


Water Type Code Quick Reference  
for the FPARS Mapping Website

**To determine how and/or when the water type shown on the FPARS map was assigned to a stream:**

1. Click on the circle next to “Streams” in the right hand column to make it the active layer.
2. Click on the  (identify) tool on the left.
3. Click the stream segment that you are interested in finding information about.

The following will appear:

Field Name	Field Value
WC_CART_FTR_CD	412
WC_LN_TYPE_CD	10
WC_GNIS_NM	
FP_WTRTY_1975_CD	4
FP_WTRTY_1975_DT	Mon, 23 Dec 2002 00:00:00
FP_WTRTY_EDIT_DT	Tue, 1 Mar 2005 00:00:00
FP_WTRTY_CD	N
FP_PERIOD_CD	u
FP_EXP_CD	N1
FP_VER_CD	u
FP_WTRTY_APPR_DT	
FP_REF_ID	0000260168
FP_WTRTY_SRC_DESC	WTMF
OBJECTID	211764219
#SHAPE#	[line]

**(#1) FP\_WTRTY\_SRC\_DESC = water type source description.**

**This indicates how the water type shown on the map was determined.**

WTMF = Water typing survey. A Water Type Modification Form (WTMF) has been entered into the database since 1/1/1997\*. For a finer classification of surveys since March 1, 2005 (western Washington) and/or March 1, 2006 (eastern Washington) see database field #3, below.

NOTE: If a surveyed stream segment is associated with a model override, then the segment will show OVERRIDE rather than WTMF. If there is a FP\_REF\_ID on the segment, then the segment was surveyed.

MODEL = The water type was assigned by the Fish Habitat Water Typing Model; there has been no water typing survey recorded in the database since 1/1/1997\*.

OVERRIDE = The model assigned type was overridden by a qualifying water typing survey. This falls into two categories: (1) Either modeled N was overridden to become F because waters downstream of a known fish location are assumed to have fish use (Board Manual Section 13, Part 4), or (2) a modeled F was overridden to become N because a survey established the F/N break downstream.

NOTE: If a record has an FP\_REF\_ID, then the override is due to the survey. If there is no FP\_REF\_ID, then the override is up or downstream of the survey. For this reason there will be surveyed stream segments with OVERRIDE rather than WTMF.

LEGACY = Streams not modeled inherited their water type from the water typing system prior to the model - either from an older water typing survey or from the Water Type Map prior to the creation of the GIS database. See † , below.

[BLANK] = No value is assigned to water bodies to reduce map clutter.

**(#2 ) FP\_REF\_ID = WTMF Reference Number.**

This is the **unique tracking number** for each Water Type Modification Form (WTMF) approved and entered into the database since the Fall of 2000.

If your stream of interest has a FP\_REF\_ID in format (a) or (b) refer to this number when inquiring about the WTMF. Format (c) indicates an error correction. No value indicates that there has been no survey since the Fall of 2000, but there may have been a survey between 1992 and Fall 2000 (see †, below).

- (a) FP\_REF\_ID = '0000WW1234' where 0000 is a placeholder in the database, WW is two digit WRIA#, and 1234 is sequential number. This format used Fall 2000 to Spring 2008.
- (b) FP\_REF\_ID = 'RRWWYY1234' where RR is two letter Region abbreviation, WW is two digit WRIA#, YY is two digit year, and 1234 is sequential number (starting at 0001 at start of each year). This is the Region Reference Number which is assigned to all WTMF beginning Spring 2008.
- (c) If FP\_REF\_ID is in format '0000WW0000' or there is no value, then there is no WTMF and has been no water typing survey or hydro update unless FP\_WTRTY\_1975\_DT is greater than 1992.

**(#3 ) FP\_VER\_CD = water typing survey verification code.**

This identifies the **water typing survey method** used (since implementation of new water typing system - Western Washington March 1, 2005; Eastern Washington March 1, 2006).

p = Physicals. *"Physicals" means only the physical characteristics specifically listed in WAC 222-16-031 (3) (b). Waters meeting these listed characteristics are presumed to have fish use.*

b = Biological assessment. This may be one or more of the following:

1. fish observed,
2. the survey followed the Guidelines for Determining Fish Use (Board Manual, Section 13, Part 4), ie. "protocol",
3. the survey followed the Guidelines for Determining Fish Use (Board Manual, Section 13, Part 6), ie. an "alternative protocol" that was documented prior to the survey,
4. a WDFW or tribal biologist participates in an on-site ID team,
5. *If the stream does not meet the minimum pool requirements for a protocol survey (Board Manual, Section 13, Part 4), and this is documented, then the survey is following protocol and is considered a "biological assessment."*

u = Unknown/unassigned. All pre-model FP\_VER\_CD = 'u'

n = Neither physicals nor biological. For post model implementation only. Used when FP\_WTRTY\_CD is changed to X. Also used in special cases.

**(#4 ) FP\_WTRTY\_APPR\_DT**

The **water type approval date** used since implementation of the new (S, F, N) water typing system (and the model) - (Western Washington March 1, 2005; Eastern Washington March 1, 2006). The date the water type modification form (WTMF) was approved.

If **blank**, then the water type date is the implementation date of the new (S, F, N) water typing system (and the model) - (Western Washington March 1, 2005; Eastern Washington March 1, 2006). If a water typing survey was conducted prior to the implementation date, then the date of that survey would be the FP\_WTRTY\_1975\_DT (#5).

**(#5 ) FP\_WTRTY\_1975\_DT**

The **water type date** used prior to new (S, F, N) water typing system and the model. Before March 1, 2005 (Western Washington); March 1, 2006 (Eastern Washington).

\* Why 1/1/1997?

- a. The implementation guidance for the November 1996 Water Type Emergency Rule stipulated that updates to water type maps would only be made when the fish survey protocols in the November 1996 Forest Practices Board Manual Section (13) were used to identify fish use. Water type codes were not changed to reflect the physical criteria defined in the emergency rule. Water type codes were updated when fish use was confirmed following FP Board Manual protocol. This approach was in effect until

the new water typing system (letter codes S, F, Np, Ns) was adopted (March 1, 2005 for western Washington, March 1, 2006 for eastern Washington).

- b. The Fish Habitat Water Typing Model Override Committee agreed that all water typing surveys submitted under the Water Type Emergency Rule would override the model, and
- c. If a pre-1997 survey did not agree with the Fish Habitat Water Typing Model, the model would override the water type.
- d. Concerning pre-1997 surveys, since survey protocols were different prior to the 1996 Water Type Emergency Rule, areas surveyed prior to the 1997 survey season do not necessarily meet current protocol and may need to be re-surveyed. For this reason we do not include pre-1997 surveys under "WTMF = water typing survey" above.

† For older water typing surveys: A survey may have been conducted, using protocols in place at the time, between 1992 and Fall 2000 if the following are true:

1. FP\_WTRTY\_SRC\_DESC = "LEGACY"
2. FP\_WTRTY\_1975\_DT greater than 1/1/1992 and less than approximately 11/1/2000
3. FP\_WTRTY\_1975\_CD not equal to 9.

## [FPARS Water Type Data Dictionary, Part B](#)

### **FPARS Water Type Map Data Dictionary**

**This information is provided to assist in determining the meaning of codes and code values used on the FPARS Streams and Water Bodies layers. These layers are also known as the DNR Forest Practices Water Type Map and the DNR HYDRO GIS Layer.**

*For more information regarding the water type map:*

Mac McKay  
Hydrography and Transportation Data Steward  
Washington State Department of Natural Resources  
Forest Practices Division  
Phone: (360) 902-1453  
Email: mac.mckay@dnr.wa.gov

*For more information regarding how to use the FPARS mapping website:*

FPARS Help Desk  
Washington State Department of Natural Resources  
Forest Practices Division  
Phone: (360) 902-1420  
Email: fpars-admin@dnr.wa.gov

### **STREAMS**

#### **WC\_CART\_FTR\_CD**

Watercourse cartographic feature code. The code used to describe the cartographic feature type that the watercourse represents. These codes were developed by the US Geological Survey.

Example: 412

Codes and definitions are listed in the **CART\_FTR\_CODE** table at the end of this document.

#### **WC\_LN\_TYPE\_CD**

Watercourse line type code. Code used to differentiate the primary cartographic function of the lines regardless of the hydrographic feature or hydrologic function they represent

Example: 20

Codes and definitions are listed in the **WC\_LN\_TYPE\_CODE** table at the end of this document.

### **WC\_GNIS\_NM**

Watercourse Geographic Names Information System (GNIS) name. The name of the represented feature in the USGS GNIS database (<http://geonames.usgs.gov/domestic/index.html>). Not all features will have a GNIS name and number, but each feature with a GNIS name will have a GNIS number and vice versa. WC\_GNIS\_NM applies to the feature, often identified by one whole stream identifier (LLID). Each arc composing the same named feature will have the same GNIS name and number.

Example: Deschutes River

### **FP\_WTRTY\_1975\_CD**

Former water type code (1 - 5, 9). Used between 1975 and March 1, 2005 for Western Washington and March 1, 2006 for Eastern Washington. This is no longer the current water type.

### **FP\_WTRTY\_1975\_DT**

Former DNR Forest Practices water type code edit date. These are the most recent dates between 1975 and (1) March 1, 2005 for Western Washington, or (2) March 1, 2006 for Eastern Washington that a water classification of a stream segment was officially approved by DNR, Forest Practices.

#### **NOTE REGARDING "OLD" WATER TYPES:**

DNR will neither keep the FP\_WTRTY\_1975\_CD or FP\_WTRTY\_1975\_DT current nor synchronized with on-going changes to the present water typing system. The present system was implemented March 1, 2005 for Western Washington and March 1, 2006 for Eastern Washington. Generally, the FP\_WTRTY\_1975\_CD and FP\_WTRTY\_1975\_DT fields are not edited under the present water typing system. Neither FP\_WTRTY\_1975\_CD nor FP\_WTRTY\_1975\_DT are edited when adding a stream or for tabular only database changes. For spatial updates these fields are edited ONLY to transfer existing values to an arc that is added as part of a spatial update to an existing stream. Basically, once the present water typing classifications were turned "on" the FP\_WTRTY\_1975\_DT was frozen. Except as noted above, FP\_WTRTY\_1975\_DT will be blank or 0 for any new stream added since the implementation dates. The DNR Forest Practices water typing system was developed solely for the regulation of forest practices (WAC 222).

### **FP\_WTRTY\_EDIT\_DT**

Current water type edit date. Used from March 1, 2005 for Western Washington and March 1, 2006 for Eastern Washington to present. This is the date of the most recent edit in the database.

Example: 20040606

### **FP\_WTRTY\_CD**

DNR Forest Practices water type codes as described in WAC 222-16-031, interim water typing system. This water typing system was implemented in Western Washington March 1, 2005 and in Eastern Washington March 1, 2006. The water type code is based on the Forest Practices Rules, Forest Practices Board Manual Section 13 field surveys, and a multi-parameter, field verified geographic information system (GIS) logistic regression model. The water typing model is based on thousands of field surveys of fish presence and fish habitat. Other model parameters are gradient, elevation, basin size and average annual precipitation derived from the US Geological Survey's digital elevation model (DEM) for the state of Washington. Technical considerations required that the model be developed on a "virtual" stream network system derived from the DEM database. The DEM-based model results were then transferred to the DNR's hydrographic GIS "map" (WCHYDRO) (also known as the water type map) in order to implement the new letter water type codes. Qualifying field observations over-ride model results. DNR water types are intended solely for the implementation of the forest practice rules (WAC 222).

Example: F

Codes and definitions are listed in the **FP\_WTRTY\_CODE** table at the end of this document.

#### **FP\_PERIOD\_CD**

Forest Practices periodicity code. Used only with the Forest Practices WAC 222-16-031, interim water typing system where FP\_WTRTY\_CD = N. The FP\_WTRTY\_CD (N) combined with the FP\_PERIOD\_CD (p or s) make up the "Np" and "Ns" water types. Note that the Np / Ns break is determined by on-the-ground observation only. There has been no direct translation of the old type 4 and 5 to the new types Np and Ns. When a forest practice activity is proposed the applicant must identify the perennial (Np) and seasonal (Ns) streams on their Forest Practice Activity Map. Np and Ns are shown on the FPARS maps wherever they have been determined. Most FP\_PERIOD\_CD values are "u" (unknown) because the Np / Ns determination has not been made.

Example: p

#### **FP\_EXP\_CD**

The water type explanatory code explains the process of how water types were updated during the modeling process. This additional coding scheme was developed to distinguish modeled from non-modeled streams and other hydrographic features during the fish habitat modeling process. Not all streams were coded directly as a result of the fish habitat modeling process. For example, an "F" stream with an FP\_EXP\_CD code of "F1" was modeled as fish habitat because a match was found on the "virtual" DEM-modeled stream network. However, an "F" stream with an FP\_EXP\_CD of "F2" was not modeled because there was no matching "virtual" stream. Used only in conjunction with the Forest Practices Water Typing System WAC 222-16-031.

Example: F2

Codes and definitions are listed in the **FP\_EXP\_CODE** table at the end of this document.

#### **FP\_VER\_CD**

Forest Practices water typing survey verification code. Identifies the water typing survey method used when assigning a water type to a stream segment. Used since implementation of new water typing system - Western Washington March 1, 2005; Eastern Washington March 1, 2006). All water typing surveys recorded in the database are documented by an approved water type modification form (WTMF). For use only with the Forest Practices water typing system. See FP\_EXP\_CD or FP\_WTRTY\_SRC\_DESC for source of water types not assigned by a survey method. Used since implementation of new water typing system in Western Washington March 1, 2005 and in Eastern Washington March 1, 2006.

Example: p

Codes and definitions are listed in the **FP\_VER\_CODE** table at the end of this document.

#### **FP\_WTRTY\_APPR\_DT**

The water type approval date used since implementation of the new (S, F, N) water typing system (and the model) - (Western Washington March 1, 2005; Eastern Washington March 1, 2006). The date the water type modification form (WTMF) was approved.

If blank, then the water type date is the implementation date of the new (S, F, N) water typing system (and the model) - (Western Washington March 1, 2005; Eastern Washington March 1, 2006). If a water typing survey was conducted prior to the implementation date, then the date of this survey is the FP\_WTRTY\_1975\_DT (#5). The date of DNR Forest Practices approval of a water typing survey. Used since implementation of new water typing system in Western Washington March 1, 2005 and in Eastern Washington March 1, 2006.

Example: 20070606

#### **FP\_REF\_ID**

The tracking number used to uniquely identify Water Type Modification Forms (WTMF) approved and entered into the database since the Fall of 2000. WTMF are the means by which changes to the database are proposed. There has been an approved water type modification form (WTMF) if FP\_REF\_ID has a value in format (1) or (2) below. Format (3) indicates an error correction.

- (1) FP\_REF\_ID = '0000WW1234' where 0000 is a placeholder in the database, WW is two digit WRIA#, and 1234 is sequential number. This format used Fall 2000 to Spring 2008.
- (2) FP\_REF\_ID = 'RRWWYY1234' where RR is two letter Region abbreviation, WW is two digit WRIA#, YY is two digit year, and 1234 is sequential number (starting at 0001 at start of each year). This is the Region Reference Number which is assigned to all WTMF beginning Spring 2008.
- (3) If FP\_REF\_ID is in format '0000WW0000' or there is no value, then there is no WTMF and has been no water typing survey or hydro update unless FP\_WTRTY\_1975\_DT is greater than 1992.

Example: PC24081234

#### **FP\_WTRTY\_SRC\_DESC**

Water Type Code Source Description. Indicates how the water type was assigned. Values derived programmatically. See Part A of this document, "Quick Reference" for an simple explanation of how the water type code was assigned.

Example: WTMF

Codes and definitions are listed in the **FP\_WTRTY\_SRC\_DESC CODE** table at the end of this document.

## **WATER BODIES**

#### **WB\_CART\_FTR\_CD**

Water body cartographic feature code. The code used to describe the cartographic feature type that the water body polygon represents. These codes were developed by the US Geological Survey.

Example: 412

Codes and definitions are listed in the **CART\_FTR\_CODE** table at the end of this document.

#### **WB\_GNIS\_NM**

Water body GNIS (Geographic Names Information System) name. The name of the water body as contained within the USGS GNIS database (<http://geonames.usgs.gov/domestic/index.html>). Not all features will have a GNIS name and number, but every feature with a GNIS name will have a GNIS number and vice versa.

Example: Ross Lake

#### **FP\_WTRTY\_CD**

DNR Forest Practices Water Type Code. Features in the Water Bodies layer were not part of the modeling process and are classified according to WAC 222-16-031.

Type S water bodies have an area of at least 20 acres in size. Type F water bodies are less than 20 acres but larger than 0.5 acres. Water bodies less than 0.5 acres are coded "N" unless there is a type S or F stream entering and exiting it. Those water bodies will be coded according to the stream type. Field verified information may override designations based on acreage.

Example: F

Codes and definitions are listed in the **FP\_WTRTY\_CODE** table at the end of this document.

#### **FP\_WTRTY\_EDIT\_DT**

Same definition as for Streams.

#### **FP\_WTRTY\_APPR\_DT**

Same definition as for Streams.

#### **FP\_REF\_ID**

Same definition as for Streams.

## **Code tables**

### **CART\_FTR\_CODE (cartographic code)**

100	Alkali flat
101	Reservoir
103	Glacier or permanent snowfield
105	Area subject to inundation
106	Fish hatchery or farm
107	Industrial water impoundment
109	Sewage disposal pond or filtration bed
110	Tailings pond
111	Wet Area. These generally originated as swamps and marshes scanned from the USGS 1:24,000 topographic maps. Wet areas are not classified by the WAC 222-16-035 wetland typing system.
114	Cranberry bog
115	Flats (tidal, mud, sand, gravel)
116	Bay, estuary, gulf, ocean or sea
117	Shoal
300	spring or seep
400	Rapids
401	Falls
402	Gravel pit or quarry filled with water
406	Dam or weir
407	Canal lock or sluice gate
408	Spillway
410	Exposed rock
412	Stream/river
414	Ditch/canal
415	Aqueduct
417	Penstock
418	Siphon
419	Channel in water area
420	Wash or ephemeral drain
421	Lake or pond
422	Reef
423	Sand or gravel in open water
425	Fish ladder
466	Pier, jetty, breakwater, dock, wharf or causeway
901	Impoundment
902	Island
999	Unknown/Unclassified

### **WC\_LN\_TYPE\_CODE (map database line-type code)**

- |    |  |
|----|--|
| 5  | Not displayed on FPARS maps. Artificial connector. A watercourse line projected for connectivity purposes. For example, a stream not connected by an above-ground channel system to a shoreline or downstream network due to infiltration may be connected to the larger network by segments with WC_LN_TYPE_CD = 5 in order to maintain network connectivity for modeling or future linear referencing purposes. An artificial connector is called a subsurface connector when field information provided on a WTMF specifically describes a stream as being "subsurface". Subsurface connectors shall have WC_LN_TYPE_CD = 5, WC_CONTU_CD = 'sub'. |
| 10 | A single line watercourse segment; A natural, well-defined or not-well defined channel produced wholly or in part by a definite flow of water, continuous or intermittent. May include: non-typed water,   |

pipelines, actively maintained irrigation ditches, seasonal streams not physically connected by an above ground channel system to Forest Practices typed water (S, F, or Np), dry-draws, or swales. All watercourses represent features that exist on-the-ground.

- 20 Interior - in water body. Watercourse interior line represented within a water body (lake, reservoir, wet area, etc.)
- 21 Interior - double banked stream. Watercourse interior line represented within a double banked stream polygonal watercourse (for example, within the Columbia River).
- 30 Watercourse/body perimeter. Watercourse segment coincident with a water body perimeter (for example, when a stream and wet area bank share the same line).
- 99 Unknown/unclassified

#### **FP\_WTRTY\_1975\_CODE (old water typing numbering system)**

- 1 Type 1 Water
- 2 Type 2 Water
- 3 Type 3 Water
- 4 Type 4 Water
- 5 Type 5 Water
- 9 Unclassified

#### **FP\_WTRTY\_CODE (DNR Forest Practices Water Type)**

- S Type S Water. Inventoried shorelines of the state as referenced in WAC 222-16-031(1).
- F Type F Water as defined in WAC 222-16-031(2) and (3).
- N Non-fish. The Np or Ns determination has not been made. This value combined with the FP\_PERIOD\_CD (p or s) make up the water types Np or Ns. "p" or "s" only shown on the water type map when submitted on a WTMF since the adoption of the letter water type codes. See WAC 222-16-031 (4) and (5). Type N water bodies are typed based on WAC 222-16-031(3)(b)(i)(C) and (D).
- U Unclassified or not field verified or feature with no water type assigned. Feature may or may not exist on the ground. Not a water type; used as a placeholder in the database.
- X Non-typed per WAC 222-16. Mapped hydrographic feature not meeting any definition for typed water. Feature exists on the ground. Not a water type; used as a placeholder in the database.

#### **FP\_PERIOD\_CODE (Forest Practices periodicity code)**

- p Perennial. Waters that do not go dry at any time during a year of normal rainfall. This value combined with the FP\_WTRTY\_CD (N) makes up the water type Np. "p" only shown on the water type map when submitted on a WTMF since the adoption of the letter water type codes. See WAC 222-16-031(4).

- s Seasonal. Waters where surface flow is not present for some period of time during a year of normal rainfall. This value combined with the FP\_WTRTY\_CD (N) make up the water type Ns. "s" only shown on the water type map when submitted on a WTMF since the adoption of the letter water type codes. See WAC 222-16-031(5).
- u Unknown / Unclassified / not applicable

**FP\_VER\_CODE (water typing survey method code)**

p	Physicals. <i>"Physicals" means only the physical characteristics specifically listed in WAC 222-16-031 (3) (b). Waters meeting these listed characteristics are presumed to have fish use.</i>
b	Biological assessment. This may be one or more of the following: <ol style="list-style-type: none"> <li>1. fish observed,</li> <li>2. the survey followed the Guidelines for Determining Fish Use (Board Manual, Section 13, Part 4), ie. "protocol",</li> <li>3. the survey followed the Guidelines for Determining Fish Use (Board Manual, Section 13, Part 6), ie. an "alternative protocol" that was documented prior to the survey,</li> <li>4. a WDFW or tribal biologist participates in an on-site ID team,</li> <li>5. <i>If the stream does not meet the minimum pool requirements for a protocol survey (Board Manual, Section 13, Part 4), and this is documented, then the survey is following protocol and is considered a "biological assessment."</i></li> </ol>
u	Unknown/unassigned. All pre-model FP_VER_CD = 'u'
n	Neither physicals nor biological. For post model implementation only. Used when FP_WTRTY_CD is changed to X. Also used in special cases.

**FP\_EXP\_CODE (water type explanatory code)**

- S1 Shoreline Management Act (SMA): Shorelines of the State (Chapter 90.58 RCW)
- S2 Shoreline Management Act (SMA): Shorelines of Statewide Significance (Chapter 90.58 RCW) "S+" Waters.
- S3 Artificial line segment (interior arc) that maintains stream network connectivity through type "S" lake or reservoir.
- F0 Artificial line segment (lateral interior arc) that maintains stream network connectivity between type F double-banked stream centerline and lateral stream. FP\_EXP\_CD = 'F0' will have a flow path code of 2 and line type code of 21.
- F1 Modeled as fish habitat, occurring downstream of a modeled end of fish habitat point.
- F2 Un-modeled. Match could not be found between this stream segment and DEM-generated stream model during initial model implementation. DNR approved field survey data and/or former water type indicates fish use/fish habitat either prior to model implementation or later.
- F3 Interior arc of type "F" lake, pond, reservoir or other water impoundment.
- F4 Mapping anomaly prevented normal model/coding implementation. Former water type indicated "fish use" or is associated with other fish use/fish habitat waters. Most common occurrences were in channelized streams (e.g. irrigation ditches, canals) or un-modeled streams with former water typing inconsistencies.

- F5 Fish hatchery or campground diversion waters and former type 2 water courses as defined by WAC 222-16-031 (2).
- F6 Fish bearing/fish habitat stream added after water type model implementation.
- F7 Model Override: Approved post 1996 hydro updates from field surveys submitted on Water Type Modification Forms or other approved field survey data place fish-bearing/fish habitat waters upstream of modeled end of fish habitat point.
- F8 Outside of modeled area. Classified previously as having fish use (e.g. type 3). (For use in Eastern Washington only)
- N0 Artificial line segment (lateral interior arc) that maintains stream network connectivity between type N double-banked stream centerline and lateral stream. FP\_EXP\_CD = 'N0' will have a flow path code of 2 and line type code of 21.
- N1 Modeled as non-fish habitat, occurring upstream of a modeled end of fish habitat point.
- N2 Un-modeled stream. Match could not be found between this stream segment and DEM-generated stream model during initial model implementation. DNR approved field survey data and/or former water type classification indicates non-fish use/non-fish habitat either prior to model implementation or later.
- N3 Interior arc of type N lake, pond, reservoir or other water impoundment.
- N4 Mapping anomaly prevented normal model/coding implementation. Former water type indicated "no fish use" or is associated with other non-fish use/non-fish habitat
- N5 Non-fish bearing/non-fish habitat stream added after model implementation.
- N6 Former untyped/unknown hydrographic stream feature (type 9) occurring upstream of a modeled end point. May or may not have a matching DEM-modeled stream.
- N7 Model Override: Approved post 1996 survey/hydro update submitted on Water Type Modification Forms or other approved surveys indicate end of fish-bearing/fish habitat waters downstream of modeled end of habitat point.
- N8 Outside of modeled area. Classified previously as having no fish use (type 4, 5). (For use in Eastern Washington only).
- U1 Un-modeled stream that was formerly untyped/unknown and has not been field verified (former water type code 9). Stream may or may not exist on the ground.
- U2 Reserved for data model conversion vendor added connectors that are not field verified. These are artificial line segments that maintain stream network connectivity between typed streams or stream network and a hydrographic source feature. No apparent surface flow; may or may not be subsurface flow.
- U3 Verified stream addition or confirmation of former untyped/unknown mapped stream (type 9). Stream exists on ground, but water type has not been assigned.
- U4 Outside of modeled area. Classified previously as untyped/unknown (type 9). (For use in Eastern Washington only ).
- X1 a) Non-typed per WAC 222-16. Mapped hydrographic feature not meeting any WAC 222-16 definition for typed water and therefore having no Forest Practices water type designation (e.g. pipelines, "water conveyance systems which are artificially constructed and actively maintained for irrigation"; (b) deleted or removed stream segments with database network connectivity maintained; (c) verified

subsurface connector (known infiltration with stream known to appear on surface farther downstream; or (d) artificial connector used to maintain database network connectivity.

### **FP\_WTRTY\_SRC\_DESC CODE (water type code source description)**

**WTMF** Water type code assigned per an approved post-1/1/1997\* water type modification form (WTMF).

NOTE: If a surveyed stream segment is associated with a model override, then the segment will show OVERRIDE rather than WTMF. If there is a FP\_REF\_ID on the segment, then the segment was surveyed.

Value derived programmatically by the following query:

```
FP_EXP_CD IN ( 'S1','S2','F1','F2','F4','F5','F6','F8','N1','N2','N4','N5','N6','N8','U1','U2','U3','U4','X1')  
AND ( FP_REF_ID IS NOT NULL AND FP_REF_ID NOT LIKE '0000%0000' )
```

**MODEL** Water type code assigned by the fish habitat water type model. No water typing survey approved and recorded in the database since 1/1/1997\*. Value derived programmatically by the following query:

```
FP_EXP_CD IN ( 'F1','N1','N6') AND ( FP_REF_ID IS NULL OR FP_REF_ID LIKE '0000%0000' )
```

**OVERRIDE** - Model assigned water type code was overridden by (1) approved post-1996\* water type modification form, or (2) waters downstream of a known fish location are assumed to have fish use (Board Manual Section 13, Part 4).

NOTE: If a record has an FP\_REF\_ID, then the override is due to the survey. If there is no FP\_REF\_ID, then the override is up or downstream of the survey. For this reason there will be surveyed stream segments with OVERRIDE rather than WTMF.

Value derived programmatically by the following query:

```
FP_EXP_CD IN ( 'F7','N7')
```

**LEGACY** - Legacy water type code (not affected by model). The water type was derived from the older water type system because there was no stream in the database that corresponded to a modeled point and there has been no water type modification form approved and recorded in the database after 1/1/1997\*. "Legacy" water types were:

- (1) determined by DNR approved water typing survey (as indicated by FP\_WTRTY\_1975\_DT > 1992 and FP\_WTRTY\_1975\_CD <> 9 ), or
- (2) inherited from the water type map prior to the creation of this GIS database.

Value derived programmatically by the following query:

```
FP_EXP_CD IN ( 'S1','S2','F2','F4','F5','F8','N2','N4','N8','U1','U2','U3','U4','X1') AND ( FP_REF_ID IS NULL OR FP_REF_ID LIKE '0000%0000')
```

**NULL** Record does not match any above query. Includes FP\_EXP\_CD = F0, N0, F3, N3, S3. F0 and N0 are lateral interior connectors within double-banked stream polygons. S3, F3, N3 are interior connectors within water body polygons. These values are excluded in an attempt to limit map clutter.

#### **\* NOTE REGARDING 1/1/1997:**

- a. The implementation guidance for the November 1996 Water Type Emergency Rule stipulated that updates to water type maps would only be made when the fish survey protocols in the November 1996 Forest Practices Board Manual Section (13) were used to identify fish use. Water type codes were not changed to reflect the physical criteria defined in the emergency rule. Water type codes were updated when fish use was confirmed following FP Board Manual protocol. This approach was in effect until the new water typing system (letter codes S, F, Np, Ns) was adopted (March 1, 2005 for western Washington, March 1, 2006 for eastern Washington).
- b. The Fish Habitat Water Typing Model Override Committee agreed that all water typing surveys submitted under the Water Type Emergency Rule would override the model, and

- c. If a pre-1997 survey did not agree with the Fish Habitat Water Typing Model, the model would override the water type.
- d. Concerning pre-1997 surveys, since survey protocols were different prior to the 1996 Water Type Emergency Rule, areas surveyed prior to the 1997 survey season do not necessarily meet current protocol and may need to be re-surveyed. For this reason we do not include pre-1997 surveys under "WTMF = water typing survey" above.