Coordinated Assessments Hatchery Data Exchange Standards

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Prepared by:
Pacific States Marine Fisheries Commission
StreamNet Project

for

Pacific Northwest Coordinated Assessments Hatchery Data Exchange Standards Development Team

List of "indicators" described in this document

This document contains data structures for sharing information about several "high level indicators" (HLIs). You can use the table below to find which data table in the document contains the indicator of interest to you.

Indicator	Rearing Type	Description	Table
Hatchery returns	Hatchery origin Natural origin	Number of fish that return to a hatchery facility.	HatcheryReturns (B1)
Broodstock spawned	Hatchery origin Natural origin	Number of fish spawned in a hatchery.	BroodstockSpawning (B2)
Hatchery releases	Hatchery origin	Number of fish released from a hatchery.	HatcheryReleases (B3)
Smolt to adult return rate (percentage)	Hatchery origin	Ratio: 100 X the number of returning hatchery origin adults, divided by the number of released fish that produced those returning adults.	SAR_Hatchery (B4)

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I. Introduction

This document contains the Coordinated Assessments Hatchery Program Data Exchange Standards. 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.

This document has three main divisions: this introduction; the descriptions of the data tables; and appendices.

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

- *Field Name*
- *Field Description*
- *Data Type*
- *Codes/Conventions*.

Field Name is the name of the field in the data table. 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 numbers in parentheses below a "Text" designation indicate the minimum and maximum number of characters of an entry allowed in that field. Appendix C contains details regarding these data types.

Codes/Conventions provides lookup codes, business rules, or other information applicable to the field.

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 other entries in the record -- refer to the red italicized text in the *Field Description* column for business rules indicating when the field is required.

In several places in this pilot version DES you will find "tracked changes" like this paragraph. These are meant to draw your attention for review and discussion for the next version of this document. But for this pilot version these items will not be included in our first attempts to share data.

For help understanding the data tables or this document, contact Mike Banach with Pacific States Marine Fisheries Commission (503-595-3152; Mike_Banach@psmfc.org).

II. Data Tables

In all tables, "natural origin" fish are those resulting from spawning in the natural environment, while "hatchery origin" fish are those resulting from spawning in a hatchery. Whether the parents were natural origin, hatchery origin, or a mix does not matter. "Unmarked" fish are those without a mark that identifies them as hatchery origin; these unmarked fish can be natural origin fish, hatchery origin fish that did not receive a distinguishing mark, or a mixture of these two.

Section A: Hatchery Programs Information

A1. HatcheryStock Table

This lookup table stores the list of hatchery stocks. Additions and changes to this table are done through PSMFC, not via the API. (Back to Table of Contents)

Field Name	Field Description	Data Type	Codes/Conventions for HatcheryStock 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.		
StockID (unique)	Code for the stock of hatchery fish represented by this record.	**Integer** (1-max)			
HatcheryStockName (unique)	Name for the stock of hatchery fish represented by this record.	**Text** (1-255)	Fish from the same source are identified as the same stock even when reared or released in different locations. Stock designations may also identify wild-origin adults collected in hatchery facilities or for hatchery operations. Stock names without a "wild" designation indicate a hatchery or mixed stock type. Hatchery stock names and natural population names use this naming convention: Names use the form <source location(s)> <dash> [wild]<run(s)> <species>. For example, "Big Creek - winter Steelhead". • Include specifiers such as "River" and "Creek" in the name. • Use hyphens where necessary, such as for "mid-Columbia". • Use "and" for multiple locations; use ampersand for multiple runs. • Capitalization: The first word, and proper nouns, are capitalized; other words are not. AFS considers accepted common names to be proper nouns, e.g. "Bull Trout", "Coho Salmon". We will follow AFS's lead. • Do the best possible for complex instances where the rules cannot apply perfectly. (This mostly applies to superpopulations.) • Clarifying information goes in parentheses; information in addition to the name goes in square brackets. ○ E.g. "Big Creek (near Alsea) - fall Coho Salmon"; "Burnt River – spring Chinook Salmon [extirpated]".		
Location	Add field for location to go along with common name and run?				
CommonName	Common name of the taxon of fish.	**Text** (1-15)	Select from the following:	• Bull trout • Chinook salmon • Chum salmon • Coho salmon	Additional species may be added in the future: refer to https://www.streamnet.org/resources/nw-fish/fish-species/ for common names.

Field Name	Field Description	Data Type	Codes/Conventions for HatcheryStock Table		
				• Sockeye salmon • Steelhead	
Run	Run of fish.	**Text** (3-20)	Enter the name of the run here, even if run name is included in the name of the population. Entries in this field are not recognized as taxonomic divisions. Select from the following: [*Do not include comments in brackets.*]	• Spring • Summer • Fall • Late fall • Winter • Spring/summer	• Both summer & winter • Early • Late • Both early & late • N/A [*For species without recognized runs. For example, bull trout.*]
ContactAgency	Agency, tribe, or other entity that identified/defined this stock.	**Text** (1-255)	Entries in this field must precisely match a name in the StreamNet agency list. Here are the ones most likely needed. If yours is not found here, contact your agency StreamNet representative, or call PSMFC's StreamNet staff at 503-595-3100. • Columbia River Inter-Tribal Fish Commission • Confederated Tribes of the Colville Reservation • Confederated Tribes and Bands of the Yakama Nation • Confederated Tribes of the Umatilla Indian Reservation • Confederated Tribes of the Warm Springs Reservation of Oregon		• Fish Passage Center • Idaho Department of Fish and Game • Nez Perce Tribe • Northwest Indian Fisheries Commission • Oregon Department of Fish and Wildlife • Quantitative Consultants, Inc. • Shoshone-Bannock Tribes • Spokane Tribe of Indians • U.S. Fish and Wildlife Service • Washington Department of Fish and Wildlife
AgencyStockName	Name of the stock used by the contact agency.	Text (1-255)			
AgencyStockCode	Code of the stock used by the contact agency.	Text (1-255)			
Comments about the data					
Comments	Information about the record.	Text (1-max)			

A2. ~~Hat~~cheryXHatcheryStock Table

This lookup table stores the hatchery stocks found at each hatchery.

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Field Name	Field Description	Data Type	Codes/Conventions for HatcheryXHatcheryStock 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.
HatcheryFacilityName	The central facility where the majority of production occurs for a specific group of hatchery fish.	**Text** (1-100)	Entries in this field must precisely match a hatchery name in the PSMFC facilities list, available at https://www.streamnet.org/home/data-maps/fish-facilities-mapper/.

Field Name	Field Description	Data Type	Codes/Conventions for HatcheryXHatcheryStock Table	
StockID	Code for the stock of hatchery fish represented by this record.	**Integer** (1-max)	Code from the HatcheryStock table.	
ESAstatus	Federal ESA listing status of the hatchery stock at the indicated facility. [The "ESAlisted" field on the next line is from the PNI table of the natural populations DES. It is slightly different than what we came up with here. It seems these two DESs should use the same approach and information, and use only one of these fields. Agree? If so, is one better than the other? If neither is better then let's use the ESAlisted field below rather than requiring a change in the natural populations DES.	**Text** (7-16)	Acceptable values: [*Do not include comments in brackets.*] • Not listed • Endangered • Threatened • Reintroduced 10j [*Only use if legally defined.*] • Unknown	If you are unsure about a particular hatchery stock's inclusion in an ESU/DPS, information can be found at https://www.federalregister.gov/articles/2014/04/14/2014-08347/endangered-and-threatened-wildlife-final-rule-to-revise-the-code-of-federal-regulations-for-species.
ESAlisted	Flag indicating whether the hatchery fish are part of the ESU or DPS in which it falls geographically.	Text 3	Acceptable values: • Yes • No If you are unsure about a particular hatchery stock's inclusion in an ESU/DPS, information can be found at https://www.federalregister.gov/articles/2014/04/14/2014-08347/endangered-and-threatened-wildlife-final-rule-to-revise-the-code-of-federal-regulations-for-species.	
PopID	If the hatchery stock is listed as Threatened, Endangered, or Reintroduced 10j under the federal ESA, this is the PopID for the natural population it is part of.	***Integer*** *(1-max)*	Must exist in the Populations table maintained for natural populations. Required if ESAstatus = "Endangered", "Threatened", or "Reintroduced 10j". Must be null if ESAstatus = "Not listed". [After we choose between ESAstatus and ESAlisted fields, make sure this field is updated accordingly in this DES and in the table in SQL Server and in the record-level validation rules.]	
ContactAgency	Agency, tribe, or other entity that identified/defined this hatchery X stock combination.	**Text** (1-255)	Entries in this field must precisely match a name in the StreamNet agency list. Here are the ones most likely needed. If yours is not found here, contact your agency StreamNet representative, or call PSMFC's StreamNet staff at 503-595-3100. • Columbia River Inter-Tribal Fish Commission • Confederated Tribes of the Colville Reservation • Confederated Tribes and Bands of the Yakama Nation • Confederated Tribes of the Umatilla Indian Reservation • Confederated Tribes of the Warm Springs Reservation of Oregon	• Fish Passage Center • Idaho Department of Fish and Game • Nez Perce Tribe • Northwest Indian Fisheries Commission • Oregon Department of Fish and Wildlife • Quantitative Consultants, Inc. • Shoshone-Bannock Tribes • Spokane Tribe of Indians • U.S. Fish and Wildlife Service • Washington Department of Fish and Wildlife
Comments about the data				
Comments	Information about the record.	Text (1-max)		
Fields needed by people programming the Exchange Network				
If you are a programmer or database manager, refer to Appendix A for additional fields that are part of this table but are not listed here.				

A3. HatcheryProgram Table

This table stores basic information about hatchery programs. The content of this table will be used to help data users filter to find data of interest to them.

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Field Name	Field Description	Data Type	Codes/Conventions for HatcheryProgram 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.		
HatcheryProgramID (unique)	StreamNet-defined code for the hatchery program represented by this record.	**Integer** (1-max)	Contact PSMFC to get values for new records.		
HatcheryProgramName	A concerted set of artificial production activities that may span multiple locations such as hatchery facilities and acclimation sites, and generally focus on one species of fish or population to address harvest supplementation, mitigation, conservation, or recovery needs.	**Text** (1-255)	Hatchery programs will be used for grouping/reporting data in query outputs. The parent-child relationships between the HatcheryProgram table and the HLI tables do not use this field; instead, the relationships use the StockID and HatcheryFacilityName fields. Therefore, HLI data in the various tables (below) are not tied directly to programs, and HatcheryProgramName is not in those tables.		
HatcheryFacilityName	The central facility where the majority of production occurs for a specific group of hatchery fish.	**Text** (1-100)	Entries in this field must precisely match a hatchery name in the PSMFC facilities list, available at https://www.streamnet.org/home/data-maps/fish-facilities-mapper/. [It was suggested that identifying a single best hatchery facility for each program may not always be possible. For this first pilot version please try to select a single hatchery, but if you can't then create a new record for each facility. The DES team will modify the DES later to align with the actual data.]		
StockID	Code for the stock of hatchery fish represented by this record.	**Integer** (1-max)			
CommonName	Common name of the taxon of fish.	**Text** (1-15)	Enter the name of the taxon here, even if taxon name is included in the name of the stock. Must match the common name of the stock. Select from the following:	• Bull trout • Chinook salmon • Chum salmon • Coho salmon • Sockeye salmon • Steelhead	Additional species may be added in the future: refer to https://www.streamnet.org/resources/nw-fish/fish-species/ for common names.
Run	Run of fish.	**Text** (3-20)	Enter the name of the run here, even if run name is included in the name of the stock. Entries in this field are not recognized as taxonomic divisions. Must match the run of the stock. Select from the following: [*Do not include comments in brackets.*]	• Spring • Summer • Fall • Late fall • Winter • Spring/summer	• Both summer & winter • Early • Late • Both early & late • N/A [*For species without recognized runs. For example, bull trout.*]
HatcheryProgramType	Purpose of the hatchery program this record represents.	**Text** (26- 37)	Acceptable values for this field are taken from the "Implementation and Compliance Monitoring" section of Appendix C in Beasley, C.A., et al. 2008. Recommendations for broad scale monitoring to evaluate the effects of hatchery supplementation on the fitness of natural salmon and steelhead populations. Final report of the Ad hoc supplementation monitoring and evaluation		

Field Name	Field Description	Data Type	Codes/Conventions for HatcheryProgram Table
			workgroup. Available at https://www.streamnet.org/final_draft_ahswg_2008april4/. Descriptions (in italics) are derived from the entire document as necessary. [*Do not include comments in brackets.*] • Segregated harvest augmentation [*Purpose is to provide for harvest while attempting to keep hatchery origin fish from spawning in the wild with natural origin fish.*] • Integrated supplementation [*Purpose is to rebuild abundance of depressed naturally-spawning populations. Hatchery origin and natural origin fish are intentionally encouraged to interbreed in the hatchery and in the natural environment.*] • Integrated supplementation/mitigation [*Like "integrated supplementation" program, but with added purpose of providing for harvest to mitigate for loss of harvest opportunities.*]
HatcheryProgramUse	Primary management purpose for which the hatchery fish are produced under this program.	**Text** (7-57)	Acceptable values: [*Do not include comments in brackets.*] • Conservation • Harvest • Recovery • Reintroduction • Research Multiple values may be selected. In such cases, separate them by a comma and space, such as "Harvest, Recovery".
Authorizations	The legal authorization(s) or mandate(s) directing funding of the hatchery program.	Text (0-255)	Multiple authorizations/mandates may be listed. In such cases, separate them by a comma and space, such as "NPCC, Mitchell Act". [*We will develop a standard list based on the data that come in. (FERC, Mitchell Act, etc.). That standard list will be enforced for additional data that arrive, and existing data will be modified to conform to the standard entries.*]
FundingSource	The major source(s) of funding which are often associated with the legal authorization(s) or mandate(s).	Text (0-255)	Multiple funders may be listed. In such cases, separate them by a comma and space, such as "BPA, USACOE". [*We will develop a standard list based on the data that come in. (BPA, NMFS, USACOE, etc.). That standard list will be enforced for additional data that arrive, and existing data will be modified to conform to the standard entries.*]
ContactAgency	Agency, tribe, or other entity, or person responsible for these data that is the best contact for questions that may arise about this data record. (This is not necessarily the organization responsible for a hatchery or a hatchery program.)	**Text** (1-255)	Entries in this field must precisely match a name in the StreamNet agency list. Here are the ones most likely needed. If yours is not found here, contact your agency StreamNet representative, or call PSMFC's StreamNet staff at 503-595-3100. • Columbia River Inter-Tribal Fish Commission • Confederated Tribes of the Colville Reservation • Confederated Tribes and Bands of the Yakama Nation • Confederated Tribes of the Umatilla Indian Reservation • Confederated Tribes of the Warm Springs Reservation of Oregon • Idaho Department of Fish and Game • Nez Perce Tribe • Oregon Department of Fish and Wildlife • Shoshone-Bannock Tribes • Spokane Tribe of Indians • U.S. Fish and Wildlife Service • Washington Department of Fish and Wildlife
Comments about the data			
Comments	Information about the record.	Text (0-max)	

Field Name	Field Description	Data Type	Codes/Conventions for HatcheryProgram Table
Fields needed by people programming the Exchange Network			
If you are a programmer or database manager, refer to Appendix A for additional fields that are part of this table but are not listed here.			

Section B: Indicators for Hatchery Programs and Populations of Hatchery Origin Fishes

Note: These hatchery HLI tables do not contain the ability to provide more than one value per year as the natural populations tables do. Also, these tables do not have fields for confidence limits. It is assumed the numbers provided for these tables do not have the uncertainty the natural population HLIs do, and these hatchery HLI values never have confidence limits calculated.

Adult information

Basic information about returns and use of adults. These tables store information concerning total hatchery returns and broodstock (hatchery origin and unmarked fish) used for spawning. “Returns” refers to the number of fish that return to and are collected by a hatchery facility or hatchery complex (HatcheryReturns table). "Broodstock" refers to the hatchery origin and unmarked fish (males, females, and jacks) that were actually spawned in a hatchery facility or hatchery complex (BroodstockSpawning table).

B1. HatcheryReturns Table

This table stores hatchery returns high level indicators. “Returns” are defined as the fish that return to and are collected by a hatchery facility or hatchery complex, under a specific program. [Two multi-field keys are enforced in this table: 1) StockID + HatcheryFacilityName + ReturnYear; 2) TimeSeriesID + ReturnYear.]

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Field Name	Field Description	Data Type	Codes/Conventions for HatcheryReturns Table
Fields for defining and describing a unique record			
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.

Field Name	Field Description	Data Type	Codes/Conventions for HatcheryReturns Table		
TimeSeriesID	This field identifies the time series a record belongs to. Records with the same TimeSeriesID are grouped and presented together on the HCAX. Assigned by data compilers or regional data assemblers as appropriate. TimeSeriesID in this DES is a synonym of TrendID in the StreamNet DES, and the same rules apply.	**Integer** (1-max)	TimeSeriesID is used in several tables in this DES, in several tables in the CA DES for natural origin populations (NOSA, SAR, etc.), and in the Trend table of the StreamNet DES (where it is called "TrendID"). The same TimeSeriesID cannot be used in more than one of these tables. For records with the same TimeSeriesID: • All StockID values must be the same. • All HatcheryFacilityName values must be the same. • The ReturnYear may NOT be repeated. For records with the same StockID + HatcheryFacilityName: • All TimeSeriesID values must be the same. • The ReturnYear may NOT be repeated.		Assigned TimeSeriesID ranges are the same as assigned TrendID ranges in the StreamNet DES. Coordinate with other personnel in your organization assigning TimeSeriesID and TrendID values. 10,000-19,999 = MFWP 20,000-22,499 = CRITFC 22,500-24,999 = NPT 25,000-27,499=CTWS 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 100,000-199,999 = WDFW (CCT range jointly managed by WDFW and CCT)
CommonName	Common name of the taxon of fish.	**Text** (1-15)	Enter the name of the taxon here, even if taxon name is included in the name of the stock. Select from the following:	• Bull trout • Chinook salmon • Chum salmon • Coho salmon • Sockeye salmon • Steelhead	Additional species may be added in the future: refer to https://www.streamnet.org/resources/nw-fish/fish-species/ for common names.
Run	Run of fish.	**Text** (3-20)	Enter the name of the run here, even if run name is included in the name of the stock. Entries in this field are not recognized as taxonomic divisions. Select from the following: [*Do not include comments in brackets.*]	• Spring • Summer • Fall • Late fall • Winter • Spring/summer	• Both summer & winter • Early • Late • Both early & late • N/A [*For species without recognized runs. For example, bull trout.*]
HatcheryProgramID	StreamNet-defined code for the hatchery program represented by this record.	**Integer** (1-max)	[We hope the program can be identified for every record. To begin, we are including this as a required field. If the program cannot always be identified for the real data then contact PSMFC to have this field changed to nonrequired.]		
HatcheryFacilityName	The central facility where the majority of production occurs for a specific group of hatchery fish.	**Text** (1-100)	Entries in this field must precisely match a hatchery name in the PSMFC facilities list, available at https://www.streamnet.org/home/data-maps/fish-facilities-mapper/. [*To begin we will try to tie all data to one hatchery facility. If we find some data cannot be defined that precisely and instead need to be tied to more than one hatchery then we will look into how to update this DES document.*]		
StockID	Code for the stock of hatchery fish represented by this record.	**Integer** (1-max)	The combination of HatcheryFacilityName and StockID must exist in the HatcheryXHatcheryStock table.		

Field Name	Field Description	Data Type	Codes/Conventions for HatcheryReturns Table
PrimaryOperator	Agency, tribe, or other entity that was the primary operator of the hatchery during this time.	**Text** (1-255)	Entries in this field must precisely match a name in the StreamNet agency list. Here are the ones most likely needed. If yours is not found here, contact your agency StreamNet representative, or call PSMFC's StreamNet staff at 503-595-3100. • Columbia River Inter-Tribal Fish Commission • Confederated Tribes of the Colville Reservation • Confederated Tribes and Bands of the Yakama Nation • Confederated Tribes of the Umatilla Indian Reservation • Confederated Tribes of the Warm Springs Reservation of Oregon • Idaho Department of Fish and Game • Nez Perce Tribe • Oregon Department of Fish and Wildlife • Shoshone-Bannock Tribes • Spokane Tribe of Indians • U.S. Fish and Wildlife Service • Washington Department of Fish and Wildlife
ReturnYear	The four digit year in which the majority of fish returned and were collected.	**Integer** (1890-current year)	This is the year in which the majority of a cohort of this species (and run where appropriate) returned. Fish Passage Center data indicate return years do not begin uncharacteristically early or late like spawning does for some populations/stocks. But if such a situation arises then follow the approach used for BroodYear.
ReturnLocation	The specific location(s) where returning fish were collected.	**Text** (1-255)	This may be any of the following: • The name of a hatchery, dam, weir, or trap, etc. • The name of an acclimation site, if returns are to a release location. • The name of a fluvial water body. • The name of an impounded fluvial water body (reservoir). • The name of a lentic water body. • A description of multiple water bodies if appropriate for the time series. The HatcheryFacilityName field tells which hatchery's "returns" are being described. But because many hatcheries have satellite facilities that are an inherent part of the system, this field is used to disclose all the return locations that contribute to the totals.
ReturnLong	Longitude of the location specified in the ReturnLocation field, in decimal degrees. Calculated using NAD83/WGS84.	Real	This is a negative number. Use three digits left of the decimal point and four digits to the right of the decimal point. For example, if ReturnLocation = "Wind River at Shipherd Falls" enter "-121.8050". If the ReturnLocation field contains multiple locations and you wish to provide a longitude / latitude for each, do that within the ReturnLocation field. [In such cases the ReturnLong / ReturnLat fields will be used to provide a general visual reference on the online query system, and the ReturnLocation field will provide specific longitudes / latitudes for the individual sites for data end users.]
ReturnLat	Latitude of the location specified in the ReturnLocation field, in decimal degrees. Calculated using NAD83/WGS84.	Real	This is a positive number. Use two digits left of the decimal point and four digits to the right of the decimal point. For example, if WaterBody = "Wind River at Shipherd Falls" enter "45.7371".
AffiliatedPopID	Code for the natural origin population of the same species and run at the location given in the ReturnLocation field.	Integer (1-max)	If you wish to report more than one "affiliated population", enter the PopID for the primary one here and name the others in the Comments field. In those comments, indicate how the other population(s) are affiliated. Examples: • This hatchery stock was derived from this natural population • This hatchery stock was used to create/reestablish this natural population • This hatchery stock's releases occur within this natural population's boundaries • Unknown

Field Name	Field Description	Data Type	Codes/Conventions for HatcheryReturns Table
Return numbers			
TotalReturn	The total number of fish returning to and collected at the specified return location(s).	***Integer*** *(0-max)*	Provide whole numbers only, not decimal values. If unknown, leave null. If known to be zero, enter zero. Recycled fish that return more than once are counted only once each. This should be the sum of the HatcheryTotal and UnmarkedTotal fields. Imperfect data may not match this expectation, but are allowed. *Required if the HatcheryTotal and UnmarkedTotal fields are both null and NullRecord field = "No".*
HatcheryTotal	The total number of hatchery origin fish returning to and collected at the specified return location(s). "Hatchery origin" means the fish's parents were spawned in captivity rather than spawning naturally in the wild.	***Integer*** *(0-max)*	Provide whole numbers only, not decimal values. If unknown, leave null. If known to be zero, enter zero. Strays are included. Recycled fish that return more than once are counted only once each. This should be the sum of the HatcheryFemales, HatcheryMales, HatcheryJacks, HatcheryJennies, and HatcheryUnknown fields. Imperfect data may not match this expectation, but are allowed. *Required if the HatcheryFemales. HatcheryMales, and HatcheryJacks, HatcheryJennies, and HatcheryUnknown fields are all null and NullRecord field = "No".*
StrayTotal	The total number of hatchery origin strays from other hatcheries returning to and collected at the specified return location(s). "Hatchery origin" means the fish's parents were spawned in captivity rather than spawning naturally in the wild. Strays are hatchery origin fish that strayed from their expected return location. Strays do not include unmarked fish.	Integer (0-max)	Provide whole numbers only, not decimal values. If unknown, leave null. If known to be zero, enter zero. Recycled fish that return more than once are counted only once each. This should be the sum of the StrayFemales, StrayMales, StrayJacks, StrayJennies, and StrayUnknown fields. Imperfect data may not match this expectation, but are allowed. Hatchery fish that are released off-site but subsequently return to the hatchery of origin may or may not be considered "strays". If this situation applies then disclose in the Comments field how those fish are represented in this record.
UnmarkedTotal	The total number of unmarked (natural origin plus unmarked hatchery origin) fish returning to and collected at the specified return location(s).	***Integer*** *(0-max)*	Provide whole numbers only, not decimal values. If unknown, leave null. If known to be zero, enter zero. Recycled fish that return more than once are counted only once each. This should be the sum of the UnmarkedFemales, UnmarkedMales, UnmarkedJacks, UnmarkedJennies, and UnmarkedUnknown fields. Imperfect data may not match this expectation, but are allowed. *Required if the UnmarkedFemales. UnmarkedMales, UnmarkedJacks, UnmarkedJennies, and UnmarkedUnknown fields are all null and NullRecord field = "No".*

Field Name	Field Description	Data Type	Codes/Conventions for HatcheryReturns Table
NaturalTotal	Number of unmarked fish believed to be natural origin, including females, males, jacks, and jennies.	Integer (0-max)	Some unmarked fish may be natural origin. If an estimate of the number of natural origin fish is available, provide it here. Provide whole numbers only, not decimal values. If unknown, leave null. Recycled fish that return more than once are counted only once each.
HatcheryFemales	The total number of hatchery origin adult females, excluding jennies, returning to and collected at the specified return location(s). "Hatchery origin" means the fish's parents were spawned in captivity rather than spawning naturally in the wild.	***Integer*** *(0-max)*	Provide whole numbers only, not decimal values. If unknown, leave null. If known to be zero, enter zero. Strays are included. Does not include jennies. Recycled fish that return more than once are counted only once each. Required if the HatcheryTotal field is null and NullRecord field = "No".
HatcheryMales	The total number of hatchery origin adult males, excluding jacks, returning to and collected at the specified return location(s). "Hatchery origin" means the fish's parents were spawned in captivity rather than spawning naturally in the wild.	***Integer*** *(0-max)*	Provide whole numbers only, not decimal values. If unknown, leave null. If known to be zero, enter zero. Strays are included. Does not include jacks. Recycled fish that return more than once are counted only once each. Required if the HatcheryTotal field is null and NullRecord field = "No".
HatcheryJacks	The total number of hatchery origin jacks returning to and collected at the specified return location(s). "Hatchery origin" means the fish's parents were spawned in captivity rather than spawning naturally in the wild.	***Integer*** *(0-max)*	Provide whole numbers only, not decimal values. If unknown, leave null. If known to be zero, enter zero. Strays are included. Recycled fish that return more than once are counted only once each. Required if the HatcheryTotal field is null and NullRecord field = "No", unless jacks are not recognized for this species.
HatcheryJennies	The total number of hatchery origin jennies returning to and collected at the specified return location(s). "Hatchery origin" means the fish's parents were spawned in captivity rather than spawning naturally in the wild. "Jenny" is defined in the Glossary.	Integer (0-max)	Provide whole numbers only, not decimal values. If unknown, leave null. If known to be zero, enter zero. Strays are included.

Field Name	Field Description	Data Type	Codes/Conventions for HatcheryReturns Table
HatcheryUnknown	The total number of hatchery origin unsexed fish returning to and collected at the specified return location(s). "Hatchery origin" means the fish's parents were spawned in captivity rather than spawning naturally in the wild.	***Integer*** *(0-max)*	Provide whole numbers only, not decimal values. If unknown, leave null. If known to be zero, enter zero. Strays are included. Recycled fish that return more than once are counted only once each. Required if the HatcheryTotal field is null and NullRecord field = "No".
StrayFemales	The number of female hatchery origin strays from other hatcheries returning to and collected at the specified return location(s). "Hatchery origin" means the fish's parents were spawned in captivity rather than spawning naturally in the wild. Strays are hatchery origin fish that strayed from their expected return location. Strays do not include unmarked fish.	Integer (0-max)	Provide whole numbers only, not decimal values. If unknown, leave null. If known to be zero, enter zero. Does not include jennies. Recycled fish that return more than once are counted only once each.
StrayMales	The number of male hatchery origin strays from other hatcheries, excluding jacks, returning to and collected at the specified return location(s). "Hatchery origin" means the fish's parents were spawned in captivity rather than spawning naturally in the wild. Strays are hatchery origin fish that strayed from their expected return location. Strays do not include unmarked fish.	Integer (0-max)	Provide whole numbers only, not decimal values. If unknown, leave null. If known to be zero, enter zero. Do not include jacks. Recycled fish that return more than once are counted only once each.
StrayJacks	The number of hatchery origin stray jacks from other hatcheries returning to and collected at the specified return location(s). "Hatchery origin" means the fish's parents were spawned in captivity rather than spawning naturally in the wild. Strays are hatchery origin fish that strayed from their expected return location. Strays do not include unmarked fish.	Integer (0-max)	Provide whole numbers only, not decimal values. If unknown, leave null. If known to be zero, enter zero. Recycled fish that return more than once are counted only once each.

Field Name	Field Description	Data Type	Codes/Conventions for HatcheryReturns Table
StrayJennies	The number of hatchery origin stray jennies from other hatcheries returning to and collected at the specified return location(s). "Hatchery origin" means the fish's parents were spawned in captivity rather than spawning naturally in the wild. Strays are hatchery origin fish that strayed from their expected return location. Strays do not include unmarked fish. "Jenny" is defined in the Glossary.	Integer (0-max)	Provide whole numbers only, not decimal values. If unknown, leave null. If known to be zero, enter zero.
StrayUnknown	The number of female hatchery origin strays from other hatcheries returning to and collected at the specified return location(s). "Hatchery origin" means the fish's parents were spawned in captivity rather than spawning naturally in the wild. Strays are hatchery origin fish that strayed from their expected return location. Strays do not include unmarked fish.	Integer (0-max)	Provide whole numbers only, not decimal values. If unknown, leave null. If known to be zero, enter zero. Recycled fish that return more than once are counted only once each.
UnmarkedFemales	The total number of unmarked (natural origin plus unmarked hatchery origin) adult females, excluding jennies, returning to and collected at the specified return location(s).	***Integer*** *(0-max)*	Provide whole numbers only, not decimal values. If unknown, leave null. If known to be zero, enter zero. Does not include jennies. Recycled fish that return more than once are counted only once each. Required if the UnmarkedTotal field is null and NullRecord field = "No".
UnmarkedMales	The total number of unmarked (natural origin plus unmarked hatchery origin) adult males, excluding jacks, returning to and collected at the specified return location(s).	***Integer*** *(0-max)*	Provide whole numbers only, not decimal values. If unknown, leave null. If known to be zero, enter zero. Does not include jacks. Recycled fish that return more than once are counted only once each. Required if the UnmarkedTotal field is null and NullRecord field = "No".
UnmarkedJacks	The total number of unmarked (natural origin plus unmarked hatchery origin) jacks returning to and collected at the specified return location(s).	***Integer*** *(0-max)*	Provide whole numbers only, not decimal values. If unknown, leave null. If known to be zero, enter zero. Recycled fish that return more than once are counted only once each. Required if the UnmarkedTotal field is null and NullRecord field = "No", unless jacks are not recognized for this species.

Field Name	Field Description	Data Type	Codes/Conventions for HatcheryReturns Table
UnmarkedJennies	The total number of unmarked (natural origin plus unmarked hatchery origin) jennies returning to and collected at the specified return location(s). "Jenny" is defined in the Glossary.	Integer (0-max)	Provide whole numbers only, not decimal values. If unknown, leave null. If known to be zero, enter zero.
UnmarkedUnknown	The total number of unmarked (natural origin plus unmarked hatchery origin) unsexed fish returning to and collected at the specified return location(s).	***Integer*** *(0-max)*	Provide whole numbers only, not decimal values. If unknown, leave null. If known to be zero, enter zero. Recycled fish that return more than once are counted only once each. Required if the UnmarkedTotal field is null and NullRecord field = "No".
Links to other systems **These fields provide links to other systems where more detailed information is available.**			
RMISreturnCode	The <<code>> from the catch/sample database at RMPC (Regional Mark Processing Center).	Text (0-255)	For multiple entries use comma-delimited text; spaces can be used after commas for readability. [*NOTE: Several people have asked about links to RMIS & PTAGIS, and there have been requests for marks/tags also. These two fields are here largely as placeholders because exactly how this can work is not yet researched. I think unique records in RMIS's catch/sample table are defined by reporting_agency X catch_year X catch_sample_id. To make the type of link I'm envisioning here we would either need to capture sets of all 3 of those values, or RMIS would need to provide a GUID or other single-field unique identifier in their database. Maybe they have something like that already, but I don't know yet.*]
PTAGISreturnCode	The <<code>> from the PTAGIS database.	Text (0-255)	For multiple entries use comma-delimited text; spaces can be used after commas for readability. [*NOTE: As with the RMISreturnCode field, I'm not familiar enough with the PTAGIS system and so don't know what hook we may have into PTAGIS data. This field is here as a placeholder for a better-defined mechanism in a future version of this document.*]
Age distribution **(Age distribution will be captured and presented as a stand-alone data type, and is being developed independent of this table.)**			
Protocol and method documentation			
ProtMethName	The name(s) of all protocols and associated data collection and data analysis methods used to calculate the indicator estimate.	Text (0-max)	Provide title of protocol and name(s) of relevant methods used. Documentation should describe the study design (including spatial, temporal, response and inference designs), annual implementation notes on variations from routine step by step procedures or design criteria, also known as survey design, description of field methodology and analytical approach.
ProtMethURL	URL(s) for published protocols and methods describing the methodology and documenting the derivation of the indicator. If published in MonitoringResources.org, this link will provide access to study design information and all methods associated with the protocol.	Text (0-max)	Provide URL(s) to source documentation of methodology. For MonitoringResources.org provide link to the protocol. Methods documentation should include survey design, description of field methodology and analytical approach. URL links may be to online methods documentation resources like MonitoringResources.org, other online resources, or online literature. If methodology is unchanged from a previous year, use the previous link references. If methodology changed for this estimate, provide a new link.

Field Name	Field Description	Data Type	Codes/Conventions for HatcheryReturns Table
ProtMethDocumentation	Citation or documentation that describes the protocol and/or method(s) listed in the ProtMethName field. Include references not documented in MonitoringResources.org, such as reports, journal articles or other publications that describe the survey design, field methodology and analytical approach used to derive the indicator estimate.	Text (0-max)	Provide a citation(s) to documentation of the methodology used. This may be in the form of reports, journal articles, or other publications that describe the study design (including spatial, temporal, response and inference designs), variations from routine step by step procedures or design criteria, description of field methodology and analytical approach. If the methodology is not yet published, either insert here, or describe in a separate document and make it available online (provide the URL). Leave this field blank if methodology is described in MonitoringResources.org. Note: If there is no link to a cited document online, provide a copy of the document to the StreamNet Library (streamnetlibrary.org). The library will scan the document and provide a URL. Post the URL in the ProtMethURL field. If methodology is unchanged from a previous year, use the previous link or reference citation. If methodology changed, provide a new link or reference citation.
MethodAdjustments	Minor adjustments to a method in a given year that are not described in the method citations above but are important.	Text (0-max)	Give a brief description of changes or adjustments to a standard method if they are NOT described in the methods documentation already provided. If multiple documentation sources are cited, be sure to indicate which method from which document was adjusted. In MonitoringResources.org, documentation of changes or adjustments to methods or protocols can be described in the Implementation Notes section of each published method or protocol.
OtherDataSources	The ContactAgency field identifies an organization involved in calculating the values in this record. This "OtherDataSources" field identifies additional organizations that provided data or expertise to calculate the indicator(s), metric(s), or age distribution for this record.	Text (0-255)	List all the organizations that provided data used to calculate the values for this record. Entries must meet the requirements as defined in the ContactAgency field. If more than one, separate the entries with the bar character " | ". This field is for ADDITIONAL organizations. Do not include the organization identified in the ContactAgency field.
Comments about the data			
Comments	Any issues, problems, questions about this indicator that were not already captured in other places.	***Text*** *(0-max)*	If possible, it is useful to briefly explain any null "metrics" or "age" fields. *Required if NullRecord = "Yes", to explain why the indicators are not available.*
Supporting information			
NullRecord	In some years data may not be collected and so indicator values cannot be calculated. For example, high muddy water or wildfires can prevent redd counts that indicator values are based on. This field is used to indicate that indicator values do not exist because the data do not exist to calculate them.	**Text** (2-3)	Normally "No". A value of "Yes" in this field is a positive statement that the data do not exist to calculate the indicator for the population and time period specified. Metric data and age data may still exist when NullRecord = "Yes". The value of including this field is so that missing data are explicitly accounted for rather than being a perpetually open question that is repeatedly researched. Including these "null" records allows for better data display on the web site, and you are encouraged to create them for years with both earlier and later non-null data. Explain in the Comments field why the indicator cannot be calculated.
DataStatus	Status of the data in the current record.	**Text** (5-8)	Acceptable values: [*Do not include comments in brackets.*] • Draft [*Values in this record are preliminary and have not been thoroughly reviewed.*] • Reviewed [*Values in this record have been reviewed but are not yet approved as "final".*] • Final [*Values in this record have been thoroughly reviewed and are considered "final".*]
IndicatorLocation	Where these return numbers are maintained at the source.	Text (0-max)	If online, provide URL(s). [*This field from the natural populations DES may not be here. We will evaluate its usefulness after we see if it is used.*]
MeasureLocation	Where the raw return numbers are maintained that were used for the total return numbers.	Text (0-max)	If online, provide URL(s). [*This field from the natural populations DES may not be here. We will evaluate its usefulness after we see if it is used.*]

Field Name	Field Description	Data Type	Codes/Conventions for HatcheryReturns Table
ContactAgency	Agency, tribe, or other entity, or person responsible for these data that is the best contact for questions that may arise about this data record.	**Text** (1-255)	Entries in this field must precisely match a name in the StreamNet agency list. Here are the ones most likely needed. If yours is not found here, contact your agency StreamNet representative, or call PSMFC's StreamNet staff at 503-595-3100. • Columbia River Inter-Tribal Fish Commission • Confederated Tribes of the Colville Reservation • Confederated Tribes and Bands of the Yakama Nation • Confederated Tribes of the Umatilla Indian Reservation • Confederated Tribes of the Warm Springs Reservation of Oregon • Idaho Department of Fish and Game • Nez Perce Tribe • Oregon Department of Fish and Wildlife • Shoshone-Bannock Tribes • Spokane Tribe of Indians • U.S. Fish and Wildlife Service • Washington Department of Fish and Wildlife
ContactPersonFirst	First name of person who is the best contact for questions that may arise about this data record.	**Text** (1-30)	
ContactPersonLast	Last name of person who is the best contact for questions that may arise about this data record.	**Text** (1-30)	
ContactPhone	Phone number of person who is the best contact for questions that may arise about this data record.	**Text** (12-30)	Preferred format is "123-456-7890". If an extension is included, preferred format is "123-456-7890 ext. 34".
ContactEmail	Email address of person who is the best contact for questions that may arise about this data record.	**Text** (7-50)	
BPAprojNum	BPA project number(s) of funding used to collect the data that went into calculating the HLIs.	Text (3-50)	Use "N/A" when no BPA funding was used. The default value "Not yet determined" will be assigned when left blank. For multiple entries use comma-delimited text; spaces can be used after commas for readability.
MetaComments	Comments regarding the supporting information.	Text (0-max)	
Fields needed by people programming the Exchange Network			
If you are a programmer or database manager, refer to Appendix A for additional fields that are part of this table but are not listed here.			

B2. BroodstockSpawning Table

This table stores hatchery broodstock and spawning high level indicators. "Broodstock" are defined as the hatchery origin and unmarked fish that were actually spawned in a hatchery facility or hatchery complex, under a specific program. [Two multi-field keys are enforced in this table: 1) StockID + HatcheryFacilityName + BroodYear; 2) TimeSeriesID + BroodYear.]

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Field Name	Field Description	Data Type	Codes/Conventions for BroodstockSpawning Table		
Fields for defining and describing a unique record					
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.		
TimeSeriesID	This field identifies the time series a record belongs to. Records with the same TimeSeriesID are grouped and presented together on the HCAX. Assigned by data compilers or regional data assemblers as appropriate. TimeSeriesID in this DES is a synonym of TrendID in the StreamNet DES, and the same rules apply.	**Integer** (1-max)	TimeSeriesID is used in several tables in this DES, in several tables in the CA DES for natural origin populations (NOSA, SAR, etc.), and in the Trend table of the StreamNet DES (where it is called "TrendID"). The same TimeSeriesID cannot be used in more than one of these tables. For records with the same TimeSeriesID: • All StockID values must be the same. • All HatcheryFacilityName values must be the same. • The BroodYear may NOT be repeated. For records with the same StockID + HatcheryFacilityName: • All TimeSeriesID values must be the same. • The BroodYear may NOT be repeated.	Assigned TimeSeriesID ranges are the same as assigned TrendID ranges in the StreamNet DES. Coordinate with other personnel in your organization assigning TimeSeriesID and TrendID values. 10,000-19,999 = MFWP 20,000-22,499 = CRITFC 22,500-24,999 = NPT 25,000-27,499=CTWS 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 100,000-199,999 = WDFW (CCT range jointly managed by WDFW and CCT)
CommonName	Common name of the taxon of fish.	**Text** (1-15)	Enter the name of the taxon here, even if taxon name is included in the name of the stock. Select from the following:	• Bull trout • Chinook salmon • Chum salmon • Coho salmon • Sockeye salmon • Steelhead	Additional species may be added in the future: refer to https://www.streamnet.org/resources/nw-fish/fish-species/ for common names.
Run	Run of fish.	**Text** (3-20)	Enter the name of the run here, even if run name is included in the name of the stock. Entries in this field are not recognized as taxonomic divisions. Select from the following: [*Do not include comments in brackets.*]	• Spring • Summer • Fall • Late fall • Winter • Spring/summer	• Both summer & winter • Early • Late • Both early & late • N/A [*For species without recognized runs. For example, bull trout.*]
HatcheryProgramID	StreamNet-defined code for the hatchery program represented by this record.	**Integer** (1-max)	[We hope the program can be identified for every record. To begin, we are including this as a required field. If the program cannot always be identified for the real data then contact PSMFC to have this field changed to nonrequired.]		
HatcheryFacilityName	The central facility where the majority of production occurs for a specific group of hatchery fish.	**Text** (1-100)	Entries in this field must precisely match a hatchery name in the PSMFC facilities list, available at https://www.streamnet.org/home/data-maps/fish-facilities-mapper/. [*To begin we will try to tie all data to one hatchery facility. If we find some data cannot be defined that precisely and instead need to be tied to more than one hatchery then we will look into how to update this DES document.*]		

Field Name	Field Description	Data Type	Codes/Conventions for BroodstockSpawning Table
StockID	Code for the stock of hatchery fish represented by this record.	**Integer** (1-max)	
PrimaryOperator	Agency, tribe, or other entity that was the primary operator of the hatchery during this time.	**Text** (1-255)	Entries in this field must precisely match a name in the StreamNet agency list. Here are the ones most likely needed. If yours is not found here, contact your agency StreamNet representative, or call PSMFC's StreamNet staff at 503-595-3100. • Columbia River Inter-Tribal Fish Commission • Confederated Tribes of the Colville Reservation • Confederated Tribes and Bands of the Yakama Nation • Confederated Tribes of the Umatilla Indian Reservation • Confederated Tribes of the Warm Springs Reservation of Oregon • Idaho Department of Fish and Game • Nez Perce Tribe • Oregon Department of Fish and Wildlife • Shoshone-Bannock Tribes • Spokane Tribe of Indians • U.S. Fish and Wildlife Service Washington Department of Fish and Wildlife
SpawningLocation	The specific named location(s) where the fish were spawned.	**Text** (1-255)	This may be the name of a hatchery, dam, weir, or trap, etc.
BroodYear	The four-digit year in which spawning of this species (and run where appropriate) began. In this table, this BroodYear field is the year the returning adults were spawned, not the year in which they themselves started out as eggs.	**Integer** (1890-current year)	This is the year in which the majority of a cohort of this species (and run where appropriate) were spawned. In unusual cases where spawning a stock begins uncharacteristically early (before January 1 for spring spawners) or late (after December 31 for fall spawners) for the species (and perhaps run), assign the year based on the majority of stocks of this species/run in order to be consistent for all stocks of the spawning cohort. For example, most coho stocks are spawned in fall; if spawning of a coho stock does not begin until after Jan. 1 the brood year assigned for this unusual stock would match the other stocks that were spawned in the fall, even though spawning this particular stock did not begin spawning until after December 31.
Spawner numbers			
BroodFemales	The total number of females used in spawning, which includes hatchery origin and unmarked fish.	Integer (0-max)	Provide whole numbers only, not decimal values. The values provided in this field are the total number of brood females used for spawning, not the total number of females captured and held for spawning.
BroodMales	The total number of males used in spawning, which includes hatchery origin and unmarked fish. Excludes jacks.	Integer (0-max)	Provide whole numbers only, not decimal values. The values provided in this field are the total number of brood males used for spawning, not the total number of males captured and held for spawning. [A male may be spawned >1 time. In those instances ratios for pNOB & PNOB and such can be affected. We need to discuss this for the next version of this DES, but for now in this pilot version that complication will be ignored.]

Field Name	Field Description	Data Type	Codes/Conventions for BroodstockSpawning Table
BroodJacks	The total number of jacks used in spawning, which includes hatchery origin and unmarked fish.	***Integer*** *(0-max)*	Provide whole numbers only, not decimal values. These jacks are in addition to the BroodMales field, not included in that value. The values provided in this field are the total number of brood jacks used for spawning, not the total number of jacks captured and held for spawning. If no hatchery origin or unmarked jacks were spawned, enter "0" in this field. Required if pNOBIJ or pHOBIJ is provided.
HOBFemales	The number of hatchery origin females used in spawning.	Integer (0-max)	Provide whole numbers only, not decimal values. The values provided in this field are the total number of hatchery origin brood females used for spawning, not the total number of hatchery origin females captured and held for spawning. If no hatchery origin females were spawned, enter "0" in this field.
HOBMales	The number of hatchery origin males used in spawning, excluding jacks.	Integer (0-max)	Provide whole numbers only, not decimal values. The values provided in this field are the number of hatchery origin brood males used for spawning, not the total number of hatchery origin males captured and held for spawning. If no hatchery origin males were spawned, enter "0" in this field.
HOBJacks	The number of hatchery origin jacks used in spawning.	***Integer*** *(0-max)*	Provide whole numbers only, not decimal values. The values provided in this field are the number of hatchery origin brood jacks used for spawning, not the total number of hatchery origin jacks captured and held for spawning. If no hatchery origin jacks were spawned, enter "0" in this field. Required if pHOBIJ is provided.
NOBFemales	The number of unmarked (natural origin plus unmarked hatchery origin) females used in spawning.	Integer (0-max)	Provide whole numbers only, not decimal values. The values provided in this field are the total number of unmarked brood females used for spawning, not the total number of unmarked females captured and held for spawning. If no unmarked females were spawned, enter "0" in this field.
NOBMales	The number of unmarked (natural origin plus unmarked hatchery origin) males used in spawning, excluding jacks.	Integer (0-max)	Provide whole numbers only, not decimal values. The values provided in this field are the number of unmarked brood males used for spawning, not the total number of unmarked males captured and held for spawning. If no unmarked males were spawned, enter "0" in this field.

Field Name	Field Description	Data Type	Codes/Conventions for BroodstockSpawning Table
NOBJacks	The number of unmarked (natural origin plus unmarked hatchery origin) jacks used in spawning.	***Integer*** *(0-max)*	Provide whole numbers only, not decimal values. These jacks are in addition to the NOBMales field, not included in that value. The values provided in this field are the number of unmarked brood jacks used for spawning, not the total number of unmarked jacks captured and held for spawning. If no unmarked jacks were spawned, enter "0" in this field. Required if pNOBIJ is provided.
pHOBIJ	The proportion of broodstock actually spawned in a hatchery, including jacks, that are hatchery origin fish. "Hatchery origin" means the fish's parents were spawned in captivity rather than spawning naturally in the wild.	***Real***	Express these values as numbers from zero to one, with three digits to the right of the decimal point. For species/run for which "jacks" are not recognized, enter the pHOB estimate in this field. The only species for which jacks are recognized are Chinook salmon, coho salmon, chum salmon (rarely), and winter steelhead (rarely). Required if the pHOBEJ field is null and NullRecord = "No".
pHOBEJ	The proportion of broodstock actually spawned in a hatchery, excluding jacks, that are hatchery origin fish. "Hatchery origin" means the fish's parents were spawned in captivity rather than spawning naturally in the wild.	***Real***	Express these values as numbers from zero to one, with three digits to the right of the decimal point. For species/run for which "jacks" are not recognized, leave this field blank. The only species for which jacks are recognized are Chinook salmon, coho salmon, chum salmon (rarely), and winter steelhead (rarely). Required if the pHOBIJ field is null and NullRecord = "No".
pNOBIJ	Proportion of broodstock actually spawned in a hatchery, including jacks, that are natural origin fish. "Natural origin" means the fish's parents spawned in the wild.	***Real***	Express these values as numbers from zero to one, with three digits to the right of the decimal point. For species/run for which "jacks" are not recognized, enter the pNOB estimate in this field. The only species for which jacks are recognized are Chinook salmon, coho salmon, chum salmon (rarely), and winter steelhead (rarely). Required if the pNOBEJ field is null and NullRecord = "No".
pNOBEJ	Proportion of broodstock actually spawned in a hatchery, excluding jacks, that are natural origin fish. "Natural origin" means the fish's parents spawned in the wild.	***Real***	Express these values as numbers from zero to one, with three digits to the right of the decimal point. For species/run for which "jacks" are not recognized, leave this field blank. The only species for which jacks are recognized are Chinook salmon, coho salmon, chum salmon (rarely), and winter steelhead (rarely). Required if the pNOBIJ field is null and NullRecord = "No".
Protocol and method documentation			
ProtMethName	The name(s) of all protocols and associated data collection and data analysis methods used to calculate the indicator estimate.	Text (0-max)	Provide title of protocol and name(s) of relevant methods used. Documentation should describe the study design (including spatial, temporal, response and inference designs), annual implementation notes on variations from routine step by step procedures or design criteria, also known as survey design, description of field methodology and analytical approach.
ProtMethURL	URL(s) for published protocols and methods describing the methodology and documenting the derivation of the indicator. If published in MonitoringResources.org, this link will provide access to study design information and all methods associated with the protocol.	Text (0-max)	Provide URL(s) to source documentation of methodology. For MonitoringResources.org provide link to the protocol. Methods documentation should include survey design, description of field methodology and analytical approach. URL links may be to online methods documentation resources like MonitoringResources.org, other online resources, or online literature. If methodology is unchanged from a previous year, use the previous link references. If methodology changed for this estimate, provide a new link.

Field Name	Field Description	Data Type	Codes/Conventions for BroodstockSpawning Table
ProtMethDocumentation	Citation or documentation that describes the protocol and/or method(s) listed in the ProtMethName field. Include references not documented in MonitoringResources.org, such as reports, journal articles or other publications that describe the survey design, field methodology and analytical approach used to derive the indicator estimate.	Text (0-max)	Provide a citation(s) to documentation of the methodology used. This may be in the form of reports, journal articles, or other publications that describe the study design (including spatial, temporal, response and inference designs), variations from routine step by step procedures or design criteria, description of field methodology and analytical approach. If the methodology is not yet published, either insert here, or describe in a separate document and make it available online (provide the URL). Leave this field blank if methodology is described in MonitoringResources.org. Note: If there is no link to a cited document online, provide a copy of the document to the StreamNet Library (streamnetlibrary.org). The library will scan the document and provide a URL. Post the URL in the ProtMethURL field. If methodology is unchanged from a previous year, use the previous link or reference citation. If methodology changed, provide a new link or reference citation.
MethodAdjustments	Minor adjustments to a method in a given year that are not described in the method citations above but are important.	Text (0-max)	Give a brief description of changes or adjustments to a standard method if they are NOT described in the methods documentation already provided. If multiple documentation sources are cited, be sure to indicate which method from which document was adjusted. In MonitoringResources.org, documentation of changes or adjustments to methods or protocols can be described in the Implementation Notes section of each published method or protocol.
OtherDataSources	The ContactAgency field identifies an organization involved in calculating the values in this record. This "OtherDataSources" field identifies additional organizations that provided data or expertise to calculate the indicator(s), metric(s), or age distribution for this record.	Text (0-255)	List all the organizations that provided data used to calculate the values for this record. Entries must meet the requirements as defined in the ContactAgency field. If more than one, separate the entries with the bar character " | ". This field is for ADDITIONAL organizations. Do not include the organization identified in the ContactAgency field.
Comments about the data			
Comments	Any issues, problems, questions about this indicator that were not already captured in other places.	***Text*** *(0-max)*	If possible, it is useful to briefly explain any null "metrics" or "age" fields. *Required if NullRecord = "Yes", to explain why the indicators are not available.*
Supporting information			
NullRecord	In some years data may not be collected and so indicator values cannot be calculated. For example, high muddy water or wildfires can prevent redd counts that indicator values are based on. This field is used to indicate that indicator values do not exist because the data do not exist to calculate them.	**Text** (2-3)	Normally "No". A value of "Yes" in this field is a positive statement that the data do not exist to calculate the indicator for the population and time period specified. Metric data and age data may still exist when NullRecord = "Yes". The value of including this field is so that missing data are explicitly accounted for rather than being a perpetually open question that is repeatedly researched. Including these "null" records allows for better data display on the web site, and you are encouraged to create them for years with both earlier and later non-null data. Explain in the Comments field why the indicator cannot be calculated.
DataStatus	Status of the data in the current record.	**Text** (5-8)	Acceptable values: [*Do not include comments in brackets.*] • Draft [*Values in this record are preliminary and have not been thoroughly reviewed.*] • Reviewed [*Values in this record have been reviewed but are not yet approved as "final".*] • Final [*Values in this record have been thoroughly reviewed and are considered "final"; preferably parentage-based broodstock analysis has already been done, but is not required.*]
IndicatorLocation	Where these spawning numbers are maintained at the source.	Text (0-max)	If online, provide URL(s). [*This field from the natural populations DES may not be here. We will evaluate its usefulness after we see if it is used.*]
MeasureLocation	Where the raw spawning numbers are maintained that were used for the total spawning numbers.	Text (0-max)	If online, provide URL(s). [*This field from the natural populations DES may not be here. We will evaluate its usefulness after we see if it is used.*]

Field Name	Field Description	Data Type	Codes/Conventions for BroodstockSpawning Table
ContactAgency	Agency, tribe, or other entity, or person responsible for these data that is the best contact for questions that may arise about this data record.	**Text** (1-255)	Entries in this field must precisely match a name in the StreamNet agency list. Here are the ones most likely needed. If yours is not found here, contact your agency StreamNet representative, or call PSMFC's StreamNet staff at 503-595-3100. • Columbia River Inter-Tribal Fish Commission • Confederated Tribes of the Colville Reservation • Confederated Tribes and Bands of the Yakama Nation • Confederated Tribes of the Umatilla Indian Reservation • Confederated Tribes of the Warm Springs Reservation of Oregon • Idaho Department of Fish and Game • Nez Perce Tribe • Oregon Department of Fish and Wildlife • Shoshone-Bannock Tribes • Spokane Tribe of Indians • U.S. Fish and Wildlife Service Washington Department of Fish and Wildlife
ContactPersonFirst	First name of person who is the best contact for questions that may arise about this data record.	**Text** (1-30)	
ContactPersonLast	Last name of person who is the best contact for questions that may arise about this data record.	**Text** (1-30)	
ContactPhone	Phone number of person who is the best contact for questions that may arise about this data record.	**Text** (12-30)	Preferred format is "123-456-7890". If an extension is included, preferred format is "123-456-7890 ext. 34".
ContactEmail	Email address of person who is the best contact for questions that may arise about this data record.	**Text** (7-50)	
BPAprojNum	BPA project number(s) of funding used to collect the data that went into calculating the HLIs.	Text (3-50)	Use "N/A" when no BPA funding was used. The default value "Not yet determined" will be assigned when left blank. For multiple entries use comma-delimited text; spaces can be used after commas for readability.
MetaComments	Comments regarding the supporting information.	Text (0-max)	
Age distribution **Age data are expected to go into their own DES table(s), not in the tables in this document.**			
Fields needed by people programming the Exchange Network			
If you are a programmer or database manager, refer to Appendix A for additional fields that are part of this table but are not listed here.			

B3. HatcheryReleases Table

This table stores HLI information about hatchery fish released into the natural environment. [Two multi-field keys are enforced in this table: 1) stock + release hatchery facility + brood year + release location + life stage + release season + release year; 2) TimeSeriesID + BroodYear + ReleaseYear + ReleaseSeason.]

[NOTE) In this first DES version we include many fields in the key fields, meaning detailed information can be captured. We will let data end users evaluate if the data are too detailed and should instead be more summarized in future DES versions.]

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Field Name	Field Description	Data Type	Codes/Conventions for HatcheryReleases Table		
Fields for defining and describing a unique record					
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.		
TimeSeriesID	This field identifies the time series a record belongs to. Records with the same TimeSeriesID are grouped and presented together on the HCAX. Assigned by data compilers or regional data assemblers as appropriate. TimeSeriesID in this DES is a synonym of TrendID in the StreamNet DES, and the same rules apply.	**Integer** (1-max)	TimeSeriesID is used in several tables in this DES, in several tables in the CA DES for natural origin populations (NOSA, SAR, etc.), and in the Trend table of the StreamNet DES (where it is called "TrendID"). The same TimeSeriesID cannot be used in more than one of these tables. For records with the same TimeSeriesID: • All StockID values must be the same. • All HatcheryFacilityName values must be the same. • All ReleaseLocation values must be the same. • All LifeStage values must be the same. • The combination of BroodYear, ReleaseYear, and ReleaseSeason may NOT be repeated.	Assigned TimeSeriesID ranges are the same as assigned TrendID ranges in the StreamNet DES. Coordinate with other personnel in your organization assigning TimeSeriesID and TrendID values. 10,000-19,999 = MFWP 20,000-22,499 = CRITFC 22,500-24,999 = NPT 25,000-27,499=CTWS 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 100,000-199,999 = WDFW (CCT range jointly managed by WDFW and CCT)
CommonName	Common name of the taxon of fish.	**Text** (1-15)	Enter the name of the taxon here, even if taxon name is included in the name of the stock. Select from the following:	• Bull trout • Chinook salmon • Chum salmon • Coho salmon • Sockeye salmon • Steelhead	Additional species may be added in the future: refer to https://www.streamnet.org/resources/nw-fish/fish-species/ for common names.
Run	Run of fish.	**Text** (3-20)	Enter the name of the run here, even if run name is included in the name of the stock. Entries in this field are not recognized as taxonomic divisions. Select from the following: [*Do not include comments in brackets.*]	• Spring • Summer • Fall • Late fall • Winter • Spring/summer	• Both summer & winter • Early • Late • Both early & late • N/A [*For species without recognized runs. For example, bull trout.*]
HatcheryProgramID	StreamNet-defined code for the hatchery program represented by this record.	**Integer** (1-max)	[We hope the program can be identified for every record. To begin, we are including this as a required field. If the program cannot always be identified for the real data then contact PSMFC to have this field changed to nonrequired.]		

Field Name	Field Description	Data Type	Codes/Conventions for HatcheryReleases Table
HatcheryFacilityName	The central facility where the majority of production occurs for a specific group of hatchery fish.	**Text** (1-100)	Entries in this field must precisely match a hatchery name in the PSMFC facilities list, available at https://www.streamnet.org/home/data-maps/fish-facilities-mapper/. [*To begin we will try to tie all data to one hatchery facility. If we find some data cannot be defined that precisely and instead need to be tied to more than one hatchery then we will look into how to update this DES document.*]
StockID	Code for the stock of hatchery fish represented by this record.	**Integer** (1-max)	Do not combine releases from more than one stock into a single record. If multiple stocks are released then these are reported in separate lines of data.
PrimaryOperator	Agency, tribe, or other entity that was the primary operator of the hatchery during this time.	**Text** (1-255)	Entries in this field must precisely match a name in the StreamNet agency list. Here are the ones most likely needed. If yours is not found here, contact your agency StreamNet representative, or call PSMFC's StreamNet staff at 503-595-3100. • Columbia River Inter-Tribal Fish Commission • Confederated Tribes of the Colville Reservation • Confederated Tribes and Bands of the Yakama Nation • Confederated Tribes of the Umatilla Indian Reservation • Confederated Tribes of the Warm Springs Reservation of Oregon • Idaho Department of Fish and Game • Nez Perce Tribe • Oregon Department of Fish and Wildlife • Shoshone-Bannock Tribes • Spokane Tribe of Indians • U.S. Fish and Wildlife Service • Washington Department of Fish and Wildlife
BroodYear	The four-digit year in which spawning this cohort's parents began. In this table, this BroodYear field is the year the released juveniles started out as eggs.	**Integer** (1890-current year)	This is the year in which the spawning of this species (and run where appropriate) began. In unusual cases where spawning a stock began uncharacteristically early (before January 1 for spring spawners) or late (after December 31 for fall spawners) for the species (and perhaps run), assign the year based on the majority of stocks of this species/run in order to be consistent for all stocks of the spawning cohort. For example, most coho stocks are spawned in fall; if spawning of a coho stock does not begin until after Jan. 1 the brood year assigned for this unusual stock would match the other stocks that were spawned in the fall, even though spawning this particular stock did not begin spawning until after December 31.
ReleaseYear	The four-digit year in which the fish were released.	**Integer** (1890-current year)	In unusual cases the progeny from a single broodstock may be released in more than one year. In such cases two records would be created; both records would have the same BroodYear, but their ReleaseYear values would differ.
ReleaseSeason	Season of release.	**Text** (4-6)	Acceptable values: • Spring • Summer • Fall • Winter

ReleaseLocation	The specific location(s) where fish were released.	**Text** (1-255)	This may be any of the following:
			• the name of a hatchery or dam
			• the name of an acclimation site
			• the name of a fluvial water body plus the specific site such as
			  ○ a landmark
			  ○ river mile [*indicate which hydrography was used*]
			• the name of an impounded fluvial water body (reservoir)
			• the name of a lentic water body
			• a description of multiple water bodies / sites if appropriate for the time series

Field Name	Field Description	Data Type	Codes/Conventions for HatcheryReleases Table
ReleaseRegion	General region of the release location.	**Text** (11-22)	For anadromous Chinook, chum, coho, sockeye, pink salmon, and steelhead use PSC region names as provided in the RMIS CWT specification document. Acceptable values: [*Do not include comments in brackets.*] • Lower Columbia River [*mouth to Bonneville Dam*] • Central Columbia River [*Bonneville Dam to McNary Dam*] • Upper Columbia River [*above McNary Dam; excludes Snake River*] • Snake River • Northern Oregon Coast • Southern Oregon Coast • Not specified For landlocked salmon/steelhead and other taxa further work will be needed to develop an appropriate suite of regions for each situation.
ReleaseHUC_8	8-digit (fourth-field) HUC of release site.	Text (8-8)	
ReleaseLong	Longitude of the location specified in the ReleaseLocation field, in decimal degrees. Calculated using NAD83/WGS84.	Real	This is a negative number. Use three digits left of the decimal point and four digits to the right of the decimal point. For example, if ReturnLocation = "Wind River at Shipherd Falls" enter "-121.8050". If the ReleaseLocation field contains multiple locations and you wish to provide a longitude / latitude for each, do that within the ReleaseLocation field. [In such cases the ReleaseLong / ReleaseLat fields will be used to provide a general visual reference on the online query system, and the ReleaseLocation field will provide specific longitudes / latitudes for the individual sites for data end users.]
ReleaseLat	Latitude of the location specified in the ReleaseLocation field, in decimal degrees. Calculated using NAD83/WGS84.	Real	Use two digits left of the decimal point and four digits to the right of the decimal point. For example, if WaterBody = "Wind River at Shipherd Falls" enter "45.7371".
ReleaseStartDate	Start date of release.	Date	
ReleaseEndDate	End date of release.	Date	
ReleaseStrategy	Strategy used to liberate the majority of release group.	**Text** (0-24)	Acceptable values: [*Do not include comments in brackets.*] • Forced release • Volitional release • Emergency release • Egg box • Mixed [*Provide details in Comments if possible.*] • Unknown [*The information does not exist.*] • Not specified [*The information may exist but is not currently being shared.*]
LifeStage	The life stage of the fish at the time of release.	**Text** (5-19)	Acceptable values: [*Do not include comments in brackets.*] • Zygote (eyed eggs) • Emergent fry • Fed fry • Fingerling • Advanced fingerling • Yearling • Presmolt • Smolt • Adult
AffiliatedPopID	Code for the natural origin population of the same species and run at the location given in the ReleaseLocation field.	Integer (1-max)	If you wish to report more than one "affiliated population", enter the primary one here and give the others in the Comments field. In those comments, indicate how the other population(s) are affiliated. Examples: • This hatchery stock was derived from this natural population • This hatchery stock was used to create/reestablish this natural population • This hatchery stock's releases occur within this natural population's boundaries • Unknown
Release numbers			
NumberReleased	Number of fish released at a given site and date.	***Integer*** *(0-max)*	Required if NullRecord = "No". Must be null if NullRecord = "Yes".

Field Name	Field Description	Data Type	Codes/Conventions for HatcheryReleases Table	
AvgLength	Average length in mm of the released fish.	Integer (10-350)		
LengthType	Type of lengths represented in the LengthMin, LengthMean, LengthMax, and LengthSD fields.	**Text** (3-12)	Acceptable values: [*Do not include comments in brackets.*] • Total length • Fork length • N/A [*Not applicable*]	Must be "N/A" when AvgLength is null. Must be one of the other entries when AvgLength contains a value.
AvgWeight	Average weight in g of the released fish.	Integer (1-max)	(Whole numbers only. No decimal places.) The AvgWeight field, or the FishPerPound field, or both, or neither may be filled in.	
FishPerPound	Fish per pound of the released fish. When multiple releases are combined into one record, this value is the weighted average of the several releases.	Integer (1-max)	(Whole numbers only. No decimal places.) The AvgWeight field, or the FishPerPound field, or both, or neither may be filled in.	
Links to Other Systems **These fields provide links to other systems where more detailed information is available.**				
RMISreleaseCode	The "tag_code_or_release_id" from the releases database at RMPC (Regional Mark Processing Center).	Text (0-255)	For multiple entries use comma-delimited text; spaces can be used after commas for readability. [*NOTE: Several people have asked about links to RMIS & PTAGIS, and there have been requests for marks/tags also. These two fields are here largely as placeholders because exactly how this can work is not yet researched. I think unique records in RMIS's releases table are defined by tag_code_or_release_id, which I think identifies each unique record (but I don't know). To make the type of link I'm envisioning here we would rely on this (hopefully) single-field unique identifier in their database.*]	
PTAGISreleaseCode	The <<code>> from the PTAGIS database.	Text (0-255)	For multiple entries use comma-delimited text; spaces can be used after commas for readability. [*NOTE: As with the RMISreleaseCode field, I'm not familiar enough with the PTAGIS system and so don't know what hook we may have into PTAGIS data. This field is here as a placeholder for a better-defined mechanism in a future version of this document.*]	
Age distribution **(Age distribution will be captured and presented as a stand-alone data type, and is being developed independent of this table.)**				

Field Name	Field Description	Data Type	Codes/Conventions for HatcheryReleases Table
Protocol and method documentation			
ProtMethName	The name(s) of all protocols and associated data collection and data analysis methods used to calculate the indicator estimate.	Text (0-max)	Provide title of protocol and name(s) of relevant methods used. Documentation should describe the study design (including spatial, temporal, response and inference designs), annual implementation notes on variations from routine step by step procedures or design criteria, also known as survey design, description of field methodology and analytical approach.
ProtMethURL	URL(s) for published protocols and methods describing the methodology and documenting the derivation of the indicator. If published in MonitoringResources.org, this link will provide access to study design information and all methods associated with the protocol.	Text (0-max)	Provide URL(s) to source documentation of methodology. For MonitoringResources.org provide link to the protocol. Methods documentation should include survey design, description of field methodology and analytical approach. URL links may be to online methods documentation resources like MonitoringResources.org, other online resources, or online literature. If methodology is unchanged from a previous year, use the previous link references. If methodology changed for this estimate, provide a new link.
ProtMethDocumentation	Citation or documentation that describes the protocol and/or method(s) listed in the ProtMethName field. Include references not documented in MonitoringResources.org, such as reports, journal articles or other publications that describe the survey design, field methodology and analytical approach used to derive the indicator estimate.	Text (0-max)	Provide a citation(s) to documentation of the methodology used. This may be in the form of reports, journal articles, or other publications that describe the study design (including spatial, temporal, response and inference designs), variations from routine step by step procedures or design criteria, description of field methodology and analytical approach. If the methodology is not yet published, either insert here, or describe in a separate document and make it available online (provide the URL). Leave this field blank if methodology is described in MonitoringResources.org. Note: If there is no link to a cited document online, provide a copy of the document to the StreamNet Library (streamnetlibrary.org). The library will scan the document and provide a URL. Post the URL in the ProtMethURL field. If methodology is unchanged from a previous year, use the previous link or reference citation. If methodology changed, provide a new link or reference citation.
MethodAdjustments	Minor adjustments to a method in a given year that are not described in the method citations above but are important.	Text (0-max)	Give a brief description of changes or adjustments to a standard method if they are NOT described in the methods documentation already provided. If multiple documentation sources are cited, be sure to indicate which method from which document was adjusted. In MonitoringResources.org, documentation of changes or adjustments to methods or protocols can be described in the Implementation Notes section of each published method or protocol.
OtherDataSources	The ContactAgency field identifies an organization involved in calculating the values in this record. This "OtherDataSources" field identifies additional organizations that provided data or expertise to calculate the indicator(s), metric(s), or age distribution for this record.	Text (0-255)	List all the organizations that provided data used to calculate the values for this record. Entries must meet the requirements as defined in the ContactAgency field. If more than one, separate the entries with the bar character " | ". This field is for ADDITIONAL organizations. Do not include the organization identified in the ContactAgency field.
Comments about the data			
Comments	Any issues, problems, questions about this indicator that were not already captured in other places.	***Text*** *(0-max)*	If possible, it is useful to briefly explain any null "metrics" or "age" fields. *Required if NullRecord = "Yes", to explain why the indicators are not available.*

Field Name	Field Description	Data Type	Codes/Conventions for HatcheryReleases Table
Supporting information			
NullRecord	In some years data may not be collected and so indicator values cannot be calculated. For example, high muddy water or wildfires can prevent redd counts that indicator values are based on. This field is used to indicate that indicator values do not exist because the data do not exist to calculate them.	**Text** (2-3)	Acceptable values: • No • Yes Normally "No". A value of "Yes" in this field is a positive statement that the data do not exist to calculate the indicator for the population and time period specified. Metric data and age data may still exist when NullRecord = "Yes". The value of including this field is so that missing data are explicitly accounted for rather than being a perpetually open question that is repeatedly researched. Including these "null" records allows for better data display on the web site, and you are encouraged to create them for years with both earlier and later non-null data. Explain in the Comments field why the indicator cannot be calculated. [*This field may not be useful. Evaluate whether to keep this field after a few years of data are in the system.*]
DataStatus	Status of the data in the current record.	**Text** (5-8)	Acceptable values: [*Do not include comments in brackets.*] • Draft [*Values in this record are preliminary and have not been thoroughly reviewed.*] • Reviewed [*Values in this record have been reviewed but are not yet approved as "final".*] • Final [*Values in this record have been thoroughly reviewed and are considered "final".*]
IndicatorLocation	Where these release numbers are maintained at the source.	Text (0-max)	If online, provide URL(s). [*This field from the natural populations DES may not be here. We will evaluate its usefulness after we see if it is used.*]
MeasureLocation	Where the raw release numbers are maintained that were used for the total release numbers.	Text (0-max)	If online, provide URL(s). [*This field from the natural populations DES may not be here. We will evaluate its usefulness after we see if it is used.*]
ContactAgency	Agency, tribe, or other entity, or person responsible for these data that is the best contact for questions that may arise about this data record.	**Text** (1-255)	Entries in this field must precisely match a name in the StreamNet agency list. Here are the ones most likely needed. If yours is not found here, contact your agency StreamNet representative, or call PSMFC's StreamNet staff at 503-595-3100. • Columbia River Inter-Tribal Fish Commission • Confederated Tribes of the Colville Reservation • Confederated Tribes and Bands of the Yakama Nation • Confederated Tribes of the Umatilla Indian Reservation • Confederated Tribes of the Warm Springs Reservation of Oregon • Idaho Department of Fish and Game • Nez Perce Tribe • Oregon Department of Fish and Wildlife • Shoshone-Bannock Tribes • Spokane Tribe of Indians • U.S. Fish and Wildlife Service • Washington Department of Fish and Wildlife
ContactPersonFirst	First name of person who is the best contact for questions that may arise about this data record.	**Text** (1-30)	
ContactPersonLast	Last name of person who is the best contact for questions that may arise about this data record.	**Text** (1-30)	
ContactPhone	Phone number of person who is the best contact for questions that may arise about this data record.	**Text** (12-30)	Preferred format is "123-456-7890". If an extension is included, preferred format is "123-456-7890 ext. 34".

Field Name	Field Description	Data Type	Codes/Conventions for HatcheryReleases Table
ContactEmail	Email address of person who is the best contact for questions that may arise about this data record.	**Text** (7-50)	
BPAprojNum	BPA project number(s) of funding used to collect the data that went into calculating the HLIs.	Text (3-50)	Use "N/A" when no BPA funding was used. The default value "Not yet determined" will be assigned when left blank. For multiple entries use comma-delimited text; spaces can be used after commas for readability.
MetaComments	Comments regarding the supporting information.	Text (0-max)	
Fields needed by people programming the Exchange Network			
If you are a programmer or database manager, refer to Appendix A for additional fields that are part of this table but are not listed here.			

B4. SAR_Hatchery Table

This table stores information concerning smolt to adult return rates (SAR) of hatchery releases. Smolt to adult return rates are specific to the smolt and adult locations described in each row of data. [Two multi-field keys are enforced in this table: 1) StockID + HatcheryFacilityName + ReleaseLocation + ReturnLocation + SARtype + StraysRemoved + ReturnDef + ReleaseYear + ReleaseSeason + OutmigrationYear; 2) TimeSeriesID + ReleaseYear + ReleaseSeason + OutmigrationYear.]

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Field Name	Field Description	Data Type	Codes/Conventions for SAR_Hatchery Table
Fields for defining and describing a unique record			
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.

Field Name	Field Description	Data Type	Codes/Conventions for SAR_Hatchery Table		
TimeSeriesID	This field identifies the time series a record belongs to. Records with the same TimeSeriesID are grouped and presented together on the HCAX. Assigned by data compilers or regional data assemblers as appropriate. TimeSeriesID in this DES is a synonym of TrendID in the StreamNet DES, and the same rules apply.	**Integer** (1-max)	TimeSeriesID is used in several tables in this DES, in several tables in the CA DES for natural origin populations (NOSA, SAR, etc.), and in the Trend table of the StreamNet DES (where it is called "TrendID"). The same TimeSeriesID cannot be used in more than one of these tables. For records with the same TimeSeriesID: • All StockID values must be the same. • All HatcheryFacilityName values must be the same. • All ReleaseLocation values must be the same. • All ReturnLocation values must be the same. • All SARtype values must be the same. • All StraysRemoved values must be the same. • All ReturnDef values must be the same. • All ReleaseYear values must be the same. • All ReleaseSeason values must be the same. • All OutmigrationYear values must be the same. • The combination of BroodYear, ReleaseYear, and ReleaseSeason may NOT be repeated.		For records with the same combination of StockID + HatcheryFacilityName + ReleaseLocation + ReturnLocation + SARtype + StraysRemoved + ReturnDef + ReleaseYear + ReleaseSeason + OutmigrationYear: • All TimeSeriesID values must be the same. Assigned TimeSeriesID ranges are the same as assigned TrendID ranges in the StreamNet DES. Coordinate with other personnel in your organization assigning TimeSeriesID and TrendID values. 10,000-19,999 = MFWP 20,000-22,499 = CRITFC 22,500-24,999 = NPT 25,000-27,499=CTWS 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 100,000-199,999 = WDFW (CCT range jointly managed by WDFW and CCT)
CommonName	Common name of the taxon of fish.	**Text** (1-15)	Enter the name of the taxon here, even if taxon name is included in the name of the stock. Select from the following:	• Bull trout • Chinook salmon • Chum salmon • Coho salmon • Sockeye salmon • Steelhead	Additional species may be added in the future: refer to https://www.streamnet.org/resources/nw-fish/fish-species/ for common names.
Run	Run of fish.	**Text** (3-20)	Enter the name of the run here, even if run name is included in the name of the stock. Entries in this field are not recognized as taxonomic divisions. Select from the following: [*Do not include comments in brackets.*]	• Spring • Summer • Fall • Late fall • Winter • Spring/summer	• Both summer & winter • Early • Late • Both early & late • N/A [*For species without recognized runs. For example, bull trout.*]
HatcheryProgramID	StreamNet-defined code for the hatchery program represented by this record.	**Integer** (1-max)	[We hope the program can be identified for every record. To begin, we are including this as a required field. If the program cannot always be identified for the real data then contact PSMFC to have this field changed to nonrequired.]		
HatcheryFacilityName	The central facility where the majority of production occurs for a specific group of hatchery fish.	**Text** (1-100)	Entries in this field must precisely match a hatchery name in the PSMFC facilities list, available at https://www.streamnet.org/home/data-maps/fish-facilities-mapper/. [*To begin we will try to tie all data to one hatchery facility. If we find some data cannot be defined that precisely and instead need to be tied to more than one hatchery then we will look into how to update this DES document.*]		
StockID	Code for the stock of hatchery fish represented by this record.	**Integer** (1-max)			

Field Name	Field Description	Data Type	Codes/Conventions for SAR_Hatchery Table
PrimaryOperator	Agency, tribe, or other entity that was the primary operator of the hatchery during this time.	**Text** (1-255)	Entries in this field must precisely match a name in the StreamNet agency list. Here are the ones most likely needed. If yours is not found here, contact your agency StreamNet representative, or call PSMFC's StreamNet staff at 503-595-3100. • Columbia River Inter-Tribal Fish Commission • Confederated Tribes of the Colville Reservation • Confederated Tribes and Bands of the Yakama Nation • Confederated Tribes of the Umatilla Indian Reservation • Confederated Tribes of the Warm Springs Reservation of Oregon • Idaho Department of Fish and Game • Nez Perce Tribe • Oregon Department of Fish and Wildlife • Shoshone-Bannock Tribes • Spokane Tribe of Indians • U.S. Fish and Wildlife Service • Washington Department of Fish and Wildlife
ReleaseDef	How the number of fish released is defined.	**Text** (23-40)	Acceptable values: • Number of smolts marked • Smolts outmigrating past a point • Smolts outmigrating past multiple points • Juveniles leaving tributary mouth • Number of smolts released • Number of presmolts released
ReturnDef	How "return" is defined for this SAR estimate.	**Text** (16-39)	Acceptable values: [*Do not include comments in brackets.*] • Fish surviving to adulthood [*Potential returners before ocean harvest.*] • Returns to a dam [*Fish returning to a dam before removing broodstock or other removals at the dam.*] • Returns to population boundary [*Includes all fish that returned to the population boundary before any removals or mortalities, in the tributaries.*] • Returns to mouth [*Includes all fish that returned before any removals or mortalities, in the tributaries. Appropriate to use only if the mouth does not define the population.*] • Returns to spawning ground [*Fish in river available to spawn after removals, but before pre-spawn mortality, in the tributaries.*] • Returns to a weir [*Fish returning to weir before removing broodstock or other removals at the weir, in the tributaries.*] • Returns to a PIT tag array • Returns to a hatchery • Estimated number of spawners [*Fish available after all removals and pre-spawn mortality, in the tributaries (i.e., NOSA).*] • Number of marked adult fish captured • Adult fish migrating to/past a point(s)
StraysRemoved	Are strays removed from the returns used to calculate the SAR value?	**Text** (2-3)	Acceptable values: [*Do not include comments in brackets.*] • Yes [*This is preferred; strays should be excluded from the SAR calculation if possible..*] • No • N/A Must be "N/A" if NullRecord = "Yes". Must not be "N/A" if NullRecord = "No".

Field Name	Field Description	Data Type	Codes/Conventions for SAR_Hatchery Table
ReleaseLocation	The specific named location(s) where the released fish abundance numbers were determined.	**Text** (1-255)	This may be any of the following: • the name of a hatchery facility, acclimation pond, etc. • the name of a fluvial water body • the name of an impounded fluvial water body (reservoir) • the name of a lentic water body • a description of multiple water bodies if appropriate for the time series • the name of a dam, or weir, or trap, etc.
ReleaseLocPTcode	PTAGIS code for the location where smolts were released.	Text (0-255)	There should be a PTAGIS code for most locations where smolts were released. Provide that code, or multiple codes if smolts were released at multiple locations.
ReleaseRegion	General region of the release location.	**Text** (11-22)	For anadromous Chinook, chum, coho, sockeye, pink salmon, and steelhead use PSC region names as provided in the RMIS CWT specification document. Acceptable values: [*Do not include comments in brackets.*] • Lower Columbia River [*mouth to Bonneville Dam*] • Central Columbia River [*Bonneville Dam to McNary Dam*] • Upper Columbia River [*above McNary Dam; excludes Snake River*] • Snake River • Northern Oregon Coast • Southern Oregon Coast For landlocked salmon/steelhead and other taxa further work will be needed to develop an appropriate suite of regions for each situation.
ReleaseHUC_8	8-digit (fourth-field) HUC of release site.	Text (8-8)	
ReleaseLong	Longitude of the location specified in the ReleaseLocation field, in decimal degrees. Calculated using NAD83/WGS84.	Real	This is a negative number. Use three digits left of the decimal point and four digits to the right of the decimal point. For example, if ReturnLocation = "Wind River at Shipherd Falls" enter "-121.8050". If the ReleaseLocation field contains multiple locations and you wish to provide a longitude / latitude for each, do that within the ReleaseLocation field. [In such cases the ReleaseLong / ReleaseLat fields will be used to provide a general visual reference on the online query system, and the ReleaseLocation field will provide specific longitudes / latitudes for the individual sites for data end users.]
ReleaseLat	Latitude of the location specified in the ReleaseLocation field, in decimal degrees. Calculated using NAD83/WGS84.	Real	Use two digits left of the decimal point and four digits to the right of the decimal point. For example, if WaterBody = "Wind River at Shipherd Falls" enter "45.7371".
ReturnLocation	The specific named location(s) where the adult return numbers were determined.	**Text** (1-255)	This may be any of the following: • the name of a hatchery, dam, weir, or trap, etc. • the name of an acclimation site, if returns are to a release location • the name of a fluvial water body • the name of an impounded fluvial water body (reservoir) • the name of a lentic water body • a description of multiple water bodies if appropriate for the time series
ReturnLong	Longitude of the location specified in the AdultLocation field, in decimal degrees. Calculated using NAD83/WGS84.	Real	This is a negative number. Use three digits left of the decimal point and four digits to the right of the decimal point. For example, if ReturnLocation = "Wind River at Shipherd Falls" enter "-121.8050". If the ReturnLocation field contains multiple locations and you wish to provide a longitude / latitude for each, do that within the ReturnLocation field. [In such cases the ReturnLong / ReturnLat fields will be used to provide a general visual reference on the online query system, and the ReleaseLocation field will provide specific longitudes / latitudes for the individual sites for data end users.]

Field Name	Field Description	Data Type	Codes/Conventions for SAR_Hatchery Table
ReturnLat	Latitude of the location specified in the AdultLocation field, in decimal degrees. Calculated using NAD83/WGS84.	Real	Use two digits left of the decimal point and four digits to the right of the decimal point. For example, if WaterBody = "Wind River at Shipherd Falls" enter "45.7371".
SARtype	The type of return estimate, in terms of what fish are included in the estimate of total returns. See Codes/Conventions column for details.	**Text** (10-15)	Acceptable values: • Including jacks • Excluding jacks • Jacks only • Females only
BroodYear	The four-digit year in which spawning this cohort's parents began. In this table, this BroodYear field is the year the released juveniles started out as eggs.	**Integer** (1890-current year)	This is the year in which the spawning of this species (and run where appropriate) began. In unusual cases where spawning a stock began uncharacteristically early (before January 1 for spring spawners) or late (after December 31 for fall spawners) for the species (and perhaps run), assign the year based on the majority of stocks of this species/run in order to be consistent for all stocks of the spawning cohort. For example, most coho stocks are spawned in fall; if spawning of a coho stock does not begin until after Jan. 1 the brood year assigned for this unusual stock would match the other stocks that were spawned in the fall, even though spawning this particular stock did not begin spawning until after December 31.
ReleaseYear	The four-digit year in which the fish were released.	**Integer** (1890-current year)	In unusual cases the progeny from a single broodstock may be released in more than one year. In such cases two records would be created; both records would have the same BroodYear, but their ReleaseYear values would differ.
ReleaseSeason	Season of release.	**Text** (4-6)	Acceptable values: • Spring • Summer • Fall • Winter
OutmigrationYear	The four-digit year in which the fish were expected to migrate to the ocean. For fish released as parr in summer or fall this can be after the release year.	**Integer** (1890-current year)	
Indicators			
SAR	The point estimate for smolt-to-adult return rate, calculated as 100 X the point estimate of the number of returning hatchery origin adults, divided by the point estimate of the number of smolts that produced those returning adults.	***Real***	Express these values as percentages (numbers from zero to one hundred), with two digits to the right of the decimal point. Examples: .020 = 2.00, .0015 = 0.15. This field holds a numeric value only -- the percent sign is implied but not included. Do NOT include repeat spawners in the number of adult returns. (A fish only returns once from smolting; subsequent returns are not appropriate for inclusion in smolt-to-adult estimates because they head to sea as adults on subsequent trips and thus are not exposed to the same suite of mortality factors.) *Required if NullRecord = "No". Must be null if NullRecord = "Yes".*
ReturnsMissing	Whether any adult return years for this out-migration year were missing.	**Text** (2-18)	Acceptable values: [*Do not include comments in brackets.*] • Yes [*Years were missing.*] • No [*No years missing; return estimates were complete.*] • Not yet determined If some years were missing, describe how that gap was addressed in the ReturnsMissingExplanation field.
ReturnsMissingExplanation	If some return data are not accounted for in the SAR estimate, explain the gap.	Text (0-max)	Describe how any gap in return years was addressed: Filled in with an interpolated estimate; ignored; etc.
Release numbers and return numbers			
NumberReleased	Number of fish released at the indicated site and time.	Integer (0-max)	This should be the denominator in the return rate calculation, with all previous losses (handling mortality, tag loss estimate, etc.) already taken out. The Methods citation should address how this was done. Provide whole numbers only, not decimal values.

Field Name	Field Description	Data Type	Codes/Conventions for SAR_Hatchery Table
AvgLength	Average length in mm of the released fish.	Integer (10-350)	
LengthType	Type of lengths represented in the LengthMin, LengthMean, LengthMax, and LengthSD fields.	**Text** (3-12)	Acceptable values: [*Do not include comments in brackets.*] • Total length • Fork length • N/A [*Not applicable*] Must be "N/A" when AvgLength is null. Must be one of the other entries when AvgLength contains a value.
AvgWeight	Average weight in g of the released fish.	Integer (1-max)	(Whole numbers only. No decimal places.) The AvgWeight field, or the FishPerPound field, or both, or neither may be filled in.
FishPerPound	Fish per pound of the released fish.	Integer (1-max)	(Whole numbers only. No decimal places.) The AvgWeight field, or the FishPerPound field, or both, or neither may be filled in.
TAR	Total adult return. The number of hatchery origin adults returning for the first time from the indicated outmigration year, or the group of marked smolts (as appropriate), to match the outmigrants in the NumberReleased field.	Integer (0-max)	For iteroparous species such as steelhead, include only those adults returning to spawn for the first time. (Failure to do so will result in some adults being counted twice for returns purposes.) Provide whole numbers only, not decimal values.
HarvestAdj OceanHarvest, MainstemHarvest, TribHarvest, OtherHarvest	These fields are not yet included in this table.	Integer (0-max)	These fields will be for indicating whether/how/which/how many harvested fish are accounted for in the SAR value. [*Harvest Fields are to be further defined through another process before inclusion in this DES. This will be addressed in a future version of this document.*]
Protocol and method documentation			
ProtMethName	The name(s) of all protocols and associated data collection and data analysis methods used to calculate the indicator estimate.	Text (0-max)	Provide title of protocol and name(s) of relevant methods used. Documentation should describe the study design (including spatial, temporal, response and inference designs), annual implementation notes on variations from routine step by step procedures or design criteria, also known as survey design, description of field methodology and analytical approach.
ProtMethURL	URL(s) for published protocols and methods describing the methodology and documenting the derivation of the indicator. If published in MonitoringResources.org, this link will provide access to study design information and all methods associated with the protocol.	***Text*** *(0-max)*	Provide URL(s) to source documentation of methodology. For MonitoringResources.org provide link to the protocol. Methods documentation should include survey design, description of field methodology and analytical approach. URL links may be to online methods documentation resources like MonitoringResources.org, other online resources, or online literature. If methodology is unchanged from a previous year, use the previous link references. If methodology changed for this estimate, provide a new link. *Required if ProtMethDocumentation is null.*
ProtMethDocumentation	Citation or documentation that describes the protocol and/or method(s) listed in the ProtMethName field. Include references not documented in MonitoringResources.org, such as reports, journal articles or other publications that describe the survey design, field methodology and analytical approach used to derive the indicator estimate.	***Text*** *(0-max)*	Provide a citation(s) to documentation of the methodology used. This may be in the form of reports, journal articles, or other publications that describe the study design (including spatial, temporal, response and inference designs), variations from routine step by step procedures or design criteria, description of field methodology and analytical approach. If the methodology is not yet published, either insert here, or describe in a separate document and make it available online (provide the URL). Leave this field blank if methodology is described in MonitoringResources.org. Note: If there is no link to a cited document online, provide a copy of the document to the StreamNet Library (streamnetlibrary.org). The library will scan the document and provide a URL. Post the URL in the ProtMethURL field. If methodology is unchanged from a previous year, use the previous link or reference citation. If methodology changed, provide a new link or reference citation. *Required if ProtMethURL is null.*

Field Name	Field Description	Data Type	Codes/Conventions for SAR_Hatchery Table
MethodAdjustments	Minor adjustments to a method in a given year that are not described in the method citations above but are important.	Text (0-max)	Give a brief description of changes or adjustments to a standard method if they are NOT described in the methods documentation already provided. If multiple documentation sources are cited, be sure to indicate which method from which document was adjusted. In MonitoringResources.org, documentation of changes or adjustments to methods or protocols can be described in the Implementation Notes section of each published method or protocol.
OtherDataSources	The ContactAgency field identifies an organization involved in calculating the values in this record. This "OtherDataSources" field identifies additional organizations that provided data or expertise to calculate the indicator(s), metric(s), or age distribution for this record.	Text (0-255)	List all the organizations that provided data used to calculate the values for this record. Entries must meet the requirements as defined in the ContactAgency field. If more than one, separate the entries with the bar character " | ". This field is for ADDITIONAL organizations. Do not include the organization identified in the ContactAgency field.
Comments about the data			
Comments	Any issues, problems, questions about this indicator that were not already captured in other places.	***Text*** *(0-max)*	If possible, it is useful to briefly explain any null "metrics" or "age" fields. *Required if NullRecord = "Yes", to explain why the indicators are not available.*
Supporting information			
NullRecord	In some years data may not be collected and so indicator values cannot be calculated. For example, high muddy water or wildfires can prevent redd counts that indicator values are based on. This field is used to indicate that indicator values do not exist because the data do not exist to calculate them.	**Text** (2-3)	Normally "No". A value of "Yes" in this field is a positive statement that the data do not exist to calculate the indicator for the population and time period specified. Metric data and age data may still exist when NullRecord = "Yes". The value of including this field is so that missing data are explicitly accounted for rather than being a perpetually open question that is repeatedly researched. Including these "null" records allows for better data display on the web site, and you are encouraged to create them for years with both earlier and later non-null data. Explain in the Comments field why the indicator cannot be calculated.
DataStatus	Status of the data in the current record.	**Text** (5-8)	Acceptable values: [*Do not include comments in brackets.*] • Draft [*Values in this record are preliminary and have not been thoroughly reviewed.*] • Reviewed [*Values in this record have been reviewed but are not yet approved as "final".*] • Final [*Values in this record have been thoroughly reviewed and are considered "final".*]
IndicatorLocation	Where this indicator is maintained at the source.	Text (0-max)	If online, provide URL(s).
MetricLocation	Where the supporting metrics are maintained at the source.	Text (0-max)	If online, provide URL(s).
MeasureLocation	Where the measurements are maintained that were used for these calculations.	Text (0-max)	If online, provide URL(s).

Field Name	Field Description	Data Type	Codes/Conventions for SAR_Hatchery Table
ContactAgency	Agency, tribe, or other entity, or person responsible for these data that is the best contact for questions that may arise about this data record.	**Text** (1-255)	Entries in this field must precisely match a name in the StreamNet agency list. Here are the ones most likely needed. If yours is not found here, contact your agency StreamNet representative, or call PSMFC's StreamNet staff at 503-595-3100. • Columbia River Inter-Tribal Fish Commission • Confederated Tribes of the Colville Reservation • Confederated Tribes and Bands of the Yakama Nation • Confederated Tribes of the Umatilla Indian Reservation • Confederated Tribes of the Warm Springs Reservation of Oregon • Idaho Department of Fish and Game • Nez Perce Tribe • Oregon Department of Fish and Wildlife • Shoshone-Bannock Tribes • Spokane Tribe of Indians • U.S. Fish and Wildlife Service • Washington Department of Fish and Wildlife
ContactPersonFirst	First name of person who is the best contact for questions that may arise about this data record.	**Text** (1-30)	
ContactPersonLast	Last name of person who is the best contact for questions that may arise about this data record.	**Text** (1-30)	
ContactPhone	Phone number of person who is the best contact for questions that may arise about this data record.	**Text** (12-30)	Preferred format is "123-456-7890". If an extension is included, preferred format is "123-456-7890 ext. 34".
ContactEmail	Email address of person who is the best contact for questions that may arise about this data record.	**Text** (7-50)	
BPAprojNum	BPA project number(s) of funding used to collect the data that went into calculating the HLIs / metrics.	Text (3-50)	Use "N/A" when no BPA funding was used. The default value "Not yet determined" will be assigned when left blank. For multiple entries use comma-delimited text; spaces can be used after commas for readability.
MetaComments	Comments regarding the supporting information.	Text (0-max)	
Age distribution **(Age distribution will be captured and presented as a stand-alone data type, and is being developed independent of this table.)**			
Fields needed by people programming the Exchange Network			
If you are a programmer or database manager, refer to Appendix A for additional fields that are part of this table but are not listed here.			

III. Appendices

Appendix A. Fields included in every data table by reference

The fields shown in this appendix are included in all data tables of sections A and B of this document. These fields are for use by the programmers implementing the Exchange Network system; everyone else can ignore them. In the interest of saving space in the document, easing editing of this document, and keeping these fields out of the way of people who don't need to see them, these fields are included here by reference rather than being shown in every table above. Only the "SubmitAgency" and "Publish" fields are required.

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Field Name	Field Description	Data Type	Codes/Conventions for Appendix A Fields	
Fields needed by people programming the Exchange Network				
SubmitAgency	Initials or acronym for the agency, tribe, or other entity, or name of person, that sent this record of data to the exchange network node at StreamNet. Note that it is possible for one entity to share data with another, and that second entity sends the record to the exchange network node. For example, the Shoshone-Bannock Tribes may send data to IDFG, who in turn sends those data to the exchange network. In such a case the Sho-Ban Tribes would be identified as the contact agency for the data, but the "SubmitAgency" would be IDFG.	**Text** (2-15)	Entries in this field must precisely match a name in the Acronym field of the StreamNet agency list unless it is for an individual. Here are the ones most likely needed. If yours is not found here, contact your agency StreamNet representative, or call PSMFC's StreamNet staff at 503-595-3100. • CRITFC = Columbia River Inter-Tribal Fish Commission • Colville Tribes = Confederated Tribes of the Colville Reservation • YN = Confederated Tribes and Bands of the Yakama Nation • CTUIR = Confederated Tribes of the Umatilla Indian Reservation • CTWSIR = Confederated Tribes of the Warm Springs Reservation of Oregon	• Biomark = Biomark, Inc. • FPC = Fish Passage Center • IDFG = Idaho Department of Fish and Game • NPT = Nez Perce Tribe • NWIFC = Northwest Indian Fisheries Commission • ODFW = Oregon Department of Fish and Wildlife • QCI = Quantitative Consultants, Inc. • SBT = Shoshone-Bannock Tribes • STOI = Spokane Tribe of Indians • USFWS = U.S. Fish and Wildlife Service • WDFW = Washington Department of Fish and Wildlife
RefID	The unique StreamNet reference ID number that identifies the source document or database from which the record was obtained.	Integer (0-max)	Not applicable = 98 Pre-Data Exchange - 0 - 1,000 WDFW = 10,000-19,999; 100,000-199,999 CRITFC = 20,000-29,999; 200,000-299,999 CCT = 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
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 Coordinated Assessment/StreamNet standards.	DateTime	This can be the time a record was created, or the last time it was edited. This field tells the end user when the record was last modified at the source organization.	
DataEntry	Compiler's name.	Text (0-50)	The name of the person who entered the record.	
DataEntryNotes	Notes about this record by the compiler identified in the "DataEntry" field.	Text (0-max)	Notes for the compiler to reference field office, contact, or any other information.	
CompilerRecordID	Agency record ID maintained by the data submitter.	Text (0-36)	This 36-character field may contain a GUID or any other text string. 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.	

Field Name	Field Description	Data Type	Codes/Conventions for Appendix A Fields
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** (2-3)	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.

Appendix B. Glossary

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Terms in this list are defined in the following way for use in this document.

Broodstock: Fish set aside for spawning in a hatchery setting.

NOTE 1: Broodstock may be fish raised in a hatchery their entire lives ('captive broodstock'), fish released to grow that returned to spawn ('hatchery broodstock' for salmon and steelhead), and/or fish obtained from natural populations ('natural broodstock' or 'wild broodstock'). In hatchery jargon "hatchery broodstock" refers only to fish of hatchery origin.

NOTE 2: Broodstock selection and spawning can be complicated. Often, not all returning fish will be part of the broodstock. Also, broodstock may be brought in from other hatcheries or from natural populations. Further, in many cases not all of the identified broodstock will be spawned due to pre-spawning mortality, broodstock set-aside in excess of spawning needs, skewed sex ratio, selection of individuals, and other factors. In a simple case where only returning salmon are selected as broodstock, the broodstock is usually a subset of the total return, and the hatchery spawners and natural spawners are subsets of the broodstock.

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

Jack: A male salmon that returns from the ocean to fresh water to spawn one year earlier than is generally considered usual for a species. For example, most Chinook salmon return after 2-3 years in the ocean; a Chinook jack returns after only 1 year.

Jenny: The female equivalent of a jack. A female salmon that returns from the ocean to fresh water to spawn one year earlier than is generally considered usual for a species. For example, most Chinook salmon return after 2-3 years in the ocean; a Chinook jenny returns after only 1 year.

Marked / Unmarked: In general terms, a "mark" is any physical, chemical, genetic, or other characteristic of an organism, whether applied by humans or naturally occurring, that provides information of interest about that organism. In the context of this DES, the marks of interest are those that indicate a fish is of hatchery origin. "Unmarked" fish are those without a mark that identifies them as hatchery origin; these unmarked fish can be natural origin fish, hatchery origin fish that did not receive a distinguishing mark, or a mixture of these two.

Appendix C. Data Types Used in the Data Tables

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Data Type	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[1]	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. Minimum & maximum lengths are indicated for each field, with "max" indicating essentially no upper limit.

[1]The word "Real" was selected rather than "Decimal" for a practical reason: it is visually easier to distinguish from "Integer".