StreamNet
Fish Data for the Northwest

StreamNet Data Exchange Standards

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I. Introduction

This document describes data exchange standards for StreamNet's traditional data categories. It includes 1) the names and purposes of tables, 2) relationships among tables, and 3) the names, purposes, and properties of fields within tables. These data exchange standards were created by Pacific Northwest United States representatives from state and federal and tribal fisheries management and regulatory agencies, private consultants, and federal funding agencies. These standards become effective no earlier than two months after the approval date.

These standards describe in detail the data items (fields), data types, and coding conventions for the various tables containing data submitted to the regional database by participating agencies and tribes. The standards apply to data submitted on or after the effective date shown on the title page of this document; adoption of the standards generally does not dictate resubmittal of data already in the regional database in order to bring existing data into the new standard. These exchange standards do not necessarily represent the final data structure of the data in the regional system, nor do they represent a comprehensive data dictionary for all data contained in the system. Rather, it provides a standardized data structure for sharing data at a regional level.

This document has three main divisions: this introduction; the descriptions of the data tables; and appendices. Sections within the data tables division describe tables that have a common theme.

The tables in this document represent data tables in a computer file. The tables in this document are comprised of 4 columns.

- Field Name
- Description
- Data Type
- Codes/Rules/Conventions

Field Name is the name of the field in the StreamNet database. Underlined field names indicate primary key designations; multiple underlined field names indicate a multi-field key. Tables sometimes have key(s) in addition to the primary key; the additional key(s) are called "alternate keys". The word "unique" in parentheses under a field name indicates a single-field (primary or alternate) key – each value in that field must be unique within the table. When one or more multi-field alternate keys exist they are noted in the table's introductory paragraph.

Field Description is a brief definition or description of the field. The definitions/descriptions are the most important part of the tables in this document.

Data Type specifies the type of data/information. The number next to a "Text" designation indicates the maximum number of characters allowed in that field, with "∞" indicating essentially no length limit. Appendix G contains details about these data types.

Codes/Rules/Conventions provides lookup codes, business rules, or ~~additional information for the various fields~~other information applicable to the field. Due to lack of space, not all lookup codes are listed in this document. The full lists are available upon request, as is the most recent draft of the next DES version. The DES revision procedure document is available at https://www.streamnet.org/resources/exchange-tools/des/.

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Required fields are indicated by **bold red font** in the *Field Name* and *Data Type* columns. If the Field Name and *Data Type* are ***bold and red and also italicized***, then whether the field is required varies according to entries in other fields of the record – refer to the red italicized text in the *Field Description* column for business rules indicating when the field is required.

Data are normally submitted to the StreamNet database via a program that interacts with the StreamNet API. New partners may initially send files in Microsoft Access, SQL Server, or Excel format.– Contact the StreamNet Database Manager at 503-595-3100 if you would like to use one of these alternative options, or for questions about this document.

II. Data Tables

A. Location Coding

To be useful, data in the StreamNet database must have accurate locations associated with them. This section contains the tables needed for submitting new locations.

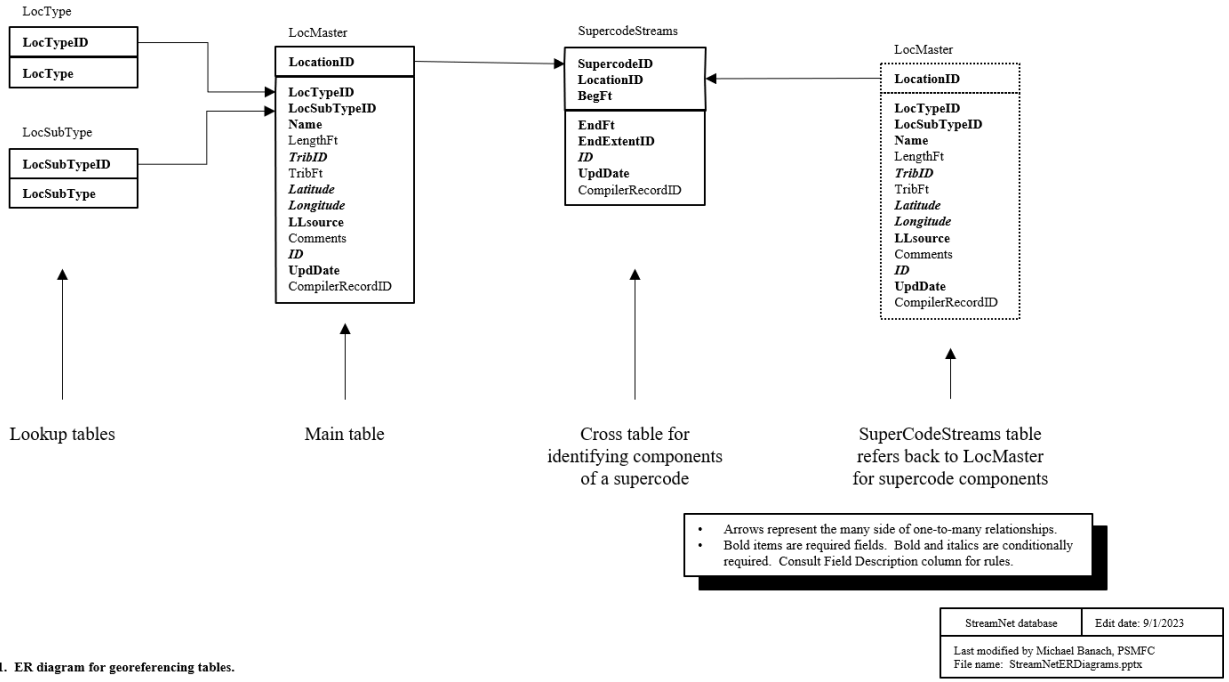


Figure 1. ER diagram for georeferencing tables.

A1. LocMaster Table

This table houses the master list of all location codes used in StreamNet. Because they must all reside in this table, no two location codes can be the same, even if they represent different location types (stream; supercode; etc.). Use this table to submit new location information. It is not necessary to submit location codes that already exist in the StreamNet database. Datum for all locations is NAD83/WGS84.

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Field Name	Field Description	Data Type	Codes/Rules/Conventions for LocMaster Table
LocationID (unique)	The location code for the stream, lake, bay, reservoir, upland point, etc. See "LocationID" in the Glossary.	**Text 13**	For dams and hatcheries the LocationID should be concatenated from the Longitude/Latitude or SiteLong/SiteLat fields from the Dam or Hatchery table. For supercodes use the ranges shown at the right. 10,000-19,999 = WDFW 20,000-29,999 = CRITFC 30,000-39,999 = USFWS 40,000-49,999 = IDFG 50,000-59,999 = ODFW 60,000-69,999 = PSMFC 70,000-79,999 = CDFG 80,000-89,999 = MFWP
LocTypeID	Defines the general type of location.	**Integer**	1 = Watercourse (Lotic/flowing water body represented by arcs in a hydrography layer in GIS) 2 = Standing water (Lentic/flat water body represented by a polygon in GIS) 3 = PointID (Location represented by a point in GIS; best if long/lat used to make point code.) 4 = Nonstream arc (Roads, power lines, etc.) 5 = Polygon (Use only if Code 2 is not appropriate.) 6 = Spatially ambiguous, non-specific location that can not be accurately represented in a GIS. (Non-GIS location type.) 7 = Supercode
LocSubTypeID	Code for the subtype of location. This code must match the LocTypeID field.	**Integer**	For LocTypeID=1, acceptable values are: 100 = 100-k stream 110 = 100-k ditch or canal 111 = Possible 100-k ditch 119 = Mixed-scale watercourse (combined 100 and higher resolution geometry) 120 = 24-k (or higher resolution) stream 130 = 24-k (or higher resolution) ditch or canal 131 = Possible ditch / canal For LocTypeID=2, acceptable values are: 200 = 100-k wetland 210 = 24-k (or higher resolution) wetland 220 = 100-k natural lake or pond 230 = 24-k (or higher resolution) natural lake or pond 240 = 100-k constructed lake, pond, or reservoir 250 = 24-k (or higher resolution) constructed lake, pond, or reservoir 260 = Bay / estuary 270 = Marine area 280 = Pacific Ocean For LocTypeID=3, acceptable values are: 300 = Ocean port 301 = Hatchery facility 302 = Dam 303 = Fish trap (other than a hatchery facility) 310 = Barrier 320 = Fish passage facility (e.g., ladder, screen) 330 = Culvert 340 = Bridge 350 = Mine / dredged site 360 = Spring 361 = Well 362 = Municipal water supply 364 = Channel not in current hydrography scale 365 = Channel improperly represented at current hydrography scale 399 = Site temporarily not associated with hydrography [*Use for temporary PointIDs that are to be replaced by better location coding*]

(continued on next page)

Field Name	Field Description	Data Type	Codes/Rules/Conventions for LocMaster Table	
			For LocTypeID=4, acceptable values are: 400 = Road 401 = Power line For LocTypeID=5, acceptable values are: 500 = Upland area 501 = Entire HUC (can be at any HUC field level) 502 = Entire catchment (entire watershed not represented by a defined HUC) 503 = Island	For LocTypeID=6, acceptable values are: 600 = Unknown location within a HUC (HUC known, exact location is not) 601 = Unspecified location within a HUC (useful for "fuzzing" known locations) 621 = Alaska location 622 = California location 623 = Idaho location 624 = Oregon location 625 = Washington location 626 = Montana location 629 = Undetermined body of water 640 = Outside StreamNet hydro coverage 650 = Stream terminates For LocTypeID=7, acceptable values are: 98 = N/A
Name	Name of the stream, lake, bay, reservoir, barrier, dam, hatchery, port, etc.	**Text 100**	If unnamed, fill in this field using this pattern: Unnamed stream [LocationID] Unnamed dam [LocationID] Unnamed pond [LocationID] etc. For unnamed features, in order to help data end users understand the location, enter the name in the form "X Creek (LocationID), trib to Y Creek (LocationID), trib to Z Creek (LocationID)". Include as many steps as necessary until the last creek listed is a named stream or other identifiable feature. For example, "Unnamed stream (1155232459921), trib to Unnamed stream (1155216459825), trib to Selway River".	
LengthFt	Length of stream, in feet.	Integer	This field used only for streams.	
TribID	LocationID for the water body this location (stream, lake, supercode, etc.) flows into.	***Text 13***	*Required if LocTypeID = 1, otherwise optional (but encouraged).* TribID values must exist as a defined LocationID in the LocMaster table. For point locations, supercodes, other cases where a TribID is ambiguous or inappropriate, use one of the following codes as appropriate. 98 = Not applicable 6000 = Flows into Canada 6001 = Flows into California 6012 = Flows into Mexico 6002 = Flows into Nevada 6003 = Flows into Utah 6004 = Flows into Wyoming 6005 = (no outlet) 6006 = Flows into stream not represented in the regional hydrography 6013 = Flows into lake/pond/reservoir not represented in the regional hydrography 6030 = Flows into canal, ditch, or pipeline not represented in the regional hydrography	6021 = Undetermined outlet in Alaska 6022 = Undetermined outlet in California 6023 = Undetermined outlet in Idaho 6026 = Undetermined outlet in Montana 6027 = Undetermined outlet in Nevada 6024 = Undetermined outlet in Oregon 6028 = Undetermined outlet in Utah 6025 = Undetermined outlet in Washington 6029 = Undetermined outlet in Wyoming 6032 = Undetermined canal/pipeline in California 6033 = Undetermined canal/pipeline in Idaho 6036 = Undetermined canal/pipeline in Montana 6037 = Undetermined canal/pipeline in Nevada 6034 = Undetermined canal/pipeline in Oregon 6035 = Undetermined canal/pipeline in Washington Many more codes are already defined. Contact regional StreamNet personnel for assistance.

Field Name	Field Description	Data Type	Codes/Rules/Conventions for LocMaster Table
TribFt	The LocationID field (A) identifies the water body represented. The TribID field (B) identifies which water body the represented water body flows into. When B is a stream, this field is the measure from the mouth of B, in feet, to where A enters B.	Integer	Leave blank if TribID does not represent a routed stream.
Latitude	Latitude coordinate of point in decimal degrees (not degrees-minutes-seconds). Calculated using the 1983 North American Datum (NAD83) / WGS84.	***Real***	*Required for non-stream points (LocTypeID = 3). Not applicable for other location types.* Use two digits left of the decimal point and at least four digits to the right of the decimal point. Up to six digits to the right of the decimal point are permitted.
Longitude	Longitude coordinate of point in decimal degrees (not degrees-minutes-seconds). Calculated using the 1983 North American Datum (NAD83) / WGS84.	***Real***	*Required for non-stream points (LocTypeID = 3). Not applicable for other location types.* This is a negative number. Use three digits left of the decimal point and at least four digits to the right of the decimal point. Up to six digits to the right of the decimal point are permitted.
LLsource	Method by which the longitude and latitude values were determined. Applies only to non-stream points (LocTypeID=3). Use N/A for other location types.	**Text 3**	Only five options are possible: • GPS = Coordinates were determined by use of Global Positioning System, and datum is known to be NAD83/WGS84. • DIG = Digitally-derived. Includes digitized coordinates, or those converted from other (non-GPS) projected data, and datum is known to be NAD83/WGS84. • UNK = Unknown how lat/long values were determined, or datum = NAD83/WGS84 cannot be confirmed. • CEN = Centroid coordinates derived from a feature that is represented as a polygon in StreamNet's GIS. • N/A = Not applicable
Comments		Text 255	
ID (unique)	Value used by computer to identify a record.	***GUID***	This value is a globally unique identifier (GUID) exactly 36 characters long. • *When submitting a new record you may include this value or leave it blank.* If you include this value then it will be used by the central system. If you leave it blank then a value will be created for you, and it will be sent back to your system where it must be incorporated. • *When updating or deleting records this value must be included.*
UpdDate	The date and time that the record was created or updated. For data obtained in electronic format from another source it can reflect the date and time of data capture or of conversion to StreamNet standards.	**Datetime**	This can be the time a record was created, the last time it was edited, or the last time it was QCd. This field tells the end user when the record was last modified at the source organization.
CompilerRecordID	Agency record ID maintained by the data submitter.	Text 36	This field can be used in any way the compiler may find helpful. For example, it can be used to create a link between the Coordinated Assessments exchange network and an internal system such as ODFW's Salmon Tracker.

A2. SupercodeStreams Table

This table lists the individual component locations which, when combined, define a supercode. The records with common SupercodeID all belong to the same supercode.

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Field Name	Field Description	Data Type	Codes/Rules/Conventions for SupercodeStreams Table
SupercodeID	Code which identifies a supercode.	**Text 13**	For supercode ranges see the LocationID field of the LocMaster table.
LocationID	The location code for the stream, lake, bay, upland point, etc. that is a component of the supercode. See "LocationID" in the Glossary.	**Text 13**	
BegFt	If LocationID is for a stream, the downstream measure, in feet, of the stream section that defines the boundary of the reach. For other location types enter -1.	**Integer**	Use "-1" if LocationID does not represent a stream.
EndFt	If LocationID is for a stream, the upstream measure, in feet, of the stream section that defines the boundary of the reach. For other location types enter -1.	**Integer**	Use "-1" if LocationID does not represent a stream.
EndExtentID	EndFt values that are very near the top end of a stream or near a state border can be ambiguous. Is the EndFt meant to indicate the top end of the stream or the state border, or is there a deliberate reason the EndFt value falls short of the top of the stream, or just shy or just over a state border? This field answers that question.	**Integer**	0 = EndFt value is not meant to represent the top end of stream or a state border 1 = EndFt value is meant to represent the top of the stream 2 = EndFt value is meant to represent the state border 97 = Not yet determined
ID (unique)	Value used by computer to identify a record.	***GUID***	This value is a globally unique identifier (GUID) exactly 36 characters long. • *When submitting a new record you may include this value or leave it blank.* If you include this value then it will be used by the central system. If you leave it blank then a value will be created for you, and it will be sent back to your system where it must be incorporated. • *When updating or deleting records this value must be included.*
UpdDate	The date and time that the record was created or updated. For data obtained in electronic format from another source it can reflect the date and time of data capture or of conversion to StreamNet standards.	**Datetime**	This can be the time a record was created, the last time it was edited, or the last time it was QCd. This field tells the end user when the record was last modified at the source organization.
CompilerRecordID	Agency record ID maintained by the data submitter.	Text 36	This field can be used in any way the compiler may find helpful. For example, it can be used to create a link between the Coordinated Assessments exchange network and an internal system such as ODFW's Salmon Tracker.

An Explanation of "Supercodes"

The majority of the time series (trend) data that StreamNet collects are from surveys done on an individual stream reach. These time series are georeferenced in a straightforward manner in the Trend table with a LocationID to identify the stream, and BegFt and EndFt measures to identify the downstream and upstream ends of the sampling location on that stream. Other time series data sets, however, are not amenable to this system because sampling was not done on a single reach of a single stream. These more complex locations have been dubbed "supercodes" for the RRN codes that were originally assigned to them under the 1:250,000 scale PNW Reach system. Originally supercodes were multistream areas such as "Upper Columbia River basin" or "Clackamas River and tributaries." Other, non-stream types of locations such as lakes, points, and bays were later included in supercodes because of the similar problem they presented for data management.

A new database structure was later devised under the 1:100,000 scale system that allows for the specific definition of the geographic extents of supercodes and nonstream data. This higher level of precision allowed for more accurate display of the data and an enhanced ability to query the data. This system was revised again in version 2003.1 of this document, and this approach has been continued in the currently-used mixed-scale hydrography. The following is a brief description of this newest database structure as it relates to supercodes.

For supercode areas, a SupercodeID is assigned and this SupercodeID is entered in the LocationID field of the LocMaster table. The LocTypeID field in the LocMaster table identifies this code as a supercode, while the Name field is used to give a descriptive name to the supercode. To link the supercode to the several specific stream reaches, lakes, points, and other geographic features it represents, several entries are made in the SupercodeStreams table. For each entry, the SupercodeID is entered in the SupercodeID field, and the LocationID, BegFt, and EndFt fields identify an individual geographic component of the supercode. The LocationID field links back to the LocMaster table to identify an individual stream, lake, point, etc. As many entries are made in the SupercodeStreams table as are needed to include all the components of the supercode. Figure 1 illustrates the relationships between the tables discussed above.

A data management issue you will need to address is to ensure that duplicate supercodes are not defined for the exact same geographic extent. It is likely that your database management software will allow you to define more than one SupercodeID that relate to the same set of real-world reaches and lakes. An occasional review of your supercodes will help to find such duplicates and treat them appropriately.

B. Fish Monitoring Time Series (trend) Information

These tables house much of the data in the StreamNet system. Data types include dam/weir counts, estimates of spawning populations, peak/other spawning counts, redd counts, freshwater harvest, and hatchery returns. All these data types share a common data structure within the Trend table. The Count table structures vary between data types.

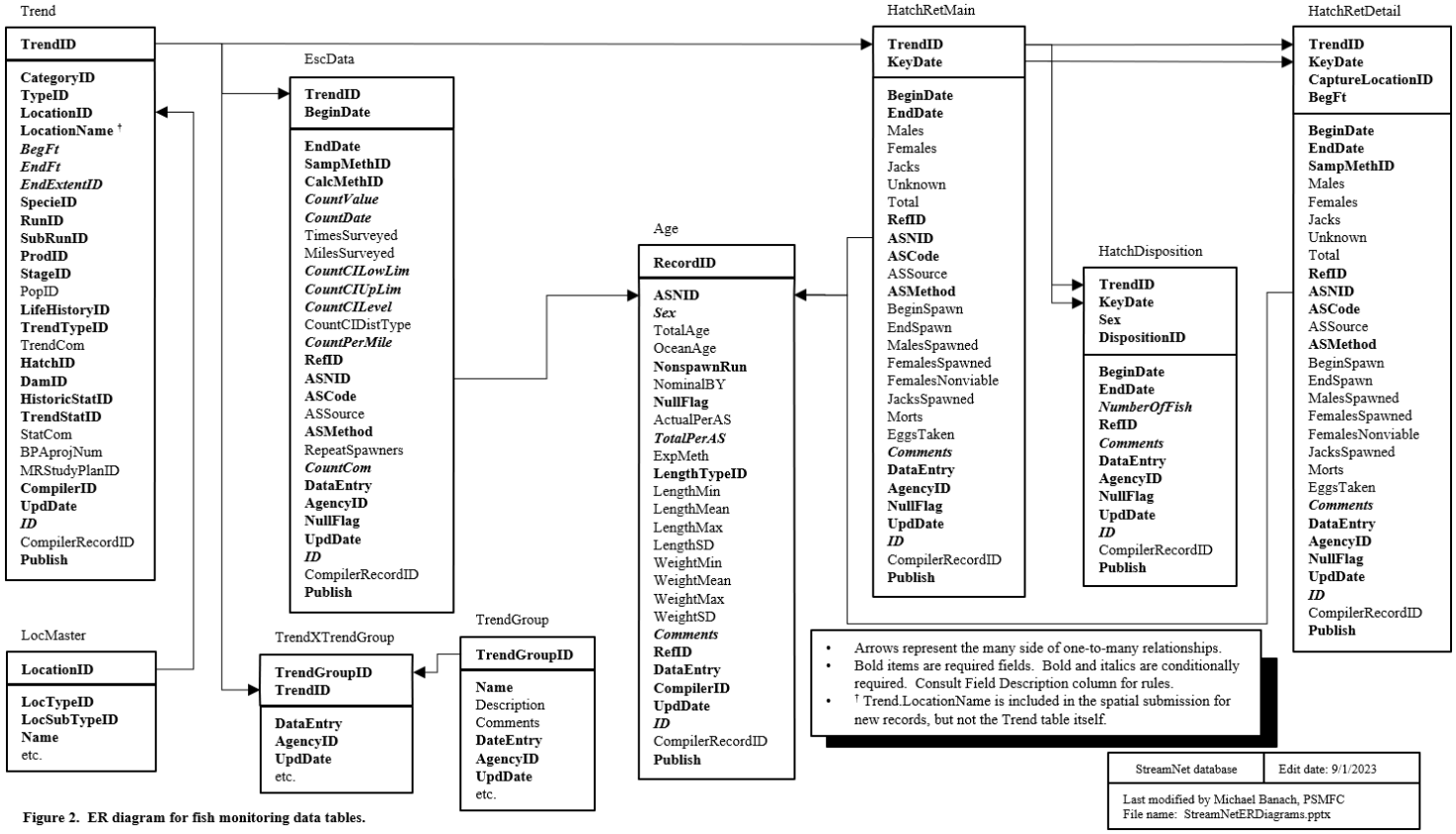


Figure 2. ER diagram for fish monitoring data tables.

B1. Trend Table

This table contains the master records for fish monitoring time series data, including location, species / run / subrun of fish, data type, and general information about the time series. (The time-series records linked to these master records are found in the EscData, and HatchRetMain tables.)
Note: When submitting a new record to this table or changing the location of an existing record, also submit a corresponding spatial record as a GIS feature that contains the same attributes as this table. StreamNet state agency partners, or PSMFC, can assist in creating spatial records, if needed. See Appendix F for details.

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Field Name	Field Description	Data Type	Codes/Rules/Conventions for Trend Table		
TrendID (unique)	This field uniquely identifies each time series. Assigned by state data compilers or regional data assemblers as appropriate.	**Integer**	10,000-19,999 = MFWP 20,000-22,499 = CRITFC 22,500-24,999 = NPT 25,000-27,499=WST 27,500-29,999=YN 200,000-209,999 = CTUIR 30,000-39,999 = USFWS 40,000-49,999 = IDFG 50,000-59,999; 500,000-599,999 = ODFW 60,000-69,999 = PSMFC 70,000-79,999 = SBT 80,000-89,999 = Not currently in use 90,000-99,999 = CDFG 100,000-199,999 = WDFW (Colville Tribes range jointly managed by them and WDFW)	TrendID is used here, and in several tables in the CA DES and CA hatchery DES (where it is called "TimeSeriesID"). The same TrendID cannot be used in more than one of these tables. TrendIDs are never reused, and certain fields (CategoryID, LocationID, BegFt, EndFt (allowing for adjustments), SpecieID, RunID, ProdID, HatchID, and DamID) are never changed once a TrendID is assigned. For special cases, contact PSMFC. When ownership of a trend/time series is transferred between organizations, the TrendID is not changed.	
CategoryID (Refer to Appendix C for detailed instructions)	The code for the major data type. Data types not listed to the right are not appropriate for use in this table. This field along with TypeID define what was measured.	**Integer**	1 = Spawner counts 2 = Freshwater / estuary harvest 3 = Marine harvest 4 = Dam / nonhatchery weir counts 5 = Hatchery returns	7 = Fish abundance estimates 8 = Spawner abundance estimates 9 = Redd counts 38 = Fish counts	
TypeID	Code for the type of count in the trend. Answers the question, "what was counted?" Links to Type table.	**Integer**	99 = Unknown 101 = Redd count 102 = Redds per mile 103 = Peak redd count 104 = Total live fish 105 = Fish per mile 106 = Peak live fish 107 = Total live fish returned above hatchery 108 = Carcass 109 = Carcass per mile 110 = Peak carcass 111 = Fish days	113 = Index of live fish 114 = Peak live & dead fish 115 = Resting hole count 116 = Total live and dead fish 117 = Peak per mile 118 = Fish per pool 202 = Treaty troll 203 = Ocean sport 204 = Estuary sport 205 = Freshwater sport 206 = Freshwater treaty 207 = Freshwater sport release 210 = Total sport, commercial & treaty	211 = Total net: commercial & treaty 212 = Freshwater commercial 213 = Agency test fishery 216 = Estuary sport (jetty) 217 = Freshwater sport (snag) 223 = Estuary sport (private) 224 = Estuary sport (charter) 225 = Coastal gillnet 401 = Parr density (#/100m2) 402 = Total parr abundance estimate 501 = Freshwater: ocean age
LocationID	The location code of the stream, lake, hatchery, dam, supercode, etc. See "LocationID" in the Glossary. Must exist in the LocMaster table before using here.	**Text 13**	Note for hatchery returns trends: Often a hatchery receives fish from other sources. LocationID in this table comes from the LocationID field of the Hatchery table. In the hatchery return details table the CaptureLocationID field conveys where the fish were captured, which is not always the hatchery indicated in the Trend table.		

Field Name	Field Description	Data Type	Codes/Rules/Conventions for Trend Table			
LocationName	Name of the stream, lake, bay, reservoir, barrier, dam, hatchery, port, etc. [Spatial submissions only.]	**Text 100**	Follow the codes/rules/conventions laid out in the Name field of the LocMaster table above. This field is included in spatial data submissions. See Appendix F for details. This field is NOT included in submissions to the Trend table, though will be ignored if provided here.			
BegFt	If LocationID is for a stream, the downstream measure, in feet, of the stream section that defines the boundary of this trend. For other location types enter -1.	***Integer***	Enter -1 if LocationID does not represent a stream. Though not required, including BegFt / EndFt / EndExtentID allow better characterization of locations within a stream. *BegFt, EndFt, and EndExtentID must all be null, or must all be non-null.*			
EndFt	If LocationID is for a stream, the upstream measure, in feet, of the stream section that defines the boundary of this trend. For other location types enter -1.	***Integer***	Enter -1 if LocationID does not represent a stream. For the "Dam / nonhatchery weir counts" data category, EndFt = BegFt. *BegFt, EndFt, and EndExtentID must all be null, or must all be non-null.*			
EndExtentID	EndFt values that are very near the top end of a stream or near a state border can be ambiguous. Is the EndFt meant to indicate the top end of the stream or the state border, or is there a deliberate reason the EndFt value falls short of the top of the stream, or just shy or just over a state border? This field answers that question.	***Integer***	0 = EndFt value is not meant to represent the top end of stream or a state border 1 = EndFt value is meant to represent the top of the stream 2 = EndFt value is meant to represent the state border 97 = Not yet determined *BegFt, EndFt, and EndExtentID must all be null, or must all be non-null.*			
SpecieID	Code for the fish species.	**Integer**	For a complete list of SpecieID codes contact the regional StreamNet personnel.	Partial list: 1 = Chinook ~~s~~Salmon 2 = Coho ~~s~~Salmon 3 = Steelhead 4 = Sockeye ~~s~~Salmon 5 = Chum ~~s~~Salmon 6 = Pink ~~s~~Salmon 39 = Mixed ~~s~~Salmon 96 = Mixed anadromous salmonids 66 = Kokanee	14 = Bull ~~t~~Trout 10 = Brown ~~t~~Trout 11 = Brook ~~t~~Trout 9 = Rainbow ~~t~~Trout 23 = Redband ~~t~~Trout 111= Rainbow/~~r~~Redband/~~s~~Steel head trout 17 = Coastal ~~c~~Cutthroat ~~t~~Trout 21 = Westslope ~~c~~Cutthroat ~~t~~Trout 8 = Cutthroat ~~t~~Trout	94 = Mixed lamprey 113 = Lamprey (unspecified) 122 = Pacific ~~L~~Lamprey 120 = Western ~~b~~Brook ~~L~~Lamprey 15 = Lamprey: CODE DISCONTINUED 12 = White ~~s~~Sturgeon 44 = Green ~~s~~Sturgeon 98 = N/A 99 = Unknown
RunID	Code for the fish run. For ~~c~~Coastal ~~c~~Cutthroat Trout, use code 98.	**Integer**	1 = Spring 2 = Summer 3 = Fall 4 = Winter	12 = Odd year ~~p~~Pink 13 = Even year ~~p~~Pink 16 = Mixed 17 = Spring/summer 18 = Both summer & winter	19 = Late 20 = Late fall 21 = Early 22 = Both early & late 23 = Summer/fall	24 = Late winter 98 = N/A 99 = Unknown If run not appropriate for the species, enter 98 = N/A.
Sub~~R~~runID	Code for the fish subrun	**Integer**	1 = A run 2 = B run 3 = S type - Early 4 = N type - Late	5 = Tule 6 = Upriver bright 7 = S type & N type	8 = Late run 9 = Early run 98 = N/A	99 = Unknown If subrun not appropriate for this species, enter 98 = N/A.
ProdID	Code for the production type of the fish. For redd counts, indicate the production type(s) of the fish that created the redds.	**Integer**	1 = Hatchery 2 = Natural 3 = Mixed 99 = Unknown	"Hatchery" fish are those resulting from spawning in a hatchery, while "Natural" fish are those resulting from spawning in the natural environment. Whether their parents were hatchery origin, natural origin, or a mix does not matter.		

Field Name	Field Description	Data Type	Codes/Rules/Conventions for Trend Table			
StageID	Code for the life stage of the fish described in the trend.	**Integer**	1 = Egg (unspecified) 2 = Emergent fry or larvae 5 = Sub-yearling (age 0) 6 = Yearling (age 1) 7 = 2 year old migrant 8 = Jack or subadult	9 = Adult 10 = Adults & jacks 13 = Fry (unspecified) 14 = Juvenile (unspecified) 16 = Smolt 17 = Carcass 18 = Parr	19 = Presmolt 20 = Mini-jack (2 year old) 21 = Ages 1 and 2 22 = 2 year old 24 = Half-pounder 25 = Adults and half-pounders	29 = All stages 30 = Not specified 31 = Adults and juveniles 98 = N/A 99 = Unknown
PopID	PopID from the Coordinated Assessments database.	Integer	Populate this field to associate this trend with a Coordinated Assessments population, and make this trend available as "related data" in the Coordinated Assessments query system (http://cax.streamnet.org/).			
LifeHistoryID	Code for the life history strategy(s) of the species in the indicated reach.	**Integer**	1 = Anadromous 2 = Year-round resident 3 = Fluvial/adfluvial		4 = Fluvial/adfluvial and year-round resident 5 = Anadromous and year-round resident 99 = Unknown	
TrendTypeID	This field is used to describe the relative importance of a survey within a major category (refer to CategoryID above). Links to TrendType table.	**Integer**	1 = Index - Areas that have been surveyed consistently over a long period of time, and are generally used to index abundance at some geographic scale. 2 = Random - Areas that may be used to index abundance, but the survey sites are selected randomly from the available species' distribution and therefore, may not be conducted every year. 3 = Supplemental - Surveys that are typically selected to fill specific localized information needs and may or may not be conducted year to year either due to management decisions or due to environmental conditions. 4 = Spot Check - Surveys that are identical to supplemental areas except only a subset of a given area is sampled (e.g. select gravel bars, every 5th fish observed, every other pool, etc.) and these subset counts are used to enumerate fish for the entire survey area. 5 = Incidental - Trend data that are derived from a survey targeting a different species than the one being reported (example: while conducting a steelhead redd count survey, 2 adult lamprey are noted in the comments - the lamprey count would be reported as an incidental trend). 6 = Exploratory - Used to determine presence/absence or distribution of fish or redds. Exploratory trends typically are used to determine where to establish long-term index trends. 98 = N/A 99 = Unknown			
TrendCom	This field is used to describe general information which applies to all years in the trend. These include information such as local or colloquial names for the system which may not be part of the official reach designation, periods of closure to fishing during which no data are available, and specific run or stock details which may not be captured using the standard species/run/production categories.	Text ∞				
HatchID	The code for the hatchery that the trend is related to, if applicable.	**Integer**	98 = N/A For assigned HatchID range series please refer to the Hatchery table information, or for a complete list of HatchID codes contact the regional StreamNet personnel.			
DamID	The code for the dam that the trend is related to, if applicable.	**Integer**	98 = N/A For assigned DamID range series please refer to the Dam table information, or for a complete list of DamID codes contact the regional StreamNet personnel.			

Field Name	Field Description	Data Type	Codes/Rules/Conventions for Trend Table
HistoricStatID	The code for the status of data entry for the Trend. Field is intended to assist in future updates of the database - it indicates whether all known historical data for the Trend are in the StreamNet database.	**Integer**	1 = All available historical data currently in StreamNet. 2 = Earliest available data not yet in StreamNet. 3 = Earliest available data in StreamNet, but one or more gaps exist between oldest and newest data in StreamNet: these data known to exist. 4 = Earliest available data in StreamNet, but one or more gaps exist between oldest and newest data in StreamNet: unknown if these data exist. 99 = Unknown
TrendStatID	The code for the trend status. This field is intended to assist in future updates of database - it indicates whether data will be produced in the future to add to this Trend. This field indicates the status of the most recent years of data, while the HistoricStatID field indicates the status of the oldest data for the trend.	**Integer**	1 = Data currently collected for Trend table 2 = No data currently collected, but data may be collected in future 3 = Run of fish still exists, but data collection has ceased 4 = Run of fish extinct, data collection ceased 5 = Inactive aggregate trend; current data in independent trends 6 = Inactive independent trend; current data in aggregate trend 7 = Most recent data have been requested but are not yet ready for exchange 8 = Production of these fish stopped at this hatchery 9 = Facility closed or removed 10 = Data collection discontinued 99 = Unknown
StatCom	A comment field elaborating on the TrendStat	Text ∞	Comments on TrendStat (e.g., "Run declared extinct in 1982.")
BPAprojNum	BPA project number(s) of funding used to collect the data. This may be include various BPA project numbers over the years of a single TrendID.	Text 50	Use "N/A" when no BPA funding was used. The default value "Not yet determined" will be assigned when left blank. Separate multiple entries with commas; spaces can be used after commas for readability.
MRStudyPlanID	Study plan ID(s) from MonitoringResources.org.	Text 50	Use "N/A" when no study plan is linked to this trend. The default value "Not yet determined" will be assigned when left blank. Separate multiple entries with commas; spaces can be used after commas for readability.
CompilerID	The code for the agency that put the data into the StreamNet standards and sent them to StreamNet, and is responsible for updates. Links to the Compiler table.	**Integer**	1 = Washington Department of Fish and Wildlife 2 = Columbia River Inter-Tribal Fish Commission 3 = U.S. Fish and Wildlife Service 4 = Idaho Department of Fish and Game 5 = Oregon Department of Fish and Wildlife 6 = Pacific States Marine Fisheries Commission 7 = California Department of Fish and Game 8 = Montana Fish, Wildlife, and Parks 9 = Confederated Tribes of the Umatilla Indian Reservation 10 = Nez Perce Tribe 11 = Shoshone-Bannock Tribes 12 = Confederated Tribes of the Colville Reservation 14 = Confederated Tribes and Bands of the Yakama Nation 15 = Confederated Tribes of the Warm Springs Reservation of Oregon
UpdDate	The date and time that the record was created or updated. For data obtained in electronic format from another source it can reflect the date and time of data capture or of conversion to StreamNet standards.	**Datetime**	This can be the time a record was created, the last time it was edited, or the last time it was QCd. This field tells the end user when the record was last modified at the source organization.
ID (unique)	Value used by computer to identify a record.	***GUID***	This value is a globally unique identifier (GUID) exactly 36 characters long. • *When submitting a new record you may include this value or leave it blank.* If you include this value then it will be used by the central system. If you leave it blank then a value will be created for you, and it will be sent back to your system where it must be incorporated. • *When updating or deleting records this value must be included.*
CompilerRecordID	Agency record ID maintained by the data submitter.	Text 36	This field can be used in any way the compiler may find helpful. For example, it can be used to create a link between the Coordinated Assessments exchange network and an internal system such as ODFW's Salmon Tracker.
Publish	Yes/no value indicating whether this record should be shared freely with all public users via the Exchange Network. If "No" then the record can only be accessed by using the apikey that created it.	**Text 3**	Acceptable values: [*Do not include comments in brackets.*] • Yes [*Record will be shared with public via Exchange Network.*] • No [*Record will not be shared with public via Exchange Network.*] Setting this value to "No" lets you test your systems and avoid having such test records be output on the public system.

B2. EscData Table

This table is a child of the Trend table and contains the (generally annual) child records for time series data for a variety of data types, including various fish and redd counts (except for hatchery returns), population estimates, and harvest data.

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Field Name	Field Description	Data Type	Codes/Rules/Conventions for EscData Table		
TrendID	Identifier for the unique time series that this record is associated with. Refer to Trend table information.	**Integer**	Refer to Trend table information.		
BeginDate	The starting date for the count, for calendar year results, usually Jan 1st of that year. For run year, actual date is reported.	**Date**	mm/dd/yyyy		
EndDate	The ending date for the count, for calendar year results, usually Dec 31st of that year. For run year, actual cut off date is reported.	**Date**	mm/dd/yyyy		
SampMethID	The method used to physically sample the fish. When NullFlag = Yes you can choose to use the normal SampMethID for the trend, or enter 98 (N/A).	**Integer**	98 = N/A 99 = Unknown 101 = Fixed wing aerial 102 = Boat 103 = Dam 105 = Ground 106 = Helicopter 108 = Seine / electrofishing combination 109 = Hatchery rack / weir 110 = Rotary screw trap 111 = Weir / trap 112 = Sonar 113 = In-stream PIT tag detector	114 = Snorkel 116 = Electrofishing 117 = Air / ground combination 201 = Commercial fish ticket 202 = Tribal fish ticket 203 = Punch card 204 = Postal survey 205 = Creel survey 206 = Air or lighthouse boat count 207 = Combination of methods 208 = Gillnet 209 = Gaffing 210 = Hook and line	211 = Commercial & tribal fish tickets 212 = Punch card supplemented with creel survey statistics 213 = Aerial (unspecified aircraft) 214 = Boat and ground 215 = Sport fishing reward tags 216 = Seine 237 = See Comments 238 = Fyke net 239 = Fyke trap 240 = Environmental DNA 241 = Unmanned aerial vehicle 242 = Inclined plane trap
CalcMethID	The method by which the count was calculated. When NullFlag = Yes you can choose to use the normal CalcMethID for the trend, or enter 98 (N/A). Code 314 is often useful, and includes such straight-forward processes as addition, subtraction, multiplication, division, arithmetic mean, median, geometric mean, harmonic mean, weighted mean, mode, etc.	**Integer**	[*Comments in brackets not included.*] 98 = N/A 99 = Unknown 104 = Estimation - unknown type 115 = Estimation based on peak or redd count expansion 118 = Estimation based on dam count 119 = Weir count expansion 120 = Estimation based on juvenile population size 121 = Estimation based on spawning ground count 122 = Estimation based on carcass count expansion 123 = Estimation based on a combination of factors 124 = Estimation based on redd and carcass count expansions 301 = Weight derived estimate 302 = Book estimate 303 = Mark-recapture: Petersen estimate		304 = Actual physical counts [*No expansion*] 305 = Mark-recapture -- unspecified type 306 = Mark-recapture: Shaefer method 307 = Mark-recapture: Jolly-Seber method 308 = Estimate based on historical data 309 = Mark-recapture: Ricker method 310 = Mark-recapture: Chapman method 311 = Mark-recapture: Bailey (1951) method 312 = Estimation based on creel survey expansion 313 = Depletion (regression) method 314 = Arithmetic calculation 315 = Run reconstruction 316 = Mark-recapture: Jolly-Dickson method 317 = Video count 318 = Estimation based on video count

Field Name	Field Description	Data Type	Codes/Rules/Conventions for EscData Table
CountValue	Value of what was counted, as per the TypeID field of the Trend table, unless the TypeID indicates a "per mile" data type. For "per mile" TypeID the "per mile" value is entered in the CountPerMile field, and this CountValue field is optionally filled with the counted value of what was counted.	***Real***	*Required when NullFlag = No and CountPerMile is blank.* *Optional when NullFlag = No and CountPerMile is filled in.* *Must be null when NullFlag = Yes.* *If value is "Too many to count" then follow directions in Appendix A.* As an example for when TypeID indicates a per mile count, where 56 redds were counted in 3.2 miles: • TypeID in Trend table = 102 (Redds per mile) • CountPerMile = 17.5 • MilesSurveyed = 3.2 (optional, but recommended it be filled) • CountValue = 56 (optional, but recommended it be filled) (This value is used for age data when available. CountValue is the number of fish the age data apply to. For example if CountValue=300 but only 100 fish were aged, 300 will show up as both the number for the trend and as the number of fish the age data apply to. For this reason, age data should be associated with fish or carcass counts, not with such things as redd counts.)
CountDate	The count date is used to identify the specific date from which a peak count was derived (i.e., if several surveys were conducted over a period of time, and the peak count is recorded here, the date for that specific peak count would be entered as the count date).	***Date***	mm/dd/yyyy Should be entered for any Peak type count. *If the information does not exist for a peak count record, then leave this field blank and place whatever is known about dates in the CountCom field. Also leave blank if NullFlag = Yes.*
TimesSurveyed	The actual number of times the survey was conducted during the survey season.	Integer	
MilesSurveyed	The actual miles surveyed.	Real	NOTE: Not be used for expansion counts.
CountCILowLim	The lower confidence limit (L_1) of the confidence interval (CI) of the value in the CountValue field.	***Real***	*Required if CountCIUpLim is not null.* The fields CountCILowLim (this field) and CountCIUpLim define the confidence interval (CI) of the value in the CountValue field. Must be null or <= CountValue or <=CountPerMile. If both CountValue and CountPerMile are filled and a confidence interval is provided, be sure to indicate in the CountCom field whether the confidence interval applies to CountValue or CountPerMile.
CountCIUpLim	The upper confidence limit (L_2) of the confidence interval (CI) of the value in the CountValue field.	***Real***	*Required if CountCILowLim is not null.* The fields CountCILowLim and CountCIUpLim (this field) define the confidence interval (CI) of the value in the CountValue field. Must be null or >= CountValue or >= CountPerMile.
CountCILevel	The confidence level used to report the values in the CountCILowLim and CountCIUpLim fields.	***Real***	*Required if CountCILowLim is not null.* Expressed as a percentage in use, but stored here without the percent sign. Typical values for this field are 95 (for 95% confidence level) and 90 (for 90% confidence level). This value in this field is calculated as (100) (1 - α). [That is, 100 times the sum of 1 minus alpha.]
CountCIDistType	The type of distribution assumed when calculating the confidence interval for the CountValue field.	Text 30	When used, most of the time the value in this field will be "Normal". However, any distribution type might appear that a biologist assumed when calculating the confidence interval. Also acceptable are entries such as "None assumed".
CountPerMile	The actual or computer-calculated count per mile for a survey area. This can be used for any “per mile” count (e.g. redds/mile, carcass/mile, etc.).	***Real***	*Required when NullFlag = No and CountValue is blank. See other rules in the CountValue field above.* NOTE: This would not be used for expansion counts.
RefID	The unique StreamNet reference ID number that identifies the source document or database from which the count was obtained.	**Integer**	Refer to Reference table information.
ASNID	Age Structure Number ID - Provides link to age structure data in the Age table.	**Integer**	Refer to the Age table for assigned ranges. Enter '98' if no age data are available. An ASNID value used in this table should not be used in the HatchRetMain or HatchRetDetail table.
ASCode	Age Structure Code. If age structure information exists, indicates whether it was derived from the exact group of fish represented by this record.	**Integer**	1 = Age structure was derived from this group of fish. 2 = Age structure was derived from a different group of fish. 98 = No age data available.

Field Name	Field Description	Data Type	Codes/Rules/Conventions for EscData Table	
ASSource	If ASCode = 2, this field indicates group of fish used to determine the age structure for this record.	Text 100	Indicate group of fish that was source of the age structure information. Leave null if ASCode = 1 or 98. If ASCode=2, fill in this field if possible.	
ASMethod	Method by which ages were derived. Use codes 1/3/5/6 if traditional ring reading was used, code 4 if chemical marks were used. Enter 98 if NullFlag = Yes, or if ASCode = 98.	**Integer**	1 = Scales 2 = Length-frequency analysis 3 = Otoliths 4 = Marks (fin clips, brands, tags, chemical marks, etc.) 5 = Bones	6 = Spines 7 = Standardized length classes applied 97 = Combination of methods 98 = N/A 99 = Unknown
RepeatSpawners	Number of repeat spawners included in CountValue.	Integer	This number is the (perhaps estimated) number of fish that were determined to be part of the total number reported in the CountValue field. The number in this field is already included in CountValue. So, for example, if 95 first-time spawners and 5 repeat spawners were counted for a total of 100 fish, then the value in CountValue is 100 (the total number of fish) and the number in RepeatSpawners is 5.	
CountCom	This field is used to document unusual conditions which may affect a particular annual abundance record. Provide additional data which may complement this record, and report the page number on which the number appears in a published reference, etc.	***Text***	*Required if NullFlag=Yes.* For some data categories, a measurement may be incomplete but is still recorded as the best available. For example, if high water prevented full sampling of a smolt trap or spawning ground survey, then a partial count may be the best available. In such cases, recording here the difficulties encountered that affected the final count is appropriate.	
DataEntry	Compiler's name.	**Text 50**	The name of the person who entered the record. Including first and last names is preferred.	
AgencyID	Unique StreamNet ID for the agency that entered the record.	**Integer**	5 = Columbia River Inter-Tribal Fish Commission 6 = Confederated Tribes and Bands of the Yakama Nation 90 = Confederated Tribes of the Colville Reservation 7 = Confederated Tribes of the Umatilla Indian Reservation 8 = Confederated Tribes of the Warm Springs Reservation of Oregon 10 = Idaho Department of Fish and Game 48 = Montana Fish, Wildlife & Parks 13 = Nez Perce Tribe 15 = Oregon Department of Fish and Wildlife 63 = Pacific States Marine Fisheries Commission 20 = Shoshone-Bannock Tribes 75 = Spokane Tribe of Indians 22 = U.S. Fish and Wildlife Service 24 = Washington Department of Fish and Wildlife	
NullFlag	If Yes, this field indicates a null value for the defined time period: it is true that data were not collected. If set to Yes, enter in the CountCom field why data do not exist.	**Text 3**	Acceptable values: • Yes • No	
UpdDate	The date and time that the record was created or updated. For data obtained in electronic format from another source it can reflect the date and time of data capture or of conversion to StreamNet standards.	**Datetime**	This can be the time a record was created, the last time it was edited, or the last time it was QCd. This field tells the end user when the record was last modified at the source organization.	
ID (unique)	Value used by computer to identify a record.	***GUID***	This value is a globally unique identifier (GUID) exactly 36 characters long. • *When submitting a new record you may include this value or leave it blank.* If you include this value then it will be used by the central system. If you leave it blank then a value will be created for you, and it will be sent back to your system where it must be incorporated. • *When updating or deleting records this value must be included.*	

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Field Name	Field Description	Data Type	Codes/Rules/Conventions for EscData Table
CompilerRecordID	Agency record ID maintained by the data submitter.	Text 36	This field can be used in any way the compiler may find helpful. For example, it can be used to create a link between the Coordinated Assessments exchange network and an internal system such as ODFW's Salmon Tracker.
Publish	Yes/no value indicating whether this record should be shared freely with all public users via the Exchange Network. If "No" then the record can only be accessed by using the apikey that created it.	**Text 3**	Acceptable values: [*Do not include comments in brackets.*] • Yes [*Record will be shared with public via Exchange Network.*] • No [*Record will not be shared with public via Exchange Network.*] Setting this value to "No" lets you test your systems and avoid having such test records be output on the public system.

B3. HatchRetMain Table

This table contains hatchery return information and has a many to one relationship with the Trend table (via TrendID). This table houses information about the entire pool of fish coming to a hatchery for a year. The "pool" is defined by the hatchery, species, run, etc. in the Trend table, and includes all the fish from all capture locations. (Note about related age data: "Unknowns" in this table should equal the sum of "unknowns" in the Age table. Same for females. Males in the Age table should equal males+jacks here. Adding all the records in the Age table should equal the Total field here. Imperfect data will not match these expectations, but are allowed.)

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Field Name	Field Description	Data Type	Codes/Rules/Conventions for HatchRetMain Table
TrendID	Refer to EscData table information.	**Integer**	Refer to Trend table information.
KeyDate	Earliest date fish are recorded or collection starts	**Date**	mm/dd/yyyy The key date is used to record the beginning of fish collection. Depending on the agency, this is either when the trap is opened or when the first fish is recorded.
BeginDate	Earliest date fish were recorded for the return year.	**Date**	mm/dd/yyyy
EndDate	Latest date fish were recorded for the return year.	**Date**	mm/dd/yyyy
Males	Number of adult males that arrived at the hatchery. Includes all fish from all capture locations.	Integer	If unknown, leave null.
Females	Number of adult females that arrived at the hatchery. Includes all fish from all capture locations.	Integer	If unknown, leave null. Includes Jennies.
Jacks	Number of jacks that arrived at the hatchery. Includes all fish from all capture locations.	Integer	If unknown, leave null.
Unknown	Number of unsexed fish that arrived at the hatchery. Includes all fish from all capture locations.	Integer	If unknown, leave null.
Total	Total number of fish that arrived at the hatchery. Includes all fish from all capture locations.	Integer	The sum of Males, Females, Jacks, Unknown. (The value in the Morts field is not added in here.) If Males, Females, Jacks, and Unknown are all zero, then enter zero here also. If unknown, leave null. (This value is used for age data when available, and is the number of fish the age data apply to. For example if Total=300 but only 100 fish were aged, 300 will show up as both the number for the trend and as the number of fish the age data apply to.)
RefID	Refer to EscData table information.	**Integer**	Refer to Reference table information.
ASNID	Age Structure Number ID - Provides link to age structure data in the Age table.	**Integer**	Refer to the Age table for assigned ranges. Enter '98' if no age data are available. An ASNID value should generally be used in only one of the related tables (EscData, HatchRetMain, HatchRetDetail), though it is possible to be in both HatchRetMain and HatchRetDetail if all fish are from a single capture location.
ASCode	Age Structure Code. If age structure information exists, indicates whether it was derived from the exact group of fish represented by this record.	**Integer**	1 = Age structure was derived from this group of fish. 2 = Age structure was derived from a different group of fish. 98 = No age data available.

Field Name	Field Description	Data Type	Codes/Rules/Conventions for HatchRetMain Table	
ASSource	If ASCode = 2, this field indicates group of fish used to determine the age structure for this record.	Text 100	Indicate group of fish that was source of the age structure information. Leave null if ASCode = 1 or 98. If ASCode=2, fill in this field if possible.	
ASMethod	Method by which ages were derived. Use codes 1/3/5/6 if traditional ring reading was used, code 4 if chemical marks were used. Enter 98 if NullFlag = Yes, or if ASCode = 98.	**Integer**	1 = Scales 2 = Length-frequency analysis 3 = Otoliths 4 = Marks (fin clips, brands, tags, etc.) 5 = Bones	6 = Spines 7 = Standard length classes applied 97 = Combination of methods 98 = N/A 99 = Unknown
BeginSpawn	Earliest date fish were spawned.	Date	mm/dd/yyyy	
EndSpawn	Latest date fish were spawned.	Date	mm/dd/yyyy	
MalesSpawned	Number of adult males spawned.	Integer	This value is <= to the value in the Males field, unless the Males field is null or imperfect source data are available.	
FemalesSpawned	Number of adult females spawned.	Integer	The value of FemalesSpawned + FemalesNonviable must be <= to the value in the Females field, unless the Females field is null or imperfect source data are available.	
FemalesNonviable	Number of adult females not spawned because nonviable.	Integer		
JacksSpawned	Number of jacks spawned	Integer	This value must be <= to the value in the Jacks field, unless the Jacks field is null or imperfect source data are available.	
Morts	Total morts	Integer	Because Morts indicates how many of the Total died, Morts must be <= the value in the Total field, unless the Total field is null or imperfect source data are available.	
EggsTaken	Number of eggs taken	Integer	Total eggs collected from the spawned females, unless otherwise indicated. This is the number of eggs available for fertilizing, before culling, picking, eye-up, etc.	
Comments	This field is used to document unusual conditions that may affect a particular hatchery return record. Provide additional data that may complement this record, and report the page number on which the number appears in a published reference, etc.	***Text***	*Required if NullFlag=Yes.*	
DataEntry	Compiler's name.	**Text 50**	The name of the person who entered the record. Including first and last names is preferred.	
AgencyID	Unique StreamNet ID for the agency that entered the record.	**Integer**	For AgencyID codes please refer to the EscData table.	
NullFlag	If Yes, this field indicates a null value for the defined time period: it is true that data were not collected. If set to Yes, enter in the Comments field why data do not exist.	**Text 3**	Acceptable values: • Yes • No	
UpdDate	The date and time that the record was created or updated. For data obtained in electronic format from another source it can reflect the date and time of data capture or of conversion to StreamNet standards.	**Datetime**	This can be the time a record was created, the last time it was edited, or the last time it was QCd. This field tells the end user when the record was last modified at the source organization.	
ID (unique)	Value used by computer to identify a record.	***GUID***	This value is a globally unique identifier (GUID) exactly 36 characters long. • *When submitting a new record you may include this value or leave it blank.* If you include this value then it will be used by the central system. If you leave it blank then a value will be created for you, and it will be sent back to your system where it must be incorporated. • *When updating or deleting records this value must be included.*	
CompilerRecordID	Agency record ID maintained by the data submitter.	Text 36	This field can be used in any way the compiler may find helpful. For example, it can be used to create a link between the Coordinated Assessments exchange network and an internal system such as ODFW's Salmon Tracker.	

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Field Name	Field Description	Data Type	Codes/Rules/Conventions for HatchRetMain Table
Publish	Yes/no value indicating whether this record should be shared freely with all public users via the Exchange Network. If "No" then the record can only be accessed by using the apikey that created it.	**Text 3**	Acceptable values: [*Do not include comments in brackets.*] • Yes [*Record will be shared with public via Exchange Network.*] • No [*Record will not be shared with public via Exchange Network.*] Setting this value to "No" lets you test your systems and avoid having such test records be output on the public system.

B4. HatchRetDetail Table

This table contains hatchery return information and has a many to one relationship with the HatchRetMain table (via TrendID and KeyDate). This table houses information about fish coming to a hatchery from specific capture locations. In general you should use this table only if the fish coming to the hatchery (as listed in the HatchRetMain table) came from more than one location. (Notes about related age data: a) "Unknowns" in this table should equal the sum of "unknowns" in the Age table. Same for females. Males in the Age table should equal males+jacks here. Adding all the records in the Age table should equal the Total field here. Imperfect data will not match these expectations, but are allowed. b) Age data will only link to this table if age data specific to a capture site are available.)

(Back to Trend table) (Back to HatchRetMain table) (Back to table of contents)

Field Name	Field Description	Data Type	Codes/Rules/Conventions for HatchRetDetail Table		
TrendID	Refer to EscData table information.	**Integer**	Refer to Trend table information.		
KeyDate	Earliest date fish are recorded or collection starts	**Date**	mm/dd/yyyy The key date is used to record the beginning of fish collection. Depending on the agency, this is either when the trap is opened or when the first fish is recorded.		
CaptureLocationID	Code for the location where fish were caught. Location code from LocMaster table for hatchery, trap, dam, or stream. Links to LocationID in LocMaster table.	**Text 13**	Enter a LocationID.		
BegFt	Used to indicate location on stream where fish were captured. Especially needed for long rivers such as the Columbia and Snake.	**Integer**	If CaptureLocationID represents a hatchery facility (fish swam into hatchery facility), then enter the BegFt value as recorded for that hatchery facility in the Hatchery table. If CaptureLocationID represents a stream because fish were seined from a river, enter the distance from the mouth of the stream, in feet. For captures at traps or dams enter -1.		
BeginDate	Earliest date fish were recorded for the return year.	**Date**	mm/dd/yyyy		
EndDate	Latest date fish were recorded for the return year.	**Date**	mm/dd/yyyy		
SampMethID	The method used to capture the fish. When NullFlag = Yes you can choose to use the normal SampMethID for the trend, or enter 98 (N/A).	**Integer**	The full list of codes can be found in the EscData table. The codes that are most likely useful for hatchery returns are shown here:	98 = N/A 99 = Unknown 109 = Hatchery rack / weir 111 = Weir / trap	208 = Gillnet 209 = Gaffing 216 = Seine 237 = See Comments
Males	Number of adult males captured at the location.	Integer	If unknown, leave null.		
Females	Number of adult females captured at the location.	Integer	If unknown, leave null. Includes Jennies.		
Jacks	Number of jacks captured at the location.	Integer	If unknown, leave null.		
Unknown	Number of unsexed fish captured at the location.	Integer	If unknown, leave null.		
Total	Total number of live fish captured at the location.	Integer	The sum of Males, Females, Jacks, Unknown. (The value in the Morts field is not added in here.) If Males, Females, Jacks, and Unknown are all zero, then enter zero here also. If unknown, leave null.		
RefID	Refer to EscData table information.	**Integer**	Refer to Reference table information.		

Field Name	Field Description	Data Type	Codes/Rules/Conventions for HatchRetDetail Table
ASNID	Age Structure Number ID - Provides link to age structure data in the Age table.	**Integer**	Refer to the Age table for assigned ranges. Enter '98' if no age data are available. An ASNID value should generally be used in only one of the related tables (EscData, HatchRetMain, HatchRetDetail), though it is possible to be in both HatchRetMain and HatchRetDetail if all fish are from a single capture location.
ASCode	Age Structure Code. If age structure information exists, indicates whether it was derived from the exact group of fish represented by this record.	**Integer**	1 = Age structure was derived from this group of fish. 2 = Age structure was derived from a different group of fish. 98 = No age data available.
ASSource	If ASCode = 2 then indicate group of fish used to determine the age structure for this record.	Text 100	Indicate group of fish that was source of the age structure information. Leave null if ASCode = 1 or 98. If ASCode=2, fill in this field if possible.
ASMethod	Method by which ages were derived. Use code 1/3/5/6 if traditional ring reading was used, code 4 if chemical marks were used. Enter 98 if NullFlag = Yes, or if ASCode = 98.	**Integer**	1 = Scales 2 = Length-frequency analysis 3 = Otoliths 4 = Marks (fin clips, brands, tags, etc.) 5 = Bones 6 = Spines 7 = Standard length classes applied 97 = Combination of methods 98 = N/A 99 = Unknown
BeginSpawn	Earliest date fish were spawned.	Date	mm/dd/yyyy
EndSpawn	Latest date fish were spawned.	Date	mm/dd/yyyy
MalesSpawned	Number of adult males spawned	Integer	This value is <= to the value in the Males field, unless the Males field is null or imperfect source data are available.
FemalesSpawned	Number of adult females spawned	Integer	The value of FemalesSpawned + FemalesNonviable must be <= to the value in the Females field, unless the Females field is null or imperfect source data are available.
FemalesNonviable	Number of adult females not spawned because nonviable.	Integer	
JacksSpawned	Number of jacks spawned	Integer	This value must be <= to the value in the Jacks field, unless the Jacks field is null or imperfect source data are available.
Morts	Total morts	Integer	Because Morts indicates how many of the Total died, Morts must be <= the value in the Total field, unless the Total field is null or imperfect source data are available.
EggsTaken	Number of eggs taken	Integer	Total eggs collected from the spawned females, unless otherwise indicated. This is the number of eggs available for fertilizing, before culling, picking, eye-up, etc.
Comments	This field is used to document unusual conditions that may affect a particular hatchery return record. Provide additional data that may complement this record, and report the page number on which the number appears in a published reference, etc.	***Text***	*Required if NullFlag=Yes.*
DataEntry	Compiler's name.	**Text 50**	The name of the person who entered the record. Including first and last names is preferred.
AgencyID	Unique StreamNet ID for the agency that entered the record.	**Integer**	For AgencyID codes please refer to the EscData table.
NullFlag	If Yes, this field indicates a null value for the defined time period: it is true that data were not collected. If set to Yes, enter in the Comments field why data do not exist.	**Text 3**	Acceptable values: • Yes • No
UpdDate	The date and time that the record was created or updated. For data obtained in electronic format from another source it can reflect the date and time of data capture or of conversion to StreamNet standards.	**Datetime**	This can be the time a record was created, the last time it was edited, or the last time it was QCd. This field tells the end user when the record was last modified at the source organization.

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Field Name	Field Description	Data Type	Codes/Rules/Conventions for HatchRetDetail Table
ID (unique)	Value used by computer to identify a record.	***GUID***	This value is a globally unique identifier (GUID) exactly 36 characters long. • *When submitting a new record you may include this value or leave it blank.* If you include this value then it will be used by the central system. If you leave it blank then a value will be created for you, and it will be sent back to your system where it must be incorporated. • *When updating or deleting records this value must be included.*
CompilerRecordID	Agency record ID maintained by the data submitter.	Text 36	This field can be used in any way the compiler may find helpful. For example, it can be used to create a link between the Coordinated Assessments exchange network and an internal system such as ODFW's Salmon Tracker.
Publish	Yes/no value indicating whether this record should be shared freely with all public users via the Exchange Network. If "No" then the record can only be accessed by using the apikey that created it.	**Text 3**	Acceptable values: [*Do not include comments in brackets.*] • Yes [*Record will be shared with public via Exchange Network.*] • No [*Record will not be shared with public via Exchange Network.*] Setting this value to "No" lets you test your systems and avoid having such test records be output on the public system.

B5. HatchDisposition Table

This table designates the final disposition of fish bodies processed at hatchery facilities. This table has a many to one relationship with the HatchRetMain table (via TrendID and KeyDate).

(Back to HatchRetMain table) (Back to table of contents)

Field Name	Field Description	Data Type	Codes/Rules/Conventions for HatchDisposition Table		
TrendID	Refer to EscData table information.	**Integer**	Refer to Trend table information.		
KeyDate	Earliest date fish are recorded or collection starts	**Date**	mm/dd/yyyy The key date is used to record the beginning of fish collection. Depending on the agency, this is either when the trap is opened or when the first fish is recorded.		
Sex	Sex of fish.	**Integer**	1 = Male 2 = Female 3 = Male & Female	4 = Jack 5 = Jenny 6 = Mini-Jack	98 = N/A 99 = Unknown
DispositionID	Code used to denote ultimate disposition of the fish.	**Integer**	1 = Returned to water body dead - same stream (nutrient enhancement) 2 = Returned to water body dead - other stream (nutrient enhancement) 3 = Returned downstream live 4 = Returned upstream live 5 = Returned to water body live 6 = Disposal - buried 7 = Disposal - paid to haul away 8 = Disposal - processed 9 = Disposal - freezer 10 = Disposal - dump 11 = Disposal - general 12 = Transfer to tribe- ceremonial/subsistence 13 = Transfer to tribe - harvest agreement 14 = Sold to tribe	15 = Sold non-tribal 16 = Sold unknown 17 = Donation to tribe 18 = Donation non-tribal 19 = Donation to food bank 20 = Donation unknown 21 = Donation to prisons 22 = Donation to research 23 = Donation to USFWS's Eagle Program 24 = Transfer - outside agency 25 = Transfer - within agency 26 = Transfer - unknown 27 = No carcass 28 = Other [*specify in comment field if possible*] 29 = Outreach / Education 99 = Unknown	
BeginDate	Earliest date fish were recorded for disposition.	**Date**	mm/dd/yyyy		
EndDate	Latest date fish were recorded for disposition.	**Date**	mm/dd/yyyy		

Field Name	Field Description	Data Type	Codes/Rules/Conventions for HatchDisposition Table
NumberOfFish	Number of fish (live or dead) removed from the Hatchery.	***Integer***	*Required if NullFlag=No.* *Must be null if NullFlag=Yes.*
RefID	Refer to EscData table information.	**Integer**	Refer to Reference table information.
Comments	This field is used to document unusual conditions that may affect a particular record. Provide additional data that may complement this record, and report the page number on which the number appears in a published reference, etc.	***Text***	*Required if NullFlag=Yes.*
DataEntry	Compiler's name.	**Text 50**	The name of the person who entered the record. Including first and last names is preferred.
AgencyID	Unique StreamNet ID for the agency that entered the record.	**Integer**	For AgencyID codes please refer to the EscData table.
NullFlag	If Yes, this field indicates a null value for the defined time period: it is true that data were not collected. If set to Yes, enter in the Comments field why data do not exist.	**Text 3**	Acceptable values: • Yes • No
UpdDate	The date and time that the record was created or updated. For data obtained in electronic format from another source it can reflect the date and time of data capture or of conversion to StreamNet standards.	**Datetime**	This can be the time a record was created, the last time it was edited, or the last time it was QCd. This field tells the end user when the record was last modified at the source organization.
ID (unique)	Value used by computer to identify a record.	***GUID***	This value is a globally unique identifier (GUID) exactly 36 characters long. • *When submitting a new record you may include this value or leave it blank.* If you include this value then it will be used by the central system. If you leave it blank then a value will be created for you, and it will be sent back to your system where it must be incorporated. • *When updating or deleting records this value must be included.*
CompilerRecordID	Agency record ID maintained by the data submitter.	Text 36	This field can be used in any way the compiler may find helpful. For example, it can be used to create a link between the Coordinated Assessments exchange network and an internal system such as ODFW's Salmon Tracker.
Publish	Yes/no value indicating whether this record should be shared freely with all public users via the Exchange Network. If "No" then the record can only be accessed by using the apikey that created it.	**Text 3**	Acceptable values: [*Do not include comments in brackets.*] • Yes [*Record will be shared with public via Exchange Network.*] • No [*Record will not be shared with public via Exchange Network.*] Setting this value to "No" lets you test your systems and avoid having such test records be output on the public system.

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~~B6. SRData Table~~

~~This table contains spawner – recruit data. Originally housing only data from the PATH project from the 1990s, this table now houses spawner - recruit data from multiple sources. [This table was removed from the DES for version 2016.1 because R/S data at the population scale are now collected in the "coordinated assessments" RperS table. This SRData table still exists in the database and can be easily restored to this DES if desired.]~~

B76. Age Table

This table stores population-level age structure information. It is a child of the EscData, HatchRetMain, and HatchRetDetail tables, linking via ASNID. Because the rules for which fields can/should be filled change based on several factors, the key field is an arbitrary number rather than a meaningful combination of data fields.

(Notes: a) Including records that represent zero fish is OK. For example, if a sample has records for TotalAge=2, 4, and 5, then including a record for TotalAge=3 with ActualPerAS=0 and TotalPerAS=0 is OK, but not required. This extra record can help complete the data set so that users don't wonder if data are missing. b) We do not yet have the ability to record data about repeat ~~s~~Steelhead and ~~s~~Sea-run ~~c~~Coastal ~~c~~Cutthroat spawners.)

(Back to EscData table) (Back to HatchRetMain table) (Back to HatchRetDetail table) (Back to table of contents)

Field Name	Field Description	Data Type	Codes/Rules/Conventions for Age Table		
RecordID (unique)	Key field for this table.	**Integer**	1,000,000-1,999,999 = WDFW 2,000,000-2,999,999 = CRITFC	3,000,000-3,999,999 = USFWS 4,000,000-4,999,999 = IDFG 5,000,000-5,999,999 = ODFW	6,000,000-6,999,999 = PSMFC 7,000,000-7,999,999 = CDFG 8,000,000-8,999,999 = MFWP
ASNID	This field links the age data to the escapement / harvest / hatchery return data for a particular year. An ASNID value should generally be used in only one of the related tables (EscData, HatchRetMain, HatchRetDetail), though it is possible to be in both HatchRetMain and HatchRetDetail if all fish are from a single capture location.	**Integer**	98 = No age data available. 100,000-199,999 = WDFW 100,000,000-199,999,999 = WDFW 200,000-299,999 = CRITFC 200,000,000-299,999,999 = CRITFC	300,000-399,999 = USFWS 300,000,000-399,999,999 = USFWS 400,000-499,999 = IDFG 400,000,000-499,999,999 = IDFG 500,000-599,999 = ODFW 500,000,000-599,999,999 = ODFW	600,000-699,999 = PSMFC 600,000,000-699,999,999 = PSMFC 700,000-799,999 = CDFG 700,000,000-799,999,999 = CDFG 800,000-899,999 = MFWP 800,000,000-899,999,999 = MFWP
Sex	Sex of the fish aged.	***Integer***	*Required unless NullFlag = Yes.* 1 = Male 2 = Female	3 = Male & Female 4 = Jack 5 = Jenny	6 = Mini-Jack 98 = N/A 99 = Unknown
TotalAge	Total age of the fish.	Integer	If unknown, leave null. (Normally we use "99" for unknowns, but some species can be that old so let's avoid ambiguity.) If NullFlag=Yes, leave null. (Normally we use "98" for these, but again some species make that ambiguous.)		
OceanAge	Ocean age of fish. Subtracting this number from the year when the fish was sampled should provide the year the fish smolted.	Integer	If unknown, leave null. If fish has never entered ocean, leave null. If NullFlag=Yes, leave null.	This field applies only to salmon, ~~s~~Steelhead, ~~c~~Coastal ~~c~~Cutthroat ~~t~~Trout, and perhaps Pacific ~~l~~Lamprey *that have already entered the ocean*. For some anadromous species such as sturgeon, and for resident species, only a total age is recorded.	
NonspawnRun	First annulus after entering salt water is a "half-pounder" annulus (for ~~s~~Steelhead) or "feeding run" annulus (for ~~c~~Coastal ~~c~~Cutthroat). For fish with OceanAge = 0, "True" in this field indicates the fish was on it's "half-pounder" or "feeding run" when sampled.	**Integer**	0 = False 1 = True 98 = N/A 99 = Unknown	Half-pounder ~~s~~Steelhead only occur in Oregon and California. ODFW and WDFW will use this code for searun ~~c~~Coastal ~~c~~Cutthroats. For everyone else, this value will always be "98" for all records. Examples: A) Steelhead that has not been to the ocean TotalAge=3 OceanAge=null NonspawnRun=N/A B) Steelhead on its half-pounder run TotalAge=3 OceanAge=0 NonspawnRun=True	C) The fish from example B, one year later TotalAge=4 OceanAge=1 NonspawnRun=True D) A ~~s~~Steelhead same age as example C that did not have a half-pounder run TotalAge=4 OceanAge=1 NonspawnRun=False

Field Name	Field Description	Data Type	Codes/Rules/Conventions for Age Table

NominalBY	Nominal brood year: the calendar year in which the bulk of the eggs of a generation were deposited.
	
	The actual calendar year that a particular population spawns may not match this value. For example, ~~e~~Coho generally spawn in the fall, but a few populations of the same run-year don't spawn until February. This field is the "nominal" year because it assigns a value based on major spawning time for a whole run, keeping run-years together. So the February spawning ~~e~~Coho get the same value in this field as a population that spawns 3 months earlier in November. See the Codes/Rules/Convention field for more information.
		Integer	This varies by spawning guild, and maybe by run. Follow these rules:
			• When length-frequency analysis is used for adult anadromous fish, brood year is probably unknown. Leave this field null in those instances. *(Applies to: any anadromous fish, but this is most common in the Snake River basin.)*
			• In some species, spawning for the run-year begins before January 1 and continues into the next calendar year.
			  ○ For ~~s~~Steelhead and ~~c~~Coastal ~~c~~Cutthroat ~~t~~Trout, the brood year is considered the later year (spring). So if a ~~s~~Steelhead is sampled summer 2003 and has 3 annuli, enter "2000" here.
			  ○ For ~~c~~Coho, ~~c~~Chum, and fall Chinook the brood year is considered the earlier year (fall). Most spawning is done before January 1, but some populations don't spawn until as late as March. However, these are still part of the run-year with those fish that spawned the previous fall. So if a ~~c~~Coho is sampled summer 2003 and has 3 annuli, enter "1999" here.
			• For species whose eggs hatch the same calendar year they are laid, there are no inherent problems. However, if you encounter a term such as "4 year old" for a fish with 3 annuli that is "in its fourth year of life," you need to recognize this means a fish with 3 annuli sampled in summer 2003 has a brood year of 2000, not 1999. *(Applies to: ~~r~~Rainbow ~~t~~Trout, ~~c~~Cutthroat ~~t~~Trout, ~~s~~Smallmouth ~~b~~Bass, ~~b~~Bluegill, ~~y~~Yellow ~~p~~Perch, ~~w~~White ~~s~~Sturgeon, most minnows, most lampreys.)*
			• For fall-spawning fish, where eggs hatch the calendar year after they are laid, pay attention to whether the "ages" you have use the year of egg deposition (fall) or egg hatching (spring) as the zero point. Usually the age for these is counted from hatching (spring), and in these cases subtracting the age from the year sampled will not give the correct brood year. For example, a ~~b~~Bull ~~t~~Trout with 3 annuli sampled in summer 2003 may be called a "3" or an "age 3" or a "3 year old," but the egg was laid in 1999. For this fish you would enter 1999 in this field. *(Applies to: ~~b~~Bull ~~t~~Trout, ~~b~~Brook ~~t~~Trout, ~~k~~Kokanee, maybe some Pacific ~~l~~Lamprey.)*

NullFlag	"Yes" indicates no age analysis was done for the defined time period, so there are no age data to capture: it is true that the fish were not aged. If set to Yes, enter in the Comments field why age data do not exist (if you know).	**Text 3**	Acceptable values: • Yes • No Using "Yes" in this field means that the fish were not aged. That being the case: • only a single record should be used for years when NullFlag = Yes, and the ActualPerAS and TotalPerAS fields for this single record should be null. (A value of 0 in those fields means no aged fish had that age, whereas null means no aging was done. Those are different concepts.) • The Sex field must be "98".
ActualPerAS	Number of fish that were actually aged that match the Sex/TotalAge/OceanAge/NonspawnRun/NominalBY combination for the time period represented.	Integer	If 1000 fish are counted at a dam, and 200 of these are aged, and 50 match the sex/age combination for the record, and these 50 represent 250 of the original 1000, enter "50" in this field.
TotalPerAS	Number of *fish of the whole population* represented by this Sex/TotalAge/OceanAge/NonspawnRun/NominalBY combination for the time period represented.	***Integer***	*Required unless NullFlag = Yes.* If 1000 fish are counted at a dam, and 200 of these are aged, and 50 match the sex/age combination for the record, and these 50 represent 250 of the original 1000, enter "250" in this field. When both AsCode=1 and weighted means are not used to apply ages back to the original 1000 fish, then adding all these up for a group should equal the value in EscData.CountValue or in HatchRetMain.Total. When ASCode=2 or if the raw numbers are weighted when applied back to the original 1000 fish, then adding all these up for a group probably will not equal the value in EscData.CountValue or in HatchRetMain.Total. An entry in the Comments field may be appropriate to help the data user.
ExpMeth	Method used to expand the observed age data in the ActualPerAS field to create the value in the TotalPerAS field.	Text 30	Describe how the value in the ActualPerAS field was used to calculate the value in the TotalPerAS field. Provide an entry such as "Straight proportion" or "Statistical model" or "Weighted by week". If all fish were aged and thus no expansion was needed, enter "N/A".
LengthTypeID	Type of lengths represented in the LengthMin, LengthMean, LengthMax, and LengthSD fields.	**Integer**	1 = Total length 2 = Fork length 3 = Mideye-hypural length 4 = Mideye-posterior scale (MEPS) length 5 = Standard length 6 = Post-orbital to hypural (POH) length 98 = N/A
LengthMin	Minimum length recorded for the group.	Integer	All measured in millimeters.
LengthMean	Mean length recorded for the group.	Integer	
LengthMax	Maximum length recorded for the group.	Integer	

Field Name	Field Description	Data Type	Codes/Rules/Conventions for Age Table
LengthSD	Standard deviation of length recorded for the group.	Real	
WeightMin	Minimum weight recorded for the group.	Integer	All measured in grams.
WeightMean	Mean weight recorded for the group.	Integer	
WeightMax	Maximum weight recorded for the group.	Integer	
WeightSD	Standard deviation of weight recorded for the group.	Real	
Comments	Additional information or comments.	***Text*** ∞	*Required if NullFlag=Yes.*
RefID	Refer to EscData table information	**Integer**	Refer to Reference table information.
DataEntry	Who originally put the data into electronic format. This is not necessarily a StreamNet person. This field can include more information also, to describe not only who entered the data, but who edited or reviewed data or transformed them into a usable format. This field helps with future QC.	**Text 50**	The name of the person who entered the record. Including first and last names is preferred.
CompilerID	The code for the agency that put the data into the StreamNet standards and sent them to StreamNet, and is responsible for updates. Links to the Compiler table.	**Integer**	The compiling agency is one of the small group of agencies related to StreamNet. In instances where the person sending data to StreamNet is employed by one agency but functions within a different agency (common for PSMFC staff), the CompilerID reflects the agency the person functions within. See Trend table for codes.
UpdDate	The date and time that the record was created or updated. For data obtained in electronic format from another source it can reflect the date and time of data capture or of conversion to StreamNet standards.	**Datetime**	This can be the time a record was created, the last time it was edited, or the last time it was QCd. This field tells the end user when the record was last modified at the source organization.
ID (unique)	Value used by computer to identify a record.	***GUID***	This value is a globally unique identifier (GUID) exactly 36 characters long. • *When submitting a new record you may include this value or leave it blank.* If you include this value then it will be used by the central system. If you leave it blank then a value will be created for you, and it will be sent back to your system where it must be incorporated. • *When updating or deleting records this value must be included.*
CompilerRecordID	Agency record ID maintained by the data submitter.	Text 36	This field can be used in any way the compiler may find helpful. For example, it can be used to create a link between the Coordinated Assessments exchange network and an internal system such as ODFW's Salmon Tracker.
Publish	Yes/no value indicating whether this record should be shared freely with all public users via the Exchange Network. If "No" then the record can only be accessed by using the apikey that created it.	**Text 3**	Acceptable values: [*Do not include comments in brackets.*] • Yes [*Record will be shared with public via Exchange Network.*] • No [*Record will not be shared with public via Exchange Network.*] Setting this value to "No" lets you test your systems and avoid having such test records be output on the public system.

B87. TrendGroup Table

This table defines a group of related trends. It has a one to many relationship to the TrendXTrendGroup table via TrendGroupID.

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Field Name	Field Description	Data Type	Codes/Rules/Conventions for TrendGroup Table
TrendGroupID (unique)	Code to uniquely identify each trend group.	**Integer**	Assigned ranges are the same as for TrendID. See the Trend table for the assigned ranges.
Name (unique)	Short name for the Trend Group. Give a brief description that will be good for displaying online.	**Text 255**	
Description	Greater detail about the Trend Group, if needed.	Text	
Comments	Comments about the Trend Group that are not the name nor the longer description, but may be useful.	Text	
DataEntry	Compiler's name.	**Text 50**	The name of the person who entered the record. Including first and last names is preferred.
AgencyID	Unique StreamNet ID for the agency that entered the record.	**Integer**	For AgencyID codes please refer to the EscData table.
UpdDate	The date and time that the record was created or updated. For data obtained in electronic format from another source it can reflect the date and time of data capture or of conversion to StreamNet standards.	**Datetime**	This can be the time a record was created, the last time it was edited, or the last time it was QCd. This field tells the end user when the record was last modified at the source organization.
ID (unique)	Value used by computer to identify a record.	***GUID***	This value is a globally unique identifier (GUID) exactly 36 characters long. • *When submitting a new record you may include this value or leave it blank.* If you include this value then it will be used by the central system. If you leave it blank then a value will be created for you, and it will be sent back to your system where it must be incorporated. • *When updating or deleting records this value must be included.*
CompilerRecordID	Agency record ID maintained by the data submitter.	Text 36	This field can be used in any way the compiler may find helpful. For example, it can be used to create a link between the Coordinated Assessments exchange network and an internal system such as ODFW's Salmon Tracker.
Publish	Yes/no value indicating whether this record should be shared freely with all public users via the Exchange Network. If "No" then the record can only be accessed by using the apikey that created it.	**Text 3**	Acceptable values: [*Do not include comments in brackets.*] • Yes [*Record will be shared with public via Exchange Network.*] • No [*Record will not be shared with public via Exchange Network.*] Setting this value to "No" lets you test your systems and avoid having such test records be output on the public system.

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B98. TrendXTrendGroup Table

This table defines which trends are in a Trend Group. It has a many to one relationship to the Trend table via TrendID, and a many to one relationship to the TrendGroup table via TrendGroupID. By using this cross table we get a many to many relationship between Trend and TrendGroup, so that a TrendGroup can contain many trends, but also a single trend can belong to many TrendGroups.

(Back to Trend table) (Back to TrendGroup table) (Back to table of contents)

Field Name	Field Description	Data Type	Codes/Rules/Conventions for TrendXTrendGroup Table
TrendGroupID	Foreign key to TrendGroup table.	**Integer**	
TrendID	Foreign key to Trend table.	**Integer**	
DataEntry	Compiler's name.	**Text 50**	The name of the person who entered the record. Including first and last names is preferred.
AgencyID	Unique StreamNet ID for the agency that entered the record.	**Integer**	For AgencyID codes please refer to the EscData table.
UpdDate	The date and time that the record was created or updated. For data obtained in electronic format from another source it can reflect the date and time of data capture or of conversion to StreamNet standards.	**Datetime**	This can be the time a record was created, the last time it was edited, or the last time it was QCd. This field tells the end user when the record was last modified at the source organization.
ID (unique)	Value used by computer to identify a record.	***GUID***	This value is a globally unique identifier (GUID) exactly 36 characters long. • *When submitting a new record you may include this value or leave it blank.* If you include this value then it will be used by the central system. If you leave it blank then a value will be created for you, and it will be sent back to your system where it must be incorporated. • *When updating or deleting records this value must be included.*
CompilerRecordID	Agency record ID maintained by the data submitter.	Text 36	This field can be used in any way the compiler may find helpful. For example, it can be used to create a link between the Coordinated Assessments exchange network and an internal system such as ODFW's Salmon Tracker.
Publish	Yes/no value indicating whether this record should be shared freely with all public users via the Exchange Network. If "No" then the record can only be accessed by using the apikey that created it.	**Text 3**	Acceptable values: [*Do not include comments in brackets.*] • Yes [*Record will be shared with public via Exchange Network.*] • No [*Record will not be shared with public via Exchange Network.*] Setting this value to "No" lets you test your systems and avoid having such test records be output on the public system.

C. Fish Distribution Information

This section details the single table for fish distribution data.

C1. FishDist Table

NOTE: This table was replaced by spatial data submissions, though we still define the attribute data standards here.

As used here, the definition of generalized fish distribution is "areas of suitable habitat currently believed to be used by wild, hatchery, or naturalized fish populations, based on sampling and/or best biological judgment." "Current" is defined by each data-providing agency according to their own policies. The locations recorded in this table are extrapolations based on observing organisms at specific points; these extrapolations are specific to a taxon and life history. This table is for where species are found, but does not address where species are *not* found -- lack of a record does not imply that the species does not exist in a given reach.

Records in this table should not overlap spatially within a species/run/subrun/life history/basis combination. For example, if spawning and rearing occur for the same species/run/subrun/life history combination from 300 feet to 1000 feet from the stream mouth, and rearing and migration occur from the mouth to 300 feet, the data would appear as two records though both have "rearing" as a component of the use types:
1) UseType=Rearing and migration/BegFt=0/EndFt=300; and
2) UseType=Spawning and rearing/BegFt=300/EndFt=1000.

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Field Name	Field Description	Data Type	Codes/Rules/Conventions for FishDist Table	
SpecieID	Code for the fish species.	**Integer**	Refer to Trend table information.	
RunID	Code for the fish run.	**Integer**	If run not appropriate for this species, enter 98 = N/A. Refer to the Trend table for other codes.	
SubRrunID	Code for the fish subrun.	**Integer**	If subrun not appropriate for this species, enter 98 = N/A. Refer to the Trend table for other codes.	
LocationID	The location code of the stream, lake, etc. See "LocationID" in the Glossary.	Text 13	All fields in this table must be part of the GIS files. The data must follow the rules of this table with the exception that LocationID, BegFt, and EndFt are not required.	
BegFt	The downstream measure in FEET of the presence of the species/run/subrun/life history in a stream.	Integer	Enter -1 if LocationID does not represent a stream.	
EndFt	The upstream measure in FEET of the presence of the species/run/subrun/life history in a stream.	Integer	Enter -1 if LocationID does not represent a stream.	
EndExtentID	EndFt values that are very near the top end of a stream or near a state border can be ambiguous. Is the EndFt meant to indicate the top end of the stream or the state border, or is there a deliberate reason the EndFt value falls short of the top of the stream, or just shy or just over a state border? This field answers that question.	Integer	0 = EndFt value is not meant to represent the top end of stream or a state border 1 = EndFt value is meant to represent the top of the stream 2 = EndFt value is meant to represent the state border 97 = Not yet determined	
LifeHistoryID	Code for the life history strategy(s) of the species in the indicated reach.	**Integer**	1 = Anadromous 2 = Year-round resident 3 = Fluvial/adfluvial	4 = Fluvial/adfluvial and year-round resident 5 = Anadromous and year-round resident 99 = Unknown

Field Name	Field Description	Data Type	Codes/Rules/Conventions for FishDist Table	
UseTypeID	Description of how fish use the indicated stream segment.	**Integer**	1 = Spawning and rearing 2 = Rearing and migration 3 = Migration only 4 = Year-round use	5 = Foraging 6 = Nodal (adult residence) 7 = Pioneer spawning (marginal habitat where fish may spawn but successful reproduction is deemed unlikely) 99 = Unknown
BasisID	Code for the basis upon which the extrapolated distribution information in this record rests.	**Integer**	1 = Extrapolated from multiple surveys / observations 2 = Extrapolated from a single survey / observation 3 = Professional judgement	4 = Anecdotal 99 = Unknown
Year	Year this record was last updated.	**Integer**	Enter 4-digit year.	
RefID	Code for the reference in the Columbia Basin Fish & Wildlife Library.	**Integer**	Refer to Reference table information.	
Comments		Text		
CompilerID	The code for the agency that put the data into the StreamNet standards and sent them to StreamNet, and is responsible for updates. Links to the Compiler table.	**Integer**	The compiling agency is one of the small group of agencies related to StreamNet. In instances where the person sending data to StreamNet is employed by one agency but functions within a different agency (common for PSMFC staff), the CompilerID reflects the agency the person functions within. See Trend table for codes.	
UpdDate	The date and time that the record was created or updated. For data obtained in electronic format from another source it can reflect the date and time of data capture or of conversion to StreamNet standards.	**Datetime**	This can be the time a record was created, the last time it was edited, or the last time it was QCd. This field tells the end user when the record was last modified at the source organization.	

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D. Barrier Information

This section details tables for fish barriers. The ER diagram for fish barrier data is shown in the following figure.

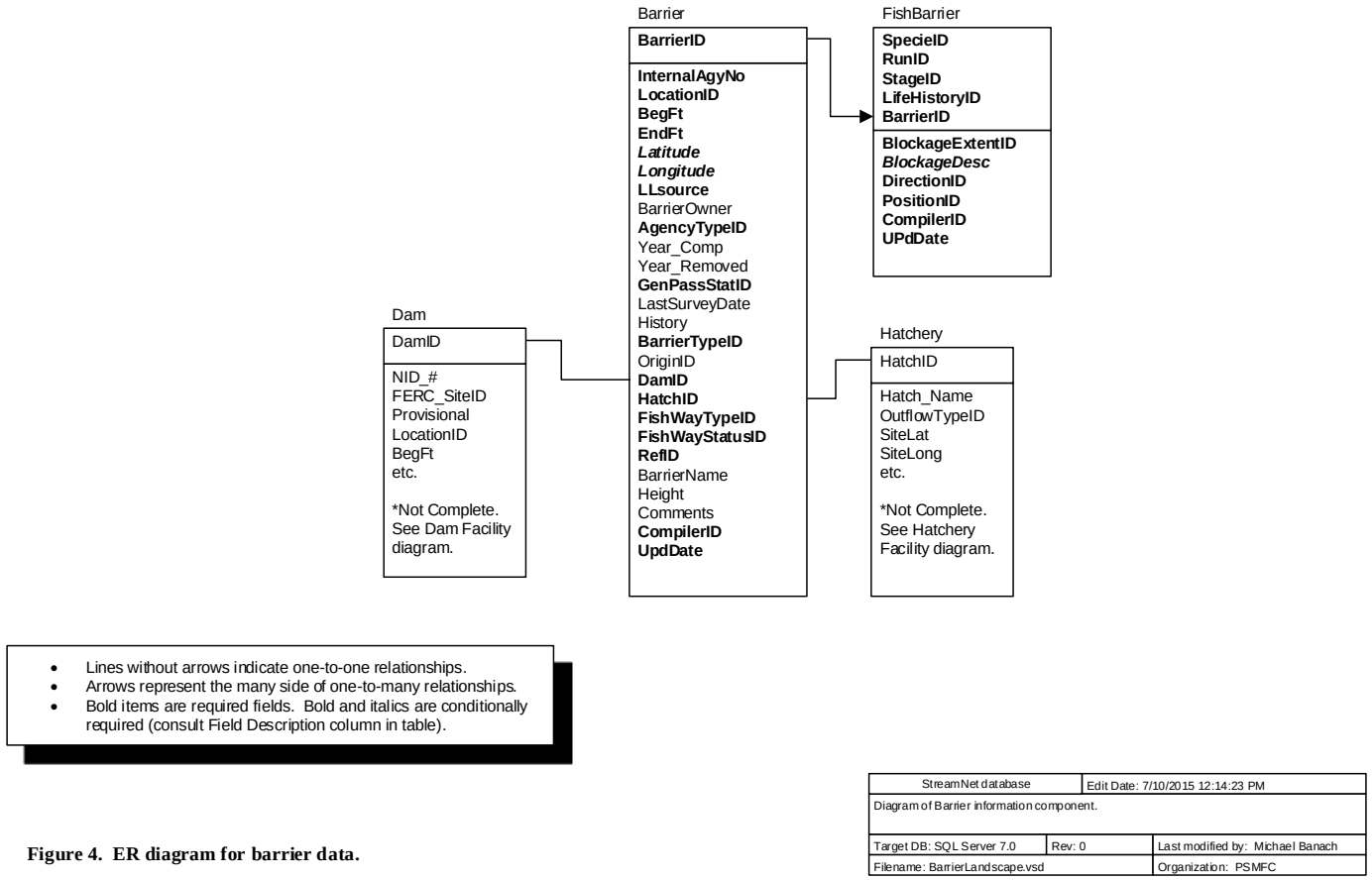


Figure 4. ER diagram for barrier data.

D1. Barrier Table

This table houses a list of barriers, and information about each barrier. Some "barriers" have artificial fishways or have otherwise been corrected, and now all fish are able to pass the barrier. At other times the severity may be unknown and a feature may not even be a barrier (i.e., is only a "potential barrier" and thus GenPassStatID=99). Tracking this information is important for people who will use these data. Therefore DO submit records for "barriers" that once blocked fish but no longer do, and for "potential barriers".

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Field Name	Field Description	Data Type	Codes/Rules/Conventions for Barrier Table		
BarrierID (unique)	This field uniquely identifies a barrier identified by a particular agency	**Integer**	98 = N/A 101-50,000 = IDFG	50,001-100,000 = ODFW 100,001-150,000 = WDFW	150,001-200,000 = MFWP 200,001-250,000 = CRITFC 700,000-799,999 = CDFG
InternalAgyNo	Identifies a barrier in the database of the agency that provided the data to StreamNet -- i.e., the internal barrier identifier for WDFW, ODFW, CDFG, etc. This field ensures database updates are performed correctly, and lets data users communicate more clearly with the agencies providing the data.	**Text 20**			
LocationID	The location code of the stream the barrier is on. See "LocationID" in the Glossary.	**Text 13**	In general, a code for location types other than streams probably make no sense and should not be used. Points, however, may be useful if barriers have not yet been tied to streams.		
BegFt	The beginning measure of the barrier in feet	**Integer**	Enter -1 if LocationID does not represent a stream.		
EndFt	The ending measure of the barrier in feet	**Integer**	Enter -1 if LocationID does not represent a stream.		
Latitude	Latitude coordinate of barrier in decimal degrees. Calculated using NAD83/WGS84.	***Real***	*Required if LocationID does not represent a stream.* Use two digits left of the decimal point and at least four digits to the right of the decimal point. Up to six digits to the right of the decimal point are permitted.		
Longitude	Longitude coordinate of barrier in decimal degrees. Calculated using NAD83/WGS84.	***Real***	*Required if LocationID does not represent a stream.* This is a negative number. Use three digits left of the decimal point and at least four digits to the right of the decimal point. Up to six digits to the right of the decimal point are permitted.		
LLsource	Method by which the longitude and latitude values were determined.	***Text 3***	*Required if LocationID does not represent a stream.* Only four options are possible: GPS = Coordinates were determined by use of Global Positioning System, and datum is known to be NAD83/WGS84. DIG = Digitally-derived. Includes digitized coordinates, or those converted from other (non-GPS) projected data, and datum is known to be NAD83/WGS84. UNK = Unknown how lat/long values were determined, or datum = NAD83/WGS84 cannot be confirmed. N/A = Not applicable		
BarrierOwner	The barrier owner	Text 100	The owner of a barrier, and the owner of the land where a barrier sits, can be different. Up through version 2006.1 of this document we did not explicitly state which is expected here. Beginning with version 2009.1 this field is specifically for the owner of the barrier. So if an irrigation district owns a diversion on a stream on US Forest Service land, this field should contain the name of the irrigation district, not the US Forest Service.		

Field Name	Field Description	Data Type	Codes/Rules/Conventions for Barrier Table		
AgencyTypeID	Code for the institutional status of the land owner (private, federal, state, etc.). Links to the AgencyType table.	**Integer**	1 = Watershed council 2 = State government agency 3 = Local government agency 4 = Federal government agency 5 = Private landowner - corporate 6 = Private landowner - noncorporate 7 = Conservation group 8 = Other 9 = Conservation district 10 = Sporting group 11 = Job or volunteer program	12 = Tribe or tribal organization 13 = Private contractor 14 = Private consultant 15 = Professional society 16 = College or university 17 = Primary or secondary school 18 = Natural Resource Commission 19 = Canadian national government 20 = Public utility 21 = Private	22 = City 23 = County 24 = Water or irrigation district 25 = Sewer district 26 = Port district 27 = Park or recreation district 28 = Multiple / mixed 29 = Canadian provincial government 30 = Nonprofit organization 98 = N/A 99 = Unknown
Year_Comp	The year the barrier was completed.	Integer			
Year_Removed	Year the barrier was removed (if applicable)	Integer			
GenPassStatID	General status of severity of the barrier in terms of whether this barrier blocks movement of all the fish in the stream.	**Integer**	1 = Is a complete passage barrier to all fishes at all times. (Example is 100-foot waterfall.) 2 = Is a barrier to at least some fish at some time. 3 = Passable -- not currently a barrier to any fish. (This includes past barriers that have since been corrected.) 99 = Unknown		
LastSurveyDate	The most recent date on which the status of the barrier was evaluated.	Date	If the barrier has never been evaluated then leave this field null.		
History	This field records information about the history of changes to the barrier. It may also include information about planned changes to the barrier.	Text			
BarrierTypeID	Code for the type of barrier	**Integer**	1 = Dam 2 = Culvert 3 = Insufficient flow 4 = Water diversion 5 = Hatchery facility-related structure 6 = Falls	7 = Cascades / gradient / velocity 8 = Debris jam 9 = Temperature 10 = Tidal gate 11 = Poor water quality 12 = Water diversion: screened	13 = Water diversion: unscreened 14 = Utility crossing 15 = Flow measurement weir 16 = Grade control structure (sill) 97 = Other 99 = Unknown
OriginID	Code for whether the barrier is natural, human-caused, etc.	Integer	1 = Natural 2 = Human-caused 3 = Mixed	98 = N/A 99 = Unknown	
DamID	The DamID code for BarrierTypeID = 1.	**Integer**	98 = N/A For assigned DamID range series please refer to the Dam table information, or for a complete list of DamID codes contact the regional StreamNet personnel.		
HatchID	The HatcheryID code for BarrierTypeID = 5.	**Integer**	The HatchID from the Hatchery table for BarrierTypeID=5. 98 = N/A For a complete list of HatchID codes please refer to the Hatchery table.		

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Field Name	Field Description	Data Type	Codes/Rules/Conventions for Barrier Table			
FishWwayTypeID	Code for the type of fishway present to help fish pass the barrier. Note about regular round culverts: In this database, regular round culverts are not considered a type of fishway. Use code 201, 205, or 210 when appropriate. Use code 101 for unmitigated round culverts.	**Integer**	99 = Unknown (Use "Unknown" when you don't know whether a fishway exists for the barrier) 101 = None (Used when fishway known to be absent) 32 = Denil (Includes: Denil fishway; Alaska steeppass) 72 = Vertical slot 201 = Pool and weir (Includes: Pool and weir without orifice; Pool and weir with orifice; Pool and weir below culvert) 205 = Roughened channel (Includes: Rock ramp; Artificial rapids; Roughened chute; Engineered steepened stream channel; Newberry riffles; Newberry weirs)	207 = Mechanical / Trap and haul (Includes: Fish lift [same as elevator?]; Brail [what's that?]; Fish elevator; Fish lock; Hauling / trucking / barging; Borland lock; Borland fishpass; Pumps) 210 = Culvert is designed for fish passage (Includes: Culvert with baffles, or otherwise designed for improved fish passage; Culvert has roughened channel designed inside)	211 = Climbing pass (Includes: Elver pass [for young eels, which we don't have in our part of the world); Lamprey pass [is there such a thing?]) 212 = Downstream bypass system (Includes: Guidance net; Turbine intake screen; Louvers [at turbine intake]; Bar racks [at turbine intake]; Bypass pipe / channel / chute / sluiceway; Surface collector; Diversion return pipe or channel)	213 = Hybrid or multiple types (Hybrid fishways are often a combination of weir and pool, vertical slot, or roughened channel fishways) 214 = Unspecified fishway (Something is there, but we don't know what) 51 = Other 98 = N/A
FishWwayStatusID	Code for the presence of fish passage facilities.	**Integer**	1 = Barrier has no known fishway 2 = Fishway present and functioning 3 = Fishway present but needs work 4 = Fishway not wanted, conflicts with hatchery program 5 = Fishway not wanted, unspecified reason 6 = No fishway - mitigated by hatchery program		7 = No fishway - mitigated by trap and haul 8 = No fishway - mitigation unspecified 9 = Abandoned fishway - no longer needed 10 = Present, status unknown 99 = Unknown	
RefID	The primary reference number for the barrier	**Integer**	Refer to Reference table information.			
BarrierName	Name of barrier, if applicable	Text 100				
Height	Height of barrier in feet.	Real	For a culvert, height is measured from the stream surface below the culvert to the surface of the water at the outlet of the culvert. This varies by season, so if possible record in the Comments when the measure was made (base flow; a month; a season; etc.).			
Comments	Special purposes, special conditions, etc.	Text				
CompilerID	The code for the agency that put the data into the StreamNet standards and sent them to StreamNet, and is responsible for updates. Links to the Compiler table.	**Integer**	The compiling agency is one of the small group of agencies related to StreamNet. In instances where the person sending data to StreamNet is employed by one agency but functions within a different agency (common for PSMFC staff), the CompilerID reflects the agency the person functions within. See Trend table for codes.			
UpdDate	The date and time that the record was created or updated. For data obtained in electronic format from another source it can reflect the date and time of data capture or of conversion to StreamNet standards.	**Datetime**	This can be the time a record was created, the last time it was edited, or the last time it was QCd. This field tells the end user when the record was last modified at the source organization.			

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D2. FishBarrier Table

This table lists specific fish species/run/stages (SRS) whose migration is blocked by each barrier. Only species of management interest need be entered, though including all species is fine if desired. Enter a record for each SRS that is blocked by a barrier, or for which passage ability is unknown. Separate records should be used when passage differs between life stages within a species. For some barriers, a SRS of interest may be able to pass what is a barrier to other fish. In such cases, enter a record for the SRS that is blocked, using BlockageExtentID=1 or 2 or 99. Then if you wish you may enter records for those SRSs that are able to pass the barrier. Do not create "passable" records for a barrier unless there is also at least one record with BlockageExtentID = 1 or 2 or 99.

(Back to Barrier table) (Back to table of contents)

Field Name	Field Description	Data Type	Codes/Rules/Conventions for FishBarrier Table		
SpecieID	Code for the fish species blocked by the barrier.	**Integer**	Refer to Trend table information. Create records in this table only for specific taxa. That is, do not use codes such as 55 ("Miscellaneous freshwater species"), 93 ("Not specified"), 98("N/A"), 99 ("Unknown"), or 125 ("Other").		
RunID	Code for the fish run blocked by the barrier.	**Integer**	If run not appropriate for this species, enter 98 = N/A. Refer to the Trend table for other codes.		
StageID	Code for the life stage of the fish blocked by the barrier.	**Integer**	In this table, use only the following stages:	9 = Adult 14 = Juvenile (unspecified)	29 = All stages 30 = Not specified
LifeHistoryID	Code for the life history strategy(s) of the species in the indicated reach.	**Integer**	1 = Anadromous 2 = Year-round resident 3 = Fluvial/adfluvial	4 = Fluvial/adfluvial and year-round resident 5 = Anadromous and year-round resident 99 = Unknown	
BarrierID	Links to specific barrier in Barrier table if BarrierID > 100.	**Integer**	Refer to Barrier table for ranges.		
BlockageExtentID	Code describing the extent of the blockage for the particular species/run.	**Integer**	1 = Complete barrier (Allows NO passage of the species/run/stage at ALL times. Example is a 50-foot waterfall.) 2 = Partial barrier (If used, the BlockageDesc field must be filled in to tell what is meant by "partial.") 3 = Passable -- not a barrier (This code is used when: the species/run/stage for the current record can pass, but blockage extent is complete or partial or unknown for another species/run/stage. For example, a waterfall may be a complete barrier to fall Chinook (code 1), but be completely passable to winter ~~s~~Steelhead (code 3) because the water level is higher during the winter. 99 = Unknown/undetermined		
BlockageDesc	Use this field to describe what "partial" means. You can also use it to provide further information about complete barriers, or about barriers above the current distribution of the species. Be as explicit as possible.	***Text*** ∞	*Required if BlockageExtentID=2.* Try to use consistent language between records with the same applicable conditions.		
DirectionID	Direction of travel impeded by the barrier.	**Integer**	1 = Upstream 2 = Downstream 3 = Upstream and downstream 99 = Unknown		
PositionID	Location of barrier in relation to species/run distribution.	**Integer**	1 = Upstream of current distribution of species/run 2 = Defines upstream end of species/run in the stream. 3 = Within species/run distribution. 4 = Defines downstream end of species/run in the stream. 5 = Downstream of current distribution of species/run 99 = Unknown	Code #1 is used to identify barriers upstream from current distribution. Whether to identify such barriers at all, and if so then for how far upstream, is up to each state to decide. The purpose of records with PositionID=1 is to help with modeling the effects of barrier removal. Such records should be limited to the reasonable future distribution. Identifying the next barrier(s) upstream may be a good general rule.	

Field Name	Field Description	Data Type	Codes/Rules/Conventions for FishBarrier Table
CompilerID	The code for the agency that put the data into the StreamNet standards and sent them to StreamNet, and is responsible for updates. Links to the Compiler table.	Integer	The compiling agency is one of the small group of agencies related to StreamNet. In instances where the person sending data to StreamNet is employed by one agency but functions within a different agency (common for PSMFC staff), the CompilerID reflects the agency the person functions within. See Trend table for codes.
UpdDate	The date and time that the record was created or updated. For data obtained in electronic format from another source it can reflect the date and time of data capture or of conversion to StreamNet standards.	Datetime	This can be the time a record was created, the last time it was edited, or the last time it was QCd. This field tells the end user when the record was last modified at the source organization.

E. Map Catalog and Photograph Data

These tables store data about photographs, maps, and other images. [This section was removed from the DES for version 2016.1 because we no longer pursue this type of data. These tables still exist in the database and can be easily restored to this DES if desired.]

F. Reference Information

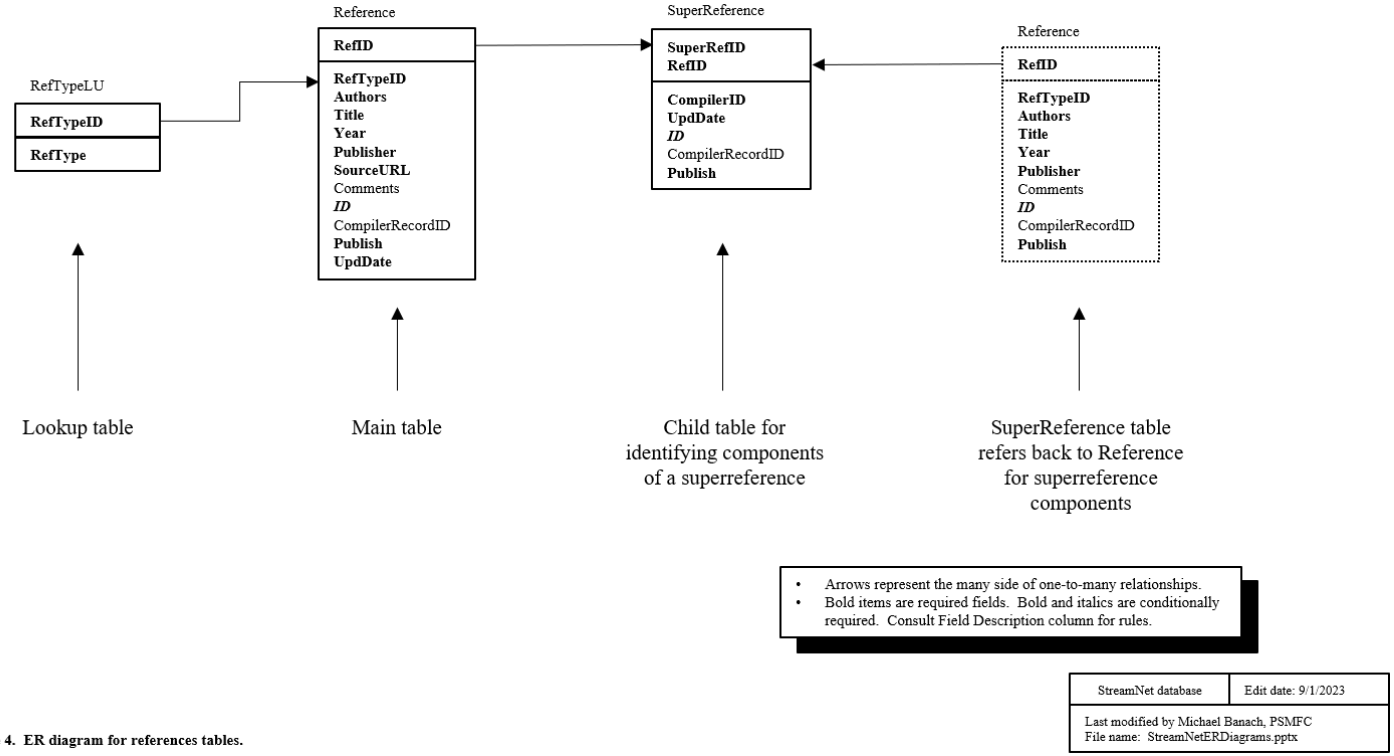


Figure 4. ER diagram for references tables.

F1. Reference Table

This table stores information about reference documents used to develop the StreamNet database. [Note: Records in this table cannot be deleted via the API. Also, they cannot be updated via the API after the Library has performed their processes. To do these tasks contact PSMFC.] (Back to table of contents)

Field Name	Field Description	Data Type	Codes/Rules/Conventions for Reference Table	
RefID (unique)	Unique StreamNet reference ID number	**Integer**	Not applicable = 98 Pre-Data Exchange - 0 - 1,000 WDFW = 10,000-19,999; 100,000-199,999 CRITFC = 20,000-29,999 CTUIR = 200,000 - 209,999 NPT = 210,000 - 219,999 WST = 220,000 - 229,999 YN = 230,000 - 239,999	Colville Tribes = 299,001-299,999 USFWS = 30,000-39,999; 300,000-399,999 IDFG = 40,000-49,999; 400,000-499,999 ODFW = 50,000-59,999; 500,000-599,999 PSMFC = 60,000-69,999; 600,000-699,999 MFWP = 70,000-89,999; 700,000-799,999 CDFG = 90,000-99,999; 800,000-899,999 • To delete an existing record from this table, work with PSMFC to ensure the RefID is not in use in another table.
RefTypeID	Indicates whether the reference is a single document or multiple documents.	**Integer**	1 = Single reference document 2 = Multiple reference documents 3 = Database [*"Database" is defined broadly, and may be in the form of a spreadsheet or other computer file format.*]	If RefTypeID = 2, then: • the RefID for this record must be used at least twice in the SuperReference table • Suggested entries for the Authors, Title, Year, and Publisher fields are shown below.
Authors	Author(s)	**Text**	Example: Anderson, Duane A. For superreferences (RefTypeID=2), simply entering "Multiple" in this field is suggested. For databases (RefTypeID=3), include all organizations that have contributed data to the database.	
Title	Title	**Text**	Full title of document For superreferences (RefTypeID=2), simply entering "Multiple titles" in this field is suggested. For a database (RefTypeID=3), be sure to enter full name of the database. Also include an acronym if one exists. The title must end with "[internal database]" for an internal database not available to those outside the organization. (Include the brackets, but not the quote marks.)	
Year	Year published, year of draft, year data source was created or updated, year communication took place, etc.	**Text 40**	Ideally, this is the year a document was published or a personal communication occurred. If unknown, give the best approximate year available and point out the uncertainty in the Comments field. For superreferences (RefTypeID=2), do one of the following: • enter the year of the most recent item document • enter the range of years of the document (e.g., "1996-2001") • enter "Multiple"	
Publisher	Publisher	**Text**	Document printer. e.g.: Bonneville Power Administration, Portland, OR; Washington Department of Fish and Wildlife, Olympia, WA For superreferences (RefTypeID=2), simply entering "Multiple" in this field is suggested. For databases (RefTypeID=3), enter the organization who owns or manages the database.	
SourceURL	URL where an electronic copy of the document can be obtained.	**Text**	This field tells the Library where to download documents in electronic format. It replaces our former practice of sending hard copy documents. Enter "N/A" for an internal database not available to those outside the organization.	
Comments		Text	Any pertinent comments about the reference.	
ID (unique)	Value used by computer to identify a record.	***GUID***	This value is a globally unique identifier (GUID) exactly 36 characters long. • *When submitting a new record you may include this value or leave it blank.* If you include this value then it will be used by the central system. If you leave it blank then a value will be created for you, and it will be sent back to your system where it must be incorporated. • *When updating or deleting records this value must be included.*	

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Field Name	Field Description	Data Type	Codes/Rules/Conventions for Reference Table
CompilerRecordID	Agency record ID maintained by the data submitter.	Text 36	This field can be used in any way the compiler may find helpful. For example, it can be used to create a link between the Coordinated Assessments exchange network and an internal system such as ODFW's Salmon Tracker.
Publish	Yes/no value indicating whether this record should be shared freely with all public users via the Exchange Network. If "No" then the record can only be accessed by using the apikey that created it.	**Text 3**	Acceptable values: [*Do not include comments in brackets.*] • Yes [*Record will be shared with public via Exchange Network.*] • No [*Record will not be shared with public via Exchange Network.*] Setting this value to "No" lets you test your systems and avoid having such test records be output on the public system.
UpdDate	The date and time that the record was created or updated.	**Datetime**	This can be the time a record was created, the last time it was edited, or the last time it was QCd. This field tells the end user when the record was last modified at the source organization.

F2. SuperReference Table

This table lists the individual component references which, when combined, define a superreference. The records with common SuperRefID all belong to the same superreference.

(Back to Reference table) (Back to table of contents)

Field Name	Field Description	Data Type	Codes/Rules/Conventions for SuperReference Table
SuperRefID	Code which identifies a superreference.	**Integer**	See Reference table for code ranges. Use the same range for SuperRefID as you use for RefID. Though a special kind, a "superreference" *is* a reference. Also, this table is a child table of the Reference table. Therefore, every SuperRefID used in this table must first be used in the RefID field of the Reference table.
RefID	Unique StreamNet reference ID number	**Integer**	See Reference table for code ranges.
CompilerID	The code for the agency that put the data into the StreamNet standards and sent them to StreamNet, and is responsible for updates. Links to the Compiler table.	**Integer**	The compiling agency is one of the small group of agencies related to StreamNet. In instances where the person sending data to StreamNet is employed by one agency but functions within a different agency (common for PSMFC staff), the CompilerID reflects the agency the person functions within. See Trend table for codes.
UpdDate	The date and time that the record was created or updated.	**Datetime**	This can be the time a record was created, the last time it was edited, or the last time it was QCd. This field tells the end user when the record was last modified at the source organization.
ID (unique)	Value used by computer to identify a record.	***GUID***	This value is a globally unique identifier (GUID) exactly 36 characters long. • *When submitting a new record you may include this value or leave it blank.* If you include this value then it will be used by the central system. If you leave it blank then a value will be created for you, and it will be sent back to your system where it must be incorporated. • *When updating or deleting records this value must be included.*
CompilerRecordID	Agency record ID maintained by the data submitter.	Text 36	This field can be used in any way the compiler may find helpful. For example, it can be used to create a link between the Coordinated Assessments exchange network and an internal system such as ODFW's Salmon Tracker.
Publish	Yes/no value indicating whether this record should be shared freely with all public users via the Exchange Network. If "No" then the record can only be accessed by using the apikey that created it.	**Text 3**	Acceptable values: [*Do not include comments in brackets.*] • Yes [*Record will be shared with public via Exchange Network.*] • No [*Record will not be shared with public via Exchange Network.*] Setting this value to "No" lets you test your systems and avoid having such test records be output on the public system.

G. Habitat Restoration / Improvement Projects Data

This section details tables for habitat restoration / habitat improvement projects. These tables store data about activities that have occurred on the ground in order to improve fish habitat. [This section was removed from the DES for version 2016.1 because we no longer pursue this type of data. Tables from this section still exist in the database and can be easily restored to this DES if desired.]

H. Hatchery Facility Data

This data category includes information about existing hatchery facilities.

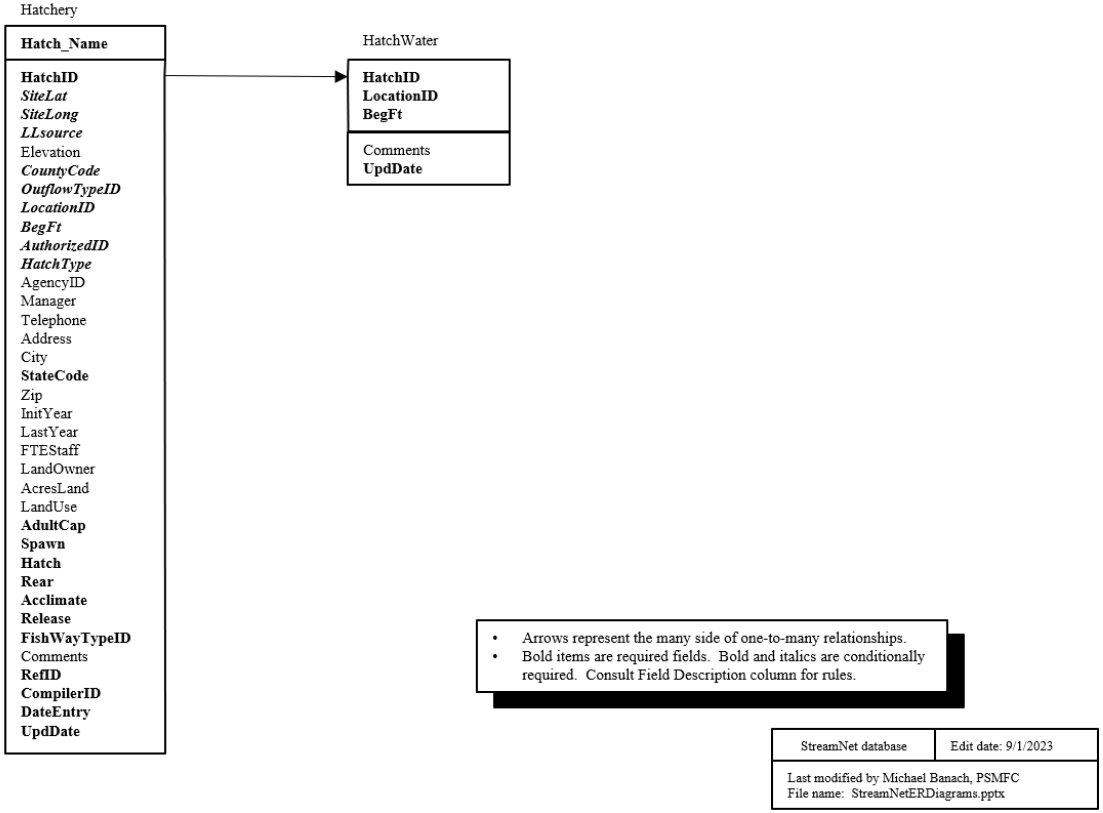


Figure 5. ER diagram for hatchery tables.

H1. Hatchery Table

This table contains information about hatchery facilities. It also houses codes used in the HatchRelData and HatchRetData tables. "Facility" is defined as an immobile, permanent or semi-permanent fish culture station. (Note: Due to overlapping geographic responsibilities, state, federal, and tribal agencies must coordinate to prevent duplicate entries. The StreamNet regional database manager must ensure that deleted records are replaced appropriately.)

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Field Name	Field Description	Data Type	Codes/Rules/Conventions for Hatchery Table
HatchID (unique)	The unique hatchery ID number for the facility.	**Integer**	98 = N/A 2,000-2,999 = CRITFC Codes 4000-4999 reserved for IDFG. Codes 610-709, 6000-6999 reserved for WDFW. Codes 558-599, 5000-5999 reserved for ODFW. Codes 710-729, 800-899 reserved for MFWP. Codes 730-769 reserved for CDFG.
Hatch_Name (unique)	The name of the hatchery	**Text 100**	
SiteLat	Latitude of the hatchery site in decimal degrees (not degrees-minutes-seconds). Calculated using the 1983 North American Datum (NAD83) / WGS84.	***Real***	*Required unless OutflowTypeID=98.* Use two digits left of the decimal point and at least four digits to the right of the decimal point. Up to six digits to the right of the decimal point are permitted.
SiteLong	Longitude of the hatchery site in decimal degrees (not degrees-minutes-seconds). Calculated using the 1983 North American Datum (NAD83) / WGS84.	***Real***	*Required unless OutflowTypeID=98.* This is a negative number. Use three digits left of the decimal point and at least four digits to the right of the decimal point. Up to six digits to the right of the decimal point are permitted.
LLsource	Method by which the longitude and latitude values were determined.	***Text 3***	*Required for non-stream points (LocTypeID=3). Not applicable for other location types.* Only five options are possible: GPS = Coordinates were determined by use of Global Positioning System, and datum is known to be NAD83/WGS84. DIG = Digitally-derived. Includes digitized coordinates, or those converted from other (non-GPS) projected data, and datum is known to be NAD83/WGS84. UNK = Unknown how lat/long values were determined, or datum = NAD83/WGS84 cannot be confirmed. CEN = Centroid coordinates derived from a feature that is represented as a polygon in StreamNet's GIS. N/A = Not applicable
Elevation	Elevation of the hatchery in feet	Integer	
CountyCode	Concatenated ANSI state code plus ANSI county code for the county where the hatchery is located. For example: ANSI state code for California=06 and ANSI county code for Inyo County is 027, so "06027" would be used in StreamNet for this county.	**Text 5**	For state ANSI codes see the StateCode field further down in this table. For county ANSI codes refer to https://www.census.gov/library/reference/code-lists/ansi.html. (State and county ANSI codes are the same as the state and county FIPS codes.) XX000 = N/A [*where XX = StateCode*] XX999 = Unknown [*where XX = StateCode*]
OutflowTypeID	Code for the water body class to which the hatchery's water is primarily discharged.	**Integer**	4 = No outflow to any fresh or marine water body. 8 = Outflow to stream 9 = Outflow to standing water [*lakes, reservoirs, marine waters*] 98 = N/A. Use when HatchID represents N/A or a collection of facilities (98, 347, 603, or similar). 99 = Unknown

Field Name	Field Description	Data Type	Codes/Rules/Conventions for Hatchery Table
LocationID	Usually the LocationID of the stream the hatchery is on, but see the Codes/Rules/Conventions column for further information.	***Text 13***	*Required unless OutflowTypeID=4 or 98.* Contact regional data manager for various codes for "Unknown" If OutflowTypeID = 4 or 98: LocationID =Null; BegFt = Null; If OutflowTypeID = 8: LocationID = The appropriate code for the stream; BegFt = Measure in feet from the mouth of the stream identified in the LocationID field to the main hatchery outflow; If OutflowTypeID = 9: LocationID = The appropriate code for the lake/reservoir/etc.; BegFt = -1
BegFt	Location of the hatchery along a stream (generally the main outflow or fish ladder location).	***Integer***	*Required if OutFlowTypeID=8.* Refer to notes under LocationID field above for conventions for filling in this field.
AuthorizedID	The legislation or program that authorized the hatchery construction Links to the Authorized table.	**Integer**	1 = Mitchell Act 2 = Northwest Power Act / Fish & Wildlife Program of the NPPC 3 = LSRCP (Lower Snake River Compensation Plan) 4 = Federal Power Act / FERC mitigation 5 = State statute or program 6 = Tribal statute or program 7 = Dingle-Johnson 8 = Grand Coulee Mitigation 9 = Other federal statute or program 10 = Other 11 = Idaho Power Mitigation 98 = N/A 99 = Unknown
HatchType	The general life-history pattern of species raised at this hatchery as of Spring 1999	**Integer**	1 = Anadromous fish 2 = Resident fish 3 = Both resident and anadromous 98 - N/A 99 = Unknown
AgencyID	Code for the management agency responsible for the hatchery. Cross reference to Agency lookup table.	Integer	For AgencyID codes please refer to the EscData table.
Manager	The name of the hatchery manager	Text 30	
Telephone	Phone number for hatchery	Text 12	Preferred format is this pattern: "503-595-3100".
Address	Mailing address of the hatchery	Text 50	
City	The town where mail is received	Text 20	
StateCode	ANSI state code for the mailing address of the facility.	**Text 2**	06 = California 16 = Idaho 41 = Oregon 53 = Washington 30 = Montana 00 = N/A 99 = Unknown (State ANSI codes are the same as the state FIPS codes.)
Zip	The zip code	Text 10	
InitYear	The year the hatchery went into operation	Integer	"Operated" is defined as water flowing through the facility for fish culture purposes
LastYear	If not currently in operation, the last year the hatchery operated	Integer	"Operated" is defined as water flowing through the facility for fish culture purposes
FTEStaff	The number of Full Time Equivalent (FTE) staff on location	Real	
LandOwner	Owner of the land where the hatchery is located	Text 100	
AcresLand	The total acreage owned and available for hatchery use (not only the acres in use)	Real	
LandUse	Percentage of acres actually in use by the hatchery	Real	

Field Name	Field Description	Data Type	Codes/Rules/Conventions for Hatchery Table
AdultCap	Does this facility have the infrastructure for capturing adults?	**Integer**	0 = False 1 = True 99 = Unknown
Spawn	Does this facility have the infrastructure for adult spawning (egg collection)?	**Integer**	0 = False 1 = True 99 = Unknown
Hatch	Does this facility have the infrastructure for holding eggs until hatching?	**Integer**	0 = False 1 = True 99 = Unknown
Rear	Does this facility have the infrastructure for rearing fish?	**Integer**	0 = False 1 = True 99 = Unknown
Acclimate	Does this facility have the infrastructure for prerelease acclimation?	**Integer**	0 = False 1 = True 99 = Unknown (This field should contain "False" if "Release" field contains "False." Also, this item refers to relatively short-term holding of fish, unlike the essentially unlimited time suggested in the "Rear" field.)
Release	Does this facility have the infrastructure for directly releasing fish to a natural water body?	**Integer**	0 = False 1 = True 99 = Unknown
FishWwayTypeID	Code describing the type of fishway.	**Integer**	Refer to Barrier table.
Comments	Special purposes, special conditions, etc.	Text	Comments are helpful when OutflowTypeID = 5, 6, or 7, or if outflow is to more than one stream.
RefID	The primary reference number for the source of the hatchery information	**Integer**	Refer to Reference table information.
CompilerID	The code for the agency that put the data into the StreamNet standards and sent them to StreamNet, and is responsible for updates. Links to the Compiler table.	**Integer**	The compiling agency is one of the small group of agencies related to StreamNet. In instances where the person sending data to StreamNet is employed by one agency but functions within a different agency (common for PSMFC staff), the CompilerID reflects the agency the person functions within. See Trend table for codes.
DataEntry	Who originally put the data into electronic format. This is not necessarily a StreamNet person. This field can include more information also, to describe not only who entered the data, but who edited or reviewed data or transformed them into a usable format. This field helps with future QC.	**Text 50**	The name of the person who entered the record. Including first and last names is preferred.
UpdDate	The date and time that the record was created or updated. For data obtained in electronic format from another source it can reflect the date and time of data capture or of conversion to StreamNet standards.	**Datetime**	This can be the time a record was created, the last time it was edited, or the last time it was QCd. This field tells the end user when the record was last modified at the source organization.

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H2. HatchWater Table

This table links to the Hatchery table via the HatchID field and holds the hatchery water source data. It has a many to one relationship with the Hatchery table.

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Field Name	Field Description	Data Type	Codes/Rules/Conventions for HatchWater Table
HatchID	The ID number of the hatchery. Cross reference to Hatchery table.	**Integer**	For a complete list of HatchID codes please refer to the Hatchery table.
LocationID	The code for the water body or other water source that is a water supply for the hatchery. See "LocationID" in the Glossary for further notes.	**Text 13**	A LocationID is used even for such water sources as wells and municipal water supplies. Create a PointID for such sources and submit them in the LocMaster table.
BegFt	Distance in feet from the mouth of the stream	**Integer**	If the LocationID field does not represent a stream, then enter -1.
Comments	Enter any appropriate comments about the water supply.	Text ∞	
UpdDate	The date and time that the record was created or updated. For data obtained in electronic format from another source it can reflect the date and time of data capture or of conversion to StreamNet standards.	**Datetime**	This can be the time a record was created, the last time it was edited, or the last time it was QCd. This field tells the end user when the record was last modified at the source organization.

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I. Dam Facility Data

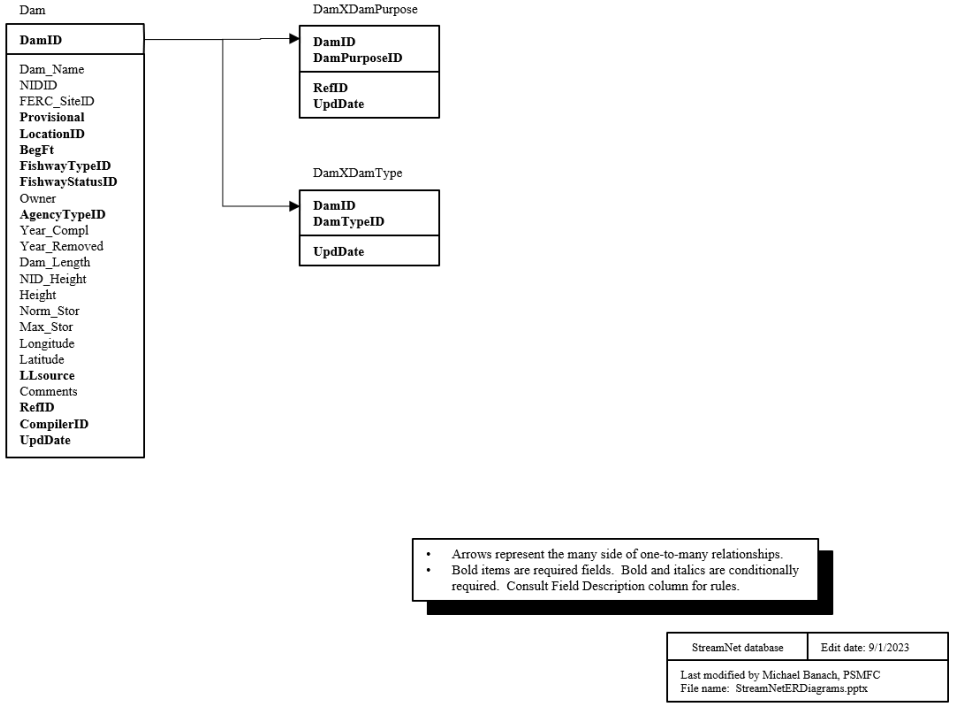


Figure 6. ER diagram for hatchery tables.

I1. Dam Table

This table contains information about dams in the Pacific Northwest.

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Field Name	Field Description	Data Type	Codes/Rules/Conventions for Dam Table		
DamID (unique)	The DamID number for the dam The mailing address of the dam determines which state is responsible for updates.	**Integer**	98 = N/A 0 - 9,999 = National Inventory of Dams 10,000-19,999 = WDFW 20,000-29,999 = CRITFC 30,000-39,999 = USFWS	40,000-49,999 = IDFG 50,000-69,999 = ODFW 70,000-79,999 = MFWP 90,000-99,999 = CDFG	For a complete list of DamID codes please refer to the Dam table.
Dam_Name	The name of the dam.	Text 65			
NIDID	National Inventory of Dams ID number.	Text 7			
FERC_SiteID	Federal Energy Regulatory Commission number authorizing the dam.	Text 12			
Provisional	If yes, indicates the assigned measure along the stream may not be the exact location of the dam.	**Text 3**	Acceptable values: • Yes • No		
LocationID	The LocationID of the stream the dam is on, or the point representing the dam location. See "LocationID" in the Glossary for further notes.	**Text 13**			
BegFt	Distance of the dam from the mouth of the stream (in feet).	**Integer**	Enter -1 if LocationID does not represent a stream.		
FishwayTypeID	Code describing the type of fishway.	**Integer**	Refer to Barrier table.		
FishwayStatusID	Code describing presence or status of fish passage facilities at dam.	**Integer**	Refer to Barrier table for codes.		
Owner	The dam owner.	Text 100			
AgencyTypeID	Code for the institutional status of the dam owner (Private, Federal, State, etc.). Links to the AgencyType table.	**Integer**	Refer to the Barrier table for codes.		
Year_Compl	The year the dam was completed.	Integer			
Year_Removed	Year the dam was removed (if applicable).	Integer			
Dam_Length	Dam crest length in feet (length of dam along stream surface).	Integer			
NID_Height	The maximum of dam, structure, or hydraulic height in feet from the National Inventory of Dams.	Real			
Height	Height of dam in feet from a source other than the National Inventory of Dams.	Integer			
Norm_Stor	The normal storage capacity of the reservoir in acre feet.	Integer			
Max_Stor	The maximum storage capacity of the reservoir in acre feet.	Real			
Longitude	Longitude of the project in decimal degrees (not degrees-minutes-seconds). Calculated using the 1983 North American Datum (NAD83) / WGS84.	Real	This is a negative number. Use three digits left of the decimal point and at least four digits to the right of the decimal point. Up to six digits to the right of the decimal point are permitted.		

Field Name	Field Description	Data Type	Codes/Rules/Conventions for Dam Table
Latitude	Latitude of the project in decimal degrees (not degrees-minutes-seconds). Calculated using the 1983 North American Datum (NAD83) / WGS84.	Real	Use two digits left of the decimal point and at least four digits to the right of the decimal point. Up to six digits to the right of the decimal point are permitted.
LLsource	Method by which the longitude and latitude values were determined.	**Text 3**	*Required for non-stream points (LocTypeID=3). Not applicable for other location types.* Only five options are possible: GPS = Coordinates were determined by use of Global Positioning System, and datum is known to be NAD83/WGS84. DIG = Digitally-derived. Includes digitized coordinates, or those converted from other (non-GPS) projected data, and datum is known to be NAD83/WGS84. UNK = Unknown how lat/long values were determined, or datum = NAD83/WGS84 cannot be confirmed. CEN = Centroid coordinates derived from a feature that is represented as a polygon in StreamNet's GIS. N/A = Not applicable
Comments	Comments related to the dam.	Text	
RefID	The primary reference number for the source of the Dam information.	**Integer**	Refer to Reference table information.
CompilerID	The code for the agency that put the data into the StreamNet standards and sent them to StreamNet, and is responsible for updates. Links to the Compiler table.	**Integer**	The compiling agency is one of the small group of agencies related to StreamNet. In instances where the person sending data to StreamNet is employed by one agency but functions within a different agency (common for PSMFC staff), the CompilerID reflects the agency the person functions within. See Trend table for codes.
UpdDate	The date and time that the record was created or updated. For data obtained in electronic format from another source it can reflect the date and time of data capture or of conversion to StreamNet standards.	**Datetime**	This can be the time a record was created, the last time it was edited, or the last time it was QCd. This field tells the end user when the record was last modified at the source organization.

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I2. DamXDamPurpose Table

This table contains information about the defined purposes of the dam. There is a many to one relationship with the Dam table via the DamID field. There should be at least one record in this table for each record in the Dam table, if possible.

(Back to Dam table) (Back to table of contents)

Field Name	Field Description	Data Type	Codes/Rules/Conventions for DamXDamPurpose Table		
DamID	The DamID number for the dam.	**Integer**	98 = N/A For assigned DamID range series please refer to the Dam table information, or for a complete list of DamID codes refer to the Dam table.		
DamPurposeID	The uses or purposes of the project (hydropower, water supply, recreation, etc.).	**Integer**	1 = Irrigation 2 = Hydroelectric 3 = Flood control and storm water management 4 = Navigation	5 = Water supply 6 = Recreation 7 = Fire protection, stock, or small farm pond 8 = Fish And wildlife pond	9 = Debris control 10 = Tailings 11 = Other 12 = Water quality 99 = Unknown
RefID	The primary reference number for the source of the Dam information.	**Integer**	Refer to Reference table information.		
UpdDate	The date and time that the record was created or updated. For data obtained in electronic format from another source it can reflect the date and time of data capture or of conversion to StreamNet standards.	**Datetime**	This can be the time a record was created, the last time it was edited, or the last time it was QCd. This field tells the end user when the record was last modified at the source organization.		

I3. DamXDamType Table

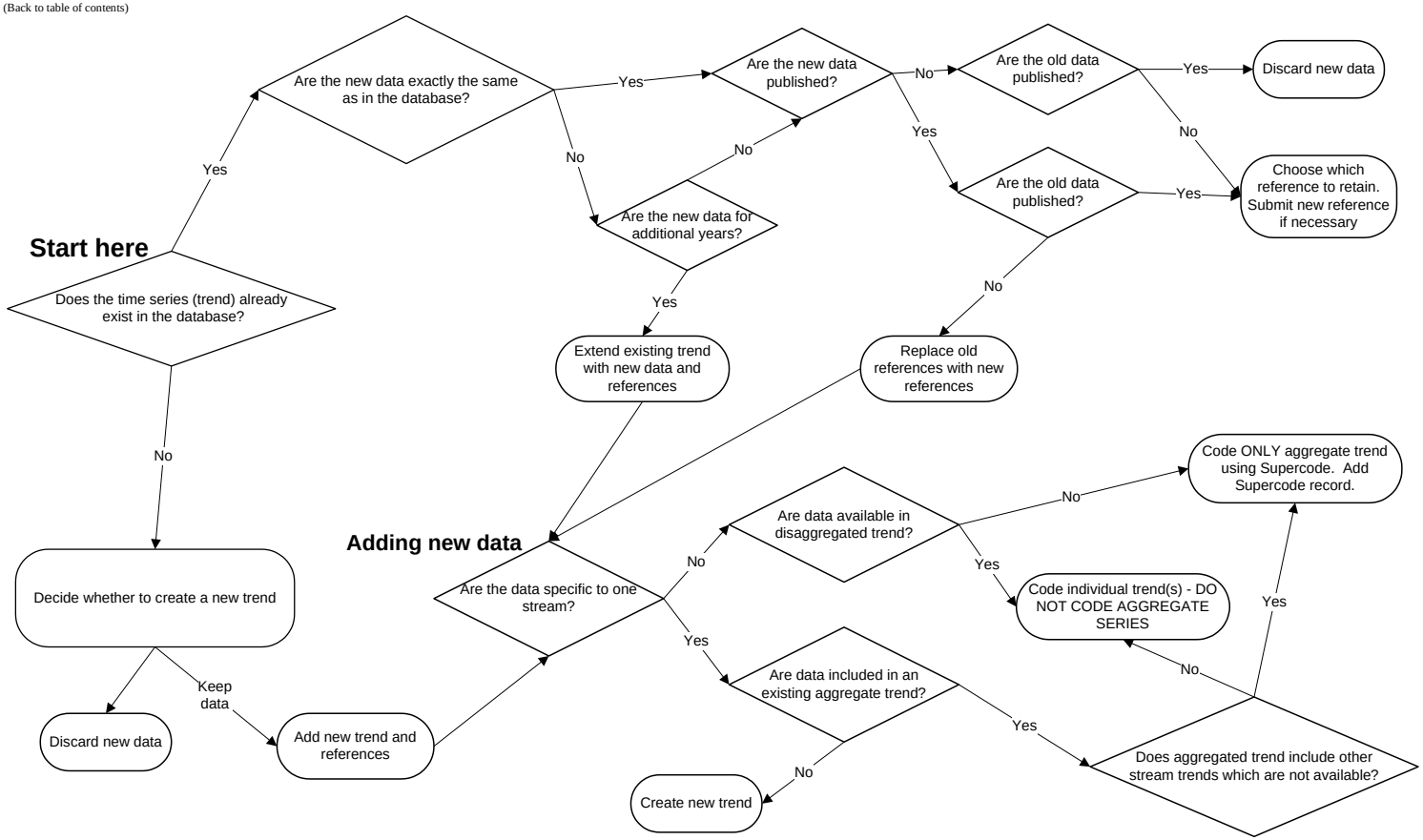
This table contains information about the defined types of the dam. There is a many to one relationship with the Dam table via the DamID field. There should be at least one record in this table for each record in the Dam table, if possible.

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Field Name	Field Description	Data Type	Codes/Rules/Conventions for DamXDamType Table			
DamID	The DamID number for the dam.	Integer	98 = N/A For assigned DamID range series please refer to the Dam table information, or for a complete list of DamID codes refer to the Dam table.			
DamTypeID	The dam type (earth, rockfill/gravity, arch, etc.).	Integer	1 = Buttress 2 = Concrete gravity 3 = Concrete 4 = Rockfill	6 = Masonry 7 = Multi-arch 8 = Non required 9 = Other	10 = Gravity 11 = Rolled concrete 12 = Earth 13 = Stone	14 = Timber crib 15 = Arch 99 = Unknown
UpdDate	The date and time that the record was created or updated. For data obtained in electronic format from another source it can reflect the date and time of data capture or of conversion to StreamNet standards.	Datetime	This can be the time a record was created, the last time it was edited, or the last time it was QCd. This field tells the end user when the record was last modified at the source organization.			

III. Trend Data Compiler Decision Tree

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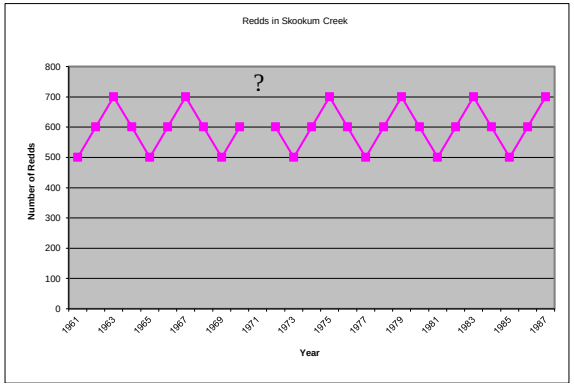
Appendix A. "Too Many To Count" in the EscData table

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Sometimes, the results of a survey may be that there were too many fish or redds to effectively count them. In such instances, there may be no real estimate reported, but instead something like "Too many to count" or an equivalent phrase is used to characterize the number of fish or redds. This statement may (or may not) be accompanied by a wild guess/informal estimate of the actual number that the author doesn't feel confident about. This circumstance presents us with a special problem, because while the survey was done and did produce results, the result will not fit into our numeric CountValue field. In such cases, do the following in the EscData table:

- NullFlag is "No" (because the survey *was* done);
- CountValue is null (because you *don't* have a number to report);
- CountPerMile is null (because you *don't* have a number to report);
- In CountCom, very briefly explain why there is no value available. This explanation should *include the sampling year or date*, and must be immediately preceded *and* followed by the six characters "[TMTC]" (without the quotation marks). This explanation can be at the beginning, end, or middle of CountCom. Keep it short, because it will be displayed on graphs by the query system. For example, the CountCom might contain the following text, and will produce the graph shown:

  Weather was blah blah blah. [TMTC]Too many redds to count in 1971 because high returns resulted in superimposed redds.[TMTC] More blah blah blah.



[?]Too many redds to count in 1971 because high returns resulted in superimposed redds.

Equivalent directions for other tables have not been developed. If you encounter this need for other tables, contact the DES document editor.

Appendix B. Draft tables

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Draft tables are no longer housed in this document. To view the draft tables, refer to the companion document entitled *Exchange Standard Documentation - Version 2015.1. Volume II: Draft Tables*
(file name is StreamNetExchangeStandard2015-1Volume2.doc).

Appendix C. Instructions and Definitions for the CategoryID Field

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The CategoryID field found in the Trend table requires some additional clarification and usage guidance. CategoryID is used as the major data category in the StreamNet database and on-line query system. Code definitions and usage guidelines are shown in Table Appendix C1.

Table Appendix C-1. Data category definitions and usage guidelines

Code and Data Category Name	Data Category Definition and Usage Guideline	Census, Estimate, or Index [1]	Examples

1 = Spawner counts	Counts of living and/or dead fish on spawning grounds. "Spawners" are defined as sexually mature fish on the spawning grounds. Apply to peak type counts and other simple spawner counts that are not actual population estimates. A "peak count" is defined as either a one time spawning ground survey done at the presumed peak of the run, or the highest value recorded over multiple surveys. (While these are actually quite different, because of differences in usage around the Northwest we group them here.) Sampling method is often "Ground"; count type is often "Peak live & dead fish."	Index	• Live and/or dead fish count on spawning grounds.
			  ○ May be single count, "peak", sum, etc.
			• Live and/or dead fish count/mile on spawning grounds.
			  ○ May be single count, "peak", sum, etc.

9 = Redd counts	Counts of redds, or a calculated redd or redd/mile estimate. Apply to any type of redd count. Sampling method is usually "Ground" or by boat or from the air; count type is always "Redd count" or "Peak redd count" or "Redds per mile." Note that even if total redd number is estimated, that estimate remains an index of fish abundance.	Index	• Redd count • Redds / mile Each of the above may be single counts, "peak" counts, sums, etc.
8 = Spawner abundance estimates	Estimate of the total number of mature fish on spawning grounds in an area of management interest, NOT simple index counts. Prespawning mortalities may be included in the estimate or not; either is acceptable, and ideally such information is in the data. This estimate is at a scale different than the populations defined for ESA status reviews. Statistical techniques for estimating total population size (such as mark-recapture) will have been employed. "Spawners" are defined as sexually mature fish on the spawning grounds. Life stage must be "spawners". Sampling methods are varied and often combinations of methods; count type should always be Total Live Fish.	Estimate	• Estimated number of fish on spawning ground. • Estimated number of fish that spawned.
2 = Freshwater / estuary harvest	Estimates of the number of fish harvested in freshwater and estuary areas of management interest, NOT simple index counts. Statistical techniques for estimating total harvest (such as expansion from effort and catch efficiency estimates) will have been employed. Apply to all freshwater and estuary harvest trends. Sampling method is often "Punch card" or "Postal survey" for sport harvest and "Commercial fish ticket" for commercial harvest; count type is usually "Freshwater sport" for sport harvest and "Freshwater commercial" for commercial harvest.	Estimate	

Code and Data Category Name	Data Category Definition and Usage Guideline	Census, Estimate, or Index [1]	Examples
4 = Dam / nonhatchery weir counts	Simple counts of fish at a dam or weir. These are indexes of abundance, NOT estimates of total abundance. Statistical techniques for total population estimates (such as mark-recapture) were not employed. Apply to a dam count or weir count that is not part of a hatchery operation. Sampling method is either "Dam" or "Weir/trap"; count type is usually "Total live fish" or "Index of live fish." For this data category, which is counts of fish at a particular point in a stream, the value of Trend.EndFt should equal Trend.BegFt.	Index	• Fish count at a dam. • Fish count at a weir (not at a hatchery) Each of the above may be sums, or simple expansions may be done to account for unsampled time.
5 = Hatchery returns	The total count of fish that return to and/or are brought to a hatchery facility. Apply to all hatchery return trends. Sampling method is not used; count type is usually "Total live fish."	Census	
38 = Fish counts	Simple counts of fish, expressed as number of fish or as density estimates (#/m^2 or #/m^3). May be any life stage other than spawners (sexually mature fish on the spawning grounds). These are indexes of abundance, NOT estimates of total abundance. Statistical techniques for total population estimates (such as mark-recapture) were not employed.	Index	• Fish counts ○ May be single counts, sum, etc. • Fish density Common methods employed are electrofishing, seining, snorkeling, gill nets, screw traps.
7 = Fish abundance estimates	Estimate of the total number of fish in an area of management interest, NOT simple index counts. This estimate is at a scale different than the populations defined for ESA status reviews. Statistical techniques for estimating total population size (such as mark-recapture) will have been employed. May be any life stage other than spawners (sexually mature fish on the spawning grounds).	Estimate	• Estimated number (standing stock) of fish in a defined area of management interest. • Estimated number of fish moving past a sampling site.

[1] "Census" means all fish were actually counted. Because the actual number is known, no estimate was necessary and confidence limits were not necessary.
"Estimate" means statistical techniques for estimating total fish numbers were employed. Confidence limits may have been calculated.
"Index" means statistical techniques for total fish numbers, such as mark-recapture, were not employed. Index counts are used when census counts and total estimates are not available. No confidence limits.

Appendix D. Glossary

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Aggregate trend: Data collection methods sometimes change, with the same basic information collected with two different levels of detail at different times. An aggregated trend is defined for such an occurrence, and is the trend with less detailed information. For example, redds may initially be counted for an entire stream. In later years the count may be split into two separate numbers, perhaps above and below a tributary. In this example, the aggregate trend is for the entire stream, while "independent trends" are defined for the reaches above and below the tributary.

Hatchery origin / Natural origin: See "Production type" below.

Independent trend: A regular trend. Compare to "aggregate trend."

LocationID: A standard and unique code, usually 13 digits, that identifies an individual stream, point, standing water body, supercode, hatchery, dam, or some other location. LocationID values for hatcheries should be made by concatenating the SiteLong and SiteLat fields (each to 4 decimal places, longitude in front, using NAD83/WGS84), and for dams should be made by concatenating the Longitude and Latitude fields (4 decimal places, longitude in front, using NAD83/WGS84). LocationID codes are unique: only one stream, flat water, supercode, point, hatchery, or dam can be represented by a LocationID. That is, two locations cannot share a LocationID even if they are of different location types.

PointID: A standard and unique 13-digit code that identifies a point location that is not associated with a stream. These are often upland points not associated with any stream, or a location on a stream that has not yet tied to the hydrography. PointIDs are not created when data can instead be tied to a stream or lake or marine water body. To create a PointID, concatenate the decimal-degree longitude and latitude of the point (each to four decimal places, longitude in front, using NAD83/WGS84), then remove negative signs and decimal points. For example, a point at 47.923685 latitude and -118.089256 longitude would be assigned a PointID of "1180892479236".

Production type: "Hatchery" fish are those resulting from spawning in a hatchery, while "Natural" fish are those resulting from spawning in the natural environment. Whether their parents were hatchery origin, natural origin, or a mix does not matter.

Appendix E. Updating This StreamNet Data Exchange Standards Document

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The purpose of this document is to serve as a guide to data managers and data entry personnel associated with the StreamNet project. Items in this document which represent changes from the previous version must be implemented in the databases and associated tools of data submitters, and of the regional StreamNet database managers. A number of tasks must be completed to fully implement a change to this document. A general, non-exhaustive outline of the tasks and procedures necessary for proposing and implementing changes to this document is shown in a companion document entitled *Data Exchange Standard Development and Revision Procedures*. That 2021 document is distributed with this exchange standards document, and is also available at https://www.streamnet.org/resources/exchange-tools/des/.

Appendix F. Spatial Submissions for New Trend Table Records

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Spatial references and displays within StreamNet used to be based on a region-wide streams GIS layer – simply providing the LocationID, begin measure, and end measure in a data table was enough to map locations by applying those three attributes to the regional streams layer. More recently, the several state partners that created and maintained the regional streams layer have taken varying approaches for their own agency needs. As a result, there is no longer a single region-wide streams layer. Therefore, spatial references and displays in StreamNet now are based on lines generated from each partner's own GIS, and provided to PSMFC for the central database and GIS system.

When submitting a new record to the Trend table – or modifying the location of an existing trend – also submit a corresponding spatial record as a GIS feature (point, line, polygon or supercode) in a feature class with an attribute table that matches the Trend table's fields, and in addition has a LocationName attribute for QC purposes. If the LocationID is already in the LocMaster table, then the LocationID / LocationName pairs in your spatial submission must match the existing LocationID / Name pair in the LocMaster table; if it is not then the new LocationID / LocationName pair will be added to the LocMaster table by PSMFC. StreamNet state agency partners, or PSMFC, can assist in creating spatial records, if needed.

Although the Trend table and spatial submissions are ultimately both needed for the query systems to fully function, they do not need to be synchronized, and either can occur first.

Below is an example. Only arcs are discussed in the example, but the general concepts are the same for trends that are points, polygons, or supercodes.

- If you make a new trend for a redd count on 5 miles of the mid Sandy River, then send an arc for those 5 miles, not an arc for the whole Sandy River.
    - Your arc will be the map display for the 5-mile reach on the query systems. It replaces the former way PSMFC used to generate map displays based on LLID + BegFt + EndFt from the Trend table, and applied to the regional hydrography layer. So, new reach displays on the query systems now come from you rather than being generated at PSMFC.
- In the LocMaster table:
    - The LocationID field identifies the location / stream name – in this example it's the existing LocationID for the Sandy River. This is not a change from how LocationID has always been submitted. The only difference is that the LocationID is not going to be used with a hydrography layer to generate reaches shown on maps. It will, though, be used for filtering data by stream name. For this reason, we will continue enforcing the use of LocationID and the LocMaster table as a prerequisite for Trend table locations.

    - If, instead of the Sandy River, this were a new stream (or other location type) not already in LocMaster, then a new record must be made in LocMaster for the new location. In addition to the DES fields for LocMaster, PSMFC will work with you to fill in the XRefName and XRefName3 fields that data providers don't normally see. These are fields with entries such as, "Podunk Creek, trib to Rock Creek" and "Podunk Creek, trib to Rock Creek (which is a trib of Beaver Creek)".
        - These XRefName and XRefName3 fields are very helpful for the query systems.
        - The LocationName in the spatial submission must match LocMaster.Name.
- In the Trend table:
    - As always, the LocationID must exist in LocMaster before a Trend table record can be created that uses that LocationID.
    - Though no longer required, PSMFC encourages providing BegFt/EndFt/EndExtentID in the Trend table (and also in the spatial record), both for QC and so the query systems can extract and present those as river miles.
    - The TrendID is what links to the surveyed reach (the arc) in the spatial submission.
- In the spatial submission:
    - In the example above, the LocationID for the new arc in the spatial data will be the LocationID of the Sandy River.
    - The survey reach itself uses the TrendID as its unique ID. It will carry the Trend table attributes, plus the LocationName attribute.
    - When mapped, the Trend feature (survey reach in this example) will be displayed on top of the Sandy River in the base map.

Examples/templates for spatial data submissions can be found in these places:

- A file-based geodatabase of regional StreamNet Trend table locations can be downloaded from https://psmfc.sharefile.com/d-s9124a49f4961426cb00d54637ea2928d.
- A GIS web map service can be found at https://maps.psmfc.org/server/rest/services/StreamNet/Trends/MapServer.

Appendix G. Data Types Used in the Data Tables

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Data Type[1]	Purpose	Characteristics
Date	Dates	
DateTime	Dates and time	This data type stores date and time -- it is not possible to store one without the other. A date with no time is usually interpreted as 00:00 in the morning. A time with no date may be interpreted differently by different software packages. Calculations recognize and use these default values, so must be accounted for when using the data.
GUID (globally unique identifier)	Unique values to identify a record	A text string of exactly 36 hexadecimal characters displayed in five groups separated by four hyphens, in the form 8-4-4-4-12.
Integer	Whole numbers, both positive and negative	Integers only: no decimal places.
Real[2]	Numbers with decimals	While "real" numbers in mathematics include irrational numbers such as pi, e, and square roots, for our needs "real numbers" include only the rational numbers.
Text	Text strings (Includes numbers not used in calculations.)	Variable length entries usually allowed. Maximum length is indicated for each field, with "∞" indicating essentially no upper limit.

[1]Fields of types 'Byte', 'Integer', and 'Long int' in the previous DES version map to "Integer" in this version; 'Single' and 'Double' map to "Real"; 'Text' and 'Memo' map to "Text" except for GUID values, which map to "GUID"; 'DateTime' maps to "Date" or "DateTime", depending on whether time is included in the values.
[2]The word "Real" was selected rather than "Decimal" for a practical reason: it is visually easier to distinguish from "Integer".