2	3	4	Slimes	0	1	2	3	4
Edible Algae	0	1	2	3	4	Macroinvertebrates	0	1	2	3	4
Macrophytes	0	1	2	3	4	Fish	0	1	2	3	4

0 = Absent/Not Observed 1 = Rare 2 = Common 3 = Abundant 4 = Dominant

MACROBENTHOS QUALITATIVE SAMPLE LIST

Order	Family	Relative Abundance
Oligoneuridae	15	1
	Amphipoda	1
Gastropoda	11	1
	Coelocera	
	Zygotea	
Bivalvia		
	Planorbis	
	Diptera Bloodred	105
	Chironomidae	111 (4)
	Trichoptera	

RIFLE SAMPLE

FUNCTIONAL FEEDING GROUPS

Indicate no. of individuals representing Group

Scrapers

Filtering Collectors

SPOM SAMPLE

FUNCTIONAL FEEDING GROUPS

Indicate no. of individuals representing Group

Shredders

Total Org. in Sample

50

Observations

water temp = 17.5°C
DO = 11.5
% DO = 122%
Cond = 860 µmhos
pH = 7.3

LP-1
5/6/00

Rapid Bioassessment Protocol II

Biosurvey Field Data Sheet

RELATIVE ABUNDANCE OF AQUATIC BIOTA

Periphyton	0	1	2	3	4	Gambs	0	1	2	3	4
Filamentous Algae	0	1	2	3	4	Macrobenthos	0	1	2	3	4
Macrophytes	0	1	2	3	4	Fish	0	1	2	3	4

0 = Absent/Not Observed 1 = Rare 2 = Common 3 = Abundant 4 = Dominant

MACROBENTHOS QUALITATIVE SAMPLE LIST

Macroinvertebrate Group	Relative Abundance	Macroinvertebrate Group	Relative Abundance
Oligochaeta - HTLHTHTHTH (17)		Isopoda - HTHTHT HTLHTHTHTHTH (34)	
		Amphipod - HT (6)	
Crustacea - 11 physa (2)		Copepoda	
		Zygodontid - HT (2)	
Trichoptera - 1 (1)		Diptera Brn Chnd - HTLHTHTHTH (16)	
		Blatred - HT (3)	
Ephemeroptera - 1 (1)		Thalassidroma	
		Thalassidroma (37)	

Other

RIFFLE SAMPLE

FUNCTIONAL FEEDING GROUPS

(Indicate No. of Individuals Representing Group)

Shredders

(Filtering Collectors)

GPOM SAMPLE FUNCTIONAL FEEDING GROUPS

(Indicate No. of Individuals Representing Group)

Shredders

Total Org. in Sample

Observations

water temp = 21°C
DO = 11.7 mg/L
% DO = 130%
pH = 7.67
Cond = 346 µmhos

PC-12
 5/10/06
 X

Rapid Bioassessment Protocol II

Biosurvey Field Data Sheet

RELATIVE ABUNDANCE OF AQUATIC BIOTA

Periphyton	0	1	2	3	4						
Filamentous Algae	0	1	2	3	4	Silices	0	1	2	3	4
Macrophytes	0	1	2	3	4	Macromineralizers	0	1	2	3	4
						Fish	0	1	2	3	4

0 = Absent/Not Observed 1 = Rare 2 = Common 3 = Abundant 4 = Dominant

MACROINVERTIBRATE QUALITATIVE SAMPLE LIST

Order	Family	Number	Abundance
Diptera			
	Chironomidae		
	Simuliidae	11	2
	Elmidae	11	2
	Heurys	1	1
	Diptera Brn. C. A. ind.	1	1
	Simuliidae	1	1
	Bl. ind.	1	1
	Carabidae	1	1
	Trichoptera		
	Trichoptera		
Other			

RIFPLE SAMPLE FUNCTIONAL FEEDING GROUPS	Indicate No. of Individuals Representing Group
Scrapers	
Filtering Collectors	
CPOM SAMPLE FUNCTIONAL FEEDING GROUPS	Indicate No. of Individuals Representing Group
Scrapers	
Filtering Collectors	
Other	
Observations	Total Org. In Sample: 50

Water quality = 28.1°C
 DO = 18.7 mg/L
 %O = 222%
 pH = 8.17
 Cond = 1,149 µmhos

Handwritten notes and symbols on the right side of the form, including circled letters and symbols.

PC-8
5/3/00

Rapid Bioassessment Protocol II

Biosurvey Field Data Sheet

RELATIVE ABUNDANCE OF AQUATIC BIOTA

Phytoplankton	0	1	2	3	4	Slimes	0	1	2	3	4
Filamentous Algae	0	1	2	3	4	Macromammals	0	1	2	3	4
Macrophytes	0	1	2	3	4	Fish	0	1	2	3	4

0 = Absent/Not Observed 1 = Rare 2 = Common 3 = Abundant 4 = Dominant

MACROBENTHOS QUALITATIVE SAMPLE LIST

List Families Present/Indicate Abundance

Oligoneuridae	1 1	Tropidocoleidae	13	Psephenidae	1
Gammaridae	1	Anisoptera			
Gastropoda		Collembola			
Amphipoda	1	Psephenidae	1	Elmidae	1
Limnocoelinae	1	Zygoptera		Dryinidae	1
Bivalvia	1	Coleoptera	1	Diptera	1
		Platyphlebotomidae			
Ephemeroptera					
Coleoptera	1	Trichoptera			
		Hydracarina	1		
Cineta					

Amphipoda

RIPPLE SAMPLE

FUNCTIONAL FEEDING GROUPS

(Indicate No. of Individuals Representing Group)

Scrubbers	5	Filtering Collectors	5
-----------	---	----------------------	---

CPDM SAMPLE FUNCTIONAL FEEDING GROUPS (Indicate No. of Individuals Representing Group)

Scrubbers		Total Org. in Sample	
-----------	--	----------------------	--

Observations

Pictures 21 - upstream
20 - downstream

air temp = 22.5
water temp = 20.5
DO = 8.5 mg/L
% DO = 100%
pH = 7.8
Cond = 1,793

PL-7
5/12/0

Rapid Bioassessment Protocol II

Bioassay Field Data Sheet

RELATIVE ABUNDANCE OF AQUATIC INCTA

Periphyton	0	1	2	3	4
Flamboyant Algae	0	1	2	3	4
Macrophytes	0	1	2	3	4

Shores	0	1	2	3	4
Macrinovertebrates	0	1	2	3	4
Fish	0	1	2	3	4

0 - Absent/Not Observed 1 - Rare 2 - Common 3 - Abundant 4 - Dominant

MACROBENTHOS QUALITATIVE SAMPLE LIST

Group	Species	Abundance	Group	Species	Abundance
Oligochaeta	Panzeria	1	Turbellaria	Water bug	1
	Ameletid	1		Water bug	1
	Ameletid	1		Water bug	1
Gastropoda	Hydrobia	1	Coleoptera	Dytiscid	1
	Hydrobia	1		Dytiscid	1
Blattella	Blattella	1	Diptera	Black fly	1
	Blattella	1		Black fly	1
Ephemeroptera	Ephemeroptera	1	Trichoptera		
	Ephemeroptera	1			

Other

RIFPLE SAMPLE FUNCTIONAL FEEDING GROUPS		Number No. of Individuals Representing Group	
Scrapers	20	Filtering Collectors	60
CPON SAMPLE FUNCTIONAL FEEDING GROUPS		Number No. of Individuals Representing Group	
Shredders		Total Org. in Sample	

Observations

Water Temp = 22.3°C
 DO = 17.2 mg/L
 % DO = 209%
 Cond = 1227 µmhos
 pH = 7.89

PC-5
5/17/00

Rapid Bioassessment Protocol II

Biosurvey Field Data Sheet

RELATIVE ABUNDANCE OF AQUATIC BIOTA

Periphyton	0	1	2	3	4
Fremontian Algae	0	1	2	3	4
Macrophytes	0	1	2	3	4

Strat	0	1	2	3	4
Macroinvertebrate	0	1	2	3	4
Fish	0	1	2	3	4

0 = Absent/Not Observed 1 = Rare 2 = Common 3 = Abundant 4 = Dominant

MACROBENTHOS QUALITATIVE SAMPLE LIST

Organism	Count	Relative Abundance	Notes
Oligochaeta	111 (3)	✓	
Planaria	1 (1)	✓	
Amphipod			
Gastropod	LHS-1 (1)	✓	
Limpet	11 (2)	✓	
Zygotea	Calyptra - 1 (1)	✓	
Bivalvia	LHS-1 (1)	✓	
Stonefly	111 (4)	✓	
Phlebotom			
Ephemeroptera			
Cicada	1 (1)	✓	
Trichoptera	Hydropsid - 111 (4)	✓	
Other			

RIFLE SAMPLE

FUNCTIONAL FEEDING GROUPS	(Indicate No. of Individuals Representing Group)
Scrapers	
Filtering Collectors	
CPOM SAMPLE FUNCTIONAL FEEDING GROUPS	(Indicate No. of Individuals Representing Group)
Shredders	3
Observations	Total Org. in Sample 50

water temp = 22.8 °C
 DO = 17.3 mg/L
 %DO = 213%
 pH = 7.88
 Cond = 1667 u/mhos

PK-47
5/14/00

Rapid Bioassessment Protocol II

Biosurvey Field Data Sheet

RELATIVE ABUNDANCE OF AQUATIC BIOTA

Periphyton	0	1	2	3	4
Filamentous Algae	0	1	2	3	4
Macrophytes	0	1	2	3	4

Slimes	0	1	2	3	4
Macrounvertebrates	0	1	2	3	4
Fish	0	1	2	3	4

0 = Absent/Not Observed 1 = Rare 2 = Common 3 = Abundant 4 = Dominant

MACROBENTHOS QUALITATIVE SAMPLE LIST

Class	Order	Family	Percent/Indicate Abundance
Chironomidae	Aeolidae	1	1
	Planorbidae	1	1
	Amphipoda	1	1
Gastropoda			
	Coleoptera		
	Zygoptera	1	1
Bivalvia	Pelecypoda	1	1
	Diptera	1	1
Ephemeroptera			
	Trichoptera	1	1
Other			

RIFPLE SAMPLE

FUNCTIONAL FEEDING GROUPS	Indicate No. of Individuals Representing Group
Scrapers	
Filtering Collectors	

CPOM SAMPLE FUNCTIONAL FEEDING GROUPS	Indicate No. of Individuals Representing Group
Shredders	
Observations	Total Org. in Sample 50

water temp = 21.4 °C
DO = 15.0 mg/L
% DO = 180%
Cond = 1,643 µmhos
pH = 7.97

PC-3X
5/8/00

Rapid Bioassessment Protocol II
Biosurvey Field Data Sheet

RELATIVE ABUNDANCE OF AQUATIC BIOTA

Periphyton	0	1	2	3	4	Slimes	0	1	2	3	4
Planktonic algae	0	1	2	3	4	Macroinvertebrates	0	1	2	3	4
Microphytes	0	1	2	3	4	Fish	0	1	2	3	4

0 = Absent/Not Observed 1 = Rare 2 = Common 3 = Abundant 4 = Dominant

MACROBENTHIC QUALITATIVE SAMPLE LIST

Organism	Relative Abundance	Relative Abundance
Oligochaeta - Worms (1)		
Amphipods - (1)		
Arthropods		
Gastropods - snails (1)		
Limnephilid - (1)		
Coleoptera - beetles (1)		
Diptera - (1)		
Zygotea - fungi (2)		
Rotifera		
Hydracarina - (1)		
Receptoria		
Dipoda for Cris - crustaceans (1)		
Blattaria - (1)		
Ephemeroptera		
Trichoptera		
Other		

RIFLE SAMPLE FUNCTIONAL FEEDING GROUPS (Indicate No. of Individuals Representing Group)

Scrapers	Filtering Collectors
CPOM SAMPLE FUNCTIONAL FEEDING GROUPS (Indicate No. of Individuals Representing Group)	Total Org. in Sample
Shredders	50

Observations

water temp = 21.3
DO = 14.8
%DO = 172
Cond = 1303
pH = 7.74

PK-21
5/13/06

Rapid Bioassessment Protocol II

Bioassay Field Data Sheet

RELATIVE ABUNDANCE OF AQUATIC BIOTA

Periphyton	0	1	2	3	4
Filamentous Algae	0	1	2	3	4
Macrophytes	0	1	2	3	4

Species	0	1	2	3	4
Macroinvertebrates	0	1	2	3	4
Fauna	0	1	2	3	4

0 = Absent/Not Observed 1 = Rare 2 = Common 3 = Abundant 4 = Dominant

MACROBENTHOS QUALITATIVE SAMPLE LIST

Organism	Relative Abundance	Relative Abundance
Oligochaeta → (1) ✓		1 ✓
Gastropoda (1) ✓		
Limn. Mollusks (10) ✓		
Limn. Moll. (1) ✓		
Brachio.		
Ephemeroptera		
Other		

RIFFLE SAMPLE FUNCTIONAL FEEDING GROUPS

Scrapers	0	Filtering Collectors	5
----------	---	----------------------	---

OPOM SAMPLE FUNCTIONAL FEEDING GROUPS

Shredders		Total Grp. in Sample	
-----------	--	----------------------	--

Observations

Water Temp = 22.5
DO = 10.70
% DO = 230
Cond = 1724
pH = 7.50

SA-1
5/2/00

Procedure No. WOPA-SWS-3 Date Issued 9-30-85
Revision No. E Date Effective 9-30-85

Figure V-4-3. Front side of the Ohio EPA Site Description Sheet for evaluating the geographical and physical characteristics of fish sampling locations. This is used to record information for the calculation of the Quantitative Habitat Evaluation Index (QHEI).

Ohio EPA Site Description Sheet - Fish QHEI SCORE: 41

Stream Sand Creek Mile 5.7/00 River Code 238
Location SA1 Cover 238

1) SUBSTRATE (Check ONLY the SUBSTRATE TYPE BOXES; Check all types present):

TYPE	POOL RIFPLE	POOL RIFPLE	SUBSTRATE QUALITY	SUBSTRATE SCORE:
<input type="checkbox"/> OLDER SLABS (1)	<input checked="" type="checkbox"/> GRAVEL (7)	<input checked="" type="checkbox"/> Substrate Origin (Check all)	<input type="checkbox"/> SILT (Check Only)	<input checked="" type="checkbox"/> 11
<input type="checkbox"/> BOULDER (6)	<input type="checkbox"/> SAND (8)	<input checked="" type="checkbox"/> LIMESTONE (1)	<input checked="" type="checkbox"/> SILT HEAVY (2)	<input type="checkbox"/> MODERATE (4)
<input type="checkbox"/> COBBLE (3)	<input checked="" type="checkbox"/> BEDROCK (9)	<input type="checkbox"/> TILLS (1)	<input type="checkbox"/> SILT NORMAL (3)	<input type="checkbox"/> SILT FREE (5)
<input type="checkbox"/> SANDPAN (4)	<input checked="" type="checkbox"/> BEDROCK (9)	<input type="checkbox"/> SANDSTONE (2)	<input type="checkbox"/> Know of firmness (Check Only)	
<input type="checkbox"/> MUCK (2)	<input type="checkbox"/> ARTIFICIAL (1)	<input type="checkbox"/> SHALE (1)	<input type="checkbox"/> EXTENSIVE (1)	<input type="checkbox"/> MODERATE (4)
TOTAL NUMBER OF SUBSTRATE TYPES: <u>4</u> (2) <u>1</u> (1) <u>0</u> (0) <u>1</u> (1)			<input type="checkbox"/> LOW (5)	<input type="checkbox"/> NONE (1)

NOTE: (Ignore slabs that originate from non-local sources; score is based on natural substrates)

COMMENTS: _____

2) INSTREAM COVER

TYPE (Check all That Apply)	COVER SCORE:
<input type="checkbox"/> UNDERCUT BANKS (1)	<input checked="" type="checkbox"/> 4
<input checked="" type="checkbox"/> OVERHANGING VEGETATION (1)	<input type="checkbox"/> MODERATE (2-3%) (7)
<input checked="" type="checkbox"/> SHALLOWS (IN SLOW WATER) (1)	<input type="checkbox"/> EXTENSIVE > 75% (1)
<input type="checkbox"/> DEEP POOLS (2)	<input type="checkbox"/> MODERATE 25-75% (7)
<input type="checkbox"/> ROOTWADS (1)	<input type="checkbox"/> SPARSE 5-25% (3)
<input type="checkbox"/> LOGS (1)	<input type="checkbox"/> NEARLY ABSENT < 5% (1)
<input type="checkbox"/> Boulders (3)	

COMMENTS: _____

3) CHANNEL MORPHOLOGY (Check ONLY One PER Category OR check 2 and AVERAGE)

SIMPLICITY	DEVELOPMENT	CHANNEL STABILITY	MODIFICATIONS	CHANNEL:
<input type="checkbox"/> HIGH (4)	<input type="checkbox"/> EXCELLENT (7)	<input type="checkbox"/> NONE (9)	<input type="checkbox"/> SNAGGING	<input checked="" type="checkbox"/> 7
<input type="checkbox"/> MODERATE (3)	<input type="checkbox"/> GOOD (5)	<input type="checkbox"/> RECOVERING (4)	<input type="checkbox"/> RELOCATION	
<input checked="" type="checkbox"/> LOW (2)	<input type="checkbox"/> FAIR (3)	<input checked="" type="checkbox"/> RECOVERING (4)	<input type="checkbox"/> CANOPY REMOVAL	
<input type="checkbox"/> NONE (1)	<input checked="" type="checkbox"/> POOR (1)	<input type="checkbox"/> RECENT OR NO RECOVERY (1)	<input type="checkbox"/> BREDDING	
			<input type="checkbox"/> ONE SIDE CHANNEL MODIFICATIONS	

COMMENTS: _____

4) RIPARIAN ZONE AND BANK EROSION - (check ONE box per bank or check 2 and AVERAGE per bank) RIPARIAN: 6

River Right Looking Downstream

RIPARIAN WIDTH	EROSION/STABILITY	BANK EROSION
L/R (Per Bank)	L/R (Most Prevalent Per Bank)	L/R (Per Bank)
<input type="checkbox"/> WIDE > 50m (4)	<input type="checkbox"/> FOREST SWAMP (5)	<input type="checkbox"/> URBAN OR INDUSTRIAL (2)
<input type="checkbox"/> MODERATE 10-50 (3)	<input checked="" type="checkbox"/> OPEN PASTURE / ROWS (6)	<input type="checkbox"/> SWALE OR OLD FIELD (1)
<input type="checkbox"/> NARROW 5-10 (2)	<input type="checkbox"/> REST PASTURE / NEW FIELD (1)	<input type="checkbox"/> CONSERV. TILLAGE (1)
<input checked="" type="checkbox"/> VERY NARROW 1-5m (1)	<input type="checkbox"/> FENCED PASTURE (1)	<input type="checkbox"/> MINING CONSTRUCTION (2)
<input type="checkbox"/> NONE (0)		

COMMENTS: _____

POOL GUIDE AND RIFPLE RUN QUALITY

MAX. DEPTH (Check 1)	WATERWAY QTY	POOL CHARACTER & CURRENT VELOCITY	POOL:
<input type="checkbox"/> > 1m (8)	(Check 1)	(Check all That Apply)	<input checked="" type="checkbox"/> 5
<input checked="" type="checkbox"/> 0.7-1m (4)	<input checked="" type="checkbox"/> POOL WIDTH > RIFPLE WIDTH (3)	<input type="checkbox"/> INTERMITTENT (1)	<input type="checkbox"/> NO POOLS (1)
<input type="checkbox"/> 0.4-0.7m (2)	<input type="checkbox"/> POOL WIDTH = RIFPLE WIDTH (1)	<input type="checkbox"/> FAST (3)	
<input type="checkbox"/> < 0.4m (1)	<input type="checkbox"/> POOL WIDTH < RIFPLE W. (2)	<input type="checkbox"/> MODERATE (4)	
<input type="checkbox"/> < 0.2m (Pool = 0)		<input checked="" type="checkbox"/> SLOW (2)	

COMMENTS: _____

RIFPLE: 1

RIFPLE RUN QUALITY	RIFPLE RUN SUBSTRATE	RIFPLE RUN SUBSTRATENESS
<input type="checkbox"/> GENERALLY > 10 cm MAX (4)	<input type="checkbox"/> STABLE (e.g. Cobble, Boulder) (2)	<input type="checkbox"/> EXTENSIVE (1)
<input type="checkbox"/> GENERALLY > 10 cm MAX (4)	<input type="checkbox"/> MOD. STABLE (e.g. Peg Gravel) (1)	<input checked="" type="checkbox"/> MODERATE (3)
<input checked="" type="checkbox"/> GENERALLY 5-10 cm (1)	<input checked="" type="checkbox"/> UNSTABLE (Gravel, Sand) (0)	<input type="checkbox"/> LOW (1)
<input type="checkbox"/> GENERALLY < 5 cm (Rate = 0)		<input type="checkbox"/> NONE (1)

COMMENTS: _____

GRADIENT: 2

5) Gradient (feet/mile): _____ % POOL: _____ % RIFPLE: _____ % RUN: _____

HC-
5/5/4

Procedure No. WCPA-SWS-1 Date Issued 8-30-83
 Revision No. 1 Date Effective 9-10-83

Figure V-4-5. Front side of the Ohio EPA Site Description Sheet for evaluating the geographical and physical characteristics of fish sampling locations. This is used to record information for the calculation of the Qualitative Habitat Evaluation Index (QHEI).

Ohio EPA Site Description Sheet - Fish QHEI SCORE: 40

Stream Hubbards Creek Run _____ Dam _____ River Code _____
 Location HEI City ESB/CWR

1) SUBSTRATE (Check ONLY the Substrate TYPE BOXES: Check all types present):

TYPE	POOL RIFPLE	POOL RIFPLE	SUBSTRATE QUALITY	SUBSTRATE SCORE:
<input type="checkbox"/> BOLDER (S) <input type="checkbox"/> BOLDER (L)	<input checked="" type="checkbox"/> GRAVEL (7)	<input checked="" type="checkbox"/> Substrate (S) (Check all)	<input type="checkbox"/> SILT HEAVY (2) <input type="checkbox"/> MODERATE (1)	<u>11</u>
<input type="checkbox"/> COBBLE (S)	<input type="checkbox"/> SAND (E)	<input checked="" type="checkbox"/> LIMESTONE (1) <input checked="" type="checkbox"/> NEOTRAP (2)	<input type="checkbox"/> SILT NORMAL (3) <input type="checkbox"/> SILT FREE (1)	
<input checked="" type="checkbox"/> HARDPAN (2)	<input type="checkbox"/> RED ROCKS (1)	<input type="checkbox"/> TILLS (1)	<input type="checkbox"/> EXTENSIVE (2) <input type="checkbox"/> MODERATE (1)	
<input type="checkbox"/> MUCK (2)	<input checked="" type="checkbox"/> DETRITUS (2)	<input type="checkbox"/> SANDSTONE (2)	<input type="checkbox"/> EXTENSIVE (2) <input type="checkbox"/> MODERATE (1)	
	<input checked="" type="checkbox"/> ARTIFICIAL (2)	<input type="checkbox"/> SHALE (1)	<input type="checkbox"/> EXTENSIVE (2) <input type="checkbox"/> MODERATE (1)	
		<input type="checkbox"/> COAL FINES (2)	<input type="checkbox"/> EXTENSIVE (2) <input type="checkbox"/> MODERATE (1)	

TOTAL NUMBER OF SUBSTRATE TYPES: 4 (2) 0 - 0 (1) 0 - 0 (1)

NOTE: (Ignore silt) Silt separating from bank substrate; score is based on natural substrate

COMMENTS: _____

2) INSTREAM COVER

TYPE (Check All That Apply)	COVER SCORE:
<input type="checkbox"/> UNDERCUT BANKS (1)	<u>2</u>
<input checked="" type="checkbox"/> OVERHANGING VEGETATION (1)	
<input checked="" type="checkbox"/> SHALLOWS IN SLOW WATER (1)	
<input checked="" type="checkbox"/> CREEP POOLS (2)	
<input type="checkbox"/> ROOTWADS (1)	
<input type="checkbox"/> BOULDERS (1)	
<input type="checkbox"/> OXBOWS (1)	
<input type="checkbox"/> AQUATIC MACROPHYTES (1)	
<input checked="" type="checkbox"/> LOGS OR WOODY DEBRIS (1)	

COMMENTS: _____

3) CHANNEL MORPHOLOGY: (Check ONLY One PER Category OR check 2 and AVERAGE)

SIMPLICITY	DEVELOPMENT	CHANNEL SECTION	STABILITY	MODIFICATIONS/TWICE	CHANNEL:
<input type="checkbox"/> HIGH (4)	<input type="checkbox"/> EXCELLENT (7)	<input type="checkbox"/> NONE (9)	<input type="checkbox"/> HIGH (2)	<input type="checkbox"/> SHADING	<input type="checkbox"/> SHADING
<input type="checkbox"/> MODERATE (3)	<input type="checkbox"/> GOOD (5)	<input type="checkbox"/> RECOVERED (4)	<input type="checkbox"/> MODERATE (2)	<input type="checkbox"/> RELOCATION	<input type="checkbox"/> ISLANDS
<input checked="" type="checkbox"/> LOW (2)	<input type="checkbox"/> FAIR (3)	<input checked="" type="checkbox"/> RECOVERING (3)	<input checked="" type="checkbox"/> LOW (1)	<input type="checkbox"/> CANOPY REMOVAL	<input type="checkbox"/> LEVELS
<input type="checkbox"/> NONE (1)	<input checked="" type="checkbox"/> POOR (1)	<input type="checkbox"/> RECENT OR NO RECOVERY (1)		<input type="checkbox"/> BREDDING	<input type="checkbox"/> BANK SHAPING
					<input type="checkbox"/> ONE SIDE CHANNEL MODIFICATIONS

COMMENTS: _____

4) RIPARIAN ZONE AND BANK EROSION - (check ONE box per bank or check 2 and AVERAGE per bank)

RIPARIAN WIDTH	EROSION/INFLOW - FOOD MANIPULITY	BANK EROSION	RIPARIAN:
<input type="checkbox"/> L.R. (Per Bank)	<input type="checkbox"/> L.R. (Most Frequent Per Bank)	<input type="checkbox"/> L.R. (Per Bank)	<u>6</u>
<input type="checkbox"/> WIDE (50-12')	<input type="checkbox"/> OPEN PASTURE/ROW CROPS	<input type="checkbox"/> BUREAU OR INDUSTRIAL	
<input type="checkbox"/> MODERATE (10-50')	<input type="checkbox"/> RESID. PARK NEW FIELD (1)	<input type="checkbox"/> CONSERV. TRILLAGE (1)	
<input checked="" type="checkbox"/> NARROW (<10m) (2)	<input type="checkbox"/> FENCED PASTURE (1)	<input type="checkbox"/> MINING/CONSTRUCTION (2)	
<input type="checkbox"/> NONE (0)			

COMMENTS: _____

POOL: SLIDE AND RIFPLE RUN QUALITY

POOL: SLIDE (Check 1)	MODERN POOL (Check 1)	POOL: RIFPLE (Check 1)	POOL:
<input type="checkbox"/> > 1m (3)	<input checked="" type="checkbox"/> POOL WIDTH > RIFPLE WIDTH (2)	<input type="checkbox"/> TORRENTIAL (1)	<u>1</u>
<input type="checkbox"/> 0.7-1m (4)	<input type="checkbox"/> POOL WIDTH = RIFPLE WIDTH (1)	<input type="checkbox"/> FAST (1)	
<input checked="" type="checkbox"/> 0.4-0.7m (2)	<input type="checkbox"/> POOL WIDTH < RIFPLE W. (0)	<input checked="" type="checkbox"/> MODERATE (1)	
<input type="checkbox"/> < 0.4m (1)		<input checked="" type="checkbox"/> SLOW (1)	
<input type="checkbox"/> < 0.2m (Pool = 0)			

COMMENTS: _____

RIFPLE: 0

RIFPLE: SUBSTRATE	RIFPLE: SUBSTRATE	RIFPLE: SUBSTRATE	RIFPLE:
<input type="checkbox"/> GENERALLY > 10cm (MAX) (3)	<input type="checkbox"/> STABLE (e.g. Cobble, Boulder) (2)	<input type="checkbox"/> EXTENSIVE (1) <input type="checkbox"/> MODERATE (1)	<u>0</u>
<input type="checkbox"/> GENERALLY > 10cm (MAX) (2)	<input type="checkbox"/> MOD. STABLE (e.g. Peg Gravel) (1)	<input type="checkbox"/> LOW (1)	
<input type="checkbox"/> GENERALLY > 10cm (1)	<input checked="" type="checkbox"/> UNSTABLE (Gravel/Sand) (0)	<input type="checkbox"/> NONE (0)	
<input checked="" type="checkbox"/> GENERALLY < 5cm (P.S. = 0)			

COMMENTS: _____

GRADIENT: 4

1) Gradient (feet/mile): _____ W.P.O.O.L. _____ S.I.G.N.I.F.I.C.A.N.T. _____ V.A.R.I.A.T.I.O.N. _____

Procedure No. WOPA-SWS-1 Date Issued 9-30-99
 Revision No. 5 Date Effective 9-30-99

WF-3
5/5/00

Figure V-4-5 From side of the Ohio EPA Site Description Sheet for evaluating the geographical and physical characteristics of fish sampling locations. This is used to record information for the calculation of the Qualitative Habitat Evaluation Index (QHEI).

Ohio EPA Site Description Sheet - Fish

System West Fork of Pigeon AM Date River Code
 Location WFE-3 Crier EJB/CUR

QHEI SCORE: 213

1) **SUBSTRATE** (Check ONLY the Substrate TYPE SIZES; Check all types present):

POOL RIFFLE		SUBSTRATE QUALITY	
<input type="checkbox"/> BOLDER (S&B) (1)	<input checked="" type="checkbox"/> GRAVEL (7) <input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> SILT (SILT) (1)	<input type="checkbox"/> SILT HEAVY (2)
<input type="checkbox"/> BOLDER (S)	<input type="checkbox"/> SAND (6) <input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> Limestone (1)	<input type="checkbox"/> SILT MODERATE (1)
<input type="checkbox"/> COBBLES (5)	<input type="checkbox"/> BEDROCK (4)	<input checked="" type="checkbox"/> SANDPAN (2)	<input type="checkbox"/> SILT FREE (1)
<input type="checkbox"/> EUROPEAN (4)	<input type="checkbox"/> QUARTZITE (3)	<input type="checkbox"/> SANDSTONE (3)	<input type="checkbox"/> EXTENSIVE (1)
<input checked="" type="checkbox"/> MUCK (3)	<input type="checkbox"/> ARTIFICIAL (2)	<input type="checkbox"/> SHALE (1)	<input type="checkbox"/> MODERATE (1)
TOTAL NUMBER OF SUBSTRATE TYPES: <u>4</u> (2) <u>4</u> (3) <u>4</u> (4)		<input type="checkbox"/> COARSE (1)	<input type="checkbox"/> NONE (1)

NOTE: (Ignore siltage that originates from point sources; score is based on natural substrates)
 COMMENTS: _____

2) **INSTREAM COVER**

<input type="checkbox"/> UNDERGUT BANKS (1)	<input checked="" type="checkbox"/> DEEP POOLS (2)	<input type="checkbox"/> OXBOWS (1)	<input type="checkbox"/> EXTENSIVE > 75% (1)
<input checked="" type="checkbox"/> OVERHANGING VEGETATION (1)	<input type="checkbox"/> ROOTWADS (1)	<input type="checkbox"/> AQUATIC MACROPHYTES (1)	<input type="checkbox"/> MODERATE 25-75% (2)
<input checked="" type="checkbox"/> SHALLOWS (ON SLOW WATER) (1)	<input type="checkbox"/> BOULDERS (1)	<input checked="" type="checkbox"/> LOGS OR WOODY DEBRIS (1)	<input type="checkbox"/> SPARSE 5-25% (3)
			<input type="checkbox"/> NEARLY ABSENT < 5% (1)

COMMENTS: _____

3) **CHANNEL MORPHOLOGY** (Check ONLY One PER Category OR check 2 and AVERAGE)

<input type="checkbox"/> EXCELLENT (1)	<input checked="" type="checkbox"/> POOR (1)	<input checked="" type="checkbox"/> RECOVERING (3)	<input type="checkbox"/> LOW (1)	<input type="checkbox"/> ONE SIDE CHANNEL MODIFICATIONS
<input type="checkbox"/> HIGH (4)	<input type="checkbox"/> EXCELLENT (1)	<input type="checkbox"/> NONE (6)	<input type="checkbox"/> MODERATE (2)	<input type="checkbox"/> SNAGGING
<input type="checkbox"/> MODERATE (2)	<input type="checkbox"/> GOOD (5)	<input type="checkbox"/> RECOVERED (4)	<input type="checkbox"/> LOW (1)	<input type="checkbox"/> RELOCATION
<input type="checkbox"/> LOW (2)	<input checked="" type="checkbox"/> FAIR (3)	<input checked="" type="checkbox"/> RECOVERING (3)	<input type="checkbox"/> MODERATE (2)	<input type="checkbox"/> CANOPY REMOVAL
<input type="checkbox"/> NONE (1)	<input type="checkbox"/> POOR (1)	<input type="checkbox"/> RECENT OR NO RECOVERY (1)	<input type="checkbox"/> MODERATE (2)	<input type="checkbox"/> LEVEED
			<input type="checkbox"/> ODDING	<input type="checkbox"/> BANK SHAPING

COMMENTS: _____

4) **RIPARIAN ZONE AND BANK EROSION** - (Check ONE box per bank or check 2 and AVERAGE per bank)

<input type="checkbox"/> RIBBON WIDTH	<input checked="" type="checkbox"/> OPEN PASTURE (ROW CROP) (3)	<input type="checkbox"/> URBAN OR INDUSTRIAL (0)	<input type="checkbox"/> NONE OR LITTLE (5)
<input type="checkbox"/> L R (Per Bank)	<input type="checkbox"/> FOREST SWAMP (2)	<input type="checkbox"/> SHRUB OR OLD FIELDS (2)	<input type="checkbox"/> MODERATE (2)
<input type="checkbox"/> 0-1m (4)	<input checked="" type="checkbox"/> RESID. PARK NEW FIELD (1)	<input type="checkbox"/> CONSERV. TR. (AGE) (1)	<input type="checkbox"/> HEAVY OR SEVERE (1)
<input type="checkbox"/> 1-2m (3)	<input type="checkbox"/> FENCED PASTURE (1)	<input type="checkbox"/> MINING CONSTRUCTION (0)	
<input type="checkbox"/> 2-3m (2)			
<input type="checkbox"/> 3-4m (1)			
<input type="checkbox"/> 4-5m (0)			

COMMENTS: _____

5) **POOL LOGS AND RIFFLE RUN QUALITY**

<input type="checkbox"/> 1-1m (3)	<input checked="" type="checkbox"/> POOL WIDTH = RIFFLE WIDTH (2)	<input type="checkbox"/> TORRENTIAL (1)	<input checked="" type="checkbox"/> ROLLER (1)	<input type="checkbox"/> NO POOLS (0)
<input checked="" type="checkbox"/> 1-2m (2)	<input type="checkbox"/> POOL WIDTH > RIFFLE WIDTH (1)	<input type="checkbox"/> FAST (1)	<input type="checkbox"/> INTERMITTENT (1)	
<input type="checkbox"/> 2-3m (1)	<input type="checkbox"/> POOL WIDTH < RIFFLE W. (0)	<input type="checkbox"/> MODERATE (1)	<input type="checkbox"/> INTERMITTENT (2)	
<input type="checkbox"/> 3-4m (0)		<input checked="" type="checkbox"/> SLOW (1)		

COMMENTS: _____

6) **RIBBON CURVE**

<input type="checkbox"/> GENERALLY > 10 cm MAX (5) (3)	<input type="checkbox"/> STABLE (e.g., Cobble, Boulder) (2)	<input type="checkbox"/> EXTENSIVE (1-1)	<input checked="" type="checkbox"/> MODERATE
<input type="checkbox"/> GENERALLY > 10 cm MAX (5) (3)	<input type="checkbox"/> MOD. STABLE (e.g., Pea Gravel) (1)	<input type="checkbox"/> LOW (1)	<input type="checkbox"/> NONE
<input checked="" type="checkbox"/> GENERALLY 5-10 cm (1)	<input checked="" type="checkbox"/> UNSTABLE (Gravel/Sand) (0)		<input type="checkbox"/> NO RIFFLE (0)
<input type="checkbox"/> GENERALLY < 5 cm (None = 0)			

COMMENTS: _____

7) **GRADIENT** (feet/mile): _____ % POOL: _____ % RIFFLE: _____ % RUN: _____

WF-7
5/5/8

Procedure No. WOP&-SWS-3 Date Issued 9-30-83
 Revision No. 1 Date Effective 9-30-83

Figure V-4-5. Front side of the Ohio EPA Site Description Sheet for evaluating the geographical and physical characteristics of fish sampling locations. This is used to record information for the calculation of the Qualitative Habitat Evaluation Index (QHEI).

Ohio EPA Site Description Sheet - Fish QHEI SCORE: 31 39

Stream West Fork of Pigeon AM Date _____ River Code _____
 Location WF-2 City ESB/CWB

1) SUBSTRATE (Check ONLY the Substrate TYPE NOTES: Check all types present):

<input type="checkbox"/> SLIVER/SLAB (1)	<input type="checkbox"/> GRAVEL (7)	<input checked="" type="checkbox"/> Substrate Debris (Check all)	SUBSTRATE QUALITY	SUBSTRATE SCORE: <u>10</u>
<input type="checkbox"/> BOULDER (4)	<input type="checkbox"/> SAND (6)	<input type="checkbox"/> LIMESTONE (1)	<input type="checkbox"/> SILT HEAVY (2)	<input type="checkbox"/> SILT MODERATE (1)
<input type="checkbox"/> COBBLE (3)	<input type="checkbox"/> BEDROCK (5)	<input type="checkbox"/> TILLS (1)	<input checked="" type="checkbox"/> HARD PAN (1)	<input type="checkbox"/> SILT NORMAL (0)
<input checked="" type="checkbox"/> HARD PAN (1)	<input checked="" type="checkbox"/> CEMENTITIOUS (1)	<input type="checkbox"/> SANDSTONE (0)	<input type="checkbox"/> SANDSTONE (0)	<input type="checkbox"/> SILT FREE (1)
<input checked="" type="checkbox"/> MUCK (2)	<input checked="" type="checkbox"/> ARTIFICIAL (1)	<input type="checkbox"/> SHALE (1)	<input type="checkbox"/> SHALE (1)	<input type="checkbox"/> EXTENSIVE (1-2)
TOTAL NUMBER OF SUBSTRATE TYPES: <input checked="" type="checkbox"/> 4 (2) <input checked="" type="checkbox"/> 5 (0) <input type="checkbox"/> 6 (0) <input type="checkbox"/> 7 (0)			<input checked="" type="checkbox"/> LOW (0)	<input type="checkbox"/> MODERATE (1)

NOTE: Ignore sludge that originates from point sources; score is based on natural substrates.

COMMENTS: _____

2) INSTREAM COVER COVER SCORE: 7

<input type="checkbox"/> UNDERST BANKS (1)	<input checked="" type="checkbox"/> DEEP POOLS (2)	<input type="checkbox"/> OBSTRUCTIONS (1)	<input type="checkbox"/> EXTENSIVE > 75% (1)
<input checked="" type="checkbox"/> OVERHANGING VEGETATION (1)	<input type="checkbox"/> ROOTWADS (2)	<input type="checkbox"/> AQUATIC MACROPHYTES (1)	<input type="checkbox"/> MODERATE 25-75% (7)
<input checked="" type="checkbox"/> SHALLOWS ON SLOW WATER (1)	<input type="checkbox"/> BOULDERS (1)	<input type="checkbox"/> LOGS OR WOODY DEBRIS (1)	<input checked="" type="checkbox"/> SPARSE 5-25% (0)
COMMENTS: _____			<input type="checkbox"/> NEARLY ABSENT < 5% (1)

3) CHANNEL MORPHOLOGY: (Check ONLY One PER Category OR check 2 and AVERAGE) CHANNEL: 7

SINUOSITY	DEVELOPMENT	CHANNEL CUTOFF	STABILITY	MODIFICATIONS
<input type="checkbox"/> HIGH (1)	<input type="checkbox"/> EXCELLENT (7)	<input type="checkbox"/> NONE (0)	<input type="checkbox"/> HIGH (2)	<input type="checkbox"/> SNAGGING
<input type="checkbox"/> MODERATE (2)	<input type="checkbox"/> GOOD (5)	<input type="checkbox"/> RECOVERED (4)	<input type="checkbox"/> MODERATE (3)	<input type="checkbox"/> RELOCATION
<input checked="" type="checkbox"/> LOW (3)	<input type="checkbox"/> FAIR (3)	<input checked="" type="checkbox"/> RECOVERING (2)	<input checked="" type="checkbox"/> LOW (1)	<input type="checkbox"/> CANOPY REMOVAL
<input type="checkbox"/> NONE (1)	<input checked="" type="checkbox"/> POOR (1)	<input type="checkbox"/> RECENT OR NO RECOVERY (1)	<input type="checkbox"/> BREDDING	<input type="checkbox"/> BANK SHAPING
COMMENTS: _____				<input type="checkbox"/> ONE SIDE CHANNEL MODIFICATIONS

4) RIPARIAN ZONE AND BANK EROSION - (check ONE box per bank or check 2 and AVERAGE per bank) RIPARIAN: 5

"River Side Looking Downstream"

RIPARIAN WIDTH	EROSION/SLIP - EOOD BY VELOCITY	BANK EROSION
L/R (Per Bank)	L/R (Most Predominant Per Bank)	L/R (Per Bank)
<input type="checkbox"/> MODERATE (3)	<input checked="" type="checkbox"/> FOREST, SWAMP (2)	<input type="checkbox"/> OPEN OR MODERATE (2)
<input type="checkbox"/> MODERATE (3)	<input checked="" type="checkbox"/> OPEN PASTURE/ROW CROP (0)	<input type="checkbox"/> SHRUB OR OLD FIELD (2)
<input type="checkbox"/> MODERATE (3)	<input type="checkbox"/> RESID. PARK, NEW FIELD (1)	<input type="checkbox"/> CONSERV. TILLAGE (1)
<input checked="" type="checkbox"/> VERY NARROW (1-3m) (1)	<input type="checkbox"/> FENCED PASTURE (1)	<input checked="" type="checkbox"/> CONSTRUCTION (0)
<input type="checkbox"/> NONE (2)		

COMMENTS: _____

POOL/RIFFLE AND RIFFLE/RUN QUALITY POOL: 10

MAX. DEPTH (Check 1)	MORPHOLOGY (Check 1)	ENTRANCE/EXIT & CURRENT VELOCITY (Check All That Apply)
<input type="checkbox"/> > 1m (6)	<input checked="" type="checkbox"/> POOL WIDTH > RIFFLE WIDTH (2)	<input type="checkbox"/> TORRENTIAL (1)
<input type="checkbox"/> 0.7-1m (2)	<input type="checkbox"/> POOL WIDTH = RIFFLE WIDTH (1)	<input checked="" type="checkbox"/> FAST (1)
<input checked="" type="checkbox"/> 0.4-0.7m (2)	<input type="checkbox"/> POOL WIDTH < RIFFLE W. (0)	<input type="checkbox"/> MODERATE (1)
<input type="checkbox"/> < 0.4m (Pool = 2)		<input checked="" type="checkbox"/> SLOW (1)
COMMENTS: _____		<input checked="" type="checkbox"/> EDDIES (1)
		<input type="checkbox"/> INTERSTITIAL (1)
		<input type="checkbox"/> INTERMITTENT (2)
		<input type="checkbox"/> NO POOL (0)

5) RIPARIAN VEGETATION RIFFLE: 7

RIPARIAN VEGETATION	RIPARIAN STABILITY	RIPARIAN SUCCESSION
<input type="checkbox"/> GENERALLY > 10 cm MAX (3)	<input type="checkbox"/> STABLE (e.g., Cobble, Boulder) (2)	<input type="checkbox"/> EXTENSIVE (1)
<input type="checkbox"/> GENERALLY 1-10 cm MAX (3)	<input type="checkbox"/> MOD. STABLE (e.g., Pea Gravel) (1)	<input type="checkbox"/> MODERATE (2)
<input checked="" type="checkbox"/> GENERALLY 5-10 cm (1)	<input checked="" type="checkbox"/> UNSTABLE (Gravel, Sand) (0)	<input checked="" type="checkbox"/> LOW (1)
<input type="checkbox"/> GENERALLY < 5 cm (Pool = 0)		<input type="checkbox"/> NONE (2)
COMMENTS: _____		<input checked="" type="checkbox"/> UNSTABLE (1)

6) Gradient: (feet/mile): _____ % POOL: _____ % RIFFLE: _____ % RUN: _____

GRAIENT: 7 2

WF-1
5/5/00

Procedure No. WOPA-SWS-3 Date Issued 9-30-85
Revision No. 4 Date Effective 9-30-85

Figure V-4-5. Front side of the Ohio EPA Site Description Sheet for evaluating the geographical and physical characteristics of fish sampling locations. This is used to record information for the calculation of the Qualitative Habitat Evaluation Index (QHEI).

Ohio EPA Site Description Sheet - Fish QHEI SCORE: 3

Stream West Fork of Pigeon Riv. Date River Code
Location WF-1

1) SUBSTRATE (Check ONE of Two Substrate TYPE BOXES; Check all types present):

TYPE	POOL RIFFLE	POOL RIFFLE	SUBSTRATE QUALITY	SUBSTRATE SCORE:
<input type="checkbox"/> Boulder/Slab/Block	<input checked="" type="checkbox"/> GRAVEL (1)	<input checked="" type="checkbox"/> GRAVEL (2)	<input checked="" type="checkbox"/> SILT HEAVY (-2) <input type="checkbox"/> SILT MODERATE (-1)	<u>1</u>
<input type="checkbox"/> Boulder (5)	<input type="checkbox"/> SAND (1)	<input checked="" type="checkbox"/> CHALKSTONE (1) <input checked="" type="checkbox"/> CHALKSTONE (2) <input checked="" type="checkbox"/> CHALKSTONE (3)	<input type="checkbox"/> SILT NORMAL (1) <input type="checkbox"/> SILT FREE (1)	
<input type="checkbox"/> Cobble (2)	<input type="checkbox"/> BEDROCK (1)	<input type="checkbox"/> TILLS (1)	<input type="checkbox"/> HARDPAN (1) <input type="checkbox"/> SANDSTONE (1)	
<input type="checkbox"/> Hardpan (4)	<input type="checkbox"/> DETRITUS (1)	<input type="checkbox"/> SANDSTONE (2)	<input checked="" type="checkbox"/> EXTENSIVE (-2) <input type="checkbox"/> MODERATE (-1)	
<input type="checkbox"/> Muck (2)	<input type="checkbox"/> ARTIFICIAL (1)	<input type="checkbox"/> SHALE (1)	<input type="checkbox"/> SW (1) <input type="checkbox"/> NONE (1)	
TOTAL NUMBER OF SUBSTRATE TYPES: <input type="checkbox"/> 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5				

NOTE: Ignore silt that originates from point sources; score is based on natural substrates.
COMMENTS: _____

2) DISTREAM COVER

TYPE (Check All That Apply)	COVER SCORE:
<input type="checkbox"/> UNDERCUT BANKS (1)	<u>8</u>
<input checked="" type="checkbox"/> COVERING AND VEGETATION (1)	
<input checked="" type="checkbox"/> SHALLOWS (IN SLOW WATER) (1)	
<input type="checkbox"/> COLEP POOLS (2)	
<input type="checkbox"/> ROOTWADES (1)	
<input type="checkbox"/> LOGS OR WOODY DEBRIS (1)	<input type="checkbox"/> NEARLY ABSENT < 5% (1)

COMMENTS: _____

3) CHANNEL MORPHOLOGY: (Check ONE of One PER Category OR sheet 2 and AVERAGE)

ENTRANCE	DEVELOPMENT	CHANNELIZATION	STARTUP	MODIFICATION/OTHER	CHANNEL:
<input type="checkbox"/> HIGH (4)	<input type="checkbox"/> EXCELLENT (1)	<input type="checkbox"/> NONE (1)	<input type="checkbox"/> HIGH (2)	<input type="checkbox"/> SNAGGING	<u>7</u>
<input type="checkbox"/> MODERATE (2)	<input type="checkbox"/> GOOD (3)	<input type="checkbox"/> RECOVERED (4)	<input type="checkbox"/> MODERATE (2)	<input type="checkbox"/> RELOCATION	
<input checked="" type="checkbox"/> LOW (1)	<input type="checkbox"/> FAIR (2)	<input checked="" type="checkbox"/> RECOVERING (3)	<input checked="" type="checkbox"/> LOW (1)	<input type="checkbox"/> CANOPY REMOVAL	
<input type="checkbox"/> NONE (1)	<input checked="" type="checkbox"/> POOR (1)	<input type="checkbox"/> RECENT OR NO RECOVERY (1)	<input type="checkbox"/> DREDGING	<input type="checkbox"/> BANK SHAPING	
			<input type="checkbox"/> ONE SIDE CHANNEL MODIFICATIONS		

COMMENTS: _____

4) RIPARIAN ZONE AND BANK EROSION - (Check ONE box per bank or check 2 and AVERAGE per bank)

RIPARIAN WIDTH	RIPARIAN ZONE INDEX - % COV. BY VEGETATION	BANK EROSION
<input type="checkbox"/> L/R (Per Bank)	<input type="checkbox"/> L/R (Most Prevalent) Per Bank	<input type="checkbox"/> L/R (Per Bank)
<input type="checkbox"/> MODERATE (2)	<input checked="" type="checkbox"/> OPEN PASTURE/AGRICULTURE	<input type="checkbox"/> MODERATE (2)
<input checked="" type="checkbox"/> VERY NARROW (1)	<input type="checkbox"/> FENCED PASTURE (1)	<input type="checkbox"/> HEAVY OR SEVERE (1)

COMMENTS: _____

5) POOL/RIFFLE AND RIFFLE/RUN QUALITY

POOL/RIFFLE (Check 1)	RIFFLE (Check 1)	DIFFERENTIAL (Check All That Apply)	POOL: <u>4</u> <u>4</u>
<input type="checkbox"/> > 1m (2)	<input type="checkbox"/> POOL WIDTH & RIFFLE WIDTH (2)	<input type="checkbox"/> INTERMITTENT (1)	<u>NO POOL (1)</u>
<input checked="" type="checkbox"/> < 1m (1)	<input checked="" type="checkbox"/> POOL WIDTH & RIFFLE WIDTH (1)	<input checked="" type="checkbox"/> FAST (1)	
<input type="checkbox"/> < 0.5m (1)	<input type="checkbox"/> POOL WIDTH & RIFFLE W. (1)	<input checked="" type="checkbox"/> MODERATE (1)	
<input type="checkbox"/> < 0.2m (Pool - 0)		<input type="checkbox"/> SLOW (1)	

COMMENTS: _____

6) GRADIENT (feet/mile): _____ % POOL: _____ % RIFFLE: _____ % RUN: _____

7) RIFFLE: 1

RIFFLE RUN SUBSTRATE	RIFFLE RUN SUBSTRATE	RIFFLE RUN SUBSTRATE
<input type="checkbox"/> GENERALLY > 10 cm. MAX (2)	<input type="checkbox"/> STABLE (e.g. Cobble/ Boulder) (2)	<input type="checkbox"/> EXTENSIVE (-1) <input checked="" type="checkbox"/> MODERATE (1)
<input type="checkbox"/> GENERALLY > 10 cm. MAX (1)	<input type="checkbox"/> MOD. STABLE (e.g. Fine Gravel) (1)	<input type="checkbox"/> LOW (1)
<input checked="" type="checkbox"/> GENERALLY < 10 cm (1)	<input checked="" type="checkbox"/> UNSTABLE (Gravel/Sand) (1)	<input type="checkbox"/> NONE (1)

COMMENTS: _____ GRADIENT: 2

SF-3
5/7/6

Procedure No. WOPA-SWS-3 Date Issued 9-30-89
Revision No. 5 Date Effective 9-30-89

Figure V-4-5. Front side of the Ohio EPA Site Description Sheet for evaluating the geographical and physical characteristics of fish sampling locations. This is used to record information for the calculation of the Qualitative Macroinvertebrate Evaluation Index (QMEI).

Ohio EPA Site Description Sheet - Fish OMEI SCORE: 49

System Smith Fork Riv. Code _____
Location SF-3 Crew ENB/CWB

1) SUBSTRATE (CHECK ONE PER Substrate TYPE BOXES: Check all types present):

TYPE	POOL, RIFPLE	POOL, RIFPLE	SUBSTRATE QUALITY	SUBSTRATE SCORE:
<input type="checkbox"/> BLOTT (CLASS) (1)	<input checked="" type="checkbox"/> GRAVEL (7)	<input checked="" type="checkbox"/> Substrate Gravel (Check All)	<input checked="" type="checkbox"/> SILT FREE (1)	<input type="checkbox"/> 12
<input type="checkbox"/> SHOULDER (9)	<input type="checkbox"/> SAND (8)	<input checked="" type="checkbox"/> LIMESTONE (1)	<input type="checkbox"/> SILT HEAVY (2)	<input type="checkbox"/> MODERATE (1)
<input type="checkbox"/> COBBLE (7)	<input checked="" type="checkbox"/> BEDROCK (5)	<input type="checkbox"/> BILLS (1)	<input type="checkbox"/> SILT NORMAL (6)	<input type="checkbox"/> SILT FREE (1)
<input type="checkbox"/> HARPAN (4)	<input type="checkbox"/> DETRITUS (3)	<input type="checkbox"/> SANDSTONE (9)	<input type="checkbox"/> HARD PAN (2)	<input type="checkbox"/> EXTENSIVE (2)
<input type="checkbox"/> MUCK (2)	<input type="checkbox"/> ARTIFIC (1)	<input type="checkbox"/> SHALE (1)	<input type="checkbox"/> EXTENSIVE (2)	<input type="checkbox"/> MODERATE (1)

TOTAL NUMBER OF SUBSTRATE TYPES: 4 (2) 4 (2) 4 (2) 4 (2) 4 (2)

NOTE: Ignore sledge that originates from point-source; score is based on natural substrate.

COMMENTS: _____

2) INSTREAM COVER

TYPE (Check All That Apply)	COVER SCORE:
<input type="checkbox"/> UNDERCUT BANKS (1)	<input checked="" type="checkbox"/> EXTENSIVE > 75% (1)
<input checked="" type="checkbox"/> COVERING VEGETATION (1)	<input type="checkbox"/> MODERATE 25-75% (7)
<input type="checkbox"/> DEEP POOLS (2)	<input type="checkbox"/> SPARSE < 25% (3)
<input type="checkbox"/> ROOTWADS (1)	<input type="checkbox"/> NEARLY ABSENT < 5% (1)
<input type="checkbox"/> LOGS OR WOODY DEBRIS (1)	
<input type="checkbox"/> BOULDERS (2)	

COMMENTS: _____

3) CHANNEL MORPHOLOGY: (Check ONE PER Category OR check 2 and AVERAGE)

SIMPLICITY	DEPTH/DEPTH	CHANNELIZATION	STABILITY	MODIFICATIONS/OTHER
<input checked="" type="checkbox"/> MODERATE (2)	<input type="checkbox"/> EXCELLENT (7)	<input type="checkbox"/> NONE (8)	<input type="checkbox"/> HIGH (2)	<input type="checkbox"/> SPAGGING
<input type="checkbox"/> LOW (2)	<input type="checkbox"/> GOOD (5)	<input checked="" type="checkbox"/> RECOVERED (4)	<input type="checkbox"/> MODERATE (2)	<input type="checkbox"/> RELOCATION
<input type="checkbox"/> NONE (1)	<input type="checkbox"/> FAIR (3)	<input type="checkbox"/> RECOVERING (2)	<input type="checkbox"/> LOW (1)	<input type="checkbox"/> BANK REMOVAL
	<input type="checkbox"/> POOR (1)	<input type="checkbox"/> RECENT OR NO RECOVERY (1)		<input type="checkbox"/> DAMMING

COMMENTS: _____

4) RIPARIAN ZONE AND BANK EROSION (check ONE box per bank or check 2 and AVERAGE per bank)

RIPARIAN WIDTH	RIPARIAN ZONE	BANK EROSION
<input type="checkbox"/> L (Per Bank)	<input type="checkbox"/> FOREST BRAMP (1)	<input type="checkbox"/> OPEN PASTURE ROW CROPS (2)
<input type="checkbox"/> MODERATE (2)	<input checked="" type="checkbox"/> OPEN PASTURE ROW CROPS (2)	<input type="checkbox"/> SHRUBS OR OLD FIELDS (2)
<input type="checkbox"/> MODERATE (2)	<input type="checkbox"/> FENCED PASTURE (1)	<input type="checkbox"/> CONCRETE WALLS (1)
<input type="checkbox"/> MODERATE (2)	<input type="checkbox"/> FENCED PASTURE (1)	<input type="checkbox"/> DAMMING CONSTRUCTION (2)

COMMENTS: _____

5) POOL/DEEP AND RIFPLE/RUN QUALITY

POOL/DEEP (Check 1)	MORPHOLOGY (Check 1)	SOFT SUBSTRATE TURBIDITY (Check All That Apply)
<input checked="" type="checkbox"/> > 1m (5)	<input type="checkbox"/> POOL WIDTH > RIFPLE WIDTH (2)	<input type="checkbox"/> TORRENTIAL (1)
<input type="checkbox"/> > 1m (4)	<input type="checkbox"/> POOL WIDTH = RIFPLE WIDTH (1)	<input type="checkbox"/> FAST (1)
<input type="checkbox"/> > 1m (2)	<input type="checkbox"/> POOL WIDTH < RIFPLE W. (2)	<input type="checkbox"/> MODERATE (1)
<input type="checkbox"/> < 1m (1)		<input type="checkbox"/> SLOW (1)

COMMENTS: _____

6) BED FORM/DEPTH

BED FORM/DEPTH	BED FORM/DEPTH	BED FORM/DEPTH
<input type="checkbox"/> GENERALLY > 10cm MAX. SD (4)	<input type="checkbox"/> STABLE (e.g. Cobble, Boulders) (2)	<input type="checkbox"/> EXTENSIVE (1)
<input type="checkbox"/> GENERALLY > 10cm MAX. SD (3)	<input checked="" type="checkbox"/> UNSTABLE (e.g. Fine Gravel) (1)	<input type="checkbox"/> MODERATE (2)
<input checked="" type="checkbox"/> GENERALLY > 10cm (1)		<input type="checkbox"/> NONE (1)
<input type="checkbox"/> GENERALLY < 10cm (2, 3, 4)		<input type="checkbox"/> NO RIFPLE (1)

COMMENTS: _____

7) GRADIENT (feet/mile): _____ POOL: 4 RIFPLE: 2 GRADIENT: 4

SF-2
5/7/00

Procedure No. WCPA-SWS-3 Date Issued 9-30-88
 Revision No. F Date Effective 9-30-88

Figure V-4-5. Front side of the Ohio EPA Site Description Sheet for evaluating the geographical and physical characteristics of fish sampling locations. This is used to record information for the calculation of the Qualitative Habitat Evaluation Index (QHEI).

Ohio EPA Site Description Sheet - Fish QHEI SCORE: 44 44

System Smith Fork Riv. Dist. River Code
 Location SF-2 Cwr. EDB/CWR

1) SUBSTRATE (Check ONE of two Substrate TYPE NOTES: Check ALL types present):

TYPE	POOL RIFPLE	POOL RIFPLE	SUBSTRATE QUALITY	SUBSTRATE SCORE:
<input type="checkbox"/> BOLDER SLABS (1) <input type="checkbox"/> BOLDER (2) <input type="checkbox"/> COBBLE (3) <input type="checkbox"/> MARL PAN (4) <input type="checkbox"/> MUCK (5)	<input type="checkbox"/> SAND (6) <input type="checkbox"/> BEDROCK (7) <input type="checkbox"/> DETRITUS (8) <input type="checkbox"/> ARTIFIC (9)	<input checked="" type="checkbox"/> GRAVEL (1) <input checked="" type="checkbox"/> SAND (6) <input checked="" type="checkbox"/> BEDROCK (7) <input type="checkbox"/> DETRITUS (8) <input type="checkbox"/> ARTIFIC (9)	<input checked="" type="checkbox"/> Substrate Grade (Check all) <input type="checkbox"/> LIMESTONE (1) <input type="checkbox"/> TILLS (1) <input type="checkbox"/> SANDSTONE (2) <input type="checkbox"/> SHALE (1)	<input type="checkbox"/> SILT HEAVY (2) <input type="checkbox"/> SILT MODERATE (1) <input type="checkbox"/> SILT NORMAL (2) <input type="checkbox"/> SILT FREE (1) <input type="checkbox"/> EXTENSIVE (2) <input type="checkbox"/> MODERATE (1) <input type="checkbox"/> LOW (1) <input type="checkbox"/> NONE (1)

TOTAL NUMBER OF SUBSTRATE TYPES: 1-2 3-4 5-6 7-8 9-10

NOTE: (Ignore siltage that originates from point-source; score is based on natural substrates)

COMMENTS: _____

2) INSTREAM COVER

TYPE (Check ALL that Apply)	COVER SCORE:
<input type="checkbox"/> UNDERCUT BANKS (1) <input checked="" type="checkbox"/> OVERHANGING VEGETATION (2) <input checked="" type="checkbox"/> SHALLOWS IN SLOW WATER (1)	<input type="checkbox"/> DEEP POOLS (2) <input type="checkbox"/> ROOTWADS (4) <input type="checkbox"/> BOULDERS (2)

AVAILABILITY: ONE of one or check 2 and AVERAGE

EXTENSIVE > 75% (1)
 MODERATE 25-75% (2)
 SPARSE 5-25% (3)
 NEARLY ABSENT < 5% (1)

COMMENTS: _____

3) CHANNEL MORPHOLOGY: (Check ONE of one PER Category OR check 2 and AVERAGE) CHANNEL: 7

<input type="checkbox"/> EXCELLENT (1) <input type="checkbox"/> MODERATE (2) <input checked="" type="checkbox"/> LOW (2) <input type="checkbox"/> NONE (1)	<input type="checkbox"/> EXCELLENT (1) <input type="checkbox"/> GOOD (2) <input checked="" type="checkbox"/> FAIR (2) <input type="checkbox"/> POOR (1)	<input type="checkbox"/> NONE (1) <input type="checkbox"/> RECOVERED (1) <input checked="" type="checkbox"/> RECOVERING (2) <input type="checkbox"/> RECENT OR NO RECOVERY (1)	<input type="checkbox"/> HIGH (1) <input type="checkbox"/> MODERATE (2) <input checked="" type="checkbox"/> LOW (1)	<input type="checkbox"/> MODIFICATIONS (1) <input type="checkbox"/> RELOCATION <input type="checkbox"/> CANOPY REMOVAL <input type="checkbox"/> DREDGING <input type="checkbox"/> ONE SIDE CHANNEL MODIFICATIONS
---	--	---	---	--

COMMENTS: _____

4) RIPARIAN ZONE AND BANK EROSION (check ONE box per bank or check 2 and AVERAGE per bank) RIPARIAN: 6

River Right Looking Downstream:

<input type="checkbox"/> L R (Per Bank) <input type="checkbox"/> WOODS (1) <input type="checkbox"/> MODERATE 50-80 (2) <input type="checkbox"/> NARROW 5-10m (2) <input checked="" type="checkbox"/> VERY NARROW 1-5m (1) <input type="checkbox"/> NONE (2)	<input type="checkbox"/> FOREST, SWAMP (1) <input checked="" type="checkbox"/> OPEN PASTURE (1) <input type="checkbox"/> RESID. PARK, NEW FIELD (1) <input type="checkbox"/> FENCED PASTURE (1)	<input type="checkbox"/> L R (Per Bank) <input type="checkbox"/> URBAN OR INDUSTRIAL (1) <input type="checkbox"/> SHALLOWS OR OLD FIELDS (2) <input type="checkbox"/> CONSERV. TILLAGE (1) <input type="checkbox"/> DAMNING/CONSTRUCTION (2)	<input type="checkbox"/> NONE OR LITTLE (3) <input checked="" type="checkbox"/> MODERATE (2) <input type="checkbox"/> HEAVY OR SEVERE (1)
--	--	--	---

COMMENTS: _____

POOL/LIDE AND RIFPLE RUN QUALITY POOL: 4

<input type="checkbox"/> 1-1m (1) <input type="checkbox"/> 1.4-5.7m (2) <input checked="" type="checkbox"/> < 4m (1)	<input checked="" type="checkbox"/> POOL WIDTH > RIFPLE WIDTH (2) <input type="checkbox"/> POOL WIDTH = RIFPLE WIDTH (1) <input type="checkbox"/> POOL WIDTH < RIFPLE WIDTH (1)	<input type="checkbox"/> TORRENTIAL (1) <input type="checkbox"/> FAST (1) <input type="checkbox"/> MODERATE (1) <input checked="" type="checkbox"/> SLOW (1)	<input type="checkbox"/> EDDIES (1) <input type="checkbox"/> INTERSTITIAL (1) <input type="checkbox"/> INTERMITTENT (2)
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COMMENTS: _____

SILT/CLAY DEPTH RIFPLE: 2

<input type="checkbox"/> GENERALLY > 10 cm MAX (4) <input type="checkbox"/> GENERALLY > 12 cm MAX (3) <input checked="" type="checkbox"/> GENERALLY 3-10 cm (1) <input type="checkbox"/> GENERALLY < 3 cm (POOR) (1)	<input type="checkbox"/> STABLE (e.g. Coarse Sand) (2) <input type="checkbox"/> MOD. STABLE (e.g. Fine Gravel) (1) <input checked="" type="checkbox"/> UNSTABLE (Gravel/Sand) (1)	<input type="checkbox"/> EXTENSIVE (1-1) <input type="checkbox"/> MODERATE (2) <input type="checkbox"/> NONE (1)	<input type="checkbox"/> NO RIFPLE (1)
---	---	--	--

COMMENTS: _____

5) Gradient (% Slope): _____ % POOL: _____ % RIFPLE: _____ % RUN: _____

SF-
5/9/02

Procedure No. WOPA-SWS-1 Date Issued 9-30-85
 Revision No. 5 Date Effective 9-30-85

Figure V-4-3. Front side of the Ohio EPA Site Description Sheet for evaluating the geographical and physical characteristics of fish sampling locations. This is used to record information for the calculation of the Qualitative Habitat Evaluation Index (QHEI).

Ohio EPA Site Description Sheet - Fish QHEI SCORE: 49

Stream SWITCH POOL Mile 0.1 River Code 1
 Location SF-1 Crew SF/CWB/AF

1) SUBSTRATE (Check ONLY One Substrate TYPE BOXES; Check ALL types present):

TYPE	POOL, RIFPLE	POOL, RIFPLE	SUBSTRATE QUALITY	SUBSTRATE SCORE: <u>12</u>
<input type="checkbox"/> BOLDER (BLAS) (1)	<input checked="" type="checkbox"/> GRAVE (1)	<input checked="" type="checkbox"/> SAND (1)	<input checked="" type="checkbox"/> SILT HEAVY (1) <input type="checkbox"/> SILT MODERATE (2) <input type="checkbox"/> SILT FREE (1)	
<input type="checkbox"/> SHOULDER (1)	<input type="checkbox"/> SAND (1)	<input checked="" type="checkbox"/> BEDROCK (1)	<input type="checkbox"/> SILT MODERATE (2) <input type="checkbox"/> SILT FREE (1)	
<input type="checkbox"/> CORNER (1)	<input type="checkbox"/> SAND (1)	<input checked="" type="checkbox"/> BEDROCK (1)	<input type="checkbox"/> SILT MODERATE (2) <input type="checkbox"/> SILT FREE (1)	
<input type="checkbox"/> HARPAN (1)	<input checked="" type="checkbox"/> DETRITUS (1)	<input type="checkbox"/> SANDSTONE (1)	<input type="checkbox"/> SILT MODERATE (2) <input type="checkbox"/> SILT FREE (1)	
<input type="checkbox"/> MUCK (1)	<input type="checkbox"/> ARTIFIC (1)	<input type="checkbox"/> SHALE (1)	<input type="checkbox"/> SILT MODERATE (2) <input type="checkbox"/> SILT FREE (1)	

TOTAL NUMBER OF SUBSTRATE TYPES: 4 (2) 1 (1) 1 (1) 1 (1)

NOTE: Ignore single (1) or duplicate (2) point-sources; score is based on natural substrates

COMMENTS: _____

2) **STREAM COVER** COVER SCORE: 7

TYPE (Check ALL That Apply)	AMOUNT (Check ONLY One or check 2 and AVERAGE)
<input type="checkbox"/> UNDERGILT BANKS (1)	<input checked="" type="checkbox"/> EXTENSIVE = 75% (1)
<input type="checkbox"/> OVERHANGING VEGETATION (1)	<input type="checkbox"/> MODERATE 25-75% (2)
<input checked="" type="checkbox"/> SHALLOWS (ON SLOW WATER) (1)	<input checked="" type="checkbox"/> SPARSE 1-25% (1)
<input checked="" type="checkbox"/> DEEP POOLS (2)	<input type="checkbox"/> NEARLY ABSENT = 0% (1)
<input type="checkbox"/> ROOTWADS (1)	
<input type="checkbox"/> BOULDERS (1)	
<input type="checkbox"/> LOGS OR WOODY DEBRIS (1)	

COMMENTS: _____

3) **CHANNEL MORPHOLOGY** (Check ONLY One PER Category OR check 2 and AVERAGE) CHANNEL: 7

SIMPLICITY	DEVELOPMENT	CHANNELIZATION	STABILITY	MODIFICATIONS/OTHER
<input type="checkbox"/> HIGH (1)	<input type="checkbox"/> EXCELLENT (1)	<input type="checkbox"/> NONE (1)	<input type="checkbox"/> HIGH (1)	<input type="checkbox"/> SNAGGING
<input type="checkbox"/> MODERATE (2)	<input type="checkbox"/> GOOD (2)	<input checked="" type="checkbox"/> RECOVERED (4)	<input type="checkbox"/> MODERATE (2)	<input type="checkbox"/> RELOCATION
<input checked="" type="checkbox"/> LOW (2)	<input type="checkbox"/> FAIR (1)	<input checked="" type="checkbox"/> RECOVERING (3)	<input checked="" type="checkbox"/> LOW (1)	<input type="checkbox"/> SANDY REMOVAL
<input type="checkbox"/> NONE (1)	<input checked="" type="checkbox"/> POOR (1)	<input type="checkbox"/> RECENT OR NO RECOVERY (1)		<input type="checkbox"/> LEVEES
				<input type="checkbox"/> DREDGING
				<input type="checkbox"/> ONE SIDE CHANNEL MODIFICATIONS

COMMENTS: _____

4) **RIPARIAN ZONE AND BANK EROSION** (check ONE box per bank or check 2 and AVERAGE per bank) RIPARIAN: 12

Four Feet Looking Downstream

RIPARIAN WIDTH	ECOSYSTEMS - % GOOD QUALITY	BANK EROSION
L/R (Per Bank)	L/R (Most Prominent Per Bank)	L/R (Per Bank)
<input type="checkbox"/> WIDE > 30m (4)	<input checked="" type="checkbox"/> FOREST, SWAMP (1)	<input type="checkbox"/> URBAN OR INDUSTRIAL (1)
<input type="checkbox"/> MODERATE 10-30 (2)	<input type="checkbox"/> OPEN PASTURE ROWS/CP (1)	<input type="checkbox"/> SHRUB OR OLD FIELD (2)
<input type="checkbox"/> NARROW 1-10m (2)	<input type="checkbox"/> RESQ. PARK, NEW FIELD (1)	<input type="checkbox"/> CONSERV. TRAGE (1)
<input checked="" type="checkbox"/> VERY NARROW 1-5m (1)	<input type="checkbox"/> OPEN PASTURE (1)	<input type="checkbox"/> MINOR CONSTRUCTION (1)
<input type="checkbox"/> NONE (1)		

COMMENTS: _____

5) **POOL/GULCH AND RIFPLE/RUN QUALITY** POOL: 5

MAX. DEPTH (Check 1)	MORPHOLOGY	ECOSYSTEMS & CURRENT VELOCITY
<input type="checkbox"/> > 1m (1)	(Check 1)	(Check ALL That Apply)
<input type="checkbox"/> 0.7-1m (2)	<input checked="" type="checkbox"/> POOL WIDTH > RIFPLE WIDTH (2)	<input type="checkbox"/> TRENCHAL (1)
<input checked="" type="checkbox"/> 0.4-0.7m (2)	<input type="checkbox"/> POOL WIDTH = RIFPLE WIDTH (1)	<input type="checkbox"/> FAST (1)
<input type="checkbox"/> < 0.4m (1)	<input type="checkbox"/> POOL WIDTH < RIFPLE W. (1)	<input type="checkbox"/> MODERATE (1)
<input type="checkbox"/> < 0.2m (Pool = 0)		<input type="checkbox"/> SLOW (1)

COMMENTS: _____

6) **RIFPLE** RIFPLE: 2

RIFPLE DEPTH	RIFPLE SUBSTRATE	RIFPLE SUBSPONGENESS
<input type="checkbox"/> GENERALLY > 10 cm MAX. 30 (4)	<input type="checkbox"/> STABLE (e.g. Coarse Boulder) (2)	<input type="checkbox"/> EXTENSIVE (1)
<input type="checkbox"/> GENERALLY > 10 cm MAX. 50 (3)	<input type="checkbox"/> MOD. STABLE (e.g. Fine Gravel) (1)	<input type="checkbox"/> MODERATE
<input checked="" type="checkbox"/> GENERALLY 5-10 cm (1)	<input checked="" type="checkbox"/> UNSTABLE (Gravel/Sand) (1)	<input type="checkbox"/> LOW (1)
<input type="checkbox"/> GENERALLY < 5 cm (Riffle = 0)		<input type="checkbox"/> NONE (1)

COMMENTS: _____

7) **GRADIENT** GRADIENT: 1

8) Gradient (feet/mile): _____ % POOL: _____ % RIFPLE: _____ % RUN: _____

Procedure No. WCPA-SWS-3 Date Issued 9-30-85
 Revision No. E Date Effective 9-30-85

BG
5/7

Figure V-4-5. Front side of the Ohio EPA Site Description Sheet for evaluating the geographical and physical characteristics of fish sampling locations. This is used to record information for the calculation of the Qualitative Habitat Evaluation Index (QHEI).

Ohio EPA Site Description Sheet - Fish QHEI SCORE: 52

Stream Big Creek RM _____ Date _____ River Code _____
 Location Box 1 Crew ESB/CULB

1) SUBSTRATE (Check ONLY ONE SUBSTRATE TYPE BOXES: Check all types present):

TYPE	POOL, RIFPLE	POOL, RIFPLE	SUBSTRATE QUALITY	SUBSTRATE SCORE:
<input type="checkbox"/> BOLDER/SLAB/1'	<input checked="" type="checkbox"/> NO-GRAVEL (7)	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	Substrate Origin (Check one)	<u>12</u>
<input type="checkbox"/> BOLDER/1/2'	<input type="checkbox"/> SAND (8)	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> LIMESTONE (1) <input type="checkbox"/> RIP/RAP (2)	<input type="checkbox"/> SILT HEAVY (2) <input type="checkbox"/> SILT MODERATE (1)
<input type="checkbox"/> COBBLE (3)	<input type="checkbox"/> BEDROCK (9)	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> LIME (1)	<input type="checkbox"/> SILT NORMAL (0) <input type="checkbox"/> SILT FREE (1)
<input checked="" type="checkbox"/> HARDPAN (4)	<input checked="" type="checkbox"/> STETINUSP (1)	<input checked="" type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> SANDSTONE (2)	Extent of Embankment (Check One)
<input type="checkbox"/> MUCK (2)	<input type="checkbox"/> ARTIFIC (1)	<input type="checkbox"/> <input type="checkbox"/>	<input type="checkbox"/> SHALE (1)	<input type="checkbox"/> EXTENSIVE (2) <input type="checkbox"/> MODERATE (1)
TOTAL NUMBER OF SUBSTRATE TYPES: <u>4</u> (2) <input type="checkbox"/> (3) <input type="checkbox"/> (4) <input type="checkbox"/>			<input checked="" type="checkbox"/> MEDIAL FINES (2)	<input checked="" type="checkbox"/> LOW (0) <input type="checkbox"/> NONE (1)

NOTE: (Ignore sludge that originates from other sources; score is based on natural substrates)
 COMMENTS: _____

2) INSTREAM COVER

TYPE (Check all that apply)	COVER SCORE:
<input type="checkbox"/> OVERHANGING BANKS (1)	<u>17</u>
<input type="checkbox"/> UNDERHANGING VEGETATION (1)	Amount (Check ONLY One or sheet 2 and AVERAGE)
<input checked="" type="checkbox"/> SHALLOWS (IN SLOW WATER) (1)	<input type="checkbox"/> EXTENSIVE > 75% (1)
<input type="checkbox"/> DEEP POOLS (2)	<input checked="" type="checkbox"/> MODERATE 25-75% (2)
<input type="checkbox"/> ROOTWADS (1)	<input type="checkbox"/> SPARSE 5-25% (3)
<input type="checkbox"/> BOLDERS (1)	<input type="checkbox"/> NEARLY ABSENT < 5% (4)
<input type="checkbox"/> AXBOWS (1)	
<input checked="" type="checkbox"/> ALGAL MACROPHYTES (1)	
<input checked="" type="checkbox"/> LOGS OR WOODY DEBRIS (1)	

COMMENTS: _____

3) CHANNEL MORPHOLOGY: (Check ONLY One PER Category OR check 1 and AVERAGE)

CHANNEL:	CHANNELIZATION	STABILITY	MODIFICATION/STRUCTURE
<input type="checkbox"/> HIGH (4)	<input type="checkbox"/> NONE (5)	<input type="checkbox"/> HIGH (2)	<input type="checkbox"/> SNAGGING
<input checked="" type="checkbox"/> MODERATE (2)	<input checked="" type="checkbox"/> RECOVERING (4)	<input checked="" type="checkbox"/> MODERATE (2)	<input type="checkbox"/> RELOCATION
<input type="checkbox"/> LOW (2)	<input checked="" type="checkbox"/> RECOVERING (3)	<input checked="" type="checkbox"/> LOW (1)	<input type="checkbox"/> CANOPY REMOVAL
<input type="checkbox"/> NONE (1)	<input type="checkbox"/> RECENT OR NO RECOVERY (1)		<input type="checkbox"/> DREDGING
<input type="checkbox"/> EXCELLENT (7)			<input type="checkbox"/> BANK SHAPING
<input type="checkbox"/> GOOD (5)			<input type="checkbox"/> ONE SIDE CHANNEL MODIFICATIONS
<input type="checkbox"/> FAIR (3)			
<input checked="" type="checkbox"/> POOR (1)			

COMMENTS: _____

4) RIPARIAN ZONE AND BANK EROSION - (Check ONE box per bank or check 2 and AVERAGE per bank) RIPARIAN: 5

River Right Looking Downstream:

RIPARIAN WIDTH	VEGETATION/COVER	SOIL/BLANK QUALITY	BANK EROSION
L/R (Per Bank)	L/R (Most Predominant Per Bank)	L/R (Per Bank)	L/R (Per Bank)
<input type="checkbox"/> WIDE (3)	<input type="checkbox"/> FOREST, SWAMP (2)	<input type="checkbox"/> COURSAN OR INDUSTRIAL (1)	<input type="checkbox"/> NONE OR LITTLE (1)
<input type="checkbox"/> MODERATE (1-2)	<input checked="" type="checkbox"/> OPEN PASTURE, ROW CROPS	<input type="checkbox"/> SHRUB OR OLD FIELDS (2)	<input checked="" type="checkbox"/> MODERATE (2)
<input type="checkbox"/> NARROW (1)	<input type="checkbox"/> RESID. PARK, NEW FIELDS (1)	<input type="checkbox"/> CONSERV. TILLAGE (1)	<input type="checkbox"/> HEAVY OR SEVERE (3)
<input checked="" type="checkbox"/> VERY NARROW (1-3m) (2)	<input type="checkbox"/> FENCED PASTURE (1)	<input type="checkbox"/> MINING/CONSTRUCTION (0)	
<input type="checkbox"/> NONE (0)			

COMMENTS: _____

5) POOL/GULCH AND RIFPLE RUN QUALITY

POOL:	WATER VELOCITY	WATER VELOCITY
<input checked="" type="checkbox"/> 1-1m (4)	<input checked="" type="checkbox"/> POOL WIDTH > RIFPLE WIDTH (2)	<input type="checkbox"/> TORRENTIAL (1)
<input type="checkbox"/> 2-1.5m (2)	<input type="checkbox"/> POOL WIDTH = RIFPLE WIDTH (1)	<input type="checkbox"/> FAST (1)
<input type="checkbox"/> 2-2.5m (1)	<input type="checkbox"/> POOL WIDTH < RIFPLE WIDTH (0)	<input type="checkbox"/> MODERATE (1)
<input type="checkbox"/> 2-3m (Pool = 0)		<input checked="" type="checkbox"/> SLOW (1)
COMMENTS: _____		<input type="checkbox"/> EDDIE (1)
		<input type="checkbox"/> INTERMITTENT (1)
		<input type="checkbox"/> INTERMITTENT (2)

COMMENTS: _____

6) BED FORM/DEPTH

BED FORM/DEPTH	BED FORM SUBSTRATE	BED FORM SURROUNDNESS
<input type="checkbox"/> GENERALLY > 10 cm MAX (5)	<input type="checkbox"/> STABLE (e.g. Cobble, Boulder) (2)	<input type="checkbox"/> EXTENSIVE (1)
<input checked="" type="checkbox"/> GENERALLY > 10 cm MAX (5) (1)	<input checked="" type="checkbox"/> MOD. STABLE (e.g. Pea Gravel) (1)	<input type="checkbox"/> NONE (1)
<input type="checkbox"/> GENERALLY 5-10 cm (1)	<input checked="" type="checkbox"/> UNSTABLE (Gravel, Sand) (0)	
<input type="checkbox"/> GENERALLY < 5 cm (Rise = 0)		

COMMENTS: _____

7) GRADIENT (feet/mile): _____

8) POOL: _____ RIFPLE: 4 GRADIENT: 4

SC-
5/10/

Procedure No. WQPA-SWS-1 Date Issued 9-10-95
Revision No. E Date Effective 9-30-95

Figure V-4-5. Front side of the Ohio EPA Site Description Sheet for evaluating the geographical and physical characteristics of fish sampling locations. This is used to record information for the calculation of the Qualitative Habitat Evaluation Index (QHEI).

Ohio EPA Site Description Sheet - Fish QHEI SCORE: 60

Stream Snow Creek All Date 9-10-95 River Code 00
Location SC-1 City EST/NEPA/APS

1) SUBSTRATE (Check ONE Type Substrate TYPE (CHECK: Check all types present):
TYPE POOL RIFPLE POOL RIFPLE SUBSTRATE QUALITY SUBSTRATE SCORE: 14
 BOLDER/BLANKET GRAVEL (7) SANDSTONE (Check off) SILT HEAVY (2) SILT MODERATE (4)
 BOLDER (4) SAND (4) LIMESTONE (1) RIPRAP (2) SILT NORMAL (6) SILT FREE (1)
 COBBLE (2) BEDROCK (5) METALS (1) HARDPAN (2) EXTENSIVE (1-2) MODERATE (1)
 HARDPAN (4) COQUATLUS (1) SANDSTONE (2) FINE (1) NONE (1)
 MUCK (2) ARTIFICIAL (2) SMALL (1-1)
 TOTAL NUMBER OF SUBSTRATE TYPES: 3 + 2 + 2 COAL FINES (2) FLOWER NONE (1)
 NOTE: (Ignore sludge that originates from point sources; score is based on natural substrate)
 COMMENTS:

2) STREAM COVER COVER SCORE: 9
 TYPE (Check All That Apply) AMOUNT (Check ONE Form of cover 2 and AVERAGE)
 UNDERCUT BANKS (1) DEEP POOLS (2) OXBOWS (1) EXTENSIVE > 75% (1)
 OVERHANGING VEGETATION (1) BROOKWADES (1) MELIATIC MACROPHYTES (1) MODERATE 25-75% (7)
 BAILLONS (IN SLOW WATER) (1) BOLDERS (1) BLOCKS OR WOODY DEBRIS (1) SPARSE 5-25% (3)
 NEARLY ABSENT < 5% (1)
 COMMENTS:

3) CHANNEL MORPHOLOGY: (Check ONE Form PER Category OR check 2 and AVERAGE) CHANNEL: 3
 STABILITY DEVELOPMENT CHANNELIZATION STABILITY MODIFICATIONS/OT-ES
 HIGH (4) EXCELLENT (7) NONE (6) HIGH (6) SHADING BARRIERS
 MODERATE (2) GOOD (5) RECOVERING (4) MODERATE (2) RELOCATION ISLANDS
 LOW (2) FAIR (2) RECOVERING (2) LOW (1) CANOPY REMOVAL LEVEES
 NONE (1) POOR (1) RECENT OR NO RECOVERY (1) DREDGING BANK SHAPING
 ONE SIDE CHANNEL MODIFICATIONS
 COMMENTS:

4) RIPARIAN ZONE AND BANK EROSION (Check ONE box per bank or check 2 and AVERAGE per bank) RIPARIAN: 12
 (Aver. High Looking Downstream)
 PROBLEMS WITH PROBLEMS WITH - FOOD SPECIALITY BANK EROSION
 L/R (Per Bank) L/R (Most Prevalent Per Bank) L/R (Per Bank)
 WIDE (3m) (4) FOREST, SWAMP (0) URBAN OR INDUSTRIAL (0) NONE OR LITTLE (3)
 MODERATE (10-30) (2) OPEN PASTURE/ROWCROPS (0) SHRUB OR OLD FIELD (2) MODERATE (2)
 NARROW (5-10m) (2) RESID. PARK, NEW FIELD (1) CONCRETE, COLLAGE (1) HEAVY OR SEVERE (1)
 VERY NARROW (1-5m) (1) FENCED PASTURE (1) MIXED CONSTRUCTION (0)
 NONE (0)
 COMMENTS:

POOL: A
 POOL DEPTH AND RIFPLE/RUN QUALITY MORPHOLOGY CURRENT VELOCITY
 (Check 1) (Check 1) (Check All That Apply)
 > 1m (3) POOL WIDTH > RIFPLE WIDTH (2) TORRENTIAL (1) EDDIES (1)
 0.7-1m (4) POOL WIDTH = RIFPLE WIDTH (1) FAST (1) INTERMITTENT (1) NO POOL (0)
 0.4-0.7m (2) POOL WIDTH < RIFPLE W. (3) MODERATE (1) INTERMITTENT (2)
 < 0.4m (1) SLOW (1)
 0-0.2m (Pool = 0)
 COMMENTS:

RIFPLE: 3
 RIFPLE DEPTH RIFPLE SUBSTRATE RIFPLE SUBSTRATE
 GENERALLY > 10 cm (Wash 50) (4) STABLE (e.g., Cobble, Boulder) (2) EXTENSIVE (1) MODERATE (2)
 GENERALLY > 10 cm (Wash 50) (3) MOD STABLE (e.g., Fine Gravel) (1) LOW (1) NONE (2)
 GENERALLY 5-10 cm (1) UNSTABLE (Gravel, Sand) (0) NONE (2) NONE (2)
 GENERALLY < 5 cm (Ride = 0)
 COMMENTS: GRADIENT: 4

5) Gradient (feet/mile) _____ % POOL: _____ % RIFPLE: _____ % RUN: _____

UN-1
5/4/00

QA Manual (6th Update) - Final - September 30, 1989

Procedure No. WQPA-SWS-3 Date Issued 2-10-89
Revision No. 5 Date Effective 2-10-89

Figure V-4-5. Front side of the Ohio EPA Site Description Sheet for evaluating the geographical and physical characteristics of fish sampling locations. This is used to record information for the calculation of the Qualitative Habitat Evaluation Index (QHEI).

Ohio EPA Site Description Sheet - Fish QHEI SCORE: 30

Stream: Unidentified Tributary Date: 5/4/00 River Code: 30
Location: UN-1 - TRIB. to Seneca Creek near Camden County: ESB/CWR

1) SUBSTRATE (Check ONLY the Substrate TYPE BOXES; Check all types present):

TYPE	POOL RIFFLE	POOL RIFFLE	SUBSTRATE QUALITY	SUBSTRATE SCORE
<input type="checkbox"/> SLAB (1)	<input type="checkbox"/> GRAVEL (7)	<input type="checkbox"/> SAND (6)	<input type="checkbox"/> SILT HEAVY (1)	<input type="checkbox"/> SILT MODERATE (2)
<input type="checkbox"/> BOULDER (8)	<input type="checkbox"/> SAND (6)	<input type="checkbox"/> LESTONE (1)	<input type="checkbox"/> SILT NORMAL (3)	<input type="checkbox"/> SILT FREE (4)
<input type="checkbox"/> COBBLE (9)	<input type="checkbox"/> BEDROCK (1)	<input type="checkbox"/> TILES (1)	<input type="checkbox"/> SANDSTONE (5)	<input type="checkbox"/> EXTENSIVE (1)
<input type="checkbox"/> HARDPAN (2)	<input type="checkbox"/> TORTUOSE (2)	<input type="checkbox"/> SANDSTONE (5)	<input type="checkbox"/> SHALE (1)	<input type="checkbox"/> MODERATE (2)
<input checked="" type="checkbox"/> MUCK (2)	<input checked="" type="checkbox"/> TORTUOSE (2)	<input type="checkbox"/> SHALE (1)	<input type="checkbox"/> COCCAL FINES (4)	<input type="checkbox"/> LOW (1)
TOTAL NUMBER OF SUBSTRATE TYPES: <u>2</u> (2) <u>2</u> (2) <u>4</u> (4) (OF COCCAL FINES (4))				

NOTE: (Score sudge that originates from point sources; score is based on natural substrates)

COMMENTS: _____

2) DISTREAM COVER

TYPE (Check All That Apply)	COVER SCORE
<input type="checkbox"/> UNDERCUT BANKS (1)	<input type="checkbox"/> EXTENSIVE > 75% (1)
<input checked="" type="checkbox"/> OVERHANGING VEGETATION (1)	<input type="checkbox"/> MODERATE 25-75% (2)
<input type="checkbox"/> SHALLOWS IN SLOW WATER (1)	<input checked="" type="checkbox"/> SPARSE 5-25% (3)
<input type="checkbox"/> DEEP POOLS (2)	<input type="checkbox"/> NEARLY ABSENT < 5% (1)
<input type="checkbox"/> ROOT MADS (1)	
<input checked="" type="checkbox"/> ALGAE OR MACROPHYTES (1)	
<input type="checkbox"/> Boulders (1)	
<input checked="" type="checkbox"/> LOGS OR WOODY DEBRIS (1)	

COMMENTS: _____

3) CHANNEL MORPHOLOGY: (Check ONLY One PER Category OR check 2 and AVERAGE)

Stability	Channelization	Stability	Modifications/Other
<input type="checkbox"/> HIGH (4)	<input type="checkbox"/> NONE (6)	<input type="checkbox"/> HIGH (3)	<input type="checkbox"/> SNAGGING
<input type="checkbox"/> MODERATE (2)	<input type="checkbox"/> RECOVERING (3)	<input checked="" type="checkbox"/> MODERATE (2)	<input type="checkbox"/> RELOCATION
<input checked="" type="checkbox"/> LOW (2)	<input type="checkbox"/> RECOVERING (3)	<input type="checkbox"/> LOW (1)	<input type="checkbox"/> CANOPY REMOVAL
<input type="checkbox"/> NONE (1)	<input type="checkbox"/> RECENT OR NO RECOVERY (1)		<input type="checkbox"/> BREDDING
<input checked="" type="checkbox"/> POOR (1)			<input type="checkbox"/> BANK SHAPING
			<input type="checkbox"/> ONE SIDE CHANNEL MODIFICATIONS

CHANNEL: 7

COMMENTS: _____

4) RIPARIAN ZONE AND BANK EROSION (Check ONE box per bank or check 2 and AVERAGE per bank)

RIPARIAN: 7

RIPARIAN WIDTH	EROSION/UNCL. - FLOOD PLAIN QUALITY	BANK EROSION
L, R (Per Bank)	L, R (Most Prevalent Per Bank)	L, R (Per Bank)
<input type="checkbox"/> MODERATE (4)	<input checked="" type="checkbox"/> FOREST, SWAMP (2)	<input type="checkbox"/> NONE OR LITTLE (1)
<input type="checkbox"/> MODERATE (4)	<input checked="" type="checkbox"/> OPEN PASTURE/ROW CROPS (1)	<input checked="" type="checkbox"/> MODERATE (2)
<input type="checkbox"/> NARROW < 10m (2)	<input type="checkbox"/> RESID. PARK NEW RES. (1)	<input type="checkbox"/> CONSERV. TILAGE (1)
<input checked="" type="checkbox"/> VERY NARROW < 5m (1)	<input type="checkbox"/> FENCED PASTURE (1)	<input type="checkbox"/> HWY. CONSTRUCTION (1)
<input type="checkbox"/> NONE (2)		

COMMENTS: _____

5) POOL AND RIFFLE RUN QUALITY

Pool Morphology	Pool Run Quality	Current Velocity
<input type="checkbox"/> > 1m (4)	<input type="checkbox"/> POOL WIDTH > RIFFLE WIDTH (7)	<input type="checkbox"/> TORRENTIAL (1)
<input type="checkbox"/> 0.7-1m (2)	<input checked="" type="checkbox"/> POOL WIDTH = RIFFLE WIDTH (1)	<input type="checkbox"/> FAST (1)
<input checked="" type="checkbox"/> < 0.7m (1)	<input type="checkbox"/> POOL WIDTH < RIFFLE WIDTH (3)	<input checked="" type="checkbox"/> MODERATE (1)
<input type="checkbox"/> < 0.2m (Pool = 2)		<input checked="" type="checkbox"/> SLOW (1)

POOL: 3

COMMENTS: _____

6) BED FORM QUALITY

Bed Form Quality	Bed Form Substrate	Bed Form Successfulness
<input type="checkbox"/> GENERALLY > 10 cm, MAX 50 (4)	<input type="checkbox"/> STABLE (e.g. Cobble, Boulder) (2)	<input type="checkbox"/> EXTENSIVE (1)
<input type="checkbox"/> GENERALLY > 10 cm, MAX 50 (2)	<input type="checkbox"/> MOD. STABLE (e.g. Pea Gravel) (1)	<input checked="" type="checkbox"/> MODERATE (2)
<input checked="" type="checkbox"/> GENERALLY < 10 cm (1)	<input checked="" type="checkbox"/> UNSTABLE (Gravel, Sand) (0)	<input type="checkbox"/> SLOW (1)
<input type="checkbox"/> GENERALLY < 5 cm (Pool = 0)		<input type="checkbox"/> NONE (1)

RIFFLE: 1

COMMENTS: _____

7) GRADIENT (feet/mile): _____ POOL: _____ RIFFLE: _____ RUN: _____

GRADIENT: 2

WD1
5/4/00

QA Manual (8th Update) - Fish - September 30, 1985

Procedure No. WQPA-SWS-1 Date Issued 9-22-89
Revision No. 1 Date Effective 9-22-89

Figure V-4-5. Front side of the Ohio EPA Site Description Sheet for evaluating the geographical and physical characteristics of fish sampling locations. This is used to record information for the calculation of the Qualitative Habitat Evaluation Index (QHEI).

Ohio EPA Site Description Sheet - Fish

Stream: Wainscoat Cr. RU: _____ Date: 5/4/00 River Code: 34
Location: WD-1 Crew: ESB/CWB

1) SUBSTRATE (Check ONE type Substrate TYPE SCORE; Check all types present):

TYPE	POOL SCORE	POOL RIFPLE	SUBSTRATE QUALITY	SUBSTRATE SCORE:
<input type="checkbox"/> COBBLER/SLAB (1)	<input type="checkbox"/> GRAVEL (7)	<input type="checkbox"/> SILTY SAND (1)	<input checked="" type="checkbox"/> SILT HEAVY (-2)	2
<input type="checkbox"/> BOULDER (1)	<input type="checkbox"/> SAND (6)	<input type="checkbox"/> Limestone (1) ADV. (2)	<input type="checkbox"/> SILT MODERATE (-1)	
<input type="checkbox"/> COBBLE (6)	<input type="checkbox"/> BEDROCK (5)	<input type="checkbox"/> STILLS (1)	<input type="checkbox"/> SILT NORMAL (0)	1
<input type="checkbox"/> HARDPAN (4)	<input type="checkbox"/> DETRITUS (3)	<input type="checkbox"/> SANDSTONE (4)	<input type="checkbox"/> SILT FREE (1)	
<input checked="" type="checkbox"/> MUCK (2)	<input checked="" type="checkbox"/> ARTIFICIAL (0)	<input type="checkbox"/> SHALE (1)	<input checked="" type="checkbox"/> EXTENSIVE (-2) MODERATE (-1)	0
TOTAL NUMBER OF SUBSTRATE TYPES: $1 + 2 + 0 + 0 + 1 = 4$			<input type="checkbox"/> LOW (0) <input type="checkbox"/> NONE (-)	

NOTE: (Type siltage that originates from point-source; score is based on NATURAL substrates)

2) INSTREAM COVER

TYPE (Check ALL That Apply)	COVER SCORE:
<input type="checkbox"/> UNDERCUT BANKS (1)	6
<input checked="" type="checkbox"/> DEEP POOLS (2)	
<input type="checkbox"/> OVERHANGING VEGETATION (1)	
<input type="checkbox"/> SHALLOWS (IN SLOW WATER) (1)	
<input type="checkbox"/> ROOFS (1)	1
<input type="checkbox"/> Boulders (1)	
<input checked="" type="checkbox"/> LOGS OR WOODY DEBRIS (1)	2
<input type="checkbox"/> AQUATIC MACROPHYTES (1)	
<input type="checkbox"/> NEARLY ABSENT < 5% (1)	0
<input type="checkbox"/> EXTENSIVE > 75% (1)	
<input type="checkbox"/> MODERATE 25-75% (1)	1
<input type="checkbox"/> SPARSE 5-25% (1)	

3) CHANNEL MORPHOLOGY (Check ONE Flow PER Energy OR check 2 and AVERAGE)

ENERGY	CHANNEL FORM	CHANNEL STATION	STABILITY	MODIFICATION	CHANNEL:
<input type="checkbox"/> HIGH (4)	<input type="checkbox"/> EXCELLENT (7)	<input type="checkbox"/> NONE (6)	<input type="checkbox"/> HIGH (3)	<input type="checkbox"/> SNAGGING	7
<input type="checkbox"/> MODERATE (2)	<input type="checkbox"/> GOOD (5)	<input type="checkbox"/> RECOVERED (4)	<input type="checkbox"/> MODERATE (2)	<input type="checkbox"/> RELOCATION	
<input checked="" type="checkbox"/> LOW (1)	<input type="checkbox"/> FAIR (3)	<input checked="" type="checkbox"/> RECOVERING (3)	<input checked="" type="checkbox"/> LOW (1)	<input type="checkbox"/> CANOPY REMOVAL	
<input type="checkbox"/> NONE (-)	<input checked="" type="checkbox"/> POOR (1)	<input type="checkbox"/> RECENT OR NO RECOVERY (1)	<input type="checkbox"/> NONE (-)	<input type="checkbox"/> DREDGING	

4) RIPARIAN ZONE AND BANK EROSION (Check ONE box per bank or check 2 and AVERAGE per bank)

RIPARIAN WIDTH	EROSION/VEGETATION - BIODIVERSITY	BANK EROSION	RIPARIAN:
<input type="checkbox"/> R (Per Bank)	<input checked="" type="checkbox"/> FOREST, SWAMP (1)	<input type="checkbox"/> NONE OR LITTLE (1)	11
<input type="checkbox"/> W (Per Bank)	<input type="checkbox"/> OPEN PASTURE/ROW CROPS (1)	<input type="checkbox"/> MODERATE (2)	
<input type="checkbox"/> MODERATE (10-15) (2)	<input type="checkbox"/> RESID. PARK, NEW FIELD (1)	<input checked="" type="checkbox"/> HEAVY OR SEVERE (1)	
<input type="checkbox"/> NARROW < 5m (1)	<input type="checkbox"/> FENCED PASTURE (1)	<input type="checkbox"/> MINING CONSTRUCTION (0)	
<input checked="" type="checkbox"/> VERY NARROW < 1.5m (1)	<input type="checkbox"/> NONE (0)		

5) POOLS AND RIFPLE RUN QUALITY

POOL CHARACTERISTICS	MORPHOLOGY	DISCHARGE/VELOCITY	POOL:
<input checked="" type="checkbox"/> > 1m (3)	<input type="checkbox"/> POOL WIDTH > RIFPLE WIDTH (2)	<input type="checkbox"/> TORRENTIAL (-1)	8
<input type="checkbox"/> 0.7-1m (2)	<input checked="" type="checkbox"/> POOL WIDTH > RIFPLE WIDTH (1)	<input type="checkbox"/> FAST (1)	
<input type="checkbox"/> 0.4-0.7m (1)	<input type="checkbox"/> POOL WIDTH > RIFPLE W. (0)	<input checked="" type="checkbox"/> MODERATE (1)	
<input type="checkbox"/> < 0.2m (Pool = 0)		<input checked="" type="checkbox"/> SLOW (1)	

6) RIFPLE CHARACTERISTICS

RIFPLE CHARACTERISTICS	STABILITY	EXTENSIVENESS	RIFPLE:
<input type="checkbox"/> GENERALLY > 10 cm (MAX 50) (4)	<input type="checkbox"/> STABLE (w.p. Grass, Silt) (2)	<input checked="" type="checkbox"/> EXTENSIVE (-1)	2
<input checked="" type="checkbox"/> GENERALLY > 10 cm (MAX 50) (3)	<input type="checkbox"/> MOD. STABLE (w.p. Grass) (1)	<input type="checkbox"/> LOW (1)	
<input type="checkbox"/> GENERALLY 5-10 cm (1)	<input checked="" type="checkbox"/> UNSTABLE (Grass, Sand) (0)	<input type="checkbox"/> NONE (-)	
<input type="checkbox"/> GENERALLY < 5 cm (Rif. = 0)		<input checked="" type="checkbox"/> NO RIFPLE (0)	

7) GRADIENT

Gradient (feet/mile): _____ S.POOL: _____ S.RIFPLE: _____ S.RUN: _____

EPA 4520

Procedure No. WDA-SWS-3 Date Issued 9-20-95
 Revision No. 5 Date Effective 9-30-95

BC
5/4
Duplicate
Sample

Figure V-4-5. Front side of the Ohio EPA Site Description Sheet for evaluating the geographical and physical characteristics of Ism sampling locations. This is used to record information for the calculation of the Qualitative Habitat Evaluation Index (QHEI).

Ohio EPA Site Description Sheet - Fish QHEI SCORE: 30

Stream: Blossburg Creek RM: _____ Date: _____ River Code: _____
 Location: BC-1 New Machine on Warren Co. Line Creek #18 / #19

1) SUBSTRATE (Check ONLY the Substrate TYPE BOXES; Check all types present):

TYPE	POOL RIFPLE	POOL RIFFLE	SUBSTRATE QUALITY	SUBSTRATE SCORE:
<input type="checkbox"/> BOLDER GLASS (1)	<input type="checkbox"/> GRAVEL (7)	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Substrate Gravel (Check all)	<input type="checkbox"/> SILT HEAVY (-2) <input type="checkbox"/> SILT MODERATE (-1)	<u>10</u>
<input type="checkbox"/> BOLDER (3)	<input type="checkbox"/> SAND (6)	<input checked="" type="checkbox"/> LIMESTONE (1) <input checked="" type="checkbox"/> RIPRAP (2)	<input type="checkbox"/> SILT NORMAL (0) <input type="checkbox"/> SILT FREE (1)	
<input type="checkbox"/> COBBLE (5)	<input type="checkbox"/> BED ROCKS (4)	<input checked="" type="checkbox"/> SLTS (1)	<input type="checkbox"/> EXTENSIVE (2) <input type="checkbox"/> MODERATE (1)	
<input type="checkbox"/> HARD PAN (4)	<input type="checkbox"/> COCCATULUS (3)	<input type="checkbox"/> SANDSTONE (0)	<input type="checkbox"/> COARSE (1) <input type="checkbox"/> NONE (1)	
<input type="checkbox"/> MUCK (2)	<input checked="" type="checkbox"/> ARTIFICIAL (1)	<input type="checkbox"/> SHALE (-1)	<input type="checkbox"/> COARSE (1) <input type="checkbox"/> NONE (1)	
TOTAL NUMBER OF SUBSTRATE TYPES: <u>2</u> + <u>2</u> = <u>4</u> (0) <input type="checkbox"/> COARSE FINES (-2)				
NOTE: Ignore sludge that originates from point-sources; score is based on natural substrates				

COMMENTS: _____

2) INSTREAM COVER

TYPE (Check ALL That Apply)	COVER SCORE:
<input type="checkbox"/> UNDERCUT BANKS (1)	<input type="checkbox"/> EXTENSIVE > 75% (1)
<input checked="" type="checkbox"/> OVERHANGING VEGETATION (1)	<input type="checkbox"/> MODERATE 25-75% (0)
<input type="checkbox"/> SHALLOWS (ON SLOW WATER) (1)	<input checked="" type="checkbox"/> SPARSE 5-25% (0)
<input checked="" type="checkbox"/> DEEP POOLS (2)	<input type="checkbox"/> NEARLY ABSENT < 5% (0)
<input type="checkbox"/> LOGS OR WOODY DEBRIS (1)	

COMMENTS: _____

3) CHANNEL MORPHOLOGY: (Check ONLY One PER Category OR check 2 and AVERAGE)

DEVELOPMENT	CHANNELIZATION	STABILITY	MODIFICATION TYPES	CHANNEL:
<input type="checkbox"/> HIGH (4)	<input type="checkbox"/> NONE (0)	<input type="checkbox"/> HIGH (2)	<input type="checkbox"/> SNAGGING	<u>0</u>
<input type="checkbox"/> MODERATE (3)	<input type="checkbox"/> RECOVERING (4)	<input checked="" type="checkbox"/> MODERATE (2)	<input type="checkbox"/> RELOCATION	
<input checked="" type="checkbox"/> LOW (2)	<input type="checkbox"/> RECENT OR NO RECOVERY (1)	<input type="checkbox"/> LOW (1)	<input type="checkbox"/> CANOPY REMOVAL	
<input type="checkbox"/> NONE (1)			<input type="checkbox"/> DREDGING	
			<input type="checkbox"/> ONE SIDE CHANNEL MODIFICATIONS	

COMMENTS: _____

4) RIPARIAN ZONE AND BANK PROXIMITY - (Check ONE box per bank or check 2 and AVERAGE per bank)

RIPARIAN WIDTH	PERMANENT WOODS - BIODIVERSITY QUALITY	BANK PROXIMITY	RIPARIAN:
<input type="checkbox"/> L R (Per Bank)	<input type="checkbox"/> L R (Most Prevalent Per Bank)	<input type="checkbox"/> L R (Per Bank)	<u>0</u>
<input type="checkbox"/> MODERATE (1-3)	<input checked="" type="checkbox"/> OPEN PASTURE / ROW CROPS	<input type="checkbox"/> URBAN OR INDUSTRIAL (2)	
<input type="checkbox"/> MODERATE (1-3)	<input checked="" type="checkbox"/> OPEN PASTURE / ROW CROPS	<input type="checkbox"/> SHRUBS OR OLD FIELD (2)	
<input checked="" type="checkbox"/> VERY NARROW 1-5m (1)	<input type="checkbox"/> RESIDUAL / NEW FIELD (1)	<input checked="" type="checkbox"/> MODERATE (2)	
<input type="checkbox"/> NONE (0)	<input type="checkbox"/> FENCED PASTURE (1)	<input type="checkbox"/> CONSERV. TRAIL (1)	
	<input type="checkbox"/> MINING / CONSTRUCTION (0)	<input type="checkbox"/> HEAVY OR SEVERE (1)	

COMMENTS: _____

5) POOL GUIDE AND RIFFLE/RUN QUALITY

POOL: <u>4</u>	RIFPLE: <u>0</u>
<input type="checkbox"/> > 1m (4)	<input type="checkbox"/> STABLE (e.g. Cobble, Boulder) (2)
<input checked="" type="checkbox"/> 0.7-1m (3)	<input type="checkbox"/> MOD. STABLE (e.g. Pea Gravel) (1)
<input type="checkbox"/> 0.4-0.7m (2)	<input checked="" type="checkbox"/> UNSTABLE (Gravel/Sand) (0)
<input type="checkbox"/> < 0.4m (1)	

COMMENTS: _____

6) Gradient (feet/mile): _____ % POOL: _____ % RIFPLE: _____ % RUN: _____

BC-2
5/3/00

Procedure No. WOP4-SWS-1 Date Issued 9-10-89
Revision No. 5 Date Effective 9-10-89

Figure V-4-5. Front side of the Ohio EPA Site Description Sheet for evaluating the geographical and physical characteristics of fish sampling locations. This is used to record information for the calculation of the Qualitative Habitat Evaluation Index (QHEI).

Ohio EPA Site Description Sheet - Fish

Stream: Bluegrass Creek RM _____ Date _____ River Code _____
Location: BC-2 Crew: EPB, CWR, ARS

QHEI SCORE: 72.31

1) SUBSTRATE (Check ALL THE Substrate TYPE BOXES; Check all types present):

TYPE	POOL, RIPPLE	POOL, RIPPLE	SUBSTRATE QUALITY	SUBSTRATE SCORE:
<input type="checkbox"/> SLIDER SLABS (0)	<input type="checkbox"/> GRAVEL (7)	<input type="checkbox"/> SILT/SAND (0)	<input type="checkbox"/> SILT COVER (Check One)	<input checked="" type="checkbox"/> 7
<input type="checkbox"/> BOULDER (4)	<input type="checkbox"/> SAND (8)	<input type="checkbox"/> LIMESTONE (1)	<input type="checkbox"/> SILT HEAVY (-2)	<input type="checkbox"/> MODERATE (-1)
<input type="checkbox"/> GOBBLE (2)	<input type="checkbox"/> BEDROCK (9)	<input type="checkbox"/> MUDFLATS (1)	<input type="checkbox"/> SILT NORMAL (0)	<input type="checkbox"/> SILT FREE (1)
<input type="checkbox"/> HARDPAN (4)	<input checked="" type="checkbox"/> DETRITUS (X)	<input type="checkbox"/> SANDSTONE (0)	<input type="checkbox"/> HARDPAN (2)	<input type="checkbox"/> EXTENSIVE (-2)
<input checked="" type="checkbox"/> MUCK (2)	<input checked="" type="checkbox"/> ARTIFICIAL (X)	<input type="checkbox"/> SHALE (-1)	<input type="checkbox"/> SANDS (1)	<input type="checkbox"/> MODERATE (-1)
		<input type="checkbox"/> COAL (0)	<input type="checkbox"/> SANDS (1)	<input type="checkbox"/> LOW (0)
			<input type="checkbox"/> NONE (-1)	

TOTAL NUMBER OF SUBSTRATE TYPES: 2 + 4 = 6

NOTE: Ignore silt and organic from point-source; score is based on natural substrates.

2) INSTREAM COVER

TYPE (Check all that Apply)	AMOUNT (Check One; if one of check 2 and AVERAGE)
<input type="checkbox"/> UNDERCUT BANKS (1)	<input type="checkbox"/> DEEP POOLS (2)
<input type="checkbox"/> OVERHANGING VEGETATION (1)	<input type="checkbox"/> ROOTWADS (1)
<input type="checkbox"/> SHALLOWS (IN SLOW WATER) (1)	<input type="checkbox"/> BOLLERS (1)
	<input type="checkbox"/> LOGS OR WOOD DEBRIS (1)
	<input type="checkbox"/> EXTENSIVE > 75% (1)
	<input type="checkbox"/> MODERATE 25-75% (1)
	<input checked="" type="checkbox"/> SPARSE 5-25% (0)
	<input type="checkbox"/> NEARLY ABSENT < 5% (1)

3) CHANNEL MORPHOLOGY: (Check ONLY One PER Category OR check 2 and AVERAGE)

SINUOSITY	DEVELOPMENT	CHANNELIZATION	STABILITY	MODIFICATION/OTHER
<input type="checkbox"/> HIGH (4)	<input type="checkbox"/> EXCELLENT (1)	<input type="checkbox"/> NONE (6)	<input type="checkbox"/> HIGH (0)	<input type="checkbox"/> SNAGGING
<input type="checkbox"/> MODERATE (3)	<input type="checkbox"/> GOOD (3)	<input type="checkbox"/> RECOVERED (4)	<input type="checkbox"/> MODERATE (2)	<input type="checkbox"/> RELOCATION
<input checked="" type="checkbox"/> LOW (2)	<input type="checkbox"/> FAIR (2)	<input checked="" type="checkbox"/> RECOVERING (2)	<input checked="" type="checkbox"/> LOW (1)	<input type="checkbox"/> CANOPY REMOVAL
<input type="checkbox"/> NONE (1)	<input checked="" type="checkbox"/> POOR (1)	<input type="checkbox"/> RECENT OR NO RECOVERY (1)		<input type="checkbox"/> BRECCING
				<input type="checkbox"/> BANK SHAPING
				<input type="checkbox"/> ONE SIDE CHANNEL MODIFICATIONS

4) RIPARIAN ZONE AND BANK EROSION (Check ONE box per bank or check 2 and AVERAGE per bank)

RIPARIAN WIDTH	EROSION/SHRUBS - P.O.D. & IN QUALITY	BANK EROSION
L/R (Per Bank)	L/R (Most Problem Area) Per Bank	L/R (Per Bank)
<input type="checkbox"/> WIDE (50+)	<input type="checkbox"/> FOREST, SWAMP (0)	<input type="checkbox"/> URBAN OR INDUSTRIAL (2)
<input type="checkbox"/> MODERATE (10-50)	<input checked="" type="checkbox"/> OPEN PASTURE/ROW CROPS (1)	<input type="checkbox"/> SHRUBS OR OLD FIELDS (2)
<input type="checkbox"/> NARROW (5-10)	<input type="checkbox"/> RES. PARK, NEW FIELDS (1)	<input checked="" type="checkbox"/> MODERATE (2)
<input checked="" type="checkbox"/> VERY NARROW (1-5)	<input type="checkbox"/> DEFENDED PASTURE (1)	<input type="checkbox"/> CONCRETE TILLAGE (1)
<input type="checkbox"/> NONE (0)	<input type="checkbox"/> CONSTRUCTION (0)	<input type="checkbox"/> HEAVY OR SEVERE (1)

5) POOL/RIFFLE AND RIPPLE/RUN QUALITY

MAX. WIDTH (Check 1)	MORPHOLOGY (Check 1)	POOL/RIFFLE SUBMERGENCE VELOCITY (Check all that Apply)
<input type="checkbox"/> > 10m (3)	<input type="checkbox"/> POOL WIDTH > RIPPLE WIDTH (2)	<input type="checkbox"/> TORRENTIAL (1)
<input type="checkbox"/> 5-10m (2)	<input checked="" type="checkbox"/> POOL WIDTH > RIPPLE WIDTH (1)	<input type="checkbox"/> FAST (1)
<input checked="" type="checkbox"/> 0-5m (1)	<input type="checkbox"/> POOL WIDTH < RIPPLE W. (0)	<input checked="" type="checkbox"/> MODERATE (1)
<input type="checkbox"/> < 0.5m (Pool = 0)		<input type="checkbox"/> SLOW (1)
		<input type="checkbox"/> EDDIES (1)
		<input type="checkbox"/> INTERMITTENT (1)
		<input type="checkbox"/> INTERMITTENT (2)

6) RIFFLE SUBSTRATE

RIFFLE SUBSTRATE	RIFFLE SUBSTRATE	RIFFLE SUBSTRATE
<input type="checkbox"/> GENERALLY > 10 cm MAX (3)	<input type="checkbox"/> STABLE (e.g. Gravel, Sand) (3)	<input checked="" type="checkbox"/> EXTENSIVE (-1)
<input type="checkbox"/> GENERALLY > 10 cm MAX (2)	<input type="checkbox"/> MOD. STABLE (e.g. Fine Gravel) (1)	<input type="checkbox"/> MODERATE (0)
<input checked="" type="checkbox"/> GENERALLY 5-10 cm (1)	<input checked="" type="checkbox"/> UNSTABLE (e.g. Sand) (0)	<input type="checkbox"/> LOW (1)
<input type="checkbox"/> GENERALLY < 5 cm (Pool = 0)		<input type="checkbox"/> NONE (2)

7) GRADIENT (feet/mile): _____ % POOL: _____ % RIPPLE: _____ % RUN: _____

COMMENTS: _____

BC-1
5/3/00

Procedure No. WOPA-SWS-1 Date Issued 5-30-89
Revision No. 6 Date Effective 5-30-89

Figure V-4-5. Front side of the Ohio EPA Site Description Sheet for evaluating the geographical and physical characteristics of fish sampling locations. This is used to record information for the calculation of the Quantitative Habitat Evaluation Index (QHEI).

Ohio EPA Site Description Sheet - Fish QHEI SCORE: 41

Stream: Bluffs Creek Run: _____ Date: _____
 Location: BC-1 GWR: ESR-CWR-AB3

1) SUBSTRATE (Check ONLY Two Substrate TYPE BOXES; Check ALL types present; SUBSTRATE QUALITY SUBSTRATE SCORE: 9)

TYPE	POOL RIFLE	POOL RIFLE	SUBSTRATE QUALITY	SUBSTRATE SCORE:
<input type="checkbox"/> B-BOILER SLABS (0)	<input type="checkbox"/> GRAVEL (7)	<input checked="" type="checkbox"/> Substrate Origin (Check all)	<input type="checkbox"/> SILT HEAVY (-2)	<input checked="" type="checkbox"/> SILT MODERATE (-1)
<input type="checkbox"/> B-Boulder (8)	<input type="checkbox"/> SAND (6)	<input checked="" type="checkbox"/> LIMESTONE (NO RIPRAP) (0)	<input type="checkbox"/> SILT NORMAL (0)	<input type="checkbox"/> SILT FREE (1)
<input type="checkbox"/> B-Cobble (9)	<input type="checkbox"/> BEDROCK (5)	<input type="checkbox"/> TILLS (1)	Extent of Embankment (Check One)	
<input type="checkbox"/> B-HARDPAN (4)	<input checked="" type="checkbox"/> DETRITUS (3)	<input type="checkbox"/> SANDSTONE (2)	<input type="checkbox"/> EXTENSIVE (-2)	<input checked="" type="checkbox"/> MODERATE (-1)
<input type="checkbox"/> B-MUCK (2)	<input checked="" type="checkbox"/> ARTIFICIAL (0)	<input type="checkbox"/> SHALES (-1)	<input type="checkbox"/> LOW (0)	<input type="checkbox"/> NONE (1)

TOTAL NUMBER OF SUBSTRATE TYPES: 4 (7) 4 (6) 4 (5) 4 (4) 4 (3) 4 (2) 4 (1) 4 (0)

NOTE: (Enter silt only if originates from point-source source or based on natural substrate)
 COMMENTS: _____

2) DREAM COVER COVER SCORE: 5

TYPE (Check ALL That Apply)	COVER SCORE:
<input type="checkbox"/> UNDERBANK BANKS (1)	<input type="checkbox"/> EXTENSIVE > 75% (1)
<input type="checkbox"/> OVERHANGING VEGETATION (5)	<input type="checkbox"/> MODERATE 25-75% (7)
<input checked="" type="checkbox"/> SHALLOWS (IN SLOW WATER) (1)	<input checked="" type="checkbox"/> SPARSE 5-25% (0)
<input type="checkbox"/> DEEP POOLS (2)	<input type="checkbox"/> NEARLY ABSENT < 25% (1)
<input type="checkbox"/> ROOTWADS (1)	
<input type="checkbox"/> BOULDERS (1)	
<input checked="" type="checkbox"/> LOGS OR WOODY DEBRIS (1)	

COMMENTS: _____

3) CHANNEL MORPHOLOGY: (Check ONLY One PER Category OR check 2 and AVERAGE) CHANNEL: 9

SHAPING	VEGETATION	CHANNELIZATION	STABILITY	MODIFICATIONS OTHER
<input type="checkbox"/> HIGH (4)	<input type="checkbox"/> EXCELLENT (7)	<input type="checkbox"/> NONE (5)	<input type="checkbox"/> HIGH (0)	<input type="checkbox"/> SNAGGING
<input type="checkbox"/> MODERATE (3)	<input type="checkbox"/> GOOD (5)	<input type="checkbox"/> RECOVERING (4)	<input type="checkbox"/> MODERATE (2)	<input type="checkbox"/> RELOCATION
<input checked="" type="checkbox"/> LOW (2)	<input type="checkbox"/> FAIR (3)	<input checked="" type="checkbox"/> RECOVERING (3)	<input checked="" type="checkbox"/> LOW (1)	<input type="checkbox"/> CANOPY REMOVAL
<input type="checkbox"/> NONE (1)	<input checked="" type="checkbox"/> POOR (1)	<input type="checkbox"/> RECENT OR NO RECOVERY (1)		<input type="checkbox"/> DREDGING
				<input type="checkbox"/> BANK SHAPING
				<input type="checkbox"/> ONE SIDE CHANNEL MODIFICATIONS

COMMENTS: _____

4) RIPARIAN ZONE AND BANK EROSION - (check ONE box per bank or check 2 and AVERAGE per bank) RIPARIAN: 12

RIPARIAN WIDTH	EROSION/RUNOFF - BLOCK PERCENTAGE	BANK EROSION
L/R (Per Bank)	L/R (Most Prevalent Per Bank)	L/R (Per Bank)
<input type="checkbox"/> WIDE (3-4)	<input checked="" type="checkbox"/> FOREST, SWAMP (0)	<input type="checkbox"/> URBAN OR INDUSTRIAL (0)
<input type="checkbox"/> MODERATE (1-2)	<input type="checkbox"/> OPEN PASTURE, AGROFOREST (1)	<input checked="" type="checkbox"/> MODERATELY
<input type="checkbox"/> NARROW (1-2)	<input type="checkbox"/> RESID. PARK/NEW FELD (1)	<input type="checkbox"/> HEAVY OR SEVERE (1)
<input checked="" type="checkbox"/> VERY NARROW (1-2)	<input type="checkbox"/> FENCED PASTURE (1)	<input type="checkbox"/> CHANNEL CONSTRUCTION (0)
<input type="checkbox"/> NONE (0)		

COMMENTS: _____

POOL: 4

POOL: (Check 1)	VEGETATION	VEGETATION - CURRENT VELOCITY
<input type="checkbox"/> 1-1m (3)	<input checked="" type="checkbox"/> POOL WIDTH > RIFLE WIDTH (2)	<input type="checkbox"/> PERMANENT (1)
<input type="checkbox"/> 2-1m (4)	<input type="checkbox"/> POOL WIDTH = RIFLE WIDTH (1)	<input type="checkbox"/> FAST (3)
<input type="checkbox"/> 3-4m (2)	<input type="checkbox"/> POOL WIDTH < RIFLE W (0)	<input checked="" type="checkbox"/> MODERATE (1)
<input checked="" type="checkbox"/> 4-6m (1)		<input type="checkbox"/> SLOW (1)
<input type="checkbox"/> 6m (Pool = 0)		

COMMENTS: _____

RIFLE: 0

RIFLE: (Check 1)	RIFLE: (Check 1)	RIFLE: (Check 1)
<input type="checkbox"/> GENERALLY > 10 cm MAX (0)	<input type="checkbox"/> STABLE (e.g. Cobble, Boulder) (2)	<input type="checkbox"/> EXTENSIVE (1)
<input type="checkbox"/> GENERALLY > 10 cm MAX (0)	<input type="checkbox"/> MOD. STABLE (e.g. Pea Gravel) (1)	<input checked="" type="checkbox"/> MODERATE (1)
<input type="checkbox"/> GENERALLY 5-10 cm (1)	<input checked="" type="checkbox"/> UNSTABLE (Gravel, Sand) (0)	<input type="checkbox"/> LOW (1)
<input checked="" type="checkbox"/> GENERALLY < 5 cm (2)		<input type="checkbox"/> NONE (0)

COMMENTS: _____

GRADIENT: 4

5) Gradient (feet/mile): _____ % POOL: _____ % RIFLE: _____ % RUN: _____

Procedure No. WQP-4-SWS-3 Date Issued 9-10-85
 Revision No. F Date Effective 9-10-85

LP-1
5/6/00

Figure V-4-5. Front side of the Ohio EPA Site Description Sheet for evaluating the geographical and physical characteristics of fish sampling locations. This is used to record information for the calculation of the Qualitative Habitat Evaluation Index (QHEI).

Ohio EPA Site Description Sheet - Fish QHEI SCORE: 43

Stream Little Pigeon For _____ Date _____ River Code _____
 Location LP-1 City ESB/CWR

1) SUBSTRATE (Check ONLY the Substrate TYPE BOXES; Check all types present):

TYPE	POOL	RIFPLE	SUBSTRATE QUALITY	SUBSTRATE SCORE:
CO-BOLDER (1-10) <input type="checkbox"/>	CO-GRAVEL (1) <input type="checkbox"/>	Substrate Gravel (Check all)	SILT Heavy (Check One)	<input checked="" type="checkbox"/> 2
CO-BOLDER (5) <input type="checkbox"/>	CO-SAND (4) <input type="checkbox"/>	CO-LIMESTONE (1) CO-RIPRAP (2) <input type="checkbox"/>	CO-SILT HEAVY (1) CO-SILT MODERATE (1-1)	
CO-COBBLE (2) <input type="checkbox"/>	CO-BEDROCK (1) <input type="checkbox"/>	CO-TILLS (1) <input type="checkbox"/>	CO-NARROW (1) CO-SILT NORMAL (2) <input type="checkbox"/>	CO-SILT FREE (1) <input type="checkbox"/>
CO-MORPHAN (4) <input checked="" type="checkbox"/>	CO-DETRITUS (1) <input type="checkbox"/>	CO-SANDSTONE (2) <input type="checkbox"/>	CO-CLAY CO. BEDROCK (Check One)	CO-EXTENSIVE (1) CO-MODERATE (1-1)
CO-MUCK (2) <input type="checkbox"/>	CO-ARTIFIC (2) <input checked="" type="checkbox"/>	CO-SHALE (1-1) <input checked="" type="checkbox"/>	CO-EXTENSIVE (1) CO-MODERATE (1-1)	CO-LOW (1) CO-NONE (1)

TOTAL NUMBER OF SUBSTRATE TYPES: 4 (2) 4 (2) CO-COAL FINES (1-2)

NOTE: (Ignore sludge that originates from point sources; score is based on natural substratum)

COMMENTS: _____

2) INSTREAM COVER

TYPE (Check ALL that Apply)	COVER SCORE:		
CO-UNDERCUT BANKS (1) <input type="checkbox"/>	CO-DEEP POOLS (2) <input type="checkbox"/>	CO-OBSCURS (1) <input type="checkbox"/>	CO-EXTENSIVE > 75% (1) <input type="checkbox"/>
CO-OVERHANGING VEGETATION (1) <input type="checkbox"/>	CO-ROOTWADES (2) <input checked="" type="checkbox"/>	CO-AQUATIC MACROPHYTES (1) <input type="checkbox"/>	CO-MODERATE 25-75% (1) <input type="checkbox"/>
CO-SHALLOWS (IN SLOW WATER) (1) <input checked="" type="checkbox"/>	CO-BOULDERS (1) <input type="checkbox"/>	CO-LOGS OR WOODY DEBRIS (1) <input checked="" type="checkbox"/>	CO-SPARSE 1-25% (1) <input type="checkbox"/>
			CO-NEARLY ABSENT < 1% (1) <input type="checkbox"/>

COMMENTS: _____

3) CHANNEL MORPHOLOGY: (Check ONLY One PER Category OR check 2 and AVERAGE)

CANALISITY	LEVELMENT	CHANNELIZATION	STABILITY	MODIFICATIONS/OTHER	CHANNEL:
CO-HIGH (4) <input type="checkbox"/>	CO-EXCELLENT (1) <input type="checkbox"/>	CO-NONE (2) <input type="checkbox"/>	CO-HIGH (2) <input type="checkbox"/>	CO-SHADING <input type="checkbox"/>	<input checked="" type="checkbox"/> 4
CO-MODERATE (2) <input checked="" type="checkbox"/>	CO-GOOD (2) <input type="checkbox"/>	CO-RECOVERED (4) <input type="checkbox"/>	CO-MODERATE (2) <input type="checkbox"/>	CO-RELOCATION <input type="checkbox"/>	
CO-LOW (2) <input type="checkbox"/>	CO-FAIR (2) <input type="checkbox"/>	CO-RECOVERING (2) <input checked="" type="checkbox"/>	CO-LOW (1) <input checked="" type="checkbox"/>	CO-CANOPY REMOVAL <input type="checkbox"/>	
CO-NONE (1) <input type="checkbox"/>	CO-POOR (1) <input checked="" type="checkbox"/>	CO-RECENT OR NO RECOVERY (1) <input type="checkbox"/>		CO-DREDGING <input type="checkbox"/>	
				CO-ONE SIDE CHANNEL MODIFICATIONS <input type="checkbox"/>	

COMMENTS: _____

4) RIPARIAN ZONE AND BANK EROSION - (Check ONE box per bank or check 2 and AVERAGE per bank)

RIPARIAN WIDTH	EROSION INDEX - 1-1000 PLAIN QUALITY	BANK EROSION
L, R (Per Bank) <input type="checkbox"/>	L, R (Most Predominant Per Bank) <input type="checkbox"/>	L, R (Per Bank) <input type="checkbox"/>
CO-WIDE > 50m (4) <input type="checkbox"/>	CO-FOREST, SWAMP (2) <input checked="" type="checkbox"/>	CO-URBAN OR INDUSTRIAL (1) <input type="checkbox"/>
CO-MODERATE 10-50 (2) <input type="checkbox"/>	CO-OPEN PASTURE, ROW CROPS (2) <input type="checkbox"/>	CO-SHRUB OR OLD FIELDS (2) <input checked="" type="checkbox"/>
CO-NARROW 1-10m (2) <input checked="" type="checkbox"/>	CO-RESID. PARK, NEW FIELD (1) <input type="checkbox"/>	CO-CONSERV. FILLAGE (1) <input type="checkbox"/>
CO-VERY NARROW 1-3m (1) <input type="checkbox"/>	CO-FENCED PASTURE (1) <input type="checkbox"/>	CO-MINING/CONSTRUCTION (2) <input type="checkbox"/>
CO-NONE (2) <input type="checkbox"/>		

COMMENTS: _____

POOL: 8

POOL: 8

POOL DEPTH (Check 1)	MORPHOLOGY (Check 1)	POOL VELOCITY (Check ALL That Apply)	POOL:
CO-1m (4) <input checked="" type="checkbox"/>	CO-POOL WIDTH > RIFPLE WIDTH (2) <input type="checkbox"/>	CO-TORRENTIAL (1) <input type="checkbox"/>	<input checked="" type="checkbox"/> 8
CO-0.5-1m (2) <input type="checkbox"/>	CO-POOL WIDTH = RIFPLE WIDTH (1) <input checked="" type="checkbox"/>	CO-FAST (2) <input type="checkbox"/>	
CO-0.2-1m (1) <input type="checkbox"/>	CO-POOL WIDTH < RIFPLE WIDTH (2) <input type="checkbox"/>	CO-MODERATE (1) <input checked="" type="checkbox"/>	CO-INTERSTITIAL (1) <input type="checkbox"/>
CO-<0.2m (Pool = 0) <input type="checkbox"/>		CO-SLOW (1) <input checked="" type="checkbox"/>	CO-INTERMITTENT (2) <input type="checkbox"/>

COMMENTS: _____

RIFPLE: 1

RIFPLE DEPTH	RIFPLE SUBSTRATE	RIFPLE VELOCITY
CO-GENERALLY > 10 cm. MAX 50 (4) <input type="checkbox"/>	CO-STABLE (e.g. Cobble, Boulder) (2) <input type="checkbox"/>	CO-EXTENSIVE (1-1) <input checked="" type="checkbox"/>
CO-GENERALLY > 10 cm. MAX 50 (3) <input type="checkbox"/>	CO-MOD. STABLE (e.g. Pea Gravel) (1) <input checked="" type="checkbox"/>	CO-LOW (1) <input type="checkbox"/>
CO-GENERALLY 5-10 cm (1) <input checked="" type="checkbox"/>	CO-UNSTABLE (Gravel, Sand) (2) <input checked="" type="checkbox"/>	CO-NONE (1) <input type="checkbox"/>
CO-GENERALLY < 5 cm (2) <input type="checkbox"/>		CO-NO RIFPLE (2) <input checked="" type="checkbox"/>

COMMENTS: _____

GRADIENT: 4

5) Gradient (Assume): _____

WPOOL: _____

NRIFPLE: _____

NRUN: _____

LC-1
5/6/00

Procedure No. WQA-SWS-3 Date Issued 9/30/83
 Revisor No. A Date Effective 9/30/83

Figure V-4-3. Front side of the Ohio EPA Site Description Sheet for evaluating the geographical and physical characteristics of fish sampling locations. This is used to record information for the calculation of the Qualitative Habitat Evaluation Index (QHEI).

Ohio EPA Site Description Sheet - Fish QHEI SCORE: 4647

Stream LOSWEET CREEK RM _____ Date _____
 Location LC-1 Crew 230/CWS

1) SUBSTRATE (Check ONLY Two Substrate TYPE BOXES; Check all types present):

TYPE	POOL RIFPLE	POOL RIFPLE	SUBSTRATE QUALITY	SUBSTRATE SCORE:
<input type="checkbox"/> COBBLER (1-10)	<input type="checkbox"/> GRAVEL (7)	<input checked="" type="checkbox"/> Substrate Origin (Check all)		<input checked="" type="checkbox"/> 9
<input type="checkbox"/> COBBLER (1)	<input type="checkbox"/> SAND (8)	<input type="checkbox"/> LIMESTONE (11)	<input type="checkbox"/> SILT HEAVY (2)	<input type="checkbox"/> MODERATE (1)
<input type="checkbox"/> COBBLE (9)	<input type="checkbox"/> BEDROCK (1)	<input type="checkbox"/> TILLS (1)	<input type="checkbox"/> SILT NORMAL (10)	<input type="checkbox"/> SILT FREE (1)
<input checked="" type="checkbox"/> CHAROPAN (4)	<input checked="" type="checkbox"/> ORTUSTUS (1)	<input type="checkbox"/> SANDSTONE (4)	<input type="checkbox"/> MARSHMAN (1)	<input type="checkbox"/> EXTENSIVE (1-2)
<input type="checkbox"/> CLAY (3)	<input type="checkbox"/> ARTIFICIAL (1)	<input type="checkbox"/> SHALE (1)	<input type="checkbox"/> LOGS OR WOODY DEBRIS (1)	<input type="checkbox"/> MODERATE (1)

TOTAL NUMBER OF SUBSTRATE TYPES: 4 (1) + 4 (1) = 8 (2) (MAX 8)
 NOTE: (Assign value for coverage from pool-to-pool; score is based on natural substrates)
 COMMENTS: _____

2) BREAM COVER

TYPE (Check ALL That Apply)	COVER SCORE:
<input type="checkbox"/> UNOCCUPIED BANKS (1)	<input checked="" type="checkbox"/> 5
<input type="checkbox"/> OVERHANGING VEGETATION (1)	<input type="checkbox"/> EXTENSIVE > 75% (1)
<input checked="" type="checkbox"/> SHALLOWS (IN SLOW WATER) (1)	<input type="checkbox"/> MODERATE 25-75% (7)
<input checked="" type="checkbox"/> LOGS OR WOODY DEBRIS (1)	<input type="checkbox"/> SPARSE 5-25% (3)
<input type="checkbox"/> Boulders (1)	<input type="checkbox"/> NEARLY ABSENT < 5% (1)

COMMENTS: _____

3) CHANNEL MORPHOLOGY: (Check ONLY One PER Category OR check 2 and AVERAGE)

STABILITY	DEVELOPMENT	CHANNELIZATION	STABILITY	MODIFICATIONS/OTHER	CHANNEL:
<input type="checkbox"/> HIGH (1)	<input type="checkbox"/> EXCELLENT (1)	<input type="checkbox"/> NONE (5)	<input type="checkbox"/> HIGH (1)	<input type="checkbox"/> SPAGGING	<input checked="" type="checkbox"/> 5
<input checked="" type="checkbox"/> MODERATE (2)	<input type="checkbox"/> GOOD (3)	<input type="checkbox"/> RECOVERED (4)	<input type="checkbox"/> MODERATE (2)	<input type="checkbox"/> RELOCATION	
<input type="checkbox"/> LOW (2)	<input type="checkbox"/> FAIR (2)	<input checked="" type="checkbox"/> RECOVERING (1)	<input checked="" type="checkbox"/> LOW (1)	<input type="checkbox"/> CANOPY REMOVAL	
<input type="checkbox"/> NONE (1)	<input checked="" type="checkbox"/> POOR (1)	<input type="checkbox"/> RECENT OR NO RECOVERY (1)		<input type="checkbox"/> DREDGING	

COMMENTS: _____

4) RIPARIAN ZONE AND BANK EROSION - (check ONE box per bank or check 2 and AVERAGE per bank)

RIPARIAN WIDTH	EROSION/SURFACE - SOIL PLAIN QUALITY	BANK EROSION
L/R (Per Bank)	L/R (Most Prevalent Per Bank)	L/R (Per Bank)
<input type="checkbox"/> WIDE (5m+)	<input checked="" type="checkbox"/> FOREST, SWAMP (1)	<input type="checkbox"/> URBAN OR INDUSTRIAL (1)
<input type="checkbox"/> MODERATE (1-5m)	<input type="checkbox"/> OPEN PASTURE, ROW CROPS (1)	<input checked="" type="checkbox"/> MODERATE (2)
<input type="checkbox"/> NARROW (<1m)	<input type="checkbox"/> RESC. PASTURE, NEW FIELD (1)	<input type="checkbox"/> SHRUB OR OLD FIELD (1)
<input checked="" type="checkbox"/> VERY NARROW (<1m)	<input type="checkbox"/> FENCED PASTURE (1)	<input type="checkbox"/> CONSERV. TILLAGE (1)
<input type="checkbox"/> NONE (1)		<input type="checkbox"/> MINING/CONSTRUCTION (1)

COMMENTS: _____

POOL: 5

POOL DEPTH AND RIFPLE RUN QUALITY

MAX DEPTH (Check 1)	MORPHOLOGY (Check 1)	POOL/SHOALS CURRENT VELOCITY (Check ALL That Apply)	POOL:
<input type="checkbox"/> > 1m (4)	<input checked="" type="checkbox"/> POOL WIDTH > RIFPLE WIDTH (1)	<input type="checkbox"/> TORRENTIAL (1)	<input checked="" type="checkbox"/> 5
<input type="checkbox"/> 0.7-1m (4)	<input type="checkbox"/> POOL WIDTH = RIFPLE WIDTH (1)	<input checked="" type="checkbox"/> FAST (5)	
<input type="checkbox"/> 0.4-0.7m (2)	<input type="checkbox"/> POOL WIDTH < RIFPLE W. (1)	<input type="checkbox"/> MODERATE (1)	
<input type="checkbox"/> 0-0.3m (1)		<input checked="" type="checkbox"/> SLOW (1)	

COMMENTS: _____

RIFPLE: 0

RIFPLE DOWN CURRENT	RIFPLE SUBSTRATE	RIFPLE DOWN CURRENT COEFFICIENCY
<input type="checkbox"/> GENERALLY > 10 cm MAX (1)	<input type="checkbox"/> STABLE (e.g. Cobble, Boulders) (1)	<input type="checkbox"/> EXTENSIVE (1)
<input type="checkbox"/> GENERALLY > 10 cm MAX (2)	<input checked="" type="checkbox"/> MOD. STABLE (e.g. Pea Gravel) (1)	<input type="checkbox"/> MODERATE (2)
<input type="checkbox"/> GENERALLY 5-10 cm (1)	<input checked="" type="checkbox"/> UNSTABLE (Gravel, Sand) (1)	<input type="checkbox"/> LOW (1)
<input checked="" type="checkbox"/> GENERALLY < 5 cm (Ave = 0)		<input type="checkbox"/> NONE (1)

COMMENTS: _____

GRADIENT: 2

5) Gradient (feet/mile): _____ % POOL: _____ % RIFPLE: _____ % RUN: _____

PC-15
5/2/00

Procedure No. WOPA-SWS-3 Date Issued 9-30-95
Revision No. 5 Date Effective 9-30-95

Figure V-4-5. Front side of the Ohio EPA Site Description Sheet for evaluating the geographical and physical characteristics of fish sampling locations. This is used to record information for the calculation of the Qualitative Habitat Evaluation Index (QHEI).

Ohio EPA Site Description Sheet - Fish

Stream: Yigoo Riv: _____ Date: 5/2/00 River Code: 42
Location: PC-15 Cover: 23%/24%

QHEI SCORE: 42

1) SUBSTRATE (Check ONLY the Substrate TYPE BOXES; Check all types present):

TYPE	POOL	RIFPLE	POOL	RIFPLE	SUBSTRATE QUALITY	SUBSTRATE SCORE: 13
<input type="checkbox"/> BLENDED SLAB(S)	<input type="checkbox"/> GRAVEL (7)	<input checked="" type="checkbox"/> SAND (6)	<input checked="" type="checkbox"/> LIMESTONE (NO RIPRAP) (6)	<input type="checkbox"/> SILT HEAVY (2)	<input type="checkbox"/> SILT MODERATE (1)	
<input type="checkbox"/> SHOULDER (6)	<input type="checkbox"/> BEDROCK(S)	<input type="checkbox"/> TUFFS (2)	<input type="checkbox"/> HARDPAN (2)	<input type="checkbox"/> SILT NORMAL (3)	<input type="checkbox"/> SILT FREE (1)	
<input type="checkbox"/> COBBLE (6)	<input type="checkbox"/> DETRITUS (2)	<input type="checkbox"/> SANDSTONE (0)	<input type="checkbox"/> SANDSTONE (0)	Extract of Embryos (Check One)		
<input type="checkbox"/> HARDPAN (4)	<input type="checkbox"/> ARTIFICIAL (0)	<input type="checkbox"/> SHALE (1)	<input type="checkbox"/> SHALE (1)	<input checked="" type="checkbox"/> EXTENSIVE (1)	<input type="checkbox"/> MODERATE (1)	
<input type="checkbox"/> MUCK (2)	<input type="checkbox"/> ARTIFICIAL (0)	<input type="checkbox"/> SAND FINE (2)	<input type="checkbox"/> SAND FINE (2)	<input checked="" type="checkbox"/> LOW (0)	<input type="checkbox"/> NONE (1)	

TOTAL NUMBER OF SUBSTRATE TYPES: 6 + 2 = 8 (4) 0 = 4 (0)

NOTE: Higher siltage will decrease from pore structure; score is based on natural substrates

COMMENTS: _____

2) INSTREAM COVER

TYPE (Check ALL that Apply)	SCORE	AVERAGE
<input checked="" type="checkbox"/> UNDERCUT BANKS (1)	<input type="checkbox"/> DEEP POOLS (2)	<input type="checkbox"/> EXTENSIVE > 75% (1)
<input checked="" type="checkbox"/> OVERHANGING VEGETATION (1)	<input type="checkbox"/> ROOTWADS (1)	<input type="checkbox"/> MODERATE 25-75% (7)
<input checked="" type="checkbox"/> SHALLOWS IN SLOW WATER (1)	<input type="checkbox"/> BOLLERS (1)	<input checked="" type="checkbox"/> SPARSE 5-25% (5)
	<input type="checkbox"/> LOGS OR WOODY DEBRIS (1)	<input type="checkbox"/> NEARLY ABSENT < 5% (1)

COMMENTS: _____

3) CHANNEL MORPHOLOGY: (Check ONLY One PER Category OR check 2 and AVERAGE)

STABILITY	DEBRIS	CHANNELIZATION	SHADE	MODIFICATIONS	OTHER	CHANNEL: 7
<input type="checkbox"/> HIGH (4)	<input type="checkbox"/> EXCELLENT (1)	<input type="checkbox"/> NONE (6)	<input type="checkbox"/> NONE (0)	<input type="checkbox"/> SNAGGING	<input type="checkbox"/> IMPOUNDS	
<input type="checkbox"/> MODERATE (2)	<input type="checkbox"/> GOOD (2)	<input checked="" type="checkbox"/> RECOVERING (4)	<input checked="" type="checkbox"/> MODERATE (2)	<input type="checkbox"/> RELOCATION	<input type="checkbox"/> ISLANDS	
<input checked="" type="checkbox"/> LOW (2)	<input type="checkbox"/> FAIR (2)	<input checked="" type="checkbox"/> RECOVERING (2)	<input checked="" type="checkbox"/> LOW (1)	<input type="checkbox"/> CANOPY REMOVAL	<input type="checkbox"/> LEVEES	
<input type="checkbox"/> NONE (1)	<input checked="" type="checkbox"/> POOR (1)	<input type="checkbox"/> RECENT OR NO RECOVERY (1)		<input type="checkbox"/> DREDGING	<input type="checkbox"/> BANK SHAPING	
				<input type="checkbox"/> ONE SIDE CHANNEL MODIFICATIONS		

COMMENTS: _____

4) RIPARIAN ZONE AND BANK EROSIONS - (check ONE box per bank or check 2 and AVERAGE per bank)

RIPARIAN WIDTH	EROSION/UNIQUE - GOOD PLAIN QUALITY	BANK EROSION	RIPARIAN: 6
L/R (Per Bank)	L/R (Most Predominant Per Bank)	L/R (Per Bank)	
<input type="checkbox"/> WIDE > 50m (4)	<input type="checkbox"/> FOREST, SWAMP (0)	<input type="checkbox"/> URBAN OR INDUSTRIAL (0)	<input type="checkbox"/> NONE OR LITTLE (1)
<input type="checkbox"/> MODERATE 10-50 (2)	<input checked="" type="checkbox"/> OPEN PASTURE / ROW CROPS (2)	<input type="checkbox"/> SHRUB OR OLD FIELDS (0)	<input checked="" type="checkbox"/> MODERATE (2)
<input type="checkbox"/> NARROW 5-10m (2)	<input type="checkbox"/> RECENT BARK NEW FIELDS (1)	<input type="checkbox"/> CHANGE BY TILLAGE (1)	<input type="checkbox"/> HEAVY OR SEVERE (1)
<input checked="" type="checkbox"/> VERY NARROW 1-5m (1)	<input type="checkbox"/> FENCED PASTURE (1)	<input type="checkbox"/> MINING CONSTRUCTION (0)	
<input type="checkbox"/> NONE (0)			

COMMENTS: _____

POOL: 4

5) POOL AND RIFPLE RUN QUALITY

SIZE (Check 1)	MORPHOLOGY	POOL-DEPTHS & CURRENT VELOCITY	POOL: 4
<input type="checkbox"/> > 1m (6)	<input type="checkbox"/> POOL (1)	<input type="checkbox"/> TO RENTALS (1)	<input type="checkbox"/> EDDIES (1)
<input type="checkbox"/> 0.7-1m (4)	<input checked="" type="checkbox"/> POOL WIDTH > RIFPLE WIDTH (2)	<input type="checkbox"/> FAST (1)	<input type="checkbox"/> INTERSTITIAL (1)
<input type="checkbox"/> 0.4-0.7m (2)	<input type="checkbox"/> POOL WIDTH = RIFPLE WIDTH (1)	<input checked="" type="checkbox"/> MODERATE (1)	<input type="checkbox"/> INTERMITTENT (2)
<input checked="" type="checkbox"/> < 0.4m (1)	<input type="checkbox"/> POOL WIDTH < RIFPLE W. (0)	<input type="checkbox"/> SLOW (1)	<input type="checkbox"/> NO POOL (0)

COMMENTS: _____

6) RIFPLE RUN QUALITY

SIZE (Check 1)	STABILITY	DEPTH	RIFPLE: 2
<input type="checkbox"/> > 10cm MAX (4)	<input type="checkbox"/> STABLE (e.g., Cobble, Boulder) (2)	<input checked="" type="checkbox"/> EXTENSIVE (1)	<input type="checkbox"/> MODERATE (2)
<input type="checkbox"/> > 5cm MAX (3)	<input type="checkbox"/> MOD. STABLE (e.g., Pea Gravel) (1)	<input checked="" type="checkbox"/> LOW (1)	<input type="checkbox"/> NONE (2)
<input checked="" type="checkbox"/> < 5cm (1)	<input checked="" type="checkbox"/> UNSTABLE (Gravel, Sand) (0)		<input type="checkbox"/> MODERATE (2)

COMMENTS: _____

7) GRADIENT: 4

8) Gradient (feet/mile): _____ % POOL: _____ % RIFPLE: _____ % RUN: _____

Procedure No. WOPA-SWS-3 Date Issued 9-30-89
 Revision No. 5 Date Effective 9-30-89

PC-10
5/2/00

Figure V-4-5. Front side of the Ohio EPA Site Description Sheet for evaluating the geographical and physical characteristics of fish sampling locations. This is used to record information for the calculation of the Qualitative Habitat Evaluation Index (QHEI).

Ohio EPA Site Description Sheet - Fish

Stream: Pigeon RM: _____ Date: 5/2/00 River Code: 23
 Location: PC-10 Code: 23 CWS

QHEI SCORE: 13

1) SUBSTRATE (check ONLY the SUBSTRATE TYPE BOXES; Check all types present)

TYPE	POOL RIFPLE	POOL RIFPLE	SUBSTRATE QUALITY	SUBSTRATE SCORE:
<input type="checkbox"/> BOLDER SLABS (1)	<input type="checkbox"/> GRAVEL (7)	<input checked="" type="checkbox"/> SAND (6)	<input checked="" type="checkbox"/> SILT (1)	<input type="checkbox"/> SILT HEAVY (-2)
<input type="checkbox"/> BOLDER (9)	<input checked="" type="checkbox"/> SAND (6)	<input checked="" type="checkbox"/> Limestone (1)	<input checked="" type="checkbox"/> RIPRAP (4)	<input type="checkbox"/> SILT MODERATE (1)
<input type="checkbox"/> COBBLE (8)	<input type="checkbox"/> BEDROCK (1)	<input type="checkbox"/> TILLS (1)	<input checked="" type="checkbox"/> HARDPAN (5)	<input type="checkbox"/> SILT NORMAL (2)
<input checked="" type="checkbox"/> RIPRAP (4)	<input checked="" type="checkbox"/> BEDROCK (1)	<input type="checkbox"/> SANDSTONE (5)	<input checked="" type="checkbox"/> HARDPAN (5)	<input type="checkbox"/> SILT FREE (1)
<input type="checkbox"/> MUCK (2)	<input type="checkbox"/> ARTIFICIAL (2)	<input type="checkbox"/> SHALE (4)	<input type="checkbox"/> COAL FINES (2)	<input type="checkbox"/> EXTENSIVE (2)
TOTAL NUMBER OF SUBSTRATE TYPES: 2 + 4 (7) + 4 (7) = 15			<input type="checkbox"/> COAL FINES (2)	<input type="checkbox"/> MODERATE (1)
NOTE: (Ignore score that originates from point-source; score is based on natural substrates)			<input checked="" type="checkbox"/> LOW (3)	<input type="checkbox"/> NONE (1)

COMMENTS: _____

2) WETLAND COVER

TYPE (check ALL that apply)	COVER SCORE:
<input type="checkbox"/> UNDERCUT BANKS (1)	<input type="checkbox"/> NONE (1)
<input checked="" type="checkbox"/> OVERHANGING VEGETATION (1)	<input type="checkbox"/> EXTENSIVE > 75% (1)
<input checked="" type="checkbox"/> SMALL ISLANDS (IN SLOW WATER) (1)	<input type="checkbox"/> MODERATE 25-75% (7)
<input type="checkbox"/> DEEP POOLS (2)	<input type="checkbox"/> SPARSE 5-25% (3)
<input type="checkbox"/> ROCKWADS (1)	<input type="checkbox"/> NEARLY ABSENT < 5% (1)
<input type="checkbox"/> LOGS OR WOODY DEBRIS (1)	

COMMENTS: _____

3) CHANNEL MORPHOLOGY (check ONLY one PER Category OR check 2 and AVERAGE)

SLOPE	DEVELOPMENT	CHANNEL WIDTH	STAIN FRY	MODIFICATIONS	CHANNEL:
<input type="checkbox"/> HIGH (1)	<input type="checkbox"/> EXCELLENT (7)	<input type="checkbox"/> NONE (6)	<input type="checkbox"/> HIGH (3)	<input type="checkbox"/> SNAGGING	<input type="checkbox"/> IMPOUND
<input type="checkbox"/> MODERATE (2)	<input type="checkbox"/> GOOD (5)	<input type="checkbox"/> RECOVERING (4)	<input type="checkbox"/> MODERATE (2)	<input type="checkbox"/> RELOCATION	<input type="checkbox"/> ISLANDS
<input checked="" type="checkbox"/> LOW (3)	<input type="checkbox"/> FAIR (3)	<input checked="" type="checkbox"/> RECOVERING (4)	<input checked="" type="checkbox"/> LOW (1)	<input type="checkbox"/> GUNKY REMOVAL	<input type="checkbox"/> LEVEES
<input type="checkbox"/> NONE (1)	<input checked="" type="checkbox"/> POOR (1)	<input type="checkbox"/> RECENT OR NO RECOVERY (1)		<input type="checkbox"/> BREDDING	<input type="checkbox"/> BANK SHAPING
				<input type="checkbox"/> ONE SIDE CHANNEL MODIFICATIONS	

COMMENTS: _____

4) RIPARIAN ZONE AND BANK EROSION (check ONE box per bank or check 2 (avg) (AVERAGE per bank)

RIPARIAN WIDTH	EROSION/BUNDLES - BLOCK BULK QUALITY	BANK EROSION
L/R (Per Bank)	L/R (Most Prevalent Per Bank)	L/R (Per Bank)
<input type="checkbox"/> WIDE (5m+)	<input type="checkbox"/> FOREST, SWAMP (1)	<input type="checkbox"/> URBAN OR INDUSTRIAL (1)
<input type="checkbox"/> MODERATE 10-50 (3)	<input checked="" type="checkbox"/> OPEN PASTURE, ROW CROPS (2)	<input checked="" type="checkbox"/> MODERATE (3)
<input type="checkbox"/> NARROW 5-10m (2)	<input type="checkbox"/> FESC. PASTURE, FIELD (1)	<input type="checkbox"/> HEAVY OR SEVERE (1)
<input checked="" type="checkbox"/> VERY NARROW 1-5m (1)	<input type="checkbox"/> FENCED PASTURE (1)	<input type="checkbox"/> MINOR CONSTRUCTION (1)
<input type="checkbox"/> NONE (0)		

COMMENTS: _____

5) POOL/GULCH AND RIFPLE RUN QUALITY

POOL RIFPLE (check 1)	CURRENT VELOCITY (check ALL that apply)	POOL:
<input type="checkbox"/> > 1m (1)	<input type="checkbox"/> DIFFERENTIAL (1)	<input type="checkbox"/> NONE (0)
<input checked="" type="checkbox"/> 0.7-1m (2)	<input checked="" type="checkbox"/> MODERATE (1)	<input type="checkbox"/> MODERATE (3)
<input type="checkbox"/> < 0.7m (2)	<input type="checkbox"/> SLOW (1)	<input type="checkbox"/> INTERMITTENT (2)
<input type="checkbox"/> < 0.3m (1)		

COMMENTS: _____

6) RIPPLE RUN QUALITY

RIPPLE RUN SUBSTRATE	RIPPLE RUN COVER/OPENNESS	RIFPLE:
<input type="checkbox"/> STABLE (e.g. Cobble, Boulder) (2)	<input type="checkbox"/> EXTENSIVE (1)	<input type="checkbox"/> MODERATE (1)
<input type="checkbox"/> MOD. STABLE (e.g. fine gravel) (1)	<input checked="" type="checkbox"/> LOW (1)	<input type="checkbox"/> NONE (1)
<input checked="" type="checkbox"/> UNSTABLE (Gravel, Sand) (0)		<input type="checkbox"/> NO RIFPLE (0)

COMMENTS: _____

7) GRADIENT (feet/mile): _____

8) POOL: _____

9) RIFPLE: _____

10) RUN: _____

Procedure No. WQPA-SWS-3 Date Issued 9-30-88
 Revision No. 1 Date Effective 9-30-88

PC-12
5/8/88

Figure V-4-5. Front side of the Ohio EPA Site Description Sheet for evaluating the geographical and physical characteristics of fish sampling locations. This is used to record information for the calculation of the Qualitative Habitat Evaluation Index (QHEI).

Ohio EPA Site Description Sheet - Fish QHEI SCORE: 50 5.2

Stream: Proctor Creek RW: _____ Date: _____
 Location: Proctor Canal: EDB/CWB Final Code: _____

1) SUBSTRATE (Check ONLY Two Substrate TYPE BOXES; Check all types present):

TYPE	POOL RIFPLE	POOL RIFPLE	SUBSTRATE QUALITY	SUBSTRATE SCORE:
<input type="checkbox"/> BOLDER/SLABS (1)	<input type="checkbox"/> GRAVEL (7)	<input type="checkbox"/> Substrate Green (Check all)	<input checked="" type="checkbox"/> SILT MODERATE (1)	<input checked="" type="checkbox"/> 1
<input type="checkbox"/> BOULDER (2)	<input type="checkbox"/> SAND (8)	<input type="checkbox"/> LIMESTONE (1) RIPRAP (R)	<input type="checkbox"/> SILT HEAVY (2)	<input type="checkbox"/> SILT MODERATE (1)
<input type="checkbox"/> COBBLE (3)	<input type="checkbox"/> BEDROCK (5)	<input type="checkbox"/> TELS (1)	<input checked="" type="checkbox"/> SILT NORMAL (3)	<input type="checkbox"/> SILT FREE (1)
<input type="checkbox"/> HARDPAN (4)	<input checked="" type="checkbox"/> ORGANIC (6)	<input type="checkbox"/> SANDSTONE (8)	<input type="checkbox"/> SILT MODERATE (1)	<input type="checkbox"/> SILT FREE (1)
<input type="checkbox"/> MUDFLAT (2)	<input type="checkbox"/> ARTIFICIAL (9)	<input type="checkbox"/> SHALE (1)	<input type="checkbox"/> EXTENSIVE (2)	<input type="checkbox"/> MODERATE (1)
TOTAL NUMBER OF SUBSTRATE TYPES: <u>2</u> + <u>2</u> = <u>4</u>			<input type="checkbox"/> LOW (1)	<input type="checkbox"/> NONE (1)

NOTE: (Ignore siltage that originates from point-sources; score is based on natural substrates)
 COMMENTS: _____

2) INSTREAM COVER

TYPE (Check All That Apply)	COVER SCORE:
<input type="checkbox"/> UNDERCUT BANKS (1)	<input checked="" type="checkbox"/> EXTENSIVE > 75% (1)
<input type="checkbox"/> OVERHANGING VEGETATION (1)	<input type="checkbox"/> MODERATE 25-75% (7)
<input checked="" type="checkbox"/> SHALLOWS ON SLOW WATER (1)	<input checked="" type="checkbox"/> SPARSE 3-25% (3)
<input type="checkbox"/> DEEP POOLS (2)	<input type="checkbox"/> NEARLY ABSENT < 5% (1)
<input type="checkbox"/> ROOTWADES (3)	
<input type="checkbox"/> BOULDERS (1)	
<input type="checkbox"/> GRASSES (1)	
<input type="checkbox"/> AQUATIC MACROPHYTES (1)	
<input checked="" type="checkbox"/> LOGS OR WOODY DEBRIS (1)	

COMMENTS: _____

3) CHANNEL MORPHOLOGY: (Check ONLY One PER Category OR sheet 2 and AVERAGE)

SILTATION	DEVELOPMENT	CHANNELIZATION	STABILITY	MODIFICATIONS/OTHER	CHANNEL:
<input type="checkbox"/> HIGH (1)	<input type="checkbox"/> EXCELLENT (7)	<input type="checkbox"/> NONE (6)	<input type="checkbox"/> HIGH (2)	<input type="checkbox"/> SNAGGING	<input type="checkbox"/> IMPOUND.
<input type="checkbox"/> MODERATE (3)	<input type="checkbox"/> GOOD (5)	<input type="checkbox"/> RECOVERED (4)	<input checked="" type="checkbox"/> MODERATE (2)	<input type="checkbox"/> RELOCATION	<input type="checkbox"/> ISLANDS
<input checked="" type="checkbox"/> LOW (2)	<input checked="" type="checkbox"/> FAIR (3)	<input type="checkbox"/> RECOVERING (3)	<input type="checkbox"/> LOW (1)	<input type="checkbox"/> CANOPY REMOVAL	<input type="checkbox"/> LEVEES
<input type="checkbox"/> NONE (1)	<input type="checkbox"/> POOR (1)	<input type="checkbox"/> RECENT OR NO RECOVERY (1)		<input type="checkbox"/> DREDGING	<input type="checkbox"/> BANK SHAPING
				<input type="checkbox"/> ONE SIDE CHANNEL MODIFICATIONS	

COMMENTS: _____

4) RIPARIAN ZONE AND BANK EROSION - (check ONE box per bank or check 2 and AVERAGE per bank)

RIPARIAN WIDTH	EROSION/VEGET. - (Check ONE QUALITY)	BANK EROSION
L R (Per Bank)	L R (Most Predominant Per Bank)	L R (Per Bank)
<input type="checkbox"/> WIDE > 30m (4)	<input checked="" type="checkbox"/> FOREST, SWAMP (2)	<input type="checkbox"/> URBAN OR INDUSTRIAL (3)
<input type="checkbox"/> MODERATE 10-30 (3)	<input type="checkbox"/> OPEN PASTURE/RONCROPP (2)	<input checked="" type="checkbox"/> NONE OR LITTLE (1)
<input type="checkbox"/> NARROW 5-10m (2)	<input type="checkbox"/> RESID. PARK, NEW FIELD (1)	<input type="checkbox"/> MODERATE (2)
<input checked="" type="checkbox"/> VERY NARROW 1-5m (1)	<input type="checkbox"/> FENCED PASTURE (1)	<input type="checkbox"/> HEAVY OR SEVERE (1)
<input type="checkbox"/> NONE (0)	<input type="checkbox"/> MINING/CONSTRUCTION (0)	

COMMENTS: _____

POOL/Glide AND RIFFLE RUN QUALITY

WATER DEPTH (Check 1)	MORPHOLOGY (Check 1)	POOL OR RIFFLE CURRENT VELOCITY (Check All That Apply)	POOL:
<input checked="" type="checkbox"/> > 1m (5)	<input type="checkbox"/> POOL WIDTH = RIFPLE WIDTH (2)	<input type="checkbox"/> TORRENTIAL (1)	<input checked="" type="checkbox"/> 9
<input type="checkbox"/> 0.7-1m (4)	<input checked="" type="checkbox"/> POOL WIDTH > RIFPLE WIDTH (1)	<input checked="" type="checkbox"/> FAST (1)	<input type="checkbox"/> NO POOLS
<input type="checkbox"/> 0.4-0.7m (3)	<input type="checkbox"/> POOL WIDTH < RIFPLE W. (0)	<input type="checkbox"/> MODERATE (1)	
<input type="checkbox"/> < 0.4m (1)		<input checked="" type="checkbox"/> SLOW (1)	
<input type="checkbox"/> < 0.2m (Pool = 0)		<input type="checkbox"/> EDDIES (1)	
		<input type="checkbox"/> INTERMITTENT (1)	
		<input type="checkbox"/> INTERMITTENT (2)	

COMMENTS: _____

RIFPLE:

RIFPLE RUN DEPTH	RIFPLE RUN SUBSTRATE	RIFPLE RUN SUBMERGEDNESS
<input type="checkbox"/> GENERALLY > 10 cm MAX 50 (5)	<input type="checkbox"/> STABLE (e.g. Cobble, Boulder) (2)	<input type="checkbox"/> EXTENSIVE (1-1)
<input type="checkbox"/> GENERALLY > 10 cm MAX 50 (3)	<input type="checkbox"/> MOD. STABLE (e.g. Fine Gravel) (1)	<input checked="" type="checkbox"/> MODERATE (2)
<input checked="" type="checkbox"/> GENERALLY > 10 cm (1)	<input checked="" type="checkbox"/> UNSTABLE (Gravel, Sand) (0)	<input type="checkbox"/> LOW (1)
<input type="checkbox"/> GENERALLY < 5 cm (Rise = 0)		<input type="checkbox"/> NONE (1)

COMMENTS: _____

GRADENT: 2

5) Gradient (feet/mile): _____ % POOL: _____ % RIFPLE: _____ % RUN: _____

Procedure No. WQPA-SWS-3 Date Issued 9-30-85
 Revision No. 5 Date Effective 9-30-85

PC-
5/

Figure V-4-5. Front side of the Ohio EPA Site Description Sheet for evaluating the geographical and physical characteristics of fish sampling locations. This is used to record information for the calculation of the Qualitative Habitat Evaluation Index (QHEI).

Ohio EPA Site Description Sheet - Fish QHEI SCORE: 50

Stream Kinnear Creek RM 000 Mile 000 River Code 000
 Location PC-12 Creek 000/CUB

1) SUBSTRATE (Check ONLY Two Substrate TYPE BOXES; Check all types present)

TYPES		POOL RIFPLE	POOL RIFPLE	SUBSTRATE QUALITY	SUBSTRATE SCORE: <u>12</u>
<input type="checkbox"/> BLOTT (LABS) (1)	<input type="checkbox"/> GRAVEL (7)	<input checked="" type="checkbox"/> SAND (6)	<input checked="" type="checkbox"/> Limestone (1)	Substrate Grade (Check all)	Site Cover (Check One)
<input type="checkbox"/> BOULDER (3)	<input type="checkbox"/> SAND (6)	<input checked="" type="checkbox"/> BEDROCK (5)	<input type="checkbox"/> RIFPLE (0)	<input type="checkbox"/> SILT HEAVY (-2)	<input type="checkbox"/> SILT MODERATE (-1)
<input type="checkbox"/> COBBLE (8)	<input type="checkbox"/> BEDROCK (5)	<input type="checkbox"/> DETRITUS (1)	<input type="checkbox"/> SANDSTONE (3)	<input checked="" type="checkbox"/> SILT NORMAL (0)	<input type="checkbox"/> SILT FREE (1)
<input checked="" type="checkbox"/> HARDPAN (4)	<input checked="" type="checkbox"/> DETRITUS (1)	<input type="checkbox"/> SANDSTONE (3)	<input type="checkbox"/> SHALE (4)	Extent of Embankment (Check One)	
<input type="checkbox"/> CHUCK (2)	<input type="checkbox"/> ARTIFICIAL (2)	<input type="checkbox"/> SHALE (4)	<input type="checkbox"/> COAL FINES (2)	<input type="checkbox"/> EXTENSIVE (-2)	<input type="checkbox"/> MODERATE (-1)
TOTAL NUMBER OF SUBSTRATE TYPES: <u>4</u> (2) <u>4</u> (0) <u>0</u> COAL FINES (2)				<input checked="" type="checkbox"/> LOW (0)	<input type="checkbox"/> NONE (1)

NOTE: (Ignore sludge that originates from non-substrate; score is based on natural substrate)

COMMENTS: _____

2) INSTREAM COVER COVER SCORE: 0

TYPE (Check All That Apply)		AMOUNT (Check ONLY One of sheet 2 and AVERAGE)	
<input type="checkbox"/> UNDERCUT BANKS (1)	<input type="checkbox"/> DEEP POOLS (2)	<input type="checkbox"/> EXTENSIVE > 75% (1)	
<input type="checkbox"/> OVERHANGING VEGETATION (1)	<input type="checkbox"/> ROOTWADS (1)	<input type="checkbox"/> MODERATE 25-75% (7)	
<input checked="" type="checkbox"/> SHALLOWS (IN SLOW WATER) (1)	<input type="checkbox"/> BOULDERS (1)	<input type="checkbox"/> SPARSE 5-25% (3)	
		<input type="checkbox"/> NEARLY ABSENT < 5% (1)	

COMMENTS: _____

3) CHANNEL MORPHOLOGY; (Check ONLY One PER Category OR check 2 and AVERAGE) CHANNEL: 7

SIMPLICITY	DEVELOPMENT	CHANNELIZATION	STABILITY	MODIFICATIONS/TILES
<input type="checkbox"/> HIGH (4)	<input type="checkbox"/> EXCELLENT (7)	<input type="checkbox"/> NONE (6)	<input type="checkbox"/> HIGH (2)	<input type="checkbox"/> SNAGGING
<input type="checkbox"/> MODERATE (3)	<input type="checkbox"/> GOOD (5)	<input type="checkbox"/> RECOVERING (4)	<input type="checkbox"/> MODERATE (3)	<input type="checkbox"/> RELOCATION
<input checked="" type="checkbox"/> LOW (2)	<input type="checkbox"/> FAIR (4)	<input type="checkbox"/> RECOVERING (2)	<input type="checkbox"/> LOW (1)	<input type="checkbox"/> CANOPY REMOVAL
<input type="checkbox"/> NONE (1)	<input checked="" type="checkbox"/> POOR (1)	<input type="checkbox"/> RECENT OR NO RECOVERY (1)		<input type="checkbox"/> DREDGING
				<input type="checkbox"/> BANK SHAPING

COMMENTS: _____

4) RIPARIAN ZONE AND BANK EROSION - (check ONE box per bank or check 2 and AVERAGE per bank) RIPARIAN: 12

River Reach Looking Downstream		BANK EROSION	
SUBSTRATE WIDTH	PERMANENT VEGETATION - PERCENT COVERAGE	L.R. (Per Bank)	L.R. (Per Bank)
L.R. (Per Bank)	L.R. (Most Predominant Per Bank)	<input type="checkbox"/> URBAN OR INDUSTRIAL (0)	<input type="checkbox"/> NONE OR LITTLE (1)
<input type="checkbox"/> WIDE > 5m (4)	<input checked="" type="checkbox"/> FOREST, SWAMP (2)	<input type="checkbox"/> SHRUB OR OLD FIELD (2)	<input checked="" type="checkbox"/> MODERATE (2)
<input type="checkbox"/> MODERATE 10-50 cm (3)	<input type="checkbox"/> OPEN PASTURE ROW CROP (1)	<input type="checkbox"/> CONSERV. TILLAGE (1)	<input type="checkbox"/> HEAVY OR SEVERE (3)
<input type="checkbox"/> NARROW 5-10 cm (2)	<input type="checkbox"/> RESID. PARK, NEW FIELD (1)	<input type="checkbox"/> MINING/CONSTRUCTION (0)	
<input checked="" type="checkbox"/> VERY NARROW 1-5 cm (1)	<input type="checkbox"/> FENCED PASTURE (1)		
<input type="checkbox"/> NONE (0)			

COMMENTS: _____

POOL/GULCH AND RIFPLE/RUN QUALITY POOL: 3

MAX. DEPTH (CHECK 1)	MORPHOLOGY	CURRENT VELOCITY	
<input checked="" type="checkbox"/> < 0.7m (4)	(CHECK 1)	(CHECK ALL THAT APPLY)	
<input type="checkbox"/> 0.7-1m (3)	<input type="checkbox"/> POOL WIDTH + RIFPLE WIDTH (2)	<input type="checkbox"/> TORRENTIAL (-1)	<input type="checkbox"/> EDDIES (1)
<input type="checkbox"/> 1-2m (2)	<input checked="" type="checkbox"/> POOL WIDTH + RIFPLE WIDTH (1)	<input type="checkbox"/> FAST (4)	<input type="checkbox"/> INTERSTITIAL (-1)
<input type="checkbox"/> > 2m (Pool = 0)	<input type="checkbox"/> POOL WIDTH + RIFPLE W. (0)	<input type="checkbox"/> MODERATE (1)	<input type="checkbox"/> INTERMITTENT (-2)
		<input type="checkbox"/> SLOW (3)	

COMMENTS: _____

RIFPLE: 5

RIFPLE RUN PERCENT	RIFPLE RUN SUBSTRATE	RIFPLE RUN SUBSTRATE
<input checked="" type="checkbox"/> GENERALLY > 10 cm, MAX > 50 (4)	<input type="checkbox"/> STABLE (e.g. Cobble, Boulder) (2)	<input type="checkbox"/> EXTENSIVE (-1)
<input type="checkbox"/> GENERALLY > 10 cm, MAX < 50 (3)	<input type="checkbox"/> MOD. STABLE (e.g. Fine Gravel) (1)	<input type="checkbox"/> MODERATE (0)
<input type="checkbox"/> GENERALLY 5-10 cm (1)	<input checked="" type="checkbox"/> UNSTABLE (Gravel/Sand) (0)	<input type="checkbox"/> SLOW (1)
<input type="checkbox"/> GENERALLY < 5 cm (Runs = 0)		<input type="checkbox"/> NONE (2)

COMMENTS: _____

GRADIENT: A

5) Gradient (feet/mile): _____ % POOL: _____ % RIFPLE: _____ % RUN: _____

PC-11
5/10/00

QA Manual (8th Update) - Fish - September 30, 1999

Procedure No. WOPA-SWS-3 Date Issued 9-30-99
Revision No. 2 Date Effective 9-30-99

Figure V-4.5. Front side of the Ohio EPA Site Description Sheet for evaluating the geographical and physical characteristics of fish sampling locations. This is used to record information for the calculation of the Qualitative Habitat Evaluation Index (QHEI).

Ohio EPA Site Description Sheet - Fish QHEI SCORE: **57**

Stream: Plain Creek RW: _____ Date: _____ River Code: _____
Location: PC-11 Cover: ARTICULARS

1) SUBSTRATE (Check ONLY the Substrate TYPE BOXES. Check all types present):

TYPE	POOL AREA	POOL RIFFLE	SUBSTRATE QUALITY	SUBSTRATE SCORE:
<input type="checkbox"/> SLUR (SLASH) (1)	<input type="checkbox"/> GRAVEL (7)	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Substrate Details (Check all)	<input type="checkbox"/> SILT HEAVY (2)	7
<input type="checkbox"/> BOULDER (8)	<input type="checkbox"/> SAND (6)	<input checked="" type="checkbox"/> LIMESTONE (10)	<input type="checkbox"/> SILT MODERATE (15)	
<input type="checkbox"/> COBBLE (9)	<input type="checkbox"/> BEDROCK (5)	<input checked="" type="checkbox"/> BRICKS (3)	<input type="checkbox"/> SILT NORMAL (8)	
<input type="checkbox"/> HARDPAN (4)	<input checked="" type="checkbox"/> DETRITUS (1)	<input checked="" type="checkbox"/> SANDSTONE (1)	<input type="checkbox"/> SILT POOR (11)	
<input type="checkbox"/> MUCK (2)	<input type="checkbox"/> ARTIFICIAL (0)	<input type="checkbox"/> SHALE (1)	<input type="checkbox"/> EXTENSIVE (2)	
TOTAL NUMBER OF SUBSTRATE TYPES: <u>0</u> + <u>4</u> (7) = <u>4</u> (7)	<input type="checkbox"/> COAL FINES (2)	<input type="checkbox"/> LOW (0)	<input type="checkbox"/> NONE (1)	

NOTE: (Score ranges are dependent upon pool resources; scores by default are natural substrates)
COMMENTS: _____

2) BISTREAM COVER

TYPE (Check all that Apply)	COVER SCORE:
<input type="checkbox"/> UNDERCUT BANKS (1)	<input type="checkbox"/> EXTENSIVE > 75% (14)
<input checked="" type="checkbox"/> OVERHANGING VEGETATION (1)	<input checked="" type="checkbox"/> MODERATE 25-75% (7)
<input checked="" type="checkbox"/> SHALLOWS (IN SLOW WATER) (3)	<input type="checkbox"/> SPARSE 5-25% (3)
<input type="checkbox"/> DEEP POOLS (2)	<input type="checkbox"/> NEARLY ABSENT < 25% (1)
<input checked="" type="checkbox"/> ROOTWADS (3)	
<input type="checkbox"/> BOULDERS (3)	
<input checked="" type="checkbox"/> LOGS OR WOODY DEBRIS (1)	

COMMENTS: _____

3) CHANNEL MORPHOLOGY: (Check ONLY one PER Category OR check 3 and AVERAGE)

SENSITIVITY	DEVELOPMENT	CHANNELIZATION	STABILITY	MODIFICATIONS OTHER	CHANNEL:
<input type="checkbox"/> HIGH (4)	<input type="checkbox"/> EXCELLENT (7)	<input type="checkbox"/> NONE (6)	<input type="checkbox"/> HIGH (1)	<input type="checkbox"/> SNAGGING	1
<input type="checkbox"/> MODERATE (3)	<input type="checkbox"/> GOOD (5)	<input type="checkbox"/> RECOVERED (4)	<input type="checkbox"/> MODERATE (2)	<input type="checkbox"/> RELOCATION	
<input checked="" type="checkbox"/> LOW (2)	<input type="checkbox"/> FAIR (3)	<input checked="" type="checkbox"/> RECOVERING (3)	<input checked="" type="checkbox"/> LOW (1)	<input type="checkbox"/> CANOPY REMOVAL	
<input type="checkbox"/> NONE (1)	<input checked="" type="checkbox"/> POOR (1)	<input type="checkbox"/> RECENT OR NO RECOVERY (1)	<input type="checkbox"/> ONE SIDE CHANNEL MODIFICATIONS	<input type="checkbox"/> GREGGING	
			<input type="checkbox"/> BANK SHAPING	<input type="checkbox"/> ONE SIDE CHANNEL MODIFICATIONS	

COMMENTS: _____

4) RIPARIAN ZONE AND BANK PROXIMITY - (Check ONE box per bank or check 2 and AVERAGE per bank)

RIPARIAN ZONE	BANK PROXIMITY	RIPARIAN:
<input checked="" type="checkbox"/> RIVER TYPE: "Leaving Downstream"	<input type="checkbox"/> L R (Per Bank)	12
<input type="checkbox"/> RIVER TYPE: "Leaving Downstream"	<input checked="" type="checkbox"/> L R (Most Predominant Per Bank)	
<input type="checkbox"/> RIVER TYPE: "Leaving Downstream"	<input type="checkbox"/> R (Per Bank)	
<input type="checkbox"/> RIVER TYPE: "Leaving Downstream"	<input checked="" type="checkbox"/> FOREST, SWAMP (3)	
<input type="checkbox"/> RIVER TYPE: "Leaving Downstream"	<input type="checkbox"/> OPEN PASTURE, ROW CROPS (2)	
<input type="checkbox"/> RIVER TYPE: "Leaving Downstream"	<input type="checkbox"/> RESID. PARK, NEW FIELD (1)	
<input checked="" type="checkbox"/> RIVER TYPE: "Leaving Downstream"	<input checked="" type="checkbox"/> VERY NARROW (< 1.5m) (1)	
<input type="checkbox"/> RIVER TYPE: "Leaving Downstream"	<input type="checkbox"/> FENCED PASTURE (1)	
<input type="checkbox"/> RIVER TYPE: "Leaving Downstream"	<input type="checkbox"/> MINING/CONSTRUCTION (0)	
<input type="checkbox"/> RIVER TYPE: "Leaving Downstream"	<input type="checkbox"/> NONE (0)	

COMMENTS: _____

PODVOLUME AND RIFFLE/RUN QUALITY

POOL DEPTH (Check 1)	MORPHOLOGY (Check 1)	PODVOLUME & CURRENT VELOCITY (Check all that Apply)	POOL:
<input checked="" type="checkbox"/> > 1m (5)	<input type="checkbox"/> POOL WIDTH > RIFFLE WIDTH (2)	<input type="checkbox"/> TORRENTIAL (1)	8
<input type="checkbox"/> 0.7-1m (4)	<input checked="" type="checkbox"/> POOL WIDTH = RIFFLE WIDTH (1)	<input type="checkbox"/> FAST (1)	
<input type="checkbox"/> 0.4-0.7m (3)	<input type="checkbox"/> POOL WIDTH < RIFFLE WIDTH (0)	<input checked="" type="checkbox"/> MODERATE (1)	
<input type="checkbox"/> < 0.4m (1)		<input type="checkbox"/> SLOW (1)	
<input type="checkbox"/> 0-0.2m (Pool = 0)		<input type="checkbox"/> EDDIES (1)	
		<input type="checkbox"/> INTERSTITIAL (1)	
		<input type="checkbox"/> INTERMITTENT (2)	

COMMENTS: _____

RIFFLE: **4**

RIFFLE RUN DEPTH	RIFFLE RUN VELOCITY	RIFFLE RUN FREQUENCIES
<input checked="" type="checkbox"/> GENERALLY > 10 cm MAX (5) (4)	<input type="checkbox"/> STABLE (e.g. Gentle Swirl) (2)	<input type="checkbox"/> EXTENSIVE (1)
<input type="checkbox"/> GENERALLY > 10 cm MAX (5) (3)	<input type="checkbox"/> MOD. STABLE (e.g. Per Swirl) (1)	<input checked="" type="checkbox"/> MODERATE (3)
<input type="checkbox"/> GENERALLY 5-10 cm (1)	<input checked="" type="checkbox"/> UNSTABLE (Churn, Swirl) (0)	<input type="checkbox"/> LOW (1)
<input type="checkbox"/> GENERALLY < 5 cm (Pool = 0)		<input type="checkbox"/> NONE (2)

COMMENTS: _____

GRADIENT: **4**

4) Gradient (feet/mile): _____ % POOL: _____ % RIFFLE: _____ % RUP: _____

PC-9
5/10/00

Figure V-4-5. Front side of the Ohio EPA Site Description Sheet for evaluating the geographical and physical characteristics of fish sampling locations. This is used to record information for the calculation of the Qualitative Habitat Evaluation Index (QHEI).

Ohio EPA Site Description Sheet - Fish QHEI SCORE: 41

Stream: Vireon Creek RM _____ Date _____
 Location: PC-9 Cover: SW / ARS

1) SUBSTRATE (Check ONE item. Substrate TYPE BOXES; Check all types present; SUBSTRATE QUALITY SUBSTRATE SCORE: 2

TYPE	POOL RIFLE	POOL RIFPLE	SUBSTRATE QUALITY
<input type="checkbox"/> SOLDER (1-10)	<input type="checkbox"/> GRAVEL (7)	<input type="checkbox"/> SAND (4)	<input type="checkbox"/> SILT HEAVY (2) <input type="checkbox"/> SILT MODERATE (1)
<input type="checkbox"/> SHOULDER (3)	<input type="checkbox"/> SAND (4)	<input type="checkbox"/> Limestone (1) <input type="checkbox"/> RAP/RAP (3)	<input type="checkbox"/> SILT MODERATE (1) <input type="checkbox"/> SILT FREE (1)
<input type="checkbox"/> CORALS (2)	<input type="checkbox"/> BEDROCK (5)	<input checked="" type="checkbox"/> TWIGS (1)	<input type="checkbox"/> HARD PAN (2) <input type="checkbox"/> MUD (1)
<input type="checkbox"/> MARIPAN (4)	<input type="checkbox"/> DETRITUS (1)	<input type="checkbox"/> SANDSTONE (2)	<input type="checkbox"/> MUD (1)
<input checked="" type="checkbox"/> MUCK (3)	<input checked="" type="checkbox"/> ARTIFICIAL (1)	<input type="checkbox"/> SHALS (1)	<input type="checkbox"/> COAL FINES (3)

TOTAL NUMBER OF SUBSTRATE TYPES: 4 (2) 3 (1) 2 (0) 1 (0) 0 (0)

NOTE: (Type a sample that originates from parent material; score is based on natural substrates)

COMMENTS: _____

2) STREAM COVER COVER SCORE: 6

TYPE (Check ALL that Apply)	COVER SCORE
<input type="checkbox"/> UNDERCUT BANKS (1)	<input type="checkbox"/> EXTENSIVE > 75% (1)
<input checked="" type="checkbox"/> OVERHANGING VEGETATION (4)	<input type="checkbox"/> MODERATE 25-75% (2)
<input type="checkbox"/> SHALLOWS (IN SLOW WATER) (1)	<input type="checkbox"/> SPARSE 5-25% (3)
<input checked="" type="checkbox"/> DEEP POOLS (2)	<input checked="" type="checkbox"/> NEARLY ABSENT < 5% (1)
<input checked="" type="checkbox"/> ROOTWADS (1)	
<input type="checkbox"/> SHOULDERS (1)	
<input type="checkbox"/> OXBOWS (1)	
<input type="checkbox"/> AQUATIC MACROPHYTES (1)	
<input type="checkbox"/> LOGS OR WOODY DEBRIS (1)	

COMMENTS: _____

3) CHANNEL MORPHOLOGY: (Check ONE item. R/R Category OR check 2 and AVERAGE) CHANNEL: 7

SIMPLICITY	DEVELOPMENT	CHANNELIZATION	STABILITY	MODIFICATIONS/OTHER
<input checked="" type="checkbox"/> HIGH (4)	<input type="checkbox"/> EXCELLENT (7)	<input type="checkbox"/> NONE (8)	<input type="checkbox"/> HIGH (2)	<input type="checkbox"/> SPACING
<input type="checkbox"/> MODERATE (3)	<input type="checkbox"/> GOOD (6)	<input type="checkbox"/> RECOVERING (4)	<input type="checkbox"/> MODERATE (3)	<input type="checkbox"/> RELOCATION
<input checked="" type="checkbox"/> LOW (2)	<input type="checkbox"/> FAIR (5)	<input checked="" type="checkbox"/> RECOVERING (4)	<input checked="" type="checkbox"/> LOW (1)	<input type="checkbox"/> CHANNEL REMOVAL
<input type="checkbox"/> NONE (1)	<input checked="" type="checkbox"/> POOR (1)	<input type="checkbox"/> RECENT OR NO RECOVERY (1)		<input type="checkbox"/> BANK SHAPING

COMMENTS: _____

4) RIPARIAN ZONE AND BANK EROSION - (Check ONE box per bank or check 2 and AVERAGE per bank) RIPARIAN: 12

Flow Right Looking Downstream

RIPARIAN WIDTH	VEGETATION	BANK EROSION
<input type="checkbox"/> L (Per Bank)	<input checked="" type="checkbox"/> FOREST, SWAMP (2)	<input type="checkbox"/> NONE OR LITTLE (3)
<input type="checkbox"/> W (Per Bank)	<input type="checkbox"/> OPEN PASTURE (1)	<input checked="" type="checkbox"/> MODERATE (7)
<input type="checkbox"/> M (Per Bank)	<input type="checkbox"/> RESID. PARK, NEW FIELD (1)	<input type="checkbox"/> HEAVY OR SEVERE (1)
<input checked="" type="checkbox"/> V (Per Bank)	<input type="checkbox"/> FENCED PASTURE (1)	<input type="checkbox"/> CHINING CONSTRUCTION (2)
<input type="checkbox"/> NONE (0)		

COMMENTS: _____

5) POOL/LOGS AND RIFLE/RUN QUALITY POOL: 8

MAX. DEPTH (Check 1)	MORPHOLOGY	POOL/BLINDS OR CURRENT VELOCITY
<input checked="" type="checkbox"/> > 1m (4)	<input type="checkbox"/> POOL WIDTH > RIFLE WIDTH (2)	<input type="checkbox"/> TORRENTIAL (1)
<input type="checkbox"/> 0.7-1.0m (3)	<input checked="" type="checkbox"/> POOL WIDTH = RIFLE WIDTH (1)	<input type="checkbox"/> FAST (1)
<input type="checkbox"/> < 0.7m (1)	<input type="checkbox"/> POOL WIDTH < RIFLE WIDTH (0)	<input type="checkbox"/> MODERATE (1)
<input type="checkbox"/> < 0.3m (Pool = 0)		<input checked="" type="checkbox"/> SLOW (1)

COMMENTS: _____

6) RIFLE: 4

RIFLE DEPTH	RIFLE BOUND SUBSTRATE	RIFLE BOUND SUBSTRATE
<input checked="" type="checkbox"/> GENERALLY > 10 cm MAX. (2-1)	<input type="checkbox"/> STABLE (e.g., Cobble, Boulder) (2)	<input type="checkbox"/> EXTENSIVE (1-1)
<input type="checkbox"/> GENERALLY > 10 cm MAX. (2-2)	<input type="checkbox"/> MOD. STABLE (e.g., Peg Growth) (1)	<input type="checkbox"/> MOD. (1)
<input type="checkbox"/> GENERALLY > 10 cm (1)	<input checked="" type="checkbox"/> UNSTABLE (Gravel, Sand) (2)	<input type="checkbox"/> NONE (2)
<input type="checkbox"/> GENERALLY < 5 cm (2-2) = 0		<input checked="" type="checkbox"/> NO RIFLES (0)

COMMENTS: _____

7) GRADIENT: 2

5) Gradient (feet/mile): _____ % POOL: _____ % RIFLE: _____ % RUN: _____

Procedure No. WOPA-SWS-1 Date Issued 8-30-89
 Revision No. 2 Date Effective 9-30-89

PC-7
5/12/00

Figure V-4-5. Front side of the Ohio EPA Site Description Sheet for evaluating the geographical and physical characteristics of fish sampling locations. This is used to record information for the calculation of the Qualitative Habitat Evaluation Index (QHEI).

Ohio EPA Site Description Sheet - Fish QHEI SCORE: 44

Stream: Pinelock Creek RM _____ Date: _____ River Code: _____
 Location: ESB/CWB

1) SUBSTRATE (Check ONLY Two Substrate TYPE BOXES; Check all OTHERS that apply):

TYPE	POOL, RIFPLE	POOL, RIFPLE	SUBSTRATE QUALITY	SUBSTRATE SCORE:
<input type="checkbox"/> BOLDER/SLABS (1)	<input type="checkbox"/> GRAVEL (7)	<input checked="" type="checkbox"/> Substrate Quality (Check All)	<input checked="" type="checkbox"/> See Table (Check One)	<u>75</u>
<input type="checkbox"/> BOLDER (8)	<input type="checkbox"/> SAND (6)	<input type="checkbox"/> LIMESTONE (1)	<input type="checkbox"/> RAPID (3)	<input type="checkbox"/> SILT HEAVY (-3)
<input type="checkbox"/> COBBLES (4)	<input type="checkbox"/> BEDROCKS (3)	<input type="checkbox"/> TILLS (1)	<input type="checkbox"/> HARD PAN (2)	<input type="checkbox"/> SILT NORMAL (7)
<input type="checkbox"/> HARD PAN (4)	<input type="checkbox"/> ORBITRUS (2)	<input type="checkbox"/> SANDSTONE (0)	<input type="checkbox"/> SILT FREE (1)	<input type="checkbox"/> SILT FREE (1)
<input checked="" type="checkbox"/> MUCK (2)	<input checked="" type="checkbox"/> ARTIFICIAL (2)	<input type="checkbox"/> SMALL (1)	<input type="checkbox"/> EXTENT OF SUBSTRATE (Check One)	<input type="checkbox"/> EXTENSIVE (1-3)
TOTAL NUMBER OF SUBSTRATE TYPES: <input checked="" type="checkbox"/> 2 <input type="checkbox"/> 3 <input type="checkbox"/> 4 <input type="checkbox"/> 5			<input type="checkbox"/> MODERATE (1)	<input type="checkbox"/> MODERATE (1)
NOTE: (1) more siltage than originates from point-source(s); score is based on natural substrates			<input type="checkbox"/> LOW (1)	<input type="checkbox"/> NONE (1)
COMMENTS: _____			COVER SCORE: <u>8</u>	

2) POSTREAM COVER

TYPE (Check all that apply)	COVER SCORE: <u>8</u>
<input type="checkbox"/> UNDERCUT BANKS (1)	<input checked="" type="checkbox"/> ALONG (Check One, FIVE or check 2 and AVERAGE)
<input checked="" type="checkbox"/> OVERHANGING VEGETATION (1)	<input type="checkbox"/> check 2 and AVERAGE
<input type="checkbox"/> SHALLOWS (IN SLOW WATER) (1)	<input type="checkbox"/> EXTENSIVE > 75% (1)
<input checked="" type="checkbox"/> DEEP POOLS (2)	<input type="checkbox"/> MODERATE 25-75% (7)
<input checked="" type="checkbox"/> ROOTWADS (1)	<input checked="" type="checkbox"/> SPARSE 5-25% (3)
<input type="checkbox"/> BOULDERS (1)	<input type="checkbox"/> NEARLY ABSENT < 5% (1)
<input checked="" type="checkbox"/> LOGS OR WOODY DEBRIS (1)	
COMMENTS: _____	

3) CHANNEL MORPHOLOGY: (Check ONE of One PER Category OR check 1 and AVERAGE)

SINUOSITY	OVERLAPMENT	CHANNELIZATION	STABILITY	MODIFICATION(S) (1-3)	CHANNEL: <u>7</u>
<input type="checkbox"/> HIGH (4)	<input checked="" type="checkbox"/> EXCELLENT (7)	<input type="checkbox"/> NONE (8)	<input type="checkbox"/> HIGH (3)	<input type="checkbox"/> SNAGGING	<input type="checkbox"/> IMPOUND.
<input type="checkbox"/> MODERATE (2)	<input type="checkbox"/> GOOD (5)	<input type="checkbox"/> RECOVERED (4)	<input type="checkbox"/> MODERATE (2)	<input type="checkbox"/> RELOCATION	<input type="checkbox"/> ISLANDS
<input checked="" type="checkbox"/> LOW (2)	<input type="checkbox"/> FAIR (3)	<input checked="" type="checkbox"/> NOT RECOVERING (0)	<input type="checkbox"/> VERY LOW (1)	<input type="checkbox"/> CANOPY REMOVAL	<input type="checkbox"/> LEVEED
<input type="checkbox"/> NONE (1)	<input checked="" type="checkbox"/> POOR (1)	<input type="checkbox"/> RECENT OR NO RECOVERY (1)		<input type="checkbox"/> DREDGING	<input type="checkbox"/> BANK SHAPING
COMMENTS: _____				<input type="checkbox"/> ONE SIDE CHANNEL MODIFICATIONS	

4) RIPARIAN ZONE AND BANK EROSION - (check ONE box per bank or check 2 and AVERAGE per bank)

RIPARIAN: <u>10</u>		
*River Bank Losses Downstream:		
Substrate Width	VEGETATION/COVER - BLOCK PLANT QUALITY	BANK EROSION
L, R (Per Bank)	L, R (Plant Freedom In/Out Per Bank)	L, R (Per Bank)
<input type="checkbox"/> MODERATE (4)	<input checked="" type="checkbox"/> FOREST, SWAMP (2)	<input type="checkbox"/> URBAN OR INDUSTRIAL (1)
<input type="checkbox"/> MODERATE 10-50% (2)	<input type="checkbox"/> OPEN PASTURE/ROW CROPS (1)	<input type="checkbox"/> SHRUBS OR OLD FIELD (2)
<input type="checkbox"/> NARROW 5-10m (2)	<input checked="" type="checkbox"/> RESID., PARK, NEW FIELD (1)	<input type="checkbox"/> CONSERV. TILLAGE (1)
<input checked="" type="checkbox"/> VERY NARROW 1-5m (1)	<input type="checkbox"/> FENCED PASTURE (1)	<input type="checkbox"/> MINING/CONSTRUCTION (0)
<input type="checkbox"/> NONE (0)		
COMMENTS: _____		

5) POOL/GULDE AND RIFPLE/RUN QUALITY

MAX. DEPTH (Check 1)	MORPHOLOGY (Check 1)	VEGETATION/COVER CURRENT VELOCITY (Check All That Apply)	POOL: <u>8</u>
<input type="checkbox"/> 0.7-1m (4)	<input type="checkbox"/> POOL WIDTH > RIFPLE WIDTH (2)	<input type="checkbox"/> TORRENTIAL (1)	<input type="checkbox"/> EDDIES (1)
<input type="checkbox"/> 1.4-2.7m (2)	<input checked="" type="checkbox"/> POOL WIDTH = RIFPLE WIDTH (2)	<input type="checkbox"/> FAST (1)	<input type="checkbox"/> INTERSTITIAL (1)
<input type="checkbox"/> < 0.4m (1)	<input type="checkbox"/> POOL WIDTH < RIFPLE W. (0)	<input type="checkbox"/> MODERATE (1)	<input type="checkbox"/> INTERMITTENT (2)
<input type="checkbox"/> < 0.2m (Pool = 0)		<input checked="" type="checkbox"/> SLOW (1)	<input type="checkbox"/> NO POOLS (0)
COMMENTS: _____			

6) RIFPLE/RUN ASPECT

RIFPLE/RUN ASPECT	RIFPLE/RUN SUBSTRATE	RIFPLE/RUN EMBODIMENTNESS	RIFPLE: <u>8</u>
<input checked="" type="checkbox"/> GENERALLY > 10 cm MAX (5)	<input type="checkbox"/> STABLE (e.g., Gravel, Boulders) (2)	<input type="checkbox"/> EXTENSIVE (1-1)	<input checked="" type="checkbox"/> MODERATED (1)
<input type="checkbox"/> GENERALLY 10 cm MAX (3)	<input checked="" type="checkbox"/> MOD. STABLE (e.g., Fall Gravel) (1)	<input type="checkbox"/> LOW (1)	<input type="checkbox"/> NONE (1)
<input type="checkbox"/> GENERALLY 5-10 cm (1)	<input checked="" type="checkbox"/> UNSTABLE (Gravel, Sand) (0)		<input type="checkbox"/> NO RIFPLE (0)
<input type="checkbox"/> GENERALLY < 5 cm (Rif = 0)			
COMMENTS: _____			

7) GRADIENT (Resume): _____

8) GRADIENT (Resume): _____

9) GRADIENT (Resume): _____

Procedure No. WOP4-SWS-1 Date Issued 9-30-89
 Revision No. 6 Date Effective 9-30-89

PC-6
5/11/00

Figure V-4-3. Front side of the Ohio EPA Site Description Sheet for evaluating the geographical and physical characteristics of fish sampling locations. This is used to record information for the calculation of the Qualitative Habitat Evaluation Index (QHEI).

Ohio EPA Site Description Sheet - Fish QHEI SCORE: **39** **38**

Location: Wagon Creek RW: _____ Date: _____ River Code: ERK4B

1) SUBSTRATE (Check ONLY Two Substrate TYPE BOXES; Check all types present)

TYPE	POOL	RIFFLE	SUBSTRATE QUALITY	SUBSTRATE SCORE:
<input type="checkbox"/> BOLDER (BLANK) (0)	<input type="checkbox"/> GRAVEL (7)	<input type="checkbox"/> Substrate Origin (Check All)	<input type="checkbox"/> SILT MODERATE (1)	5
<input type="checkbox"/> SOULDER (3)	<input type="checkbox"/> SAND (6)	<input type="checkbox"/> LIMESTONE (1)	<input type="checkbox"/> SILT HEAVY (2)	
<input type="checkbox"/> COBBLE (4)	<input type="checkbox"/> BED ROCK (5)	<input type="checkbox"/> BRICKS (1)	<input type="checkbox"/> SILT NORMAL (0)	
<input checked="" type="checkbox"/> SANDPAN (4)	<input checked="" type="checkbox"/> DETRITUS (1)	<input type="checkbox"/> SANDSTONE (2)	<input type="checkbox"/> SILT FREE (3)	
<input checked="" type="checkbox"/> MUCK (2)	<input checked="" type="checkbox"/> ARTIFICIAL (1)	<input type="checkbox"/> SHALE (1)	<input type="checkbox"/> EXTENSIVE (2)	
TOTAL NUMBER OF SUBSTRATE TYPES: <u>2</u> + <u>2</u> = <u>4</u> (0-5)			<input type="checkbox"/> COAL PIECES (2)	<input type="checkbox"/> LOW (0)
NOTE: (Ignore edges you separated from parent material; score is based on material retained)			<input type="checkbox"/> NONE (1)	

COMMENTS: _____

2) INSTREAM COVER

TYPE (Check All That Apply)	COVER SCORE:
<input type="checkbox"/> UNDERCUT BANKS (1)	0
<input checked="" type="checkbox"/> DEEP POOLS (2)	
<input checked="" type="checkbox"/> ROOTWADS (1)	
<input checked="" type="checkbox"/> SHOULDER (1)	
<input type="checkbox"/> LOGS OR WOODY DEBRIS (1)	
<input type="checkbox"/> AQUATIC MACROPHYTES (1)	
<input type="checkbox"/> SPARSE (3-25% (2)	
<input type="checkbox"/> NEARLY ABSENT (1-1%)	

COMMENTS: _____

3) CHANNEL MORPHOLOGY: (Check ONLY 1 One PER Category OR check 2 and AVERAGE)

VELOCITY	DEVELOPMENT	CHANNELIZATION	STABILITY	MODIFICATION TYPES
<input type="checkbox"/> HIGH (4)	<input type="checkbox"/> EXCELLENT (7)	<input type="checkbox"/> NONE (0)	<input type="checkbox"/> HIGH (5)	<input type="checkbox"/> SHOULDERING
<input type="checkbox"/> MODERATE (3)	<input type="checkbox"/> GOOD (5)	<input type="checkbox"/> RECOVERED (4)	<input type="checkbox"/> MODERATE (3)	<input type="checkbox"/> ISLANDS
<input checked="" type="checkbox"/> LOW (2)	<input type="checkbox"/> FAIR (3)	<input checked="" type="checkbox"/> RECOVERING (2)	<input checked="" type="checkbox"/> LOW (1)	<input type="checkbox"/> CANOPY REMOVAL
<input type="checkbox"/> NONE (1)	<input checked="" type="checkbox"/> POOR (1)	<input type="checkbox"/> RECENT OR NO RECOVERY (1)	<input type="checkbox"/> ONE SIDE CHANNEL MODIFICATIONS	<input type="checkbox"/> BANK SHAPING

COMMENTS: _____

4) RIPARIAN ZONE AND BANK EROSION - (check ONE box per bank or check 2 and AVERAGE per bank)

RIPARIAN WIDTH	VEGETATION	SOIL PLANT QUALITY	BANK EROSION
L/R (Per Bank)	L/R (Most Prevalent Per Bank)	L/R (Per Bank)	<input type="checkbox"/> NONE OR LITTLE (3)
<input type="checkbox"/> MODERATE (3-5)	<input type="checkbox"/> FOREST, SWAMP (2)	<input checked="" type="checkbox"/> URBAN OR INDUSTRIAL (2)	<input type="checkbox"/> MODERATE (2)
<input type="checkbox"/> NARROW 1-5m (2)	<input type="checkbox"/> OPEN PASTURE (ROW CROPS) (1)	<input type="checkbox"/> SHRUB OR OLD FIELD (2)	<input checked="" type="checkbox"/> HEAVY OR SEVERE (1)
<input checked="" type="checkbox"/> VERY NARROW 1-5m (1)	<input type="checkbox"/> RESIDUAL NEW FIELD (1)	<input type="checkbox"/> CONCRETE, TILLAGE (1)	
<input type="checkbox"/> NONE (0)	<input type="checkbox"/> FENCED PASTURE (1)	<input type="checkbox"/> MINING CONSTRUCTION (0)	

COMMENTS: _____

5) POOL: **0**

POOL DEPTH (Check 1)	WINDPROOF	POOL CHARACTERISTICS
<input checked="" type="checkbox"/> < 1m (5)	(Check 1)	(Check All That Apply)
<input type="checkbox"/> 1.7-1m (4)	<input type="checkbox"/> POOL WIDTH > RIFPLE WIDTH (2)	<input type="checkbox"/> TORRENTIAL (1)
<input type="checkbox"/> 2.4-3.7m (2)	<input checked="" type="checkbox"/> POOL WIDTH = RIFPLE WIDTH (1)	<input type="checkbox"/> FAST (1)
<input type="checkbox"/> > 3.7m (1)	<input type="checkbox"/> POOL WIDTH < RIFPLE W. (0)	<input type="checkbox"/> MODERATE (1)
<input type="checkbox"/> < 0.2m (Pool = 3)		<input checked="" type="checkbox"/> SLOW (1)

COMMENTS: _____

6) RIFFLE: **4**

RIFPLE DEPTH	RIFPLE SUBSTRATE	RIFPLE FIRMNESS
<input checked="" type="checkbox"/> GENERALLY > 10 cm, MAX < 30 (4)	<input type="checkbox"/> STABLE (e.g. Cobble, Boulder) (2)	<input type="checkbox"/> EXTENSIVE (1)
<input type="checkbox"/> GENERALLY > 10 cm, MAX < 50 (3)	<input type="checkbox"/> MOD. STABLE (e.g. Pea Gravel) (1)	<input type="checkbox"/> MODERATE (2)
<input type="checkbox"/> GENERALLY 5-10 cm (1)	<input checked="" type="checkbox"/> UNSTABLE (Gravel, Sand) (0)	<input type="checkbox"/> NONE (0)
<input type="checkbox"/> GENERALLY < 5 cm (Rate = 0)		<input checked="" type="checkbox"/> NO RIFPLE (0)

COMMENTS: _____

7) GRADIENT: **2**

8) Gradient (feet/mile): _____ KPOOL: _____ RIFFLE: _____ KRUN: _____

Procedure No. WOPA-SWS-3 Date Issued 9-30-85
 Revision No. 5 Date Effective 9-30-85

PC-5
5/12/00

Figure V-4-5. Front side of the Ohio EPA Site Description Sheet for evaluating the geographical and physical characteristics of fish sampling locations. This is used to record information for the calculation of the Qualitative Habitat Evaluation Index (QHEI).

Ohio EPA Site Description Sheet - Fish QHEI SCORE: **30**

Stream Green Creek RM Dist River Code
 Location PC-5 Crew ESB/cup

1) SUBSTRATE (Check ONE TYPE or Substrate TYPE SEGS; Check all types present):

TYPE	POOL RIFLE	POOL RIFLE	SUBSTRATE QUALITY	SUBSTRATE SCORE:
<input type="checkbox"/> SILT CLASTS (1)	<input type="checkbox"/> GRAVE (7)	<input checked="" type="checkbox"/> <input checked="" type="checkbox"/> Substrate Origin (Check all)	<input type="checkbox"/> SILT HEAVY (-2) <input type="checkbox"/> SILT MODERATE (-1)	11
<input type="checkbox"/> SAND (8)	<input type="checkbox"/> SAND (8)	<input type="checkbox"/> LIMESTONE (1) <input type="checkbox"/> MARL (2)	<input type="checkbox"/> SILT NORMAL (0) <input type="checkbox"/> SILT FREE (1)	
<input type="checkbox"/> COBBLE (9)	<input checked="" type="checkbox"/> BEDROCK (3)	<input checked="" type="checkbox"/> TILLS (4)	<input type="checkbox"/> EXT. CL. SANDSTONE (2) <input type="checkbox"/> CHECK OTHER	
<input type="checkbox"/> HARDPAK (4)	<input type="checkbox"/> STRUTS (5)	<input type="checkbox"/> SANDSTONE (6)	<input type="checkbox"/> EXTENSIVE (-2) <input type="checkbox"/> MODERATE (-1)	
<input type="checkbox"/> MUCK (2)	<input type="checkbox"/> ARTIFIC (10)	<input type="checkbox"/> SHALE (-1)	<input type="checkbox"/> LOW (0) <input type="checkbox"/> NONE (1)	
TOTAL NUMBER OF SUBSTRATE TYPES: <input type="checkbox"/> 4 (2) <input type="checkbox"/> 3 (1) <input type="checkbox"/> 2 (0) <input type="checkbox"/> 1 (0) <input type="checkbox"/> 0 (0)				

NOTE: Ignore siltage that originates from upstream; score is based on natural substrates.

COMMENTS: _____

2) **STREAM COVER** COVER SCORE: **9**

TYPE (Check all that Apply)	AMOUNT (Check ONE or check 2 and AVERAGE)
<input type="checkbox"/> UNDERCUT BANKS (1)	<input type="checkbox"/> EXTENSIVE > 75% (1)
<input checked="" type="checkbox"/> OVERHANGING VEGETATION (1)	<input type="checkbox"/> MODERATE 25-75% (2)
<input checked="" type="checkbox"/> SHALLOWS (IN SLOW WATER) (1)	<input type="checkbox"/> SPARSE 5-25% (3)
<input type="checkbox"/> DEEP POOLS (2)	<input type="checkbox"/> NEARLY ABSENT < 5% (4)
<input checked="" type="checkbox"/> ROOTWADS (1)	
<input type="checkbox"/> BOULDERS (3)	
<input type="checkbox"/> LOGS OR WOODY DEBRIS (1)	

COMMENTS: _____

3) **CHANNEL MORPHOLOGY**: (Check ONE or PER Category OR check 2 and AVERAGE) CHANNEL: **7**

SIMPLICITY	DEVELOPMENT	CHANNELIZATION	STABILITY	MODIFICATIONS/OTHER
<input type="checkbox"/> HIGH (1)	<input type="checkbox"/> EXCELLENT (7)	<input type="checkbox"/> NONE (6)	<input type="checkbox"/> HIGH (2)	<input type="checkbox"/> SMOGGING <input type="checkbox"/> IMPOUND.
<input type="checkbox"/> MODERATE (2)	<input type="checkbox"/> GOOD (8)	<input type="checkbox"/> RECOVERED (4)	<input type="checkbox"/> MODERATE (2)	<input type="checkbox"/> RELOCATION <input type="checkbox"/> ISLANDS
<input checked="" type="checkbox"/> LOW (3)	<input type="checkbox"/> FAIR (3)	<input checked="" type="checkbox"/> RECOVERING (3)	<input checked="" type="checkbox"/> LOW (1)	<input type="checkbox"/> CANOPY REMOVAL <input type="checkbox"/> LEVEES
<input type="checkbox"/> NONE (1)	<input checked="" type="checkbox"/> POOR (1)	<input type="checkbox"/> RECENT OR NO RECOVERY (1)		<input type="checkbox"/> DREDGING <input type="checkbox"/> BANK SHAPING
				<input type="checkbox"/> ONE SIDE CHANNEL MODIFICATIONS

COMMENTS: _____

4) **RIPARIAN ZONE AND BANK EROSION** - (Check ONE box per bank or check 2 and AVERAGE per bank) RIPARIAN: **12**

*River Right Lining Description:

STREAM WIDTH	RECOVERED/NOVE. < 200' 3.4 IN QUALITY	BANK EROSION
L/R (Per Bank)	L/R (Most Predominant Per Bank)	L/R (Per Bank)
<input type="checkbox"/> WIDE > 50m (4)	<input checked="" type="checkbox"/> FOREST, SWAMP (1)	<input type="checkbox"/> URBAN OR INDUSTRIAL (5) <input type="checkbox"/> NONE OR LITTLE (3)
<input type="checkbox"/> MODERATE 10-50 (2)	<input type="checkbox"/> OPEN PASTURE/ROW CROP (6)	<input type="checkbox"/> SHRUB OR OLD FIELD (2) <input checked="" type="checkbox"/> MODERATE (2)
<input type="checkbox"/> NARROW 5-10m (2)	<input type="checkbox"/> RESID. PARK, NEW FIELD (1)	<input type="checkbox"/> CONSERV. TILLAGE (1) <input type="checkbox"/> HEAVY OR SEVERE (1)
<input checked="" type="checkbox"/> VERY NARROW 1-5m (1)	<input type="checkbox"/> FENCED PASTURE (1)	<input type="checkbox"/> MINING CONSTRUCTION (0)
<input type="checkbox"/> NONE (0)		

COMMENTS: _____

5) **POOL AND RIFLE RUN QUALITY** POOL: **6**

WATER DEPTH (Check 1)	MORPHOLOGY (Check 1)	VELOCITY (Check all that Apply)	POOL: 6
<input type="checkbox"/> > 1.0 (4)	<input type="checkbox"/> POOL WIDTH > RIFLE WIDTH (2)	<input type="checkbox"/> TORRENTIAL (1) <input type="checkbox"/> EDDIES (1)	NO POOL!
<input checked="" type="checkbox"/> 0.7-1.0 (4)	<input checked="" type="checkbox"/> POOL WIDTH = RIFLE WIDTH (1)	<input type="checkbox"/> FAST (1) <input type="checkbox"/> INTERSTITIAL (1)	
<input type="checkbox"/> 0.4-0.7m (2)	<input type="checkbox"/> POOL WIDTH < RIFLE W. (0)	<input checked="" type="checkbox"/> MODERATE (1) <input type="checkbox"/> INTERMITTENT (3)	
<input type="checkbox"/> < 0.4m (1)		<input type="checkbox"/> SLOW (1)	
<input type="checkbox"/> < 0.2m (Pool = 0)			

COMMENTS: _____

6) **RIFLE** RIFLE: **3**

RIFLE RUN WIDTH	RIFLE RUN SUBSTRATE	RIFLE RUN SUBMERGENCE
<input type="checkbox"/> GENERALLY > 10 cm MAX (5) (4)	<input checked="" type="checkbox"/> STABLE (e.g. CORN, SOYBEAN) (2)	<input type="checkbox"/> EXTENSIVE (-1) <input checked="" type="checkbox"/> MODERATE (1)
<input type="checkbox"/> GENERALLY > 10 cm MAX (5) (2)	<input type="checkbox"/> MOD. STABLE (e.g. PAV. GRASS) (1)	<input type="checkbox"/> LOW (1) <input type="checkbox"/> NONE (1)
<input checked="" type="checkbox"/> GENERALLY 5-10 cm (1)	<input type="checkbox"/> UNSTABLE (Clay, Sand) (1)	<input type="checkbox"/> NO AIR (0)
<input type="checkbox"/> GENERALLY < 5 cm (1) (4 = 0)		

COMMENTS: _____

7) **GRADIENT** GRADIENT: **2**

8) Gradient (feet/mile): _____ % POOL: _____ % RIFLE: _____ % RUN: _____

PC-4
 5/14/00
 DUP-3 under
 Sampling tab

Figure V-4-5. Front side of the Ohio EPA Site Description Sheet for evaluating the geographical and physical characteristics of fish sampling locations. This is used to record information for the calculation of the Qualitative Habitat Evaluation Index (QHEI).

Ohio EPA Site Description Sheet - Fish

Stream: PC-4 Creek Mile: _____ Date: _____ River Code: _____
 Location: PC-4 stream reach County: Lucas

1) SUBSTRATE (Check ONLY the Substrate TYPE BOXES; Check all types present):

TYPE	POOL	RIFLE	SUBSTRATE QUALITY	SUBSTRATE SCORE:
COBBLER/SLAB (10)	<input checked="" type="checkbox"/> GRAVEL (7)	<input checked="" type="checkbox"/> Substrate Origin (Check one)	Silt Heavy (2) D-SILT MODERATE (1)	<input checked="" type="checkbox"/> 12
CO-SOULDER (8)	<input checked="" type="checkbox"/> SAND (6)	<input checked="" type="checkbox"/> LIMESTONE (1)	D-SILT NORMAL (9) D-SILT FREE (1)	
<input checked="" type="checkbox"/> COBBLE (9)	<input checked="" type="checkbox"/> BEDROCK (5)	SHALE (1)	Extensive (2) MODERATE (1)	
<input checked="" type="checkbox"/> HARD PAN (4)	<input checked="" type="checkbox"/> SPLITLICE (3)	D-SANDSTONE (8)	Extensive (2) MODERATE (1)	
<input checked="" type="checkbox"/> MUCK (2)	<input checked="" type="checkbox"/> ARTIFICIAL (2)	D-SHALE (1)	Extensive (2) MODERATE (1)	

TOTAL NUMBER OF SUBSTRATE TYPES: 10 + 10 = 20 (4-10) D-COAL (NONE) D-LOW (0) D-NONE (1)

NOTE: (Ignore sludge that originates from point sources; score is based on natural substrate.)

COMMENTS: _____

2) INSTREAM COVER

TYPE (Check all that apply)	COVER SCORE:
<input checked="" type="checkbox"/> UNDERGROWTH BANKS (1)	<input checked="" type="checkbox"/> 3
<input checked="" type="checkbox"/> OVERHANGING VEGETATION (1)	Check 2 and AVERAGE
<input checked="" type="checkbox"/> SHALLOWS (IN SLOW WATER) (1)	D-EXTENSIVE > 75% (1)
<input checked="" type="checkbox"/> DEEP POOLS (2)	D-MODERATE 25-75% (7)
<input checked="" type="checkbox"/> ROOTWADS (1)	D-SPARSE 5-25% (2)
<input checked="" type="checkbox"/> BOLLERS (1)	D-NEARLY ABSENT < 5% (1)
<input type="checkbox"/> GIBBONS (1)	
<input type="checkbox"/> AQUATIC MACROPHYTES (1)	
<input type="checkbox"/> LOGS OR WOODY DEBRIS (1)	

COMMENTS: _____

3) CHANNEL MORPHOLOGY (Check ONLY one PER Category OR check 2 and AVERAGE)

SINUOSITY	DEVELOPMENT	CHANNELIZATION	STABILITY	MODIFICATIONS/OTHER	CHANNEL:
D-HIGH (4)	D-EXCELLENT (7)	D-NONE (5)	D-HIGH (3)	D-SNAGGING	<input checked="" type="checkbox"/> 7
D-MODERATE (2)	D-GOOD (3)	D-RECOVERED (4)	D-MODERATE (2)	D-RELOCATION	D-IMPOUND
<input checked="" type="checkbox"/> LOW (2)	D-FAIR (2)	<input checked="" type="checkbox"/> RECOVERING (2)	D-LOW (1)	D-SANDY REMOVAL	D-ISLANDS
D-NONE (1)	<input checked="" type="checkbox"/> POOR (1)	D-RECENT OR NO RECOVERY (4)		D-GRADING	D-LEVEES
				D-ONE SIDE CHANNEL MODIFICATIONS	D-BANK SHARING

COMMENTS: Only stream in riparian with wetland to be

4) RIPARIAN ZONE AND BANK EROSION (Check ONE box per bank or check 2 and AVERAGE per bank)

RIPARIAN WIDTH	EROSION/UNDESIRABLE USE OR QUALITY	BANK EROSION
L/R (Per Bank)	L/R (Most Prevalent Per Bank)	L/R (Per Bank)
D-WIDESIDE (4)	<input checked="" type="checkbox"/> FOREST, SWAMP (2)	D-URBAN OR INDUSTRIAL (4)
D-MODERATE (0-5) (2)	<input checked="" type="checkbox"/> OPEN PASTURE/ROW CROPS (0)	D-SHALE OR CLAY FIELD (2)
D-NARROW 5-10m (2)	<input checked="" type="checkbox"/> RESID. BARK NEW FIELD (1)	<input checked="" type="checkbox"/> MODERATE (2)
<input checked="" type="checkbox"/> VERY NARROW 1-5m (1)	<input checked="" type="checkbox"/> FENCED PASTURE (1)	D-CONSERV. TILAGE (1)
D-NONE (0)	D-NONUSE CONSTRUCTION (0)	D-EAVY OR SEVERE (1)

COMMENTS: _____

POOL/SLIDE AND RIFLE/RUN QUALITY

POOL/SLIDE (Check 1)	MORPHOLOGY (Check 1)	PERMEABILITY (Check ALL that Apply)	CURRENT VELOCITY (Check ALL that Apply)	POOL:
D < 1m (8)	D-POOL WIDTH > RIFLE WIDTH (2)	D-TORRENTIAL (1)	D-EDDIES (1)	<input checked="" type="checkbox"/> 6
<input checked="" type="checkbox"/> 1-2m (2)	<input checked="" type="checkbox"/> POOL WIDTH > RIFLE WIDTH (1)	D-FAST (1)	D-INTERSTITIAL (1)	D-NO POOL (0)
D 2-4-0.7m (2)	D-POOL WIDTH > RIFLE W. (0)	D-MODERATE (1)	D-INTERMITTENT (2)	
D < 0.4m (1)		D-SLOW (1)		
D < 2m (Pool > 0)				

COMMENTS: _____

RIFLE:

RIFLE RUN SUBSTRATE	RIFLE RUN EMBEDDEDNESS
<input checked="" type="checkbox"/> STABLE (e.g., Cobble, Boulder) (2)	D-EXTENSIVE (1) D-MODERATE (1)
D-MOD. STABLE (e.g., Fine Gravel) (1)	D-NONE (1)
D-UNSTABLE (Gravel, Sand) (0)	<input checked="" type="checkbox"/> CAS RIFLE (0)

COMMENTS: _____

5) GRADIENT (percent): _____

APool: _____ RIFLE: _____ R/RUN: _____

Procedure No. WOPA-SWS-3 Date Issued 9-30-89
 Revision No. 5 Date Effective 9-30-89

PC-2
5/17/00

Figure V-4-5. Front side of the Ohio EPA Site Description Sheet for evaluating the geographical and physical characteristics of fish sampling locations. This is used to record information for the calculation of the Qualitative Habitat Evaluation Index (QHEI).

Ohio EPA Site Description Sheet - Fish

QHEI SCORE: 38 40

Stream Wagon Creek RW 100 Dis. 100 River Code 100
 Location PC-2 Date 5/17/00

1) SUBSTRATE (check ONLY the Substrate TYPE BOXES: Check all types present):

POOL RIFFLE		POOL RIFFLE		SUBSTRATE QUALITY		SUBSTRATE SCORE:	
<input type="checkbox"/> SILT/SLASH (1)	<input type="checkbox"/> GRAVEL (7)	Substrate Origin (Check all)		Silt Cover (Check One)		<input type="checkbox"/> 6	
<input type="checkbox"/> BOULDER (8)	<input type="checkbox"/> SAND (6)	<input type="checkbox"/> LIMESTONE (1)	<input type="checkbox"/> BEDROCK (2)	<input type="checkbox"/> SILT HEAVY (2)	<input type="checkbox"/> SILT MODERATE (1)		
<input type="checkbox"/> COBBLE (7)	<input type="checkbox"/> BEDROCK (2)	Bedrock (Check all)		<input type="checkbox"/> SILT NORMAL (3)	<input type="checkbox"/> SILT FREE (1)		
<input type="checkbox"/> HARDPAN (4)	<input checked="" type="checkbox"/> ORGANIC (3)	<input type="checkbox"/> ARTIF. (1)	<input type="checkbox"/> SANDSTONE (8)	Extent of Embankment (Check One)			
<input checked="" type="checkbox"/> MUCK (2)	<input type="checkbox"/> ARTIFIC. (3)	<input type="checkbox"/> SHALE (1)		<input type="checkbox"/> EXTENSIVE (2)	<input type="checkbox"/> MODERATE (1)		
TOTAL NUMBER OF SUBSTRATE TYPES: <input checked="" type="checkbox"/> 4 (2) <input type="checkbox"/> 3 (1) <input type="checkbox"/> 2 (1)				<input type="checkbox"/> COAL FINES (2)	<input type="checkbox"/> LOW (0)	<input type="checkbox"/> NONE (1)	

NOTE: (If more siltage that originates from your stream, score is based on material imported)
 COMMENTS:

2) INSTREAM COVER

TYPE (Check All That Apply)		COVER SCORE:	
<input checked="" type="checkbox"/> UNDERCUT BANKS (1)	<input type="checkbox"/> DEEP POOLS (2)	Check ONLY one of check 2 and AVERAGE	
<input checked="" type="checkbox"/> OVERHANGING VEGETATION (1)	<input type="checkbox"/> ROOTWADS (1)	<input type="checkbox"/> EXTENSIVE > 75% (1)	
<input checked="" type="checkbox"/> SHALLOWS (IN SLOW WATER) (1)	<input type="checkbox"/> BOULDERS (1)	<input type="checkbox"/> MODERATE 25-75% (2)	
		<input type="checkbox"/> SPARSE 5-25% (3)	
		<input type="checkbox"/> NEARLY ABSENT < 5% (1)	

COMMENTS:

3) CHANNEL MORPHOLOGY: (check ONLY one PER category OR check 2 and AVERAGE)

CHANNEL:	
<input checked="" type="checkbox"/> CHANNEL WIDTH	<input type="checkbox"/> CHANNEL DEPTH
<input type="checkbox"/> EXCELLENT (4)	<input type="checkbox"/> EXCELLENT (7)
<input type="checkbox"/> MODERATE (3)	<input type="checkbox"/> GOOD (5)
<input type="checkbox"/> LOW (2)	<input type="checkbox"/> FAIR (4)
<input type="checkbox"/> NONE (1)	<input checked="" type="checkbox"/> POOR (1)
<input type="checkbox"/> CHANNEL STABILITY	<input type="checkbox"/> CHANNEL VELOCITY
<input type="checkbox"/> HIGH (2)	<input type="checkbox"/> MODERATE (2)
<input type="checkbox"/> MODERATE (2)	<input type="checkbox"/> LOW (1)
<input type="checkbox"/> LOW (1)	<input type="checkbox"/> RECOVERING (2)
<input type="checkbox"/> RECOVERING (2)	<input type="checkbox"/> RECENT OR NO RECOVERY (1)
<input type="checkbox"/> CHANNEL MODIFICATIONS/OTHERS	<input type="checkbox"/> CHANNEL BANK SHAPING
<input type="checkbox"/> SPAGGING	<input type="checkbox"/> BANK SHAPING
<input type="checkbox"/> RELOCATION	<input type="checkbox"/> ONE SIDE CHANNEL MODIFICATIONS
<input type="checkbox"/> CANOPY REMOVAL	
<input type="checkbox"/> DREDGING	

COMMENTS:

4) RIPARIAN ZONE AND BANK EROSION: (check ONE box per bank or check 2 and AVERAGE per bank)

RIPARIAN:	
<input checked="" type="checkbox"/> 4	
<input type="checkbox"/> 3	
<input type="checkbox"/> 2	
<input type="checkbox"/> 1	
<input type="checkbox"/> 0	

COMMENTS:

POOL/GULCH AND RIFFLE/RUN QUALITY

POOL:	
<input checked="" type="checkbox"/> 5	
<input type="checkbox"/> 4	
<input type="checkbox"/> 3	
<input type="checkbox"/> 2	
<input type="checkbox"/> 1	
<input type="checkbox"/> 0	

COMMENTS:

RIFFLE:

RIFFLE:	
<input checked="" type="checkbox"/> 4	
<input type="checkbox"/> 3	
<input type="checkbox"/> 2	
<input type="checkbox"/> 1	
<input type="checkbox"/> 0	

COMMENTS:

4) Gradient (feet/mile): _____ % POOL: _____ % RIFFLE: _____ % RUN: _____

