9. Appendixes

Appendix A
Form 9.0, 9.1, 9.2, and 9.3 Copy Masters

Appendix B
Examples of Completed Field Forms 9.0, 9.1, 9.2, and 9.3

Appendix C
SHA Criteria and Code Field Sheet Copy Master

Appendix D
Data Management Examples

Appendix E
Standard Field and Vehicle Gear Checklist Copy Master

Appendix A

Form 9.0, 9.1, 9.2, and 9.3 Copy Masters

(Keep original copy master with manual)

TFW Monitoring Program

Stream Name

SHA SURVEY

HEADER INFORMATION

FORM 9.0

WRIA # __ __ . __ __ __ __ | Unlisted Trib ◯ RB ◯ __ __ __ | **Segment #** _____ | _____ Sub-Segment | **Date** _____ / _____ / _____

Study Design Information

Begin Survey Date ___/___/_____

Survey Length [ ]

Survey Coverage		**Percentage**
◯ WHL	(Whole)	100 %
◯ SUB	(Sub-sample)	_____%
◯ PRT	(Partial)	_____%
◯ PSB	(Partial Sub-sample)	_____%
◯		

Partial/Other Survey Location
WRIA River Mile: from ____ to ____

Sample Method Information

Core

◯ Transect
◯ Transect + Wet
◯

Transect Intervals [ ]

◯ TFW
◯ Mod. TFW
◯

Discharge Information

Date __ / __ / ____ __ __.__ __
Date __ / __ / ____ __ __.__ __ ◯ CMS
Date __ / __ / ____ __ __.__ __ ◯

Survey Crew

Name	*Affiliation*	
_____	_____	(Lead)
_____	_____	(Rec.)
_____	_____	

Crew Lead: Year of most recent SHA Training _____ QA Review _____

Survey Notes

◯ *continued page* ___

Equipment ◯ Metric ◯	Type	Size	Cond	Accu-	Pre-	Post-

Form 9.0
Error Checked by: _____ Date: ___ / ___ / ____
All Field Forms
Error Checked by: _____ Date: ___ / ___ / ____
All Data Entry

TFW Monitoring Program

Stream Name

Crew Lead ____

Page ___ of ___

SHA SURVEY

METERS

CHANNEL

FORM 9.1

WRIA # __ __ . __ __ __ __

Unlisted Trib ___ ___ ___ RB

Segment # _____

_____ Sub-Segment

Date _____/_____/_____

Tran	CUM Dist	BFW	WETTED Width Measurements (Single or Cumulative only)	Width	Field Notes	Tran	CUM Dist	BFW	WETTED Width Measurements (Single or Cumulative only)	Width	Field Notes
			( )( )( )						( )( )( )		
			( )( )( )						( )( )( )		
			( )( )( )						( )( )( )		
			( )( )( )						( )( )( )		
			( )( )( )						( )( )( )		
			( )( )( )						( )( )( )		
			( )( )( )						( )( )( )		
			( )( )( )						( )( )( )		
			( )( )( )						( )( )( )		
			( )( )( )						( )( )( )		
			( )( )( )						( )( )( )		
			( )( )( )						( )( )( )		
			( )( )( )						( )( )( )		
			( )( )( )						( )( )( )		
			( )( )( )						( )( )( )		

TFW Monitoring Program

Stream Name

Crew Lead _____

Page ___ of ___

SHA SURVEY

METERS

TRANSECT DATA

FORM 9.2

WRIA # __ __ . __ __ __ __

Unlisted Trib RB

Segment # _____

Sub-Segment

Date _____/_____/_____

Tran					Tran					Tran					Tran				
Tape (Optional)	Tape (Optional)	Width	SIZE Class (1 - 6)	Dry (D - W)	Tape (Optional)	Tape (Optional)	Width	SIZE Class (1 - 6)	Dry (D - W)	Tape (Optional)	Tape (Optional)	Width	SIZE Class (1 - 6)	Dry (D - W)	Tape (Optional)	Tape (Optional)	Width	SIZE Class (1 - 6)	Dry (D - W)

Field Notes	Zero RB	Field Notes	Zero RB	Field Notes	Zero RB	Field Notes	Zero RB

TFW Monitoring Program

Stream Name

Crew Lead _____

Page ___ of ___

SHA SURVEY

METERS

PATCH DATA

FORM 9.3

WRIA # __ __ . __ __ __ __ | Unlisted Trib __ __ __ RB | **Segment #** _____ | _____ Sub-Segment | **Date** _____ / _____ / _____

Patch	SUB Patch	DWN Tran	DOM SG (S - L)	SIDE Chan (Y - N)	PATCH Length Measurements (Single or Cumulative only)	Length	PATCH Width Measurements	Width			Field Notes
					( )( )( )		( )( )( )( )( )( )				
					( )( )( )		( )( )( )( )( )( )				
					( )( )( )		( )( )( )( )( )( )				
					( )( )( )		( )( )( )( )( )( )				
					( )( )( )		( )( )( )( )( )( )				
					( )( )( )		( )( )( )( )( )( )				
					( )( )( )		( )( )( )( )( )( )				
					( )( )( )		( )( )( )( )( )( )				
					( )( )( )		( )( )( )( )( )( )				
					( )( )( )		( )( )( )( )( )( )				
					( )( )( )		( )( )( )( )( )( )				
					( )( )( )		( )( )( )( )( )( )				
					( )( )( )		( )( )( )( )( )( )				
					( )( )( )		( )( )( )( )( )( )				

Appendix B

Completed Examples of
Forms 9.0, 9.1, 9.2, and 9.3

TFW Monitoring Program

Stream Name PERCIVAL CREEK

SHA SURVEY — HEADER INFORMATION — FORM 9.0

WRIA # 13.0029 | Unlisted Trib 000 ○RB ○LB | Segment # 2 | b Sub-Segment Code | Date 7/12/99

Study Design Information

Begin Survey Date 7/14/99
End Survey Date 7/20/99

Survey Length 1700 m

Survey Coverage		Percentage
● WHL	(Whole)	100 %
○ SUB	(Sub-sample)	___ %
○ PRT	(Partial)	___ %
○ PSB	(Partial Sub-sample)	___ %
○ OTH	(Other)	___ %

Partial/Other Survey Location
WRIA River Mile: from ___ to ___
Reference Points: from ___ to ___

Sample Method Information

Core
Survey Coverage
○ Transect
● Transect + Wet
● Patch

Transect Intervals: 50 m

● TFW
○ Mod. TFW
○ Non-TFW

Discharge Information

Date 7/14/99 0.24
Date __/__/__ ___.__ ● CMS
Date __/__/__ ___.__ ○ CFS

Survey Crew

Name	Affiliation	
ALLEN PLEUS	TFW-MP @ NWIFC	(Lead)
SUE MADSEN	R2 RESOURCE CONS	(Rec.)

Crew Lead: Year of most recent SHA — Training '99 — QA Review '99

Survey Notes

* EXAMPLE DATA *

Form	TOTAL # Pages
9.1	2
9.2	11
9.3	23

○ *continued page* ___

Equipment (● Metric ○ English)	Type	Size	Cond	Accuracy	Pre-Calibrated	Post-Calibrated
HIP CHAIN ID# H4	CHAINMAN II	STND	GOOD	±2%	5/20/99	9/30/99
FIBERGLASS TAPE #038	KESON	30.0	↓	±0.01		
STADIA ROD #007	MOUND CITY	5.0	↓	±0.01		
CALIPER #114	VERNIER		↓	±1 mm		
TORPEDO LEVEL		8"	↓			
HIP BOOTS						

Form 9.0
Error Checked by: AP Date: 7/23/99
All Field Forms
Error Checked by: AP Date: 7/23/99
All Data Entry
Error Checked by: AP Date: 8/1/99

TFW Monitoring Program

Stream Name PERCIVAL CREEK

Crew Lead AP
Other(s) SM

SHA SURVEY

● METERS
○ FEET

CHANNEL WIDTH DATA

FORM 9.1

WRIA # 13.0029

Unlisted Trib 000 ○RB ○LB

Segment # 2

b Sub-Segment Code

Date 7/14/99

Tran #	CUM Dist	BFW	WETTED Width Measurements (Single or Cumulative only)	Width (Total)	Field Notes (RCG = Reed Canary Grass; MC = Multi-Channel)
1	0	12.2	(4.7)( )( ) ( )( )( )	4.7	* EXAMPLE DATA *
2	50	11.7	(3.9)(2.6)( ) ( )( )( )	6.5	BFW ± 0.5 (LWD)
3	100	9.4	(4.0)(~~2.1~~)( ) ( )( )( )	4.0	LWD MC
		3.6	(2.1)( )( ) ( )( )( )	2.1	SIDE CHANNEL
		13.0	( )( )( ) ( )( )( )	6.1	TOTAL
4	150	14.1	(3.2)(2.1)(1.4) ( )( )( )	6.7	
5	200	10.5	(8.2)( )( ) ( )( )( )	8.2	POOL UNDERCUT BANK BFW & WW ± 0.5
6	250	10.9	(4.3)( )( ) ( )( )( )	4.3	LWD
7	300	13.0	(5.0)( )( ) ( )( )( )	5.0	LWD JAM BFW ± 1m WW ± 0.5
8	350	7.8 ~~8.4~~	(4.7)( )( ) ( )( )( )	4.7	RCG MC HIGH DRY BARS
		4.4	(3.2)( )( ) ( )( )( )	3.2	
		3.7	(—)( )( ) ( )( )( )	—	
		15.9	( )( )( ) ( )( )( )	7.9	TOTAL
9	400	12.6	(6.1)( )( ) ( )( )( )	6.1	
10	450	11.9	(2.6)(3.9)( ) ( )( )( )	6.5	UNDERCUT BANK WW ± 0.5m
11	500	11.1	(1.0)(4.7)( ) ( )( )( )	5.7	
12	550	10.8	(6.0)( )( ) ( )( )( )	6.0	LWD
13	600	7.2	(5.6)( )( ) ( )( )( )	5.6	MC
		5.7	(3.1)( )( ) ( )( )( )	3.1	
~~14~~	~~650~~	12.9	( )( )( ) ( )( )( )	8.7	TOTAL
14	650	9.6	(4.7)( )( ) ( )( )( )	4.7	BRIDGE SUPPORTS
15	700	10.3	(7.1)( )( ) ( )( )( )	7.1	
16	750	9.9	(6.3)( )( ) ( )( )( )	6.3	
17	800	11.4	(5.4)( )( ) ( )( )( )	5.4	
18	850	13.7	(3.6)(0.5)(5.3) ( )( )( )	9.4	LWD JAM - LOOSE
19	900	15.1	(10.1)( )( ) ( )( )( )	10.1	POOL
20	950	12.2	(6.3)( )( ) ( )( )( )	6.3	
21	1000	12.5	(6.1)( )( ) ( )( )( )	6.1	

← 7/15

← 7/16

MORE ON NEXT PAGE

TFW Monitoring Program

Stream Name PERCIVAL CREEK

Crew Lead AP
Other(s) SM

SHA SURVEY — TRANSECT DATA — FORM 9.2

● METERS ○ FEET

WRIA # 13.0029 | Unlisted Trib 000 ○ RB ○ LB | Segment # 2 | b Sub-Segment Code | Date 7/14/99

Tran #	1					Tran #	2					Tran #	3					Tran #	4				
Tape 1 (Optional)	Tape 2	Width	SIZE Class (1 - 6)	Dry Wet (D - W)		Tape 1 (Optional)	Tape 2	Width	SIZE Class (1 - 6)	Dry Wet (D - W)		Tape 1 (Optional)	Tape 2	Width	SIZE Class (1 - 6)	Dry Wet (D - W)		Tape 1 (Optional)	Tape 2	Width	SIZE Class (1 - 6)	Dry Wet (D - W)	
0.0	0.9	0.9	1	D		0.0	0.4	0.4	2	D		● 0.0	1.5	1.5	1	D		0.0	0.7	0.7	1	D	
0.9	1.1	0.2	3	D		0.4	4.3	3.9	2	W		1.5	2.3	0.8	3	D		0.7	0.9	0.2	1	W	
1.1	3.7	2.6	3	W		4.3	5.1	0.8	2	D		2.3	6.3	4.0	3	W		0.9	3.9	3.0	2	W	
3.7	5.8	2.1	2	W		5.1	7.4	2.3	1	D		6.3	6.9	0.6	3	D		3.9	5.3	1.4	2	D	
5.8	7.2	1.4	2	D		7.4	10.0	2.6	2	W		6.9	9.4	2.5	2	D		5.3	5.6	0.3	2	W	
7.2	7.8	0.6	6	D		10.0	11.7	1.7	2	D		● 0.0	0.2	0.2	2	D		5.6	7.5	1.9	3	W	
7.8	10.3	2.5	4	D								0.2	2.3	2.1	2	W		7.5	10.7	3.2	3	D	
10.3	12.2	1.9	3	D				11.7 ✓				2.3	3.6	1.3	2	D		10.7	11.1	~~0.5~~ 6.4	3	W	
												●						11.1	12.0	0.9	2	W	
		12.2 ✓												13.0 ✓				12.0	14.1	2.1	6	D	
																				14.1 ✓			

Field Notes — Zero Tape End ● RB ○ LB

* EXAMPLE DATA *

Field Notes — Zero Tape End ○ RB ● LB

BFW LB LWD obsured
2 WETTED CHANNELS

Field Notes — Zero Tape End ○ RB ○ LB

• MULTI CHANNEL

Field Notes — Zero Tape End ○ RB ○ LB

TFW Monitoring Program

Stream Name PERCIVAL CREEK

Crew Lead SM
Other(s) AP —

SHA SURVEY

● METERS
○ FEET

PATCH DATA

FORM 9.3

WRIA # 13.0029 | Unlisted Trib 000 ○RB ○LB | Segment # 2 | b Sub-Segment Code | Date 7, 14, 99

Patch #	SUB Patch #	DWN Tran #	DOM SG (S-L)	SIDE Chan (Y-N)	PATCH Length Measurements (Single or Cumulative only)	Length (Total)	PATCH Width Measurements	Width (Average)	HAB TYPE		Field Notes
1	1	1	S	N	(9.9)( )( ) ( )( )( )	9.9	(5.9)(5.6)(5.7)(6.0)(5.8)( ) ( )( )( )( )( )( )	5.8	R		*EXAMPLE DATA*
1	2	↓	S	↓	(10.6)( )( ) ( )( )( )	10.6	(1.6)(1.1)(1.5)(2.5)( )( ) ( )( )( )( )( )( )	1.7	R		
1	3	↓	S	↓	(6.9)( )( ) ( )( )( )	6.9	(1.5)(2.3)(1.9)(2.0)( )( ) ( )( )( )( )( )( )	1.9	P		
1	4	↓	S	↓	(9.7)( )( ) ( )( )( )	9.7	(1.5)(2.1)(~~1.7~~)(1.1)(1.5)(1.5) (1.4)(1.2)(~~1.0~~)(~~1.0~~)( )( )	1.5	P		
2	1	↓	L	↓	(2.0)( )( ) ( )( )( )	2.0	(1.4)(0.9)(1.0)(1.0)( )( ) ( )( )( )( )( )( )	1.1	P		
1	5	↓	S	↓	(4.2)( )( ) ( )( )( )	4.2	(0.9)(1.6)(1.2)(1.2)( )( ) ( )( )( )( )( )( )	1.2	R		
3	1	↓	S	Y	(8.4)( )( ) ( )( )( )	8.4	(4.0)(4.2)(4.3)(3.6)(3.0)(2.9) (2.2)(3.0)(2.0)(2.0)( )( )	3.1	R		
4	1	↓	L	N	(4.1)( )( ) ( )( )( )	4.1	(2.1)(1.7)(3.6)(1.5)(0.9)( ) ( )( )( )( )( )( )	2.0	R		
5	1	↓	S	↓	(3.7)( )( ) ( )( )( )	3.7	(3.1)(2.9)( )( )( )( ) ( )( )( )( )( )( )	3.0	R		
5	2	2	S	↓	(6.3)( )( ) ( )( )( )	6.3	(2.4)(1.5)( )( )( )( ) ( )( )( )( )( )( )	2.0	P		
6	1	↓	L	↓	(5.3)( )( ) ( )( )( )	5.3	(4.6)(3.7)(3.9)( )( )( ) ( )( )( )( )( )( )	4.1	C		> 4% Gradient
7	1	↓	S	↓	(2.7)( )( ) ( )( )( )	2.7	(2.4)(2.6)( )( )( )( ) ( )( )( )( )( )( )	2.5	R		
8	1	↓	S	↓	(2.1)( )( ) ( )( )( )	2.1	(1.1)(0.5)( )( )( )( ) ( )( )( )( )( )( )	0.8	P		
8	2	↓	S	↓	(1.5)( )( ) ( )( )( )	1.5	(1.5)(1.0)(0.9)( )( )( ) ( )( )( )( )( )( )	1.1	P		

Appendix C

SHA Criteria & Code Field Sheet Copy Master

(Keep original copy master with manual)

SHA Survey Criteria & Code Field Sheet

Segment Length	Transect Interval (m)
< 100	10% of length
≥ 100 - 500	25
≥ 500 - 2500	50
≥ 2500	100

Particle Size Class	Size Range (mm)	Code #
Silt/Sand	< 8	1
Small Spawning Gravel	≥ 8 to 64	2
Large Spawning Gravel	≥ 64 to 128	3
Boulders	≥ 128	4
Bedrock	≥ 1 m^2 Exposed	5
Other (LWD, Clay, Peat, etc.)	≥ 0.5 m	6

Patch Length	Minimum # Paces per Width Meas.
< 2.5 to 5 m	1 step
≥ 5 to 10 m	2 steps
≥ 10 to 20 m	3 steps
≥ 20 m	4 steps

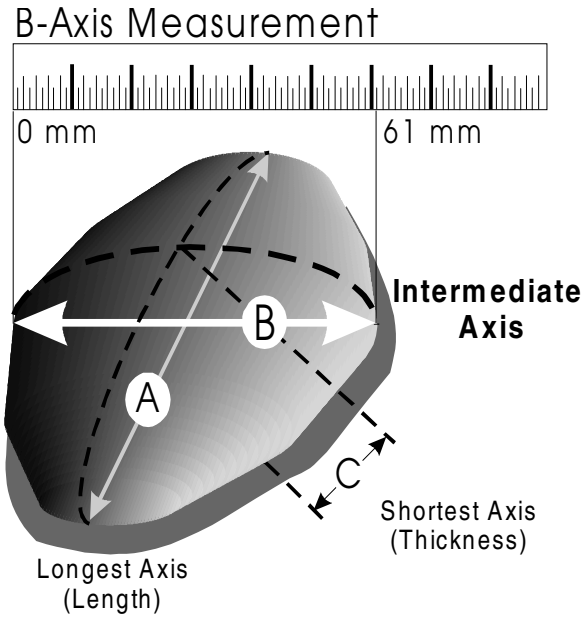
Minimum Patch Criteria	
Dominant Substrate Size	≥ 8 to < 128 mm
Substrate Depth	≥ 23 cm
Water Depth	≥ 10 cm
Water Velocity	> Slack
Patch Size	≥ 1 m^2

Small (S) Spawning Gravel Size: ≥ 8 to < 64 mm
Large (L) Spawning Gravel Size: ≥ 64 to < 128 mm

Side Channel Criteria

Channel must be Separated from Primary Low Flow Channel by an Island

Island:
1) length of the island above the bankfull channel is 2 times the estimated bankfull width; and
2) vegetated by two or more perennial plants that are greater than 2 meters in height.



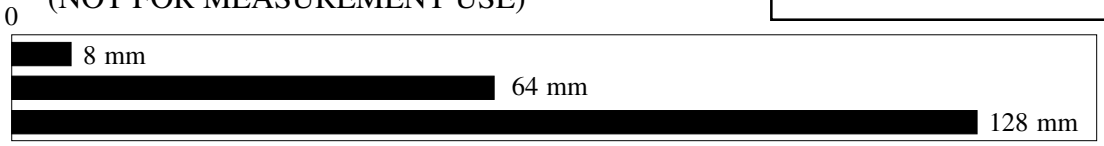
Lumpers & Splitters

> Disregard wetted depth criteria and lump patch width to the wetted edge where the minimum water depth is within:
** 0.5 meters (Segment Mean BFW < 10 m); or
** 1.0 meters (Segment Mean BFW ≥ 10 m)

> Split patch units: use same Patch # and next sequential Sub-Patch # :
** at Reference Points
** where they cross into a side channel
** where splitting can significantly improve surface area measurement accuracy

> QA Note: Patch boundary ID is largest variability factor between crews. To reduce:
1) Do easy parts first
2) Use confidence/default technique
3) Mark boundaries with weighted or wire flags

Approximate B-Axis Size Classes
(NOT FOR MEASUREMENT USE)



Appendix D

Data Management Examples

D-1: Excel Header, Width, Transect, and Patch Data Entry Sheets
D-2: SHA Transect Survey Segment Summary Report
D-3: SHA Patch Survey Segment Summary Report

EXAMPLE: Excel Data Entry Spreadsheet Fields

**Examples show column headers only for each type entry file

TFW Monitoring Program

Spawning Habitat Availability Survey Header **Form 9.0** shahd.xls

wria basin	wria stream	trib	segm	sub segm	begin survey date	end survey date	begin river mile	end river mile	begin ref pt	end ref pt	survey length

>>>>

survey coverage	survey percent	leader first name	leader last name	leader affil	recorder first	recorder last	recorder affil	field notes	disch 1 date	disch 1 flow

>>>>

disch 2 date	disch 2 flow	disch 3 date	disch 3 flow

TFW Monitoring Program

Spawning Habitat Availability Survey - Width Data **Form 9.1** shawdata.xls

wria basin	wria stream	trib	segm	subsegm	begin survey date	survey date	transect num	cumula-tive distance	down-stream refpt	bankfull width	wetted width

TFW Monitoring Program

Spawning Habitat Availability Survey Data - Transect Method **Form 9.2** shatdata.xls

wria basin	wria stream	trib	segm	subsegm	begin survey date	transect num	beg tape reading	end tape reading	trans unit width	sub-strate size class	dry/wet	field notes

TFW Monitoring Program

Spawning Habitat Availability Survey Data - Patch Method **Form 9.3** shapdata.xls

wria basin	wria stream	trib	segm	sub segm	begin survey date	survey date	patch num	sub-patch num	dwn rfp	side channel (y/n)	dominant subs (S/L)	avg length

>>>>

avg width	field notes

APPENDIX D - 2

TFW Monitoring
Spawning Habitat Availability Transect Survey
Segment Summary Report

Stream Name: KENNEDY CREEK
Survey Date: 01/01/1999 To 01/01/1999

WRIA: 14.0012.000
Segment: 7 sub: 0

Reference Points: 0 to 40
River Miles: 3.700 to 4.100

Discharge	Date	Flow
1	01/01/1999	0.05
2		
3		

Svy Length/Coverage: 4,000.0 / whl
Survey Leader: John Doe
Affiliation: NWIFC

Surface Area and Percent of Channel by Substrate Size Class

	Total Surface Area (m)	Small Spawning Gravel	Large Spawning Gravel	Total Spawning Gravel	Silt/Sand Substrate	Boulder Substrate	Bedrock Substrate	Other (clay, peat, etc.
Wetted Channel								
Surface Area (m2)	50,925.00	22,362.72	5,682.93	28,045.65	7,823.26	5,978.15	8,044.67	1,033.26
Percent		0.44	0.11	0.55	0.15	0.12	0.16	0.02
Bankfull Channel								
Surface Area (m2)	61,700.00	26,780.43	5,776.17	32,556.60	13,521.49	7,548.40	7,154.57	918.94
Percent		0.43	0.09	0.53	0.22	0.12	0.12	0.01

APPENDIX D - 3

TFW Monitoring
Spawning Habitat Availability Patch Survey
Segment Summary Report

Stream Name: KENNEDY CREEK
Survey Date: 01/01/1999 To 01/01/1999

WRIA: 14.0012.000
Segment: 7 sub: 0

Reference Points: 0 to 40
River Miles: 3.700 to 4.100

Discharge	Date	Flow
1	01/01/1999	0.05
2		
3		

Svy Length/Coverage: 4,000.0 / whl
Survey Leader: John Doe
Affiliation: NWIFC

Surface Area of Wetted Spawning Habitat

DwnStr Refpt #	Length (m)	Mean Wetted Width (m)	Wetted Surface Area (m2)	Surface Area of Actual Spawning Habitat (m2) Small Gravel	Large Gravel	Total Gravel
0	100	12.15	1,215.00	88.55		88.55
1	100	9.65	965.00	24.27	5.5	29.77
2	100	11.30	1,130.00	139.71	12.4	152.11
3	100	14.25	1,425.00	119.63	25.83	145.46
4	100	13.55	1,355.00	156.13		156.13
5	100	14.40	1,440.00	25.72	19.76	45.48
6	100	14.30	1,430.00	50.04		50.04
7	100	12.25	1,225.00			
Segment Total	800	12.73	10,185.00	604.05	63.49	667.54

Spawning Habitat Patch count by Surface Area Size Class

	Spawning Gravel Patch Surface Area Size CLass (m2)				
Spawning Gravel Size Class	> 20	10-15	15-20	5-10	Total
small spawning gravel	8	2	1	3	**14**
Total	**8**	**2**	**1**	**3**	**14**

Spawning Habitat Patch Information

Patch Number 1 **Spawning Gravel Size Class** small spawning gravel **Surface Area (m2)** 88.55

Patch Size Class > 20

SubPatch Number	SubPatch Surface Area (m2)	Downstream Reference Point	Side Channel
1	57.42	0	n
2	18.02	0	n
3	13.11	0	n

Patch Number 10 **Spawning Gravel Size Class** small spawning gravel **Surface Area (m2)** 13.12

Patch Size Class 10-15

SubPatch Number	SubPatch Surface Area (m2)	Downstream Reference Point	Side Channel
0	13.12	5	n

APPENDIX D - 3

TFW Monitoring
Spawning Habitat Availability Patch Survey
Segment Summary Report

Spawning Habitat Patch Information

Patch Number 11 **Spawning Gravel Size Class** small spawning gravel **Surface Area (m2)** 19.76

Patch Size Class 15-20

SubPatch Number	SubPatch Surface Area (m2)	Downstream Reference Point	Side Channel
0	19.76	5	n

Patch Number 12 **Spawning Gravel Size Class** small spawning gravel **Surface Area (m2)** 12.60

Patch Size Class 10-15

SubPatch Number	SubPatch Surface Area (m2)	Downstream Reference Point	Side Channel
0	12.6	5	n

Patch Number 13 **Spawning Gravel Size Class** small spawning gravel **Surface Area (m2)** 9.15

Patch Size Class 5-10

SubPatch Number	SubPatch Surface Area (m2)	Downstream Reference Point	Side Channel
0	9.15	6	n

Patch Number 14 **Spawning Gravel Size Class** small spawning gravel **Surface Area (m2)** 40.89

Patch Size Class > 20

SubPatch Number	SubPatch Surface Area (m2)	Downstream Reference Point	Side Channel
0	40.89	6	n

Patch Number 2 **Spawning Gravel Size Class** small spawning gravel **Surface Area (m2)** 29.77

Patch Size Class > 20

SubPatch Number	SubPatch Surface Area (m2)	Downstream Reference Point	Side Channel
1	14.55	1	n
2	5.5	1	n
3	9.72	1	n

Patch Number 3 **Spawning Gravel Size Class** small spawning gravel **Surface Area (m2)** 152.11

Patch Size Class > 20

SubPatch Number	SubPatch Surface Area (m2)	Downstream Reference Point	Side Channel
1	127.41	2	y
2	12.4	2	n
3	12.3	2	n

APPENDIX D - 3

TFW Monitoring
Spawning Habitat Availability Patch Survey
Segment Summary Report

Spawning Habitat Patch Information

Patch Number 4 **Spawning Gravel Size Class** small spawning gravel **Surface Area (m2)** 7.40

Patch Size Class 5-10

SubPatch Number	SubPatch Surface Area (m2)	Downstream Reference Point	Side Channel
0	7.4	3	n

Patch Number 5 **Spawning Gravel Size Class** small spawning gravel **Surface Area (m2)** 25.83

Patch Size Class > 20

SubPatch Number	SubPatch Surface Area (m2)	Downstream Reference Point	Side Channel
0	25.83	3	n

Patch Number 6 **Spawning Gravel Size Class** small spawning gravel **Surface Area (m2)** 112.23

Patch Size Class > 20

SubPatch Number	SubPatch Surface Area (m2)	Downstream Reference Point	Side Channel
0	112.23	3	n

Patch Number 7 **Spawning Gravel Size Class** small spawning gravel **Surface Area (m2)** 23.45

Patch Size Class > 20

SubPatch Number	SubPatch Surface Area (m2)	Downstream Reference Point	Side Channel
0	23.45	4	n

Patch Number 8 **Spawning Gravel Size Class** small spawning gravel **Surface Area (m2)** 5.28

Patch Size Class 5-10

SubPatch Number	SubPatch Surface Area (m2)	Downstream Reference Point	Side Channel
0	5.28	4	n

Patch Number 9 **Spawning Gravel Size Class** small spawning gravel **Surface Area (m2)** 127.40

Patch Size Class > 20

SubPatch Number	SubPatch Surface Area (m2)	Downstream Reference Point	Side Channel
0	127.4	4	n

Appendix E

Standard Field and Vehicle Gear Checklist Copy Master

(Keep original copy master with manual)

Appendix E

✓ STANDARD FIELD GEAR

- ❑ Field clip board/form holder
- ❑ Survey Forms (on waterproof paper)
- ❑ Copy of survey methods
- ❑ Maps- topographic and road
- ❑ Pencils & erasers
- ❑ Permanent ink marker
- ❑ Calculator
- ❑ 150 mm ruler
- ❑ Pocket field notebook

- ❑ Survey Vest
- ❑ Compass
- ❑ Safety whistle
- ❑ Spring clips (2)
- ❑ Vinyl flagging
- ❑ Pocket knife/multi-purpose tool

- ❑ Backpack or canvas tote bag
- ❑ First aid kit
- ❑ Water bottle and/or filtration system
- ❑ Food/energy bars
- ❑ Rain gear
- ❑ Leather gloves
- ❑ Safety glasses
- ❑ Bug repellant
- ❑ Sun screen
- ❑ Small flashlight or headlamp
- ❑ Matches/fire starter
- ❑ Emergency blanket
- ❑ Snake bite kit (eastern Washington)

✓ STANDARD VEHICLE GEAR

- ❑ Waterproof plastic tote box
- ❑ Backup fiberglass tape
- ❑ Comprehensive first aid kit
- ❑ Rain tarp
- ❑ Rope (100 ft.)
- ❑ Extra water
- ❑ Extra food
- ❑ Extra dry clothes
- ❑ Extra batteries
- ❑ Spare tire/jack/tire iron
- ❑ Tire sealant/inflater
- ❑ Tow strap
- ❑ Come-along winch
- ❑ Fire shovel
- ❑ Fire extinguisher
- ❑ CB radio (to monitor logging activity)
- ❑ Cell phone/VHF radio
- ❑ Brush cutter
- ❑ Ax/bow saw/chain saw
- ❑ Tire chains

For remote work, extra survival & safety gear is recommended.

This gear list is provided as a guideline for outfitting field crews and is not intended to cover all situations. Local conditions may require additional or different gear.