APPENDIX R.

FORMS

WATERSHED OVERVIEW WORK SHEET

Date _____/_____/_____ **Investigator** _____
Stream Name _____ **PNMCD** _____
Tributary to _____ **Tributary to** _____
Tributary to _____ **Tributary to** _____
County _____ **USGS Quad** _____

Location T _____ R _____ S _____ **Latitude** _____ **Longitude** _____

Access Via _____

Hydrologic Boundary Delineation _____

Aerial Photos (Source) _____
_____

Stream Order _____ **Total Length** _____ miles

Drainage Area _____ sq. mi. **Summer Base Flow** _____ cfs

Elevations Mouth _____ feet Headwaters _____ feet

Lakes in Watershed Number _____ Surface Area _____ sq. mi.

Fish Species (Data Source) _____,
_____, _____,
_____, _____,

Endangered / **Threatened** / **Sensitive Species** (Data Source)
_____, _____,

Endemic Stocks (Data Source) _____

Fishery Management Concept
Cold Water: Natural Production _____
Mixed Production _____
Anadromous: Natural Production _____
Mixed Production _____
Warm Water: _____
Other: _____

Stream Flow Data (Source) _____
_____

Water Quality Data (Source) _____
_____

Ownerships in Stream Mi. Federal _____._____ State _____._____ Private _____._____
Additional Information _____

Major Land Uses in the Watershed: _____, _____, _____, _____, _____
Additional Information _____

Comments _____
_____

STREAM CHANNEL TYPE WORK SHEET

Form # ____ of ____

Channel Type _____ **Channel Change Location (Habitat Unit#)** _____
Cross-Section Location (Habitat Unit#) _____ **Date** _____/_____/_____
Stream _____
T____**R**____**S**_____ **Surveyors** _____
Quad _____ **Lat** ____ ____ ____ **Long** ____ ____ ____

Single Thread Channel _____ (Y/N) **Multiple Channel** _____ (Y/N)

Bankfull Width (W_{bkf}) = _____ (ft.)

Transect Recording Box

Dist.																				
Depth																				
Sub.																				

Sum of Depths _____

Dominant Substrate Determination:

	Substrate:	Number	
1.	Bedrock	= ____	
2.	Boulder (>10")	= ____	(Circle Most
3.	Cobble (2.5 - 10")	= ____	Frequent
4.	Gravel (0.08 - 2.5")	= ____	Occurrence)
5.	Sand (<0.08)	= ____	
6.	Silt / Clay	= ____	

Entrenchment Determination:

Step 1: Maximum Bankfull Depth _____ x 2 = _____ (W_{FP} Elev.)

Step 2: Determine Flood-Prone Width at WFP Elevation = _____ (W_{FP})

Step 3: Flood-Prone Width (W_{FP}) / Bankfull Width (W_{bkf}) = Entrenchment
W_{FP} _____ (ft.) / _____ (ft.) = _____ **(Entrenchment)**

Width/Depth Determination:

Step 1: Sum of Depths _____ / No. Depths _____ = Mean Bankfull Depth (d_{bkf}) ____

Step 2: Bankfull Width (W_{bkf}) / Mean Bankfull Depth (d_{bkf})=Width/Depth Ratio
W_{bkf} _____ (ft.) / d_{bkf} _____ (ft.) = _____ **(W/D Ratio)**

Sinuosity Determination (Only For A or G Types):

Stream Length _____ / Valley Length _____ = Sinuosity _____

Water surface slope Determination:

Downstream Level - Upstream Level / Distance (D) = Energy Gradient
DSL _____ (ft.) - USL _____ (ft.) / (D) _____ (ft.) = _____

HABITAT INVENTORY DATA FORM

Form # of

Date / / | Stream Name | T | R | S

Surveyors | Lat. | Lon.

Quad. | Channel Type | Reach | BFW | @HU#

Time | H_20 F° | Air F° | Flow | Pg Length | Totl. Length

Habitat Unit Number												
Habitat Unit Type												
Side Channel Type												
Mean Length												
Mean Width												
Mean Depth												
Maximum Depth												
Depth Pool Tail Crest												
Pool Tail Embeddedness												
Pool Tail Substrate												
LWD Count D>1&L6to20												
LWD Count D>1&L>20												
Shelter Rating Shelter Value												
% Unit Covered												
% undercut bank												
% swd (d<12")												
% lwd (d>12")												
% root mass												
% terr. vegetation												
% aqua. vegetation												
% bubble curtain												
% boulders (d>10")												
% bedrock ledges												
Substrate Composition 2 Most Dominant A) Silt/Clay												
B) Sand												
C) Gravel (0.08-2.5")												
D) Sm Cobble (2.5-5")												
E) Lg Cobble(5-10")												
F) Boulder (>10")												
G) Bedrock												
Percent Exposed Substrate												
PERCENT TOTAL CANOPY												
% Hardwood Trees												
% Coniferous Trees												
Bank Composition & Vegetation Rt Bk Composition												
Rt Bk Dominant Veg												
% Rt Bk Vegetated												
Lft Bk Composition												
Lft Bk Dominant Veg												
% Lft Bk Vegetated												
Bank Composition Types	**omments**: **S**tructures **C**hannel **D**iversions **T**ribs **E**rosion **B**iota **P**assage **A**ccess **G**PS **O**the											
1) Bedrock												
2) Boulder												
3) Cobble/Gravel												
4) Silt/Clay/Sand												
Vegetation Types												
5) Grass												
6) Brush												
7) Deciduous Trees												
8) Evergreen Trees												
9) No Vegetation												

Hab Unit#	Comments

Diagrams

STREAM BANK OR UNDERWATER OBSERVATION FIELD FORM

Form No. _____ of _____ **Date** ____/____/____

Stream Name _____ **T** _____ **R** _____ **S** _____

Drainage _____

Lat: _____ **Long:** _____ **Quad:** _____

Observer(s) _____

Time _____ **Air Temperature** _____ **Water Temperature** _____

Reach No. _____ **Habitat Unit No.** _____ **Habitat Type** _____

Reference Point _____

Distance from the confluence or other reference point _____

Length of stream sampled in feet _____

Observation Method: _____ **Stream Bank** _____ **Underwater**

Species	Size Class	Numbers	Species	Size Class	Numbers

Comments _____

_____

_____

_____

DAILY SALMON SPAWNING STOCK SURVEY FIELD FORM

Stream: _____ **T** _____ **R** _____ **S** _____
Lat: _____ **Long:** _____ **Quad:** _____
Drainage: _____ **County:** _____
Starting location: _____ **Lat:** _____ **Long:** _____
Ending location: _____ **Lat:** _____ **Long:** _____
Feet/miles surveyed: _____
Date of survey: _____/_____/_____ **Weather: Clear** _____ **Overcast** _____ **Rain** _____
Water clarity: 0-2 ft. _____ **2-4 ft.** _____ **>4 ft.** _____
Water temp: _____ **Air temp:** _____ **Time:** _____
Crew: _____

Number of live fish observed: **Chinook adults** _____ **Chinook grilse** _____ **Coho** _____
Steelhead _____ **Unknown** _____

Number carcasses examined:

Chinook		Coho	
Male (FL)	Female (FL)	Male (FL)	Female (FL)

Tag number of adipose clipped fish and snout recoveries:

Other fin clips observed: _____
_____

Number of skeletons observed:
Chinook _____ Coho _____ Steelhead _____ Unknown _____

Number of redds observed: _____

Comments:

ELECTROFISHING FIELD FORM Form # _____ of _____

Date __/__/__ Stream Name _____ Site # ___ Drainage _____ T ___ R __ S __

PNMCD _____ Lat _____ Long _____ Quad _____
Distance from Confluence _____

Reach # _____ Channel Type _____ Reference Point _____
Distance from RP _____ Up _____ Down _____

Personnel: E-Fish _____ Netting _____
Measurements _____ Recorder _____

Habitat Unit #..... |_____|_____|_____|_____| Start Stop Conductivity (µS/cm)

Habitat Unit Type ..... |_____|_____|_____|_____| Time |_____|_____|

Mean Length..... |_____|_____|_____|_____| H2O° |_____|_____| Flow (cfs)

Mean Width ..... |_____|_____|_____|_____| Air° |_____|_____|

Mean Depth..... |_____|_____|_____|_____|

Pass# _____ Effort(s) _____ + _____ = **Total Effort(E1)** _____ (seconds) Freq. _____ (Hz)
Output Voltage _____

Species	**Fork Length (mm)**															

Summary: Species _____ Catch _____ Wt. _____ Mortalities _____;
Species _____ Catch _____ Wt. _____ Mortalities _____;
Species _____ Catch _____ Wt. _____ Mortalities _____;
Species _____ Catch _____ Wt. _____ Mortalities _____;

Comments:

ELECTROFISHING FIELD FORM
SUPPLEMENTAL PAGE Form # _____ of _____

Date __/__/__ Stream Name _____ Site # ___ Drainage _____ Pass # _____

Start Time _____ **End** Time _____ **Start** Water Temp _____ **End** Water Temp _____
Start Air Temp _____ **End** Air Temp _____
Effort(s) _____ + _____ = **Total Effort (E_2)** _____ (seconds) Freq. ____ (Hz) Output Voltage ____

Species	**Fork Length (mm)**															

Summary: Species _____ Catch _____ Wt. _____ Mortalities _____;
Species _____ Catch _____ Wt. _____ Mortalities _____;
Species _____ Catch _____ Wt. _____ Mortalities _____;
Species _____ Catch _____ Wt. _____ Mortalities _____;

Comments:

(1 - [(N_2 * E_1) / (N_1 * E_2)]) * 100 = Pass Depletion
(1 - [(____ * ____) / (____ * ____)]) * 100 = _____ Pass #2 Depletion

Site # _____ Pass # _____

Start Time _____ **End** Time _____ **Start** Water Temp _____ **End** Water Temp _____
Start Air Temp _____ **End** Air Temp _____
Effort(s) _____ + _____ = **Total Effort (E_2)** _____ (seconds) Freq. ____ (Hz) Output Voltage ____

Species	**Fork Length (mm)**															

Summary: Species _____ Catch _____ Wt. _____ Mortalities _____;
Species _____ Catch _____ Wt. _____ Mortalities _____;
Species _____ Catch _____ Wt. _____ Mortalities _____;
Species _____ Catch _____ Wt. _____ Mortalities _____;

Comments:

(1 - [(N_3 * E_2) / (N_2 * E_3)]) * 100 = Pass Depletion
(1 - [(____ * ____) / (____ * ____)]) * 100 = _____ Pass #3 Depletion

L W D I N V E N T O R Y F O R M

Stream: _____ **Sample** _____ of _____ **Reach No.** _____

Date _____/_____/_____ **Drainage:** _____ **USGS Quad:** _____

Reference Point: _____ **Sample Length (Ft)** ___

Reach Location (Feet From Ref.Pt) Start _____ Stop _____ Total _____

Lat ___ ___ ___ N **Long** ___ ___ ___ W (Reach start or Ref.Pt.) **T** _____ **R** _____ **S** _____

Surveyors: _____

CHANNEL CHARACTERISTICS (Attach Channel Typing Form)

Discharge Q _____ cfs Gradient _____ % Channel Type: _____

Percent Substrate in Boulders: (1'- 3') _____%; (>3') _____%

Air Temp _____ Water Temp _____

	Right Bank % Slope _____ Dom. Veg. _____					**Stream** Dom. Veg. _____				**Left Bank** % Slope _____ Dom. Veg. _____				
	D/D	D/S	Per	Live C	Live D	Dead/ Down	D/S	Live C	Live D	D/D	D/S	Per	Live C	Live D
1-2d 6-20														
Root														
1-2d >20'														
2-3d 6-20														
Root														
2-3d >20'														
3-4d 6-20														
Root														
3-4d >20'														
>4d 6-20														
Root														
>4d >20'														

Note any LDAs (log jams), estimate size LxWxH and no. pieces. Note if gravel is retained upstream. Tally live conifer "C" and deciduous "D" trees separately. Tally root wads by diameter of "trunk". Include root wads <6' total length.

Comments:

ESTIMATE CALIBRATION FORM

Stream Name _____ **Date** _____

Surveyors _____

Reach No. _____

	Right Bank		**Stream**				**Left Bank**	
Sample	EST DIA.	TRUE DIA.	EST DIA.	TRUE DIA.	EST LENG.	TRUE LENG.	EST DIA.	TRUE DIA.
%								
Dis								

Reach No. _____

	Right Bank		**Stream**				**Left Bank**	
Sample	EST DIA.	TRUE DIA.	EST DIA.	TRUE DIA.	EST LENG.	TRUE LENG.	EST DIA.	TRUE DIA.
%								
Dis								

Calibration Form Key

Stream Name: Enter name of stream
Date: Enter date of survey (mm/dd/yy)
Surveyors: Enter name of persons conducting the survey
Reach No.: The number that corresponds with the Reach No. on the LWD Survey Form.
Sample: The number corresponding with the Sample No. on the LWD Survey Form.
EST DIA.: Enter the estimated diameter.
TRUE DIA.: Enter the measured diameter.
EST LENG.: Enter the estimated length.
TRUE LENG.: Enter the measured length.
% Enter the average percent difference between estimate and true.
Dist.: Enter the 50-foot distance estimate and measurement.

PROJECT SITE COMPLETION FORM

Stream: _____ **Date:** _____ **Page** _____ **of** _____
Contractor/Organization: _____
Inspector: _____ **Contract No.:** _____ **FY:** ___/___
Landowner: _____
Estimated Cost: _____
Length of Project/Numbers of Structures: _____
Reference Point: _____ **Lat:** _____ **Long:** _____
Feet From Reference Point: _____ ❑ UP / ❑ DN **Channel Type:** _____
Constructed Using: ❑ Hand Crew ❑ Heavy Equipment ❑ Both
Project Objective: ❑ Instream Habitat ❑ Erosion Control ❑ Fish Passage
Type of structure: _____

Project Completion Check Points:	**YES**	**NO**	
1. Project techniques according to manual	❑	❑	If no, explain: _____
2. Materials of recommended type and size	❑	❑	If no, explain: _____
3. Structure positioned correctly to meet objectives	❑	❑	If no, explain: _____
4. Followed permit(s) specifications	❑	❑	If no, explain: _____
5. Landowner(s) agreed with work and materials used	❑	❑	If no, explain: _____

Original Habitat Type: _____ **Target Habitat Type:** _____

Habitat Maximum Depth: _____ **ft.** **Bankfull Stream Width:** _____ **ft.**

Comments: _____

If Revegetation: ❑ Riparian ❑ Upslope ❑ Both (photo required for revegetation.)

Describe Density or Coverage: _____

Photographs: ❑ Yes ❑ No If yes, location of photographs: _____

STREAM HABITAT ENHANCEMENT PROJECT EVALUATION

GENERAL PROJECT INFORMATION FORM

STREAM: _____ WATERSHED: _____

EVALUATOR: _____ DATE: _____

CONTRACT NO.: _____ FY: _____/_____ FUND SOURCE: _____

DFG CONTACT: _____ CONTRACTOR: _____

DOES THIS CONTRACT INCLUDE OTHER STREAMS OR LOCATIONS: Y ___ N ___

AMOUNT SPENT ON EVALUATED PORTION OF CONTRACT: $_____
(May include total contract amount or a portion of contract)

PROPERTY OWNER: _____

ACCESS DIRECTIONS: _____

_____

CHANNEL TYPE(S): _____ STREAM ORDER: _____ DRAINAGE AREA (SQ MI): _____

USGS QUAD (7.5 MIN): _____

PROJECT LOCATION AT DOWNSTREAM END: LAT. _____ LONG. _____

DATE PROJECT COMPLETED: MONTH _____ YEAR _____

DATE OF LAST EVALUATION: MONTH _____ YEAR _____

PRE-PROJECT EVALUATION OR DATA AVAILABLE: Y ___ N ___ IF YES WHERE? _____

_____

ARE AS-BUILT DATA OR PROPOSED DESIGNS AVAILABLE: Y ___ N ___ IF YES WHERE? _____

_____

NO. OF STRUCTURES CONSTRUCTED: _____ NO. OF STRUCTURES EVALUATED: _____

COMMENTS: _____

_____

NUMBER OF EVALUATION PAGES ASSOCIATED WITH THIS FORM: _____

GENERAL PROJECT EVALUATION OR COMMENTS: _____

_____

_____

_____

STREAM HABITAT ENHANCEMENT PROJECT EVALUATION
INDIVIDUAL STRUCTURE OR SITE FORM

STREAM: _____ DRAINAGE: _____ PAGE_____ of _____

DATE: _____/_____/_____ STREAM PNAME: _____ PNAME CODE: _____

EVALUATOR(s): _____ CONTRACT NO.: _____ FY: _____/_____

REFERENCE POINT: _____ LAT: _____._____ LONG: _____._____
(DECIMAL DEGREES) (DECIMAL DEGREES)

FEET FROM REFERENCE POINT: _____ ❑ UP ❑ DN CHANNEL TYPE: _____

RESTORATION OBJECTIVE: ❑ 1 ❑ 2 ❑ 3 TYPE OF STRUCTURE: _____

HOW WELL IS STRUCTURE MEETING HABITAT OBJECTIVE? (circle number)

1 (EXCELLENT) _____ **2 (GOOD)** _____ **3 (FAIR)** _____ **4 (POOR)** _____ **5 (NO VALUE)** _____

COMMENTS: _____

_____

CONDITION OF STRUCTURE - consider structural integrity only (circle number):

1 (EXCELLENT) _____ **2 (GOOD)** _____ **3 (FAIR)** _____ **4 (POOR)** _____ **5 (NO VALUE)** _____

COMMENTS: _____

_____

STRUCTURE PROBLEMS (check appropriate items):

1. ❑ ANCHOR FAILURE,
2. ❑ CABLE FAILURE,
3. ❑ CHANNEL SHIFT,
4. ❑ BOULDER/LOG SHIFT,
5. ❑ UNDERMINED,
6. ❑ BURIED BY BEDLOAD,
7. ❑ UNDERBUILT,
8. ❑ LOGS/BOULDERS STRANDED OUT OF CHANNEL,
9. ❑ BANK EROSION AT SITE AND/OR DOWNSTREAM,
10. ❑ CREATED SEDIMENT TRAP,
11. ❑ POOR DESIGN,
12. ❑ POOR PLACEMENT,
13. ❑ EX-FENCE FAILURE,
14. ❑ OTHER.

COMMENTS: _____

_____

Repair recommended: ❑ Yes ❑ No Enhancement to improve cover or effectiveness recommended: ❑ Yes ❑ No

HABITAT TYPE (associated with structure) _____ BANKFULL STREAM WIDTH _____ FT.

MAXIMUM POOL DEPTH _____ FT. DEPTH OF POOL TAIL CREST _____ FT.

SHELTER COMPLEXITY: ❑ 0 ❑ 1 ❑ 2 ❑ 3 × SHELTER % COVER: _____ = SHELTER RATING: _____

OBSERVED SALMONIDS NO.: 0+ _____, 1+ _____, 2+ _____, ADULTS _____, REDDS _____

COMMENTS: _____

_____

REVEGETATION: RIPARIAN ___ UPSLOPE ___ BOTH _____ (Photo required for reveg.) DESCRIBE DENSITY: _____

PHOTO NO. PRINT: ROLL _____ FRAME _____ SLIDE: ROLL _____ FRAME _____

COMMENTS: _____