



**DEPARTMENT OF
NATURAL RESOURCES**

Forest Practices Division
1111 Washington Street SE
Olympia, WA 98504

360-902-1400
WWW.DNR.WA.GOV

February 28, 2017

TO: Interested Parties

FROM: Joe Shramek, Forest Practices Division Manager

SUBJECT: **2017 Protocol Stream Survey Process and Water Level and Streamflow Forecast**

Purpose

“Protocol stream surveys” may be used to determine fish use and define the on-ground regulatory division point between fish and non-fish waters. Alternatively, the physical criteria of the stream in question govern water typing. Both methods are discussed in [WAC 222-16-031\(3\)\(b\)](#). The purpose of this memo is to describe the Department of Natural Resources’ (DNR’s) expectations regarding submittal of proposed water type changes based upon stream surveys, reiterate expectations about the role of water type review teams, and provide a forecast of 2017 water abundance.

Background

DNR’s Forest Practices Division maintains and otherwise manages the hydrography-water layer (hydro layer) that is used by forest practices stakeholders for “typing” of waters associated with proposed forest practices applications. People may propose changes to waters typed in the hydro layer using water type modification forms (WTMFs) based on water type definitions found in rule ([WAC 222-16-031](#)) and with consideration of guidance provided in Forest Practices Board (FPB) [Manual Section 13](#). DNR reviews proposed changes in consultation with affected tribes and the Washington State Departments of Ecology (Ecology) and Fish and Wildlife (WDFW).

Due to on-going work by the Forest Practices Board (FPB) and its Adaptive Management Program, DNR believes that new water typing rules and guidance will be adopted in the next year or two. **In the meantime, this memo seeks to re-confirm the existing ways for conducting protocol stream surveys and determining the regulatory break between fish and non-fish waters.**

The protocol must follow existing rule and consider Manual technical guidance until an alternative or alternatives are approved by the FPB. A portion of the 2002 DNR memo entitled “*Type 3 Water Breaks*” remains applicable going forward for those wanting to type waters based upon fish presence, and bears reiterating:

Under the interim water typing system, [regulatory break points between the Type F and Type N water segments¹] are to be based upon fish presence, not fish habitat. After an acceptable fish use survey has been completed, the [regulatory break point between the Type F and Type N water segments] should be set at a point upstream of the last fish detection where presence of the last fish detected can be logically and directly assumed. This recognizes that the upper extent of [Type F] water is not necessarily “where the nose of the last fish detected breaks the surface” and requires the reasonable exercise of professional judgement. In other words, if it is reasonable to assume that the last fish detected was likely using an upward portion of the stream, then the [regulatory break point between the Type F and Type N water segments] should be set at the point which represents the upward extent of the fish use area. This is not the same as the upward extent of fish habitat.

This memorandum builds on the helpful guidance from the 2002 “*Type 3 Water Breaks*” memorandum expressed above, but otherwise supersedes it.

Expectations for Submitting Complete WTMFs

Proponents of water type changes need to provide complete information on WTMFs² so that DNR and other water type reviewers have adequate information to fully understand and consider the request. This was a consistent concern voiced during the Adaptive Management Program’s review of the current water typing process. Proponents will describe on a WTMF the specific field observations (that is, bankfull width, wetted widths, gradient, protocol pools, stream morphology and other applicable criteria) which contributed to their proposed location of each regulatory break point between Type F and Type N segments.

DNR expects water type modification proponents to provide specific information on the WTMF regarding each particular stream demonstrating how stream flows and fish use determinations were unaffected by low-water conditions, if present. DNR strongly encourages proponents to include photographs illustrating site conditions for other WTMF reviewers. Appendix A provides an example of a complete WTMF.

The DNR Region office will return incomplete WTMFs along with specific requests for missing or additional information required from the proponent in order for the WTMF to be deemed complete and ready for evaluation.

¹ The 2002 memo from which this paragraph is cited used the term “Type 3 water break” here; for clarity, the term “regulatory break point between the Type F and Type N segments” has been substituted, consistent with the Forest Practices Board’s 2006 amendment of WAC 222-16-031 regarding water typing nomenclature.

² Pertinent information must be provided *on the water type modification form itself*; including important information only on attached field survey forms is insufficient.

The Role of Water Type Review Teams

In 2010, DNR and stakeholders developed a process expected to result in an effective and efficient way to conduct the WTMF review, comment period, and decision-making process. Detail about that process can be found here:

http://file.dnr.wa.gov/publications/fp_watertyping_reviewteam_guidance.pdf

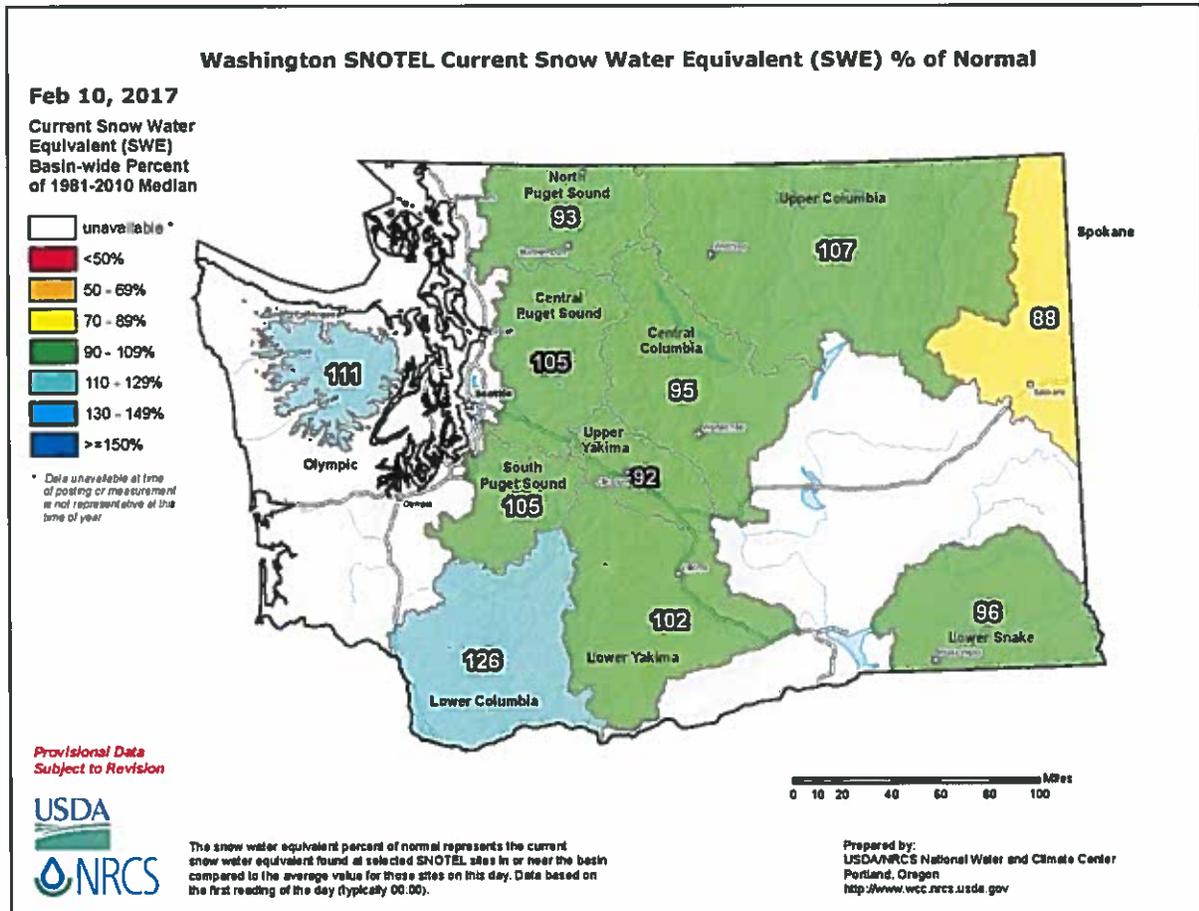
Using this process, reviewers (DNR, tribes, Ecology and WDFW) in each DNR Region formed water type review teams (WTR) to achieve increased collaboration, communication, and transparency of decisions. Recognizing the high degree of variability across the State, each WTR team has flexibility to develop methods for prioritizing WTMFs and for deciding on a frequency of meetings to review/discuss WTMFs that best fits its needs. DNR is committed to providing leadership aimed at reinvigorating use of this process in order to accomplish the desired benefits.

2017 Forecast for Statewide Water Abundance

The DNR, in consultation with WDFW, provides the following forecast for statewide water abundance for the 2017 protocol stream survey season. This information focuses appropriate attention on potential drought conditions when scheduling and conducting protocol stream surveys.³ Many factors influence the extent and distribution of fish species in a watershed. Drought conditions can alter how fish species occupy or access streams.

The Natural Resource Conservation Service (NRCS) estimated statewide Washington State snow pack (“snow water equivalents”) as of February 10, 2017 at 109 percent of normal (*Water Supply Outlook Report*), ranging from 88-126 percent (see map below). Current snow pack and rainfall has saturated soils, but as we move into the later part of the protocol stream survey season (for example, June through July 15) flows will be entirely dependent upon future temperatures and rainfall amounts and could therefore be minimal. Under Washington state law, drought conditions can exist at 75 percent or less of the basin’s normal water supply (RCW 43.83B.400).

³ Forest Practices Board Manual Section 13, Part 2 “Guidelines for determining Fish Use for the Purpose of Typing Waters” (see WAC 222-16-031 *Interim Water Typing System*)

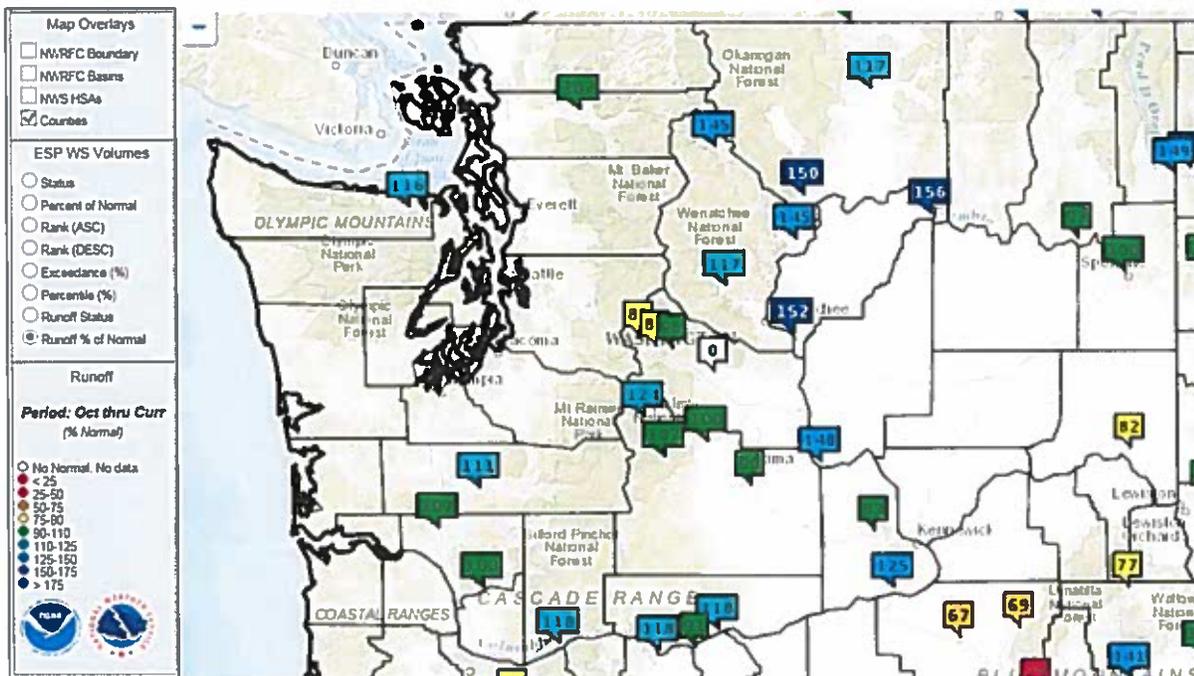


http://www.wcc.nrcs.usda.gov/ftpref/data/water/wcs/gis/maps/wa_swepctnormal_update.pdf

Water and fish managers review several forecasting products when considering a drought declaration under state law and rule.⁴ In addition to the aforementioned NRCS information, Washington references the National Oceanic and Atmospheric Administration's (NOAA) Northwest River Forecast Center (NWRFC) forecast for water supply in Washington.

The following map depicts the NWRFC February 10, 2017 water supply forecast, and predicts water supplies to fall between 77% - 156% of normal for many western- and central-Washington streams.

⁴ [RCW 43.838.400](#) to [-.900](#); [WAC 173-166](#).



Map courtesy of <http://www.nwrfc.noaa.gov/ws/>

Although the current snow pack levels and rain-dominated areas are at normal or above normal, the most-recent 3-month outlook predicts normal temperatures and below normal precipitation, which may impact protocol surveys planned for May 15 - July 15, 2017. If the prediction holds true, low flow or drought conditions could exist in streams and may require the use of physical characteristics to type streams (WAC 222-16-031(3)(b)(i)) because of an absence of adequate water in which to carry out protocol stream surveys. Surveyors are therefore urged to review specific current stream flow conditions (using the links provided below) prior to conducting surveys of streams located within low-flow geographic areas. Landowners should consult their DNR forest practices forester, WDFW habitat biologist, and/or tribal biologist prior to conducting protocol stream surveys during low-flow conditions.

Landowners and interested parties can find details regarding drought effects in specific basins by reviewing the following water supply forecast and stream flow resources:

The Natural Resource Conservation Service *Current Water Supply Outlook Report* is available at: <http://www.nrcs.usda.gov/wps/portal/nrcs/detail/wa/snow/waterproducts/>

For drought status under the Washington State definition, as well as information about the state drought declaration process, review Ecology's 2016 drought web site at: <http://www.ecy.wa.gov/drought/index.html>

Ecology also provides links to a variety of water supply data and forecasting web sites at: <http://www.ecy.wa.gov/programs/wr/ws/wtrsupply.html>

For details regarding whether or not drought may affect a specific basin, please review the Northwest River Forecast Center (NWRFC) “Ensemble Streamflow Prediction (ESP) Water Supply Forecast as Percent of Average,” available at <http://www.nwrfc.noaa.gov/ws/>.

Flows at specific Washington locations can be reviewed at: <http://waterdata.usgs.gov/wa/nwis/rt> and http://www.ecy.wa.gov/programs/eap/flow/shu_main.html. Please review stream flow conditions prior to conducting surveys in low-flow-affected areas.

If applicable, proponents should also provide information demonstrating how fish use determinations were unaffected by mass wasting or stream scouring events where a water type change is being proposed.

If you have questions about conducting fish surveys or water typing, please contact Forest Practices staff at one of the six DNR region offices (see [map](#)):

- Northeast: (509) 684-7474
- Northwest: (360) 856-3500
- Olympic: (360) 374-2800
- Pacific Cascade: (360) 577-2025
- Southeast: (509) 925-8510
- South Puget Sound: (360) 825-1631

Attachment (14p.)

cc: Stephen Bernath, DNR Deputy Supervisor for Forest Practices
DNR Region Managers
DNR Wildfire and Forest Practices Assistant Region Managers
Donelle Mahan, DNR Forest Practices Assistant Division Manager for Operations
Marc Engel, DNR Forest Practices Assistant Division Manager for Policy and Landowner Services

Appendix A

Electrofishing Survey Notes: Segments A-123-1, A-123-2, A-123-3, A-123-4

DATE: May 13, 2016

On May 13, 2016, a protocol survey was conducted on an unnamed tributary to Water Creek. This is located in the north half of section 10, Township 16 North, Range 04 West.

Fish were observed up to 700 (7+00) feet from the tributary junction with Water Creek. At this point the protocol survey was started. The tributary's substrate consisted of basalt cobble, boulders and gravel with some gravel and fines present. On segment A-123-1, 7 protocol pools were surveyed. The regulatory type break is proposed 560 above last fish (12+60) at the bottom of a boulder cascade that is 30% or greater for one hundred and fifty feet. We considered this long stretch of steep gradient a natural barrier to fish passage, and proposed the regulatory break point. At the top of the cascade, the stream gradient was 12%.

At the beginning of A-123-2, above the natural barrier, the bank-full width was approximately 5 feet wide, with a wetted channel width averaging about 2.1 feet. Upstream of this, the gradient gradually dropped to 5% and the bankfull width was between 2 and 3 feet wide. The stream became more incised and more fines (mud) were present. No additional barriers were encountered upstream from the proposed regulatory point break. We ended the survey approximately 590 feet (18+50) upstream from our start point, where the channel width decreased to 2 feet and less. Substrate was mud. Skunk cabbage was prevalent throughout.

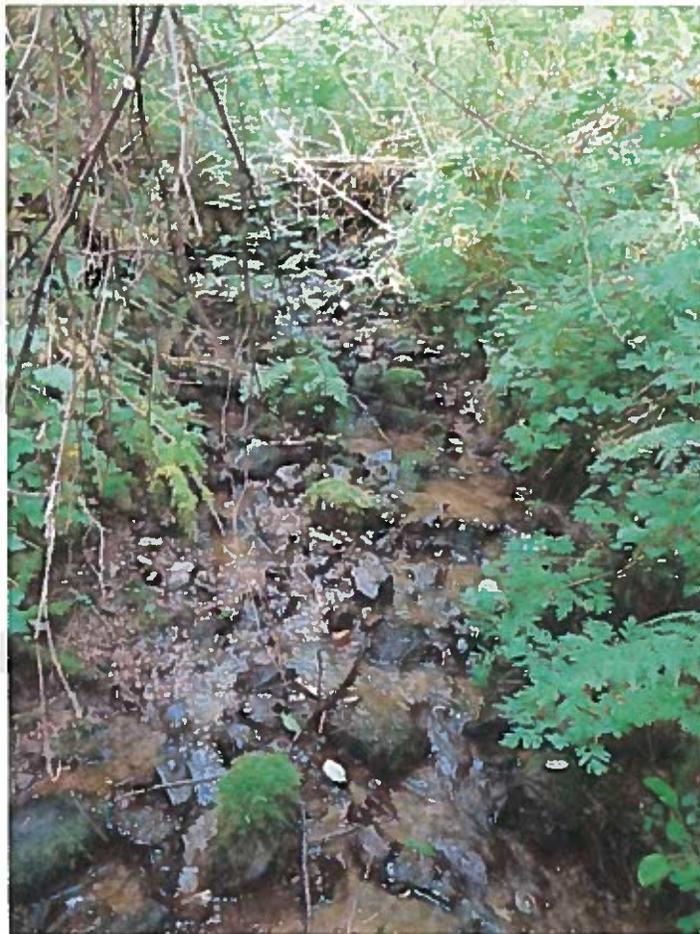
Segment A-123-3 joins segment A-123-1 at 11+25. The tributary's substrate consisted of basalt cobble, boulders and gravel with some gravel and fines present. At the junction, it is 4 feet wide with a gradient of 6%. There were only 2 protocol pools present. The stream became deeply incised and more fines (mud) were present. At 1+75, we placed the proposed regulatory break point.

Segment A-123-4 increased in gradient to an average of 15.3% with a short stretch of 21%. Channel maintained deeply incised morphology with mainly gravel substrate. No protocol pools were present. Survey ended at the upper most point of perennial flow.

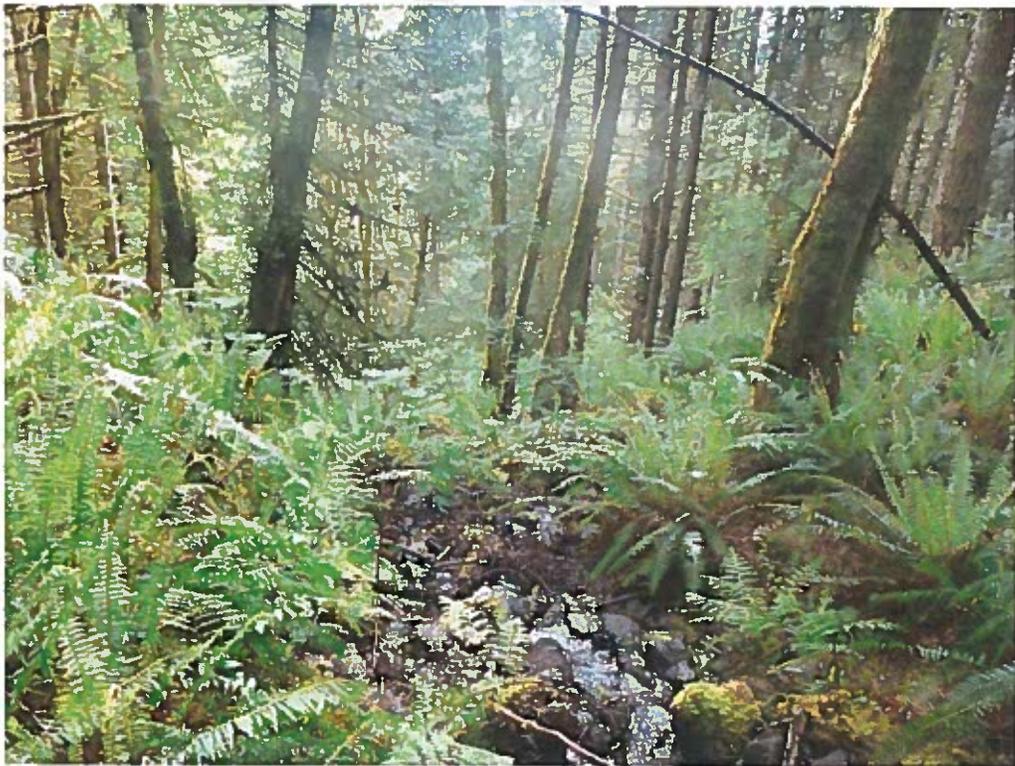
General Notes: We surveyed every available pool (25) and found no fish. We did encounter two crayfish. Pool habitat was marginal at best. Sampled areas were typically 5 feet by 3 feet in size, with an average depth of about 4.5 inches.

Below are photos of the survey.

Appendix A



Appendix A



Appendix A

Figure 1: Photo taken at gradient break, looking downstream at several hundred feet of gradient over 30% A-123-2.



Figure 2: Stream channel at survey start. Pool habitat was marginal along the entire reach.



Figure 3: View of stream channel and overall topography of surveyed reach.

Appendix A

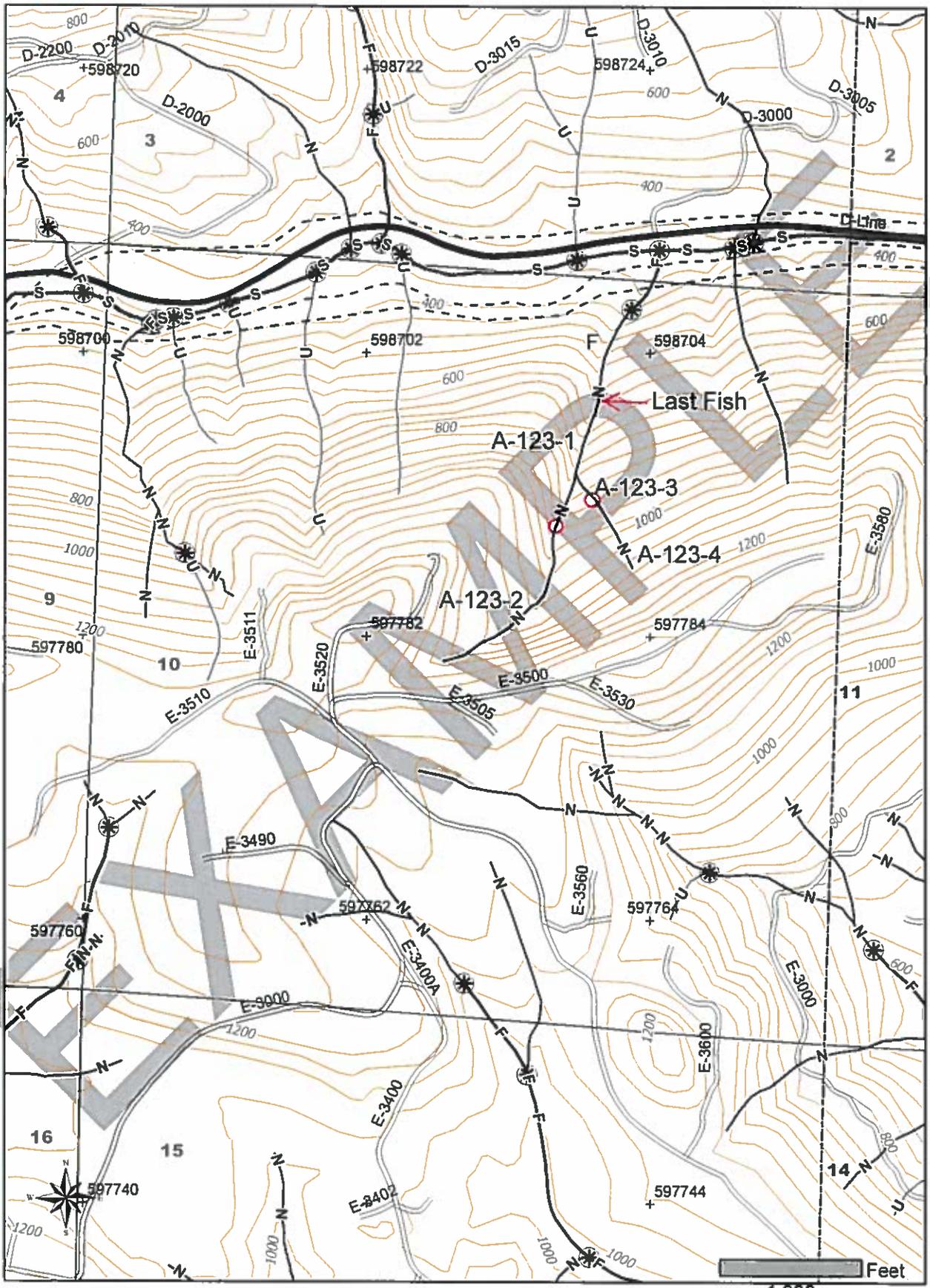


Figure 4: Stream channel near the end of the survey A-123-2.

FOREST PRACTICE ACTIVITY MAP

TOWNSHIP 16 NORTH HALF 0, RANGE 04 WEST (W.M.) HALF 0, SECTION 10

Application #: _____



Please use the legend from the FPA Instruction or provide a list of symbols used.

○ Proposed Type Break

Date: 2/13/2017 Time: 2:18:30 PM
NAD 83
Contour Interval: 40 Feet

K6



WASHINGTON STATE DEPT OF
NATURAL RESOURCES

Region Reference Number- DNR Use Only			
Region	WRIA	Year	Number
Received Date			

WATER TYPE MODIFICATION FORM
(For changes to the Water Type Map)

Proponent Name and Organization Jane E Landowner	Proponent/Organization Address 123 A Street Township, WA 98123	Telephone Number ()
		Email Address
Surveyor Name(s) and Organization Sammy Surveyor	Surveyor/Organization Address 867 5th Ave Capitol, WA 98309	Telephone Number ()
<input type="checkbox"/> Same as Proponent		Email Address
Landowner Name same as proponent	Landowner Address	Telephone Number ()
<input type="checkbox"/> Same as Proponent		Email Address

Landowner Notified: Yes No

Check Applicable Boxes:

- Adding Typed Waters Changing Water Type
 Removing Typed Waters Other; Describe: _____
 Changing Location of Typed Waters

(1) Water Segment ID A-123-1 A-123-3	(2) Name of Water unnamed	(3) Tributary To Water Creek	(4) Legal Description (Section, Township, Range E/W) S10, T16N, R04W
(5) County Thurston	(6) Water-Type Shown on Map N	(7) Proposed Water Type F	(8) Date(s) of Field Assessment 5/13/2016
(9a) Forest Practices Application <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Number:		(9b) Enforcement Document Number <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No Number:	

(10) Change is based on the following (check all that apply):

Water type does not meet WAC 222-16-031 definition. Describe: _____

Survey Method:

- Electrofishing Protocol Survey (attach survey information)
 ID Team (attach Informal Conference Note)
 Visual Observation
 Incremental Measurements
 Physical Characteristics
 Fish Found Yes No
 Channel is a Public Water Diversion
 Channel is a Fish Hatchery Diversion

List Species (if known): cutthroat trout
 Distance from Diversion: _____
 Water Right Reference Number: _____
 Hatchery Name: _____
 Distance from Hatchery: _____

(11) Water Levels in the Survey Area were: Above Normal Normal Below Normal

Was there a drought warning issued by DNR? Yes No

If yes, describe how stream flows and fish use determinations were unaffected by drought conditions (attach pictures and other relevant information). Drought warning issued 4/28/2016. Based on observation and comparing stream flow data in main stem to historic data, water flow in this rain dominated system was adequate for protocol survey.

(12) Channel Characteristics (Use Stream Tally sheet for multiple stream segments)

Number of Bankfull Width Measurements _____ Narrowest Bankfull Width Measurement _____
Widest Bankfull Width Measurement _____ Average Bankfull Width _____
Lowest Gradient _____ Steepest Gradient _____
Average Gradient _____ Average Wetted Width _____
Ponds and Impoundments > 0.5 acre Yes No Number of Protocol Pools _____

(13) Water Type Break was determined by (check all that apply; use Stream Tally sheet for multiple stream segments):

- Electrofishing Protocol Survey (attach survey information)
- End of Harvest or Property Boundary
- Uppermost Point of Perennial Flow (describe in Block 16)
- Last Fish Observed
- Upper Extent of Fish Habitat
- Physical Characteristics
- Other: _____

Provide a description of water type break, how it was marked in the field, and if available, latitude and longitude of type break location: The water type break was placed at the bottom of a 150' boulder cascade 560' above last fish detected.

Do Type F physical characteristics occur above surveyed segment? Yes No

(14) Are there any fish passage barriers downstream of the surveyed stream segment(s)?

- No. Continue to Block 15. Unable to Access Yes
- Natural Barrier
 - Type: Falls Cascades Bedrock Chutes Other: _____
 - Length: _____ Height: _____ Gradient: _____
- Temporary Barrier Describe: _____
- Man-made Barrier Describe: _____
- Fish Observed Above the Barrier? Yes No
- Fish Passage Barriers were Identified by: Maps; specify: _____ Field Observations
- Describe Location of Barrier(s) Downstream: _____

(15) Is there evidence of recent mass wasting (filling in the stream channel) or scouring events?

No Yes; estimate when the event occurred: 2015/2016

Describe how this affected current stream channel conditions and fish distribution in the stream:

Side slope seep had minor mass wasting, which can be observed in fines in the stream segment below for ~70 feet. Area appears to be stable and water was clear at time of survey.

(16) Provide any additional clarifying information and list attachments (survey cards, photos of type break, field notes, expert report, stationing, etc).

Block 11: Historic stream flow data was obtained from the USGS Current Water Data
<https://waterdata.usgs.gov/wa/nwis/rt>

See attached tally sheet and survey report for protocol survey details.



Region Reference Number- DNR Use Only			
Region	WRIA	Year	Number
Comment Due Date			

DNR Office Summary
(For Office Use Only)

Name of Reviewers	Concur	Non-Concur	Date Comment Received			
			Email	Phone	IDT Review	No Reply
DNR:						
WDFW:						
ECY:						
Tribe:						
Tribe:						
Tribe:						
USFWS: Marty Acker						

DNR Concur

DNR Non-Concur

Withdrawn

Justification:

Reviewer's Name: _____ Position: _____ Date: _____

Proponent and Reviewers notified of decision by _____ on _____
(Name) (Date)

Segment Tally Sheet

SEGMENT	Number of bankfull width measurements	Narrowest bankfull width measurement	Widest bankfull width measurement	Average bankfull width	Lowest gradient	Steepest gradient	Average gradient	Average Wetted width	Ponds and impoundments > .5 acre	Number of protocol pools	Describe water break (Block 13)	Describe fish passage barriers (Block 14)
	12	3.5	9	6.4	5	17	12	2.9	NO	7	Cobble cascade with slope of 30%	
3	3	2.5	4	3.2	6%	14%	8.4%	2:1	NO	2	Physical Characteristics, change from 8% average to 15% and became deeply incised	

(11) Water Levels in the Survey Area were: Above Normal Normal Below Normal

Was there a drought warning issued by DNR? Yes No

If yes, describe how stream flows and fish use determinations were unaffected by drought conditions (attach pictures and other relevant information). Drought warning issued 4/28/2016. Based on observation and comparing stream flow data in main stem to historic data, water flow in this rain dominated system was adequate for protocol survey.

(12) Channel Characteristics (Use Stream Tally sheet for multiple stream segments)

Number of Bankfull Width Measurements _____ Narrowest Bankfull Width Measurement _____
Widest Bankfull Width Measurement _____ Average Bankfull Width _____
Lowest Gradient _____ Steepest Gradient _____
Average Gradient _____ Average Wetted Width _____
Ponds and Impoundments > 0.5 acre Yes No Number of Protocol Pools _____

(13) Water Type Break was determined by (check all that apply; use Stream Tally sheet for multiple stream segments):

- Electrofishing Protocol Survey (attach survey information)
- End of Harvest or Property Boundary
- Uppermost Point of Perennial Flow (describe in Block 16)
- Last Fish Observed
- Upper Extent of Fish Habitat
- Physical Characteristics
- Other: _____

Provide a description of water type break, how it was marked in the field, and if available, latitude and longitude of type break location: Segment is beyond the proposed regulatory break for segment A-123-1. Protocol Survey report attached.

Do Type F physical characteristics occur above surveyed segment? Yes No

(14) Are there any fish passage barriers downstream of the surveyed stream segment(s)?

- No. Continue to Block 15. Unable to Access Yes
- Natural Barrier
 - Type: Falls Cascades Bedrock Chutes Other: _____
 - Length: _____ Height: _____ Gradient: _____
- Temporary Barrier Describe: _____
- Man-made Barrier Describe: _____
- Fish Observed Above the Barrier? Yes No
- Fish Passage Barriers were Identified by: Maps; specify: _____ Field Observations
- Describe Location of Barrier(s) Downstream: _____

The bottom of the barrier lies at proposed regulatory break (see map)

(15) Is there evidence of recent mass wasting (filling in the stream channel) or scouring events?

- No Yes; estimate when the event occurred: _____
- Describe how this affected current stream channel conditions and fish distribution in the stream: _____

(16) Provide any additional clarifying information and list attachments (survey cards, photos of type break, field notes, expert report, stationing, etc).

Block 11: Historic stream flow data was obtained from the USGS Current Water Data
<https://waterdata.usgs.gov/wa/nwis/rt>

See tally sheet and attached survey report for protocol survey details.



Region Reference Number- DNR Use Only			
Region	WRIA	Year	Number
Comment Due Date			

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(For Office Use Only)

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ECY:						
Tribe:						
Tribe:						
Tribe:						
USFWS: Marty Acker						

DNR Concur

DNR Non-Concur

Withdrawn

Justification:

Reviewer's Name: _____ Position: _____ Date: _____

Proponent and Reviewers notified of decision by _____ on _____
(Name) (Date)

Segment Tally Sheet

SEGMENT	Number of bankfull width measurements	Narrowest bankfull width measurement	Widest bankfull width measurement	Average bankfull width	Lowest gradient	Steepest gradient	Average gradient	Average Wetted width	Ponds and impoundments > .5 acre	Number of protocol pools	Describe water break (Block 13)	Describe fish passage barriers (Block 14)
	12	1.8	5	3.2	5%	30%	12%	2.1	NO	16	Survey ended at 14 feet and mud bottom	natural barrier, 150 foot bedrock cascade with 30% gradient, no fish observed above, proposed regulatory break for A-123-1.
4	5	1.5	3	2.1	8%	21%	15.3%	1.8	NO	0	Survey ended at UMPPF	Channel changed from 8% to 15 % and became deeply incised. Based on knowledge of area, fish will not use past this point.