



FISH SAMPLE POINTS

SPATIAL DATA STANDARD



Biologists counting fish in the Salmon River, Clackamas County, Oregon. Photo by Maria Thi Mai and Michael Campbell, OR/WA BLM

DOCUMENT REVISIONS

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1. GENERAL INFORMATION

Dataset (Theme) Name: FISH

Dataset (Tables): FISH_SAMPLE_PT, FISH_TBL

1.1 ROLES AND RESPONSIBILITIES

Roles	Responsibilities
State Data Steward	The State Data Steward is responsible for approving data standards and business rules, developing Quality Assurance/Quality Control procedures, identifying potential privacy issues, and ensuring that data is managed as a corporate resource. The State Data Steward coordinates with field office data stewards, the state data administrator, Geographic Information System (GIS) coordinators, and national data stewards. The State Data Steward also reviews geospatial metadata for completeness and quality.
GIS Technical Lead	The GIS Technical Lead works with data stewards to convert business needs into GIS applications and derive data requirements and participates in the development of data standards. The GIS Technical Lead coordinates with system administrators and GIS coordinators to manage the GIS databases. The GIS Technical Lead works with data editors to make sure data is being input into the enterprise Spatial Database Engine (SDE) database consistently and in accordance with the established data standard. The GIS Technical Lead provides technical assistance and advice on GIS analysis, query and display of the dataset.
State Data Administrator	The State Data Administrator provides information management leadership, data modeling expertise, and custodianship of the state data models. The State Data Administrator ensures that defined processes for development of data standards and metadata are followed, and that they are consistent and complete. The State Data Administrator is responsible for making data standards and metadata accessible to all users. The State Data Administrator also coordinates with data stewards and GIS coordinators to respond to national spatial data requests.
State Records Administrator	The State Records Administrator assists the State Data Steward to identify any privacy issues related to spatial data. The State Records Administrator also provides direction and guidance on data release and fees. The State Records Administrator also ensures that data has been classified under the proper records retention schedule and determines appropriate Freedom of Information Act category.

Table 1 Role and Responsibilities

1.2 FOIA CATEGORY

Public

1.3 RECORDS RETENTION SCHEDULE

The DRS/GRS/BLM Combined Records Schedule under Schedule 20/52a3 (Electronic Records/Geographic Information Systems) lists this theme as one of the system-centric themes that are significant for BLM's mission that must be permanently retained.

"PERMANENT. Cutoff at the end of each Fiscal Year (FY), or, when significant changes and additions have been made, before and after the change. Use BLM 20/52a. Transfer to the National Archives every three years after cutoff. Under the instruction in 36 CFR 1235.44-50, or whichever guidance is in place at the time of the transfer. Submissions are full datasets and are in addition to, not replacements, of earlier submissions."

Oregon/Washington (OR/WA) Bureau of Land Management (BLM) Guidebook for Management of Geospatial Data (v1) Section 15.2 - Corporate Data Online Archives prescribes:

"Vector annual archives are retained online for 12 years. Each year, data that has reached 12 years old is copied off-line, to be retained until no longer needed (determined by data stewards and program leads), with format and readability maintained in a five (5) year "tech refresh" update cycle."

1.4 SECURITY/ACCESS/SENSITIVITY

The Fish Sample dataset does not require any additional security other than that provided by the General Support System (the hardware/software infrastructure of the Oregon/Washington (OR/WA) Bureau of Land Management (BLM)).

This dataset is not sensitive and there are no restrictions on access to this data either from within the BLM or external to the BLM. This dataset falls under the standard Records Access Category 1A-Public Data.

There are or no privacy issues or concerns associated with these data themes.

1.5 KEYWORDS

Keywords that can be used to locate this dataset include (thesaurus):
(BLM Thesaurus) Wildlife, Hydrology

(International Organization for Standardization (ISO) Thesaurus) biota, environment, inlandWaters

(Additional keywords) Streams, Hydrography, Fisheries

1.6 SUBJECT FUNCTION CODES

BLM Subject Function codes that can be used to describe this dataset include:

1283 - Data Administration
6720 – Aquatic Resource Management
6762 – Stream Management
9167 – Geography and Mapping

2. DATASET OVERVIEW

2.1 DESCRIPTION

The Fish Sample dataset represents spatial location and basic information about stream sampling activities. The Fish Sample dataset includes one feature class and one table to support the following data collection:

FISH_SAMPLE_PT – Contains the spatial location and attributes describing the fish sampling activity. Data is recorded at a particular point on a particular date. Multiple points captured during the same sampling effort on a stream can be related using the SAMPLE_GRP field.

FISH_TBL – A table to record the species, presence, and counts of fish sampled at a point. Can record data for the three groups of fish species:

- Anadromous Fish - includes species and specific runs that migrate from the ocean to freshwater to spawn (e.g., winter steelhead).
- Resident Fish – includes species that complete their entire life cycle in freshwater (e.g., rainbow trout).
- Non-native – includes species that have been introduced into areas outside of their historical native range (e.g., brook trout).

2.2 USAGE

This dataset is used to record fish presence absence and other survey results. Only data that is suitable for public consumption should be entered into the data standard tables.

2.3 SPONSOR/AFFECTED PARTIES

The sponsor for this data set is the Deputy State Director for the Division of Resources, Lands, Mineral and Fire.

2.4 RELATIONSHIP TO OTHER DATASETS, DATABASES or FILES

The Fish Sample dataset is a subclass of the OR/WA Sample Points dataset. In addition to the geometry type and core attributes inherited from sample Points, the Fish Sample feature class contains additional

attributes specific to the dataset. There is a one-to-many relationship between the Fish Sample feature class and the related Fish table.

The Fish Sample dataset is also related to the OR/WA Fish Distribution dataset. New and updated data in Fish Sample can be used to update the distribution dataset.

Observations of aquatic and terrestrial flora and fauna that are not included in this data standard should be entered into Geographic Biotic Observations (GeoBOB). A mobile service will be managed by the state office to assist fish data collectors with easily collecting other species.

2.5 DATA CATEGORY/ARCHITECTURE LINK

These data themes are a portion of the Oregon Data Framework (ODF). The ODF utilizes the concept of inheritance to define specific instances of data. All OR/WA resource-related data are divided into three general categories: Activities, Resources, and Boundaries. These general categories are broken into sub-categories that inherit spatial characteristics and attributes from their parent category. These sub-categories may be further broken into more specific groups until the basic data set that cannot be further sub-divided. Those basic data sets inherit all characteristics of all groups/categories above them. The basic data sets are where physical data gets populated (those groups/categories above them do not contain actual data, but set parameters that all data of that type must follow). See the ODF Overview (figure 2) for a simplified schematic of the entire ODF showing the overall organization and entity inheritance. The Water Quality entities are highlighted. For additional information about the ODF, contact the [State Data Administrator](#). The State Data Administrator's contact information can be found at the following link: <https://www.blm.gov/about/data/oregon-data-management>.

In the ODF, Fish Sample is considered an activity and categorized as follows:

ODF

 Activities (or Boundaries or Activities)

 Sampling

 Sample Points

 Fish

 FISH_SAMPLE_PT

 FISH_TBL

Figure 1 provides a graphic representation of the entities and hierarchical relationships.

2.6 RELATIONSHIP TO THE DEPARTMENT OF THE INTERIOR ENTERPRISE ARCHITECTURE - DATA RESOURCE MODEL

The Department of the Interior (DOI) Enterprise Architecture contains a component called the Data Resource Model. This model addresses the concepts of data sharing, data description, and data context. This data standard provides information needed to address each of those areas. Data sharing is addressed through complete documentation and simple data structures which make sharing easier. Data description is addressed through the section on Attribute Descriptions. Data context is addressed through the data organization and structure portions of this document. In addition, the DOI Data Resource Model categorizes data by use of standardized Data Subject Areas and Information Classes.

For this data set, the Data Subject Area and Information Class are:

- Data Subject Area: Geospatial
- Information Class: Location

2.7 FISH SAMPLE DATA ORGANIZATION / STRUCTURE

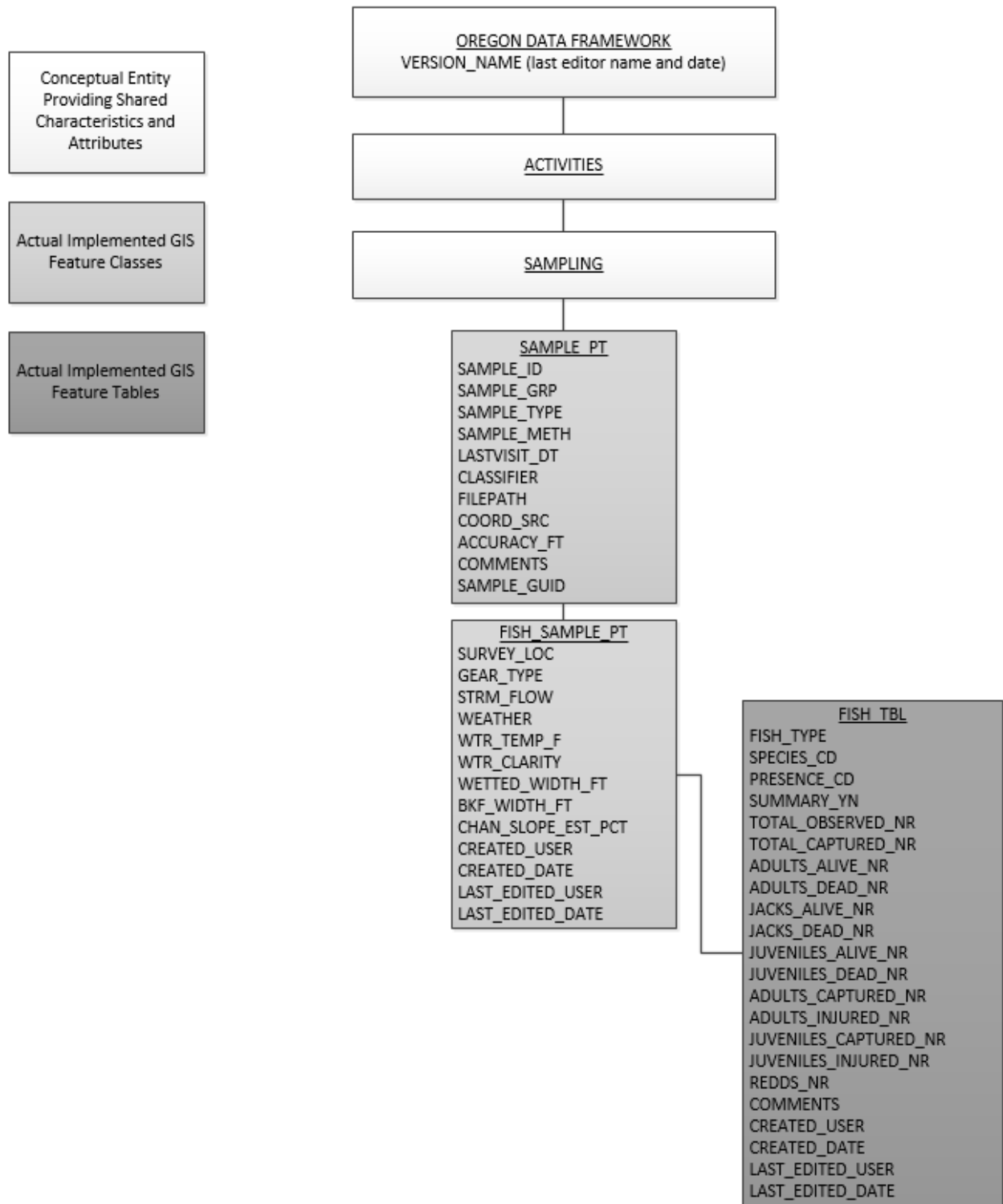


Figure 1 Data Organization Structure

3. DATA MANAGEMENT PROTOCOLS

3.1 ACCURACY REQUIREMENTS

Fish Sample points require a high level of positional accuracy in order to be useful for intended purposes. All field collection should be to at least USGS 1:24,000 data accuracy standards - 40 feet or less 95% of the time. A sample point represents the location of specific measurement of a particular resource at a point in time. The resource being measured may not even exist in a different (even if nearby) location. It may be critical that a point is located on one side or the other of a stream or road. Many sample points may be close together and different Global Positioning System (GPS) locations obtained with every visit. Accurate location is critical to distinguishing between different points and those in the same location. The attribute ACCURACY_FT provides the accuracy of each sample point.

3.2 COLLECTION, INPUT, AND MAINTENANCE PROTOCOLS

Most monitoring and sampling points are input from GPS coordinates or while using Digital Raster Graphic (DRG) or Digital Orthoquad (DOQ) backdrops during heads-up digitizing. The source of the coordinates is captured in the attribute COORD_SRC. It is possible and likely that there will be multiple sampling points in the same location, so it is important to check for unintentional duplicates. Often a district will have a long history of monitoring and sampling particular locations and there may be multiple sets of coordinates and multiple different names for the same spot.

The software being used in the collection phase allows photos or documents to be related to a geographic location as stored in the Sample Point feature. When the photos or documents are collected, they are stored as geodatabase “attachments” - a special form of geodatabase “relationship class”. When the collected data is finalized as corporate data, the attachments are removed from the edit environment and relocated to a network repository. The FILEPATH field in Sample Points will store the location of where the attachments of interest exist.

See [Appendix B](#) for instructions on entering data for common field data sampling scenarios.

3.3 UPDATE FREQUENCY AND ARCHIVAL PROTOCOLS

Data should be entered into the database as soon as possible after field collection. However, at a minimum, data should be entered annually or after field season. Data will be captured once a year during the corporate database annual archive, which occurs at the end of the calendar year.

3.4 STATEWIDE MONITORING

The State Data Steward is responsible for checking consistency across districts in the amount, type and method of monitoring and sampling relevant to their programs.

4. FISH SAMPLE SCHEMA (simplified)

General Information: Attributes are listed in the order they appear in the geodatabase feature class. The order is an indication of the importance of the attribute for theme definition and use. There are no aliases unless specifically noted. The domains used in this data standard can be found in Appendix A. These are the domains at the time the data standard was approved. Domains can be changed without a re-issue of the data standard. Current domains are found on the internal OR/WA SharePoint data management page. Some of the domains used in this data standard are also available at the following web site: <https://www.blm.gov/about/data/oregon-data-management>.

For additional information about the ODF, contact the [State Data Administrator](#). The State Data Administrator's contact information can be found at the following link: <https://www.blm.gov/about/data/oregon-data-management>.

4.1 FEATURE CLASSES

4.1.1 FISH_SAMPLE_PT (Fish Sample Points Feature class)

Attribute Name	Data Type	Length	Default Value	Required?	Domain
SAMPLE_ID	String	60		Yes**	
SAMPLE_GRP	String	20		No	
SAMPLE_TYPE	String	30	Fish	Yes	dom_SAMPLE_TYPE
SAMPLE_METH	String	30		Yes	dom_SAMPLE_METH_FISH
SURVEY_LOC	String	20		Yes	dom_FISH_SURVEY_LOC
GEAR_TYPE	String	20		No	dom_FISH_SMP_GEAR_TYPE
LASTVISIT_DT	Date			Yes**	
CLASSIFIER	String	30		Yes**	
STRM_FLOW	String	10		No	dom_STRM_FLOW
WEATHER	String	20		No	dom_FISH_SMP_WEATHER
WTR_TEMP_F	Double	5,2		No	
WTR_CLARITY	String	10		No	dom_WTR_CLARITY
WETTED_WIDTH_FT	Double	7,2		No	
BKF_WIDTH_FT	Double	7,2		No	
CHAN_SLOPE_EST_PCT	Double	6,2		No	
FILEPATH	String	150		No	
COORD_SRC	String	7	UNK	No	dom_COORD_SRC
ACCURACY_FT	Short Integer		0	No	
COMMENTS	String	255		No	
VERSION_NAME	String	50	InitialLoad	Yes*	
SAMPLE_GUID	GUID	38		Yes*	
CREATED_USER	String	30		No*	
CREATED_DATE	Date			No*	
LAST_EDITED_USER	String	30		No*	
LAST_EDITED_DATE	Date			No*	

- * Values automatically generated
- ** Enforced during quality control

4.2 TABLES

4.2.2 FISH_TBL (Fish Species Observation Table)

Attribute Name	Data Type	Length	Default	Required?	Domain
FISH_TYPE	Short Integer		1	Yes	dom_FISH_TYPE
SPECIES_CD	String	10		Yes	dom_FISH_ALL
PRESENCE_CD	String	3		Yes	dom_FISH_PRESENCE
SUMMARY_YN	String	1	N	Yes	dom_YN
TOTAL_OBSERVED_NR	Short Integer			No	
TOTAL_CAPTURED_NR	Short Integer			No	
ADULTS_ALIVE_NR	Short Integer			No	
ADULTS_DEAD_NR	Short Integer			No	
JACKS_ALIVE_NR	Short Integer			No	
JACKS_DEAD_NR	Short Integer			No	
JUVENILES_ALIVE_NR	Short Integer			No	
JUVENILES_DEAD_NR	Short Integer			No	
ADULTS_CAPTURED_NR	Short Integer			No	
ADULTS_INJURED_NR	Short Integer			No	
JUVENILES_CAPTURED_NR	Short Integer			No	
JUVENILES_INJURED_NR	Short Integer			No	
REDDS_NR	Short Integer			No	
COMMENTS	String	255		No	
VERSION_NAME	String	50	InitialLoad	Yes*	
SAMPLE_GUID	GUID			Yes*	
CREATED_USER	String	30		No*	
CREATED_DATE	Date			No*	
LAST_EDITED_USER	String	30		No*	
LAST_EDITED_DATE	Date			No*	

* Values automatically generated

4.3 RELATIONSHIP CLASSES

4.3.1 rel_FISHSAMPTS_FISHTBL

Origin Table	FISH_SAMPLE_PT
Origin Field	SAMPLE_GUID
Destination Table	FISH_TBL
Destination Field	SAMPLE_GUID
Relationship Type	Simple
Labels	Fish, Fish Sample Points
Messages	None

Cardinality	1 to Many
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5. PROJECTION AND SPATIAL EXTENT

All feature classes and feature datasets are in Geographic, North American Datum 83. Units are decimal degrees. Spatial extent (area of coverage) includes all lands managed by the BLM OR/WA, bordered on the North by Latitude 49.5, on the South by Latitude 41.5, on the East by Longitude -116 and on the West by Longitude -125.

6. SPATIAL ENTITY CHARACTERISTICS

FISH_SAMPLE_PT

Description: Sub-class of Sample Point in the Sampling group.

Geometry: Simple point features

Topology: No topology enforced. Points may be coincident.

Integration Requirements: None

7. ATTRIBUTE CHARACTERISTICS AND DEFINITION (In alphabetical order)

7.1 ACCURACY_FT

Geodatabase Name	ACCURACY_FT
BLM Structured Name	Accuracy_Feet_Measure
Alias	Accuracy Ft
Inheritance	Inherited from Entity SAMPLING
Feature Class Use/Entity Table	FISH_SAMPLE_PT
Definition	How close, in feet, the spatial GIS depiction is to the actual location on the ground. There are several factors to consider in GIS error: scale and accuracy of map-based sources, accuracy of GPS equipment, and the skill level of the data manipulators. A value of “0” indicates no entry was made. This is the correct value when the COORD_SRC is another GIS theme (Digital Line Graphs (DLG), Geographic Coordinate Database (GCD), and Digital Elevation Model (DEM)) because the accuracy is determined by that theme. However, if COORD_SRC is MAP (digitized from a paper map) or GPS, a value of “0” indicates a missing value that should be filled in either with a non-zero number or “-1.” A value of “-1” indicates that the accuracy is unknown and no reliable estimate can be made.

Required/Optional	Optional
Domain (Valid Values)	No Domain. Examples: 3 (for high accuracy GPS), 40 (best possible for USGS 24K topo map), 200
Data Type	Short Integer

7.2 ADULTS_ALIVE_NR

Geodatabase Name	ADULTS_ALIVE_NR
BLM Structured Name	Fish_Adults_Alive_Number
Alias	# Adults Alive
Inheritance	Not Inherited
Feature Class Use/Entity Table	FISH_TBL
Definition	The number of live adult fish that were observed for the selected species. Record only species that are alive, but not captured. Record captured and injured species in the ADULTS_CAPTURED_NR and ADULTS_INJURED_NR fields respectively.
Required/Optional	Optional
Domain (Valid Values)	No domain. Examples, 1, 5, 10.
Data Type	Short Integer

7.3 ADULTS_CAPTURED_NR

Geodatabase Name	ADULTS_CAPTURED_NR
BLM Structured Name	Fish_Adults_Captured_Number
Alias	# Adults Captured
Inheritance	Not Inherited
Feature Class Use/Entity Table	FISH_TBL
Definition	The number of adult fish that were captured for the selected species. This number is the total number of adults captured and includes healthy, injured, and dead.
Required/Optional	Optional
Domain (Valid Values)	No domain. Examples, 1, 5, 10.
Data Type	Short Integer

7.4 ADULTS_DEAD_NR

Geodatabase Name	ADULTS_DEAD_NR
BLM Structured Name	Fish_Adults_Death_Number
Alias	# Adults Dead
Inheritance	Not Inherited
Feature Class Use/Entity Table	FISH_TBL
Definition	The number of adult fish that were observed dead for the selected species. If a capture survey, this number is a subset of the number of adults captured. If a spawner or red survey, this number is the number of adult fish that were observed dead during the survey.
Required/Optional	Optional
Domain (Valid Values)	No domain. Examples, 1, 5, 10.
Data Type	Short Integer

7.5 ADULTS_INJURED_NR

Geodatabase Name	ADULTS_INJURED_NR
BLM Structured Name	Fish_Adults_Injured_Number
Alias	# Adults Injured
Inheritance	Not Inherited
Feature Class Use/Entity Table	FISH_TBL
Definition	The number of adult fish that were injured for the selected species. This number is a subset of the number of adults captured.
Required/Optional	Optional
Domain (Valid Values)	No domain. Examples, 1, 5, 10.
Data Type	Short Integer

7.6 BKF_WIDTH_FT

Geodatabase Name	BKF_WIDTH_FT
BLM Structured Name	Bankfull_Width_Feet_Measure
Alias	Bankfull Width (ft)

Inheritance	Inherited from Water Quality & Quantity
Feature Class Use/Entity Table	FISH_SAMPLE_PT
Definition	The horizontal distance in feet across a stream channel measured at bankfull stage.
Required/Optional	Optional
Domain (Valid Values)	No domain. Examples: 11.34, 6.1
Data Type	Double (7,2)

7.7 CHAN_SLOPE_EST_PCT

Geodatabase Name	CHAN_SLOPE_EST_PCT
BLM Structured Name	Channel_Slope_Estimated_Percent_Measure
Alias	Channel Slope Estimated %
Inheritance	Not Inherited
Feature Class Use/Entity Table	FISH_SAMPLE_PT
Definition	Channel slope is the average vertical drop in elevation per unit distance. It may be measured or visual estimated. Allowable values are 0-100.
Required/Optional	Optional
Domain (Valid Values)	Range domain: 0.0-100.
Data Type	Double (5,2)

7.8 CLASSIFIER

Geodatabase Name	CLASSIFIER
BLM Structured Name	Classifier_Name
Alias	Investigator +
Inheritance	Inherited from Entity SAMPLING
Feature Class Use/Entity Table	FISH_SAMPLE_PT
Definition	Name (mixed case, first and last) of the subject matter specialist most knowledgeable about the sample. For field collected data using the S1 mobile application, this field will be auto-populated and hidden on the mobile device.
Required/Optional	Required

Domain (Valid Values)	No domain. Examples: Mary Smith, John Doe
Data Type	String (30)

7.9 COMMENTS

Geodatabase Name	COMMENTS
BLM Structured Name	Comments_Text
Alias	Comments
Inheritance	Inherited from Entity SAMPLING
Feature Class Use/Entity Table	FISH_SAMPLE_PT, FISH_TBL
Definition	Free text for comments about the record.
Required/Optional	Optional
Domain (Valid Values)	No domain. Examples: “Thermograph failed.”, “No surface flow at August audit – isolated pools.”
Data Type	String (255)

7.10 COORD_SRC

Geodatabase Name	COORD_SRC
BLM Structured Name	Coordinate_Source_Code
Alias	Coord Src
Inheritance	Inherited from Entity POLITICAL ADMIN SMA LINE
Feature Class Use/Entity Table	FISH_SAMPLE_PT
Definition	The actual source of the GIS coordinates for the points.
Required/Optional	Optional
Domain (Valid Values)	dom_COORD_SRC
Data Type	String (7)

7.11 CREATED_DATE

Geodatabase Name	CREATED_DATE
BLM Structured Name	Created_Date

Alias Name	None
Inheritance	Not Inherited
Feature Class Use/Entity Table	All feature classes and tables.
Definition	Date the record was created. Automatically generated by the software.
Required/Optional	Optional
Domain (Valid Values)	No domain
Data Type	Date

7.12 CREATED_USER

Geodatabase Name	CREATED_USER
BLM Structured Name	Created_User_Text
Alias Name	None
Inheritance	Not Inherited
Feature Class Use/Entity Table	All feature classes and tables.
Definition	The name of the user who created the record. Automatically generated by the software.
Required/Optional	Optional
Domain (Valid Values)	No domain
Data Type	String (30)

7.13 FILEPATH

Geodatabase Name	FILEPATH
BLM Structured Name	Filename_Path_Text
Alias	File path
Inheritance	Inherited from Entity SAMPLING
Feature Class Use/Entity Table	FISH_SAMPLE_PT
Definition	Computer storage location for a photo file (e.g., jpg), Word document, spreadsheet or other associated document. The value in this field serves as a hyperlink to that location and the file it opens. Could also be a directory or dataset that opens for further browsing (where multiple files are being referenced).

Required/Optional	Optional
Domain (Valid Values)	No Domain. Example: G:\bns\DistrictMonitoring\Upland\Andrews_Allotments\Alvord_Peak_6038\Pace_180\6038_001\6038-001.xls \EM_6.4.docx
Data Type	String (150)

7.14 FISH_TYPE

Geodatabase Name	FISH_TYPE
BLM Structured Name	Fish_Type_Code
Alias	Fish Type +
Inheritance	Not Inherited
Feature Class Use/Entity Table	FISH_TBL
Definition	The type of fish species being recorded. This is a subtype field and will determine which domain is used by the SPECIES_CD field.
Required/Optional	Required
Domain (Valid Values)	dom_FISH_TYPE
Data Type	Short Integer

7.15 GEAR_TYPE

Geodatabase Name	GEAR_TYPE
BLM Structured Name	Fish_Gear_Type_Code
Alias	Gear Type
Inheritance	Not Inherited
Feature Class Use/Entity Table	FISH_SAMPLE_PT
Definition	The type of equipment used in the fish sampling effort.
Required/Optional	Optional
Domain (Valid Values)	dom_FISH_SMP_GEAR_TYPE
Data Type	String (20)

7.16 JACKS_ALIVE_NR

Geodatabase Name	JACKS_ALIVE_NR
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BLM Structured Name	Fish_Jacks_Alive_Number
Alias	# Jacks Alive
Inheritance	Not Inherited
Feature Class Use/Entity Table	FISH_TBL
Definition	The number of jacks that were observed alive for the selected species. A “jack is a male salmon (<i>Oncorhynchus</i>) that spawns after spending a year or two less in the sea than the majority of individuals of its species. It is smaller than the usual spawner.” http://www.fishbase.org/Glossary/Glossary.php?q=jack&language=english&sc=is
Required/Optional	Optional
Domain (Valid Values)	No domain. Examples, 1, 5, 10.
Data Type	Short Integer

7.17 JACKS_DEAD_NR

Geodatabase Name	JACKS_DEAD_NR
BLM Structured Name	Fish_Jacks_Dead_Number
Alias	# Jacks Dead
Inheritance	Not Inherited
Feature Class Use/Entity Table	FISH_TBL
Definition	The number of jacks that were observed dead for the selected species. A “jack is a male salmon (<i>Oncorhynchus</i>) that spawns after spending a year or two less in the sea than the majority of individuals of its species. It is smaller than the usual spawner.” http://www.fishbase.org/Glossary/Glossary.php?q=jack&language=english&sc=is
Required/Optional	Optional
Domain (Valid Values)	No domain. Examples, 1, 5, 10.
Data Type	Short Integer

7.18 JUVENILES_ALIVE_NR

Geodatabase Name	JUVENILES_ALIVE_NR
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BLM Structured Name	Fish_Juveniles_Alive_Number
Alias	# Juveniles Alive
Inheritance	Not Inherited
Feature Class Use/Entity Table	FISH_TBL
Definition	The number of juvenile fish that were observed alive for the selected species. Record only species that are alive, but not captured. Record captured and injured species in the juveniles_captured_nr and juveniles_injured_nr fields respectively.
Required/Optional	Optional
Domain (Valid Values)	No domain. Examples, 1, 5, 10.
Data Type	Short Integer

7.19 JUVENILES_CAPTURED_NR

Geodatabase Name	JUVENILES_CAPTURED_NR
BLM Structured Name	Fish_Juveniles_Captured_Number
Alias	# Juveniles Captured
Inheritance	Not Inherited
Feature Class Use/Entity Table	FISH_TBL
Definition	The number of juvenile fish that were captured for the selected species. This number is the total number of juveniles captured and includes healthy, injured, and dead.
Required/Optional	Optional
Domain (Valid Values)	No domain. Examples, 1, 5, 10.
Data Type	Short Integer

7.20 JUVENILES_DEAD_NR

Geodatabase Name	JUVENILES_DEAD_NR
BLM Structured Name	Fish_Juveniles_Dead_Number
Alias	# Juveniles Dead
Inheritance	Not Inherited

Feature Class Use/Entity Table	FISH_TBL
Definition	The number of juvenile fish that were observed dead for the selected species. This number is a subset of the number of juveniles captured.
Required/Optional	Optional
Domain (Valid Values)	No domain. Examples, 1, 5, 10.
Data Type	Short Integer

7.21 JUVENILES_INJURED_NR

Geodatabase Name	JUVENILES_INJURED_NR
BLM Structured Name	Fish_Juveniles_Injured_Number
Alias	# Juveniles Injured
Inheritance	Not Inherited
Feature Class Use/Entity Table	FISH_TBL
Definition	The number of juvenile fish that were injured for the selected species. This number is a subset of the number of juveniles captured.
Required/Optional	Optional
Domain (Valid Values)	No domain. Examples, 1, 5, 10.
Data Type	Short Integer

7.22 LASTVISIT_DT

Geodatabase Name	LASTVISIT_DT
BLM Structured Name	Last_Visit_Sampling_Date
Alias	Sample Date +
Inheritance	Inherited from Entity SAMPLING
Feature Class Use/Entity Table	FISH_SAMPLE_PT
Definition	The last date that a sample was taken or measured at this point. For field collected data using the S1 mobile application, this field will be auto-populated and hidden on the mobile device.
Required/Optional	Required
Domain (Valid Values)	No Domain. Examples: 6/24/2017, 1/1/2010

Data Type	Date
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7.23 LAST_EDITED_DATE

Geodatabase Name	LAST_EDITED_DATE
BLM Structured Name	Last_Edited_Date
Alias Name	None
Inheritance	Not Inherited
Feature Class Use/Entity Table	All feature classes and tables.
Definition	The date the record was last modified. Automatically generated by the software.
Required/Optional	Optional
Domain (Valid Values)	No domain
Data Type	Date

7.24 LAST_EDITED_USER

Geodatabase Name	LAST_EDITED_USER
BLM Structured Name	Last_Edited_User_Text
Alias Name	None
Inheritance	Not Inherited
Feature Class Use/Entity Table	All feature classes and tables.
Definition	The name of the user who last edited the record. Automatically generated by the software.
Required/Optional	Optional
Domain (Valid Values)	No domain
Data Type	String (30)

7.25 REDDS_NR

Geodatabase Name	REDDNS_NR
BLM Structured Name	Fish_Redds_Number
Alias	Redd Count

Inheritance	Not Inherited
Feature Class Use/Entity Table	FISH_TBL
Definition	The number of Redds that were observed for the selected species. A Redd is a spawning nest.
Required/Optional	Optional
Domain (Valid Values)	No domain. Examples, 1, 5, 10.
Data Type	Short Integer

7.26 TOTAL_CAPTURED_NR

Geodatabase Name	TOTAL_CAPTURED_NR
BLM Structured Name	Fish_Captured_Number
Alias	# Total Captured
Inheritance	Not Inherited
Feature Class Use/Entity Table	FISH_TBL
Definition	The number of adult and juvenile fish that were captured for the selected species. This field is calculated from adult_captured_nr and juveniles_captured_nr and includes healthy, injured, and killed adult and juvenile fish.
Required/Optional	Optional
Domain (Valid Values)	No domain. Examples, 1, 5, 10.
Data Type	Short Integer

7.27 TOTAL_OBSERVED_NR

Geodatabase Name	TOTAL_OBSERVED_NR
BLM Structured Name	Fish_Total_Number
Alias	# Total Observed
Inheritance	Not Inherited
Feature Class Use/Entity Table	FISH_TBL
Definition	The total number of fish observed for the selected species. Record only visual observations not recorded in any other fish count number field.
Required/Optional	Optional

Domain (Valid Values)	No domain. Examples, 1, 5, 10.
Data Type	Short Integer

7.28 PRESENCE_CD

Geodatabase Name	PRESENCE_CD
BLM Structured Name	Fish_Distribution_Presence_Code
Alias	Presence +
Inheritance	Inherited from FISH DISTRIBUTION
Feature Class Use/Entity Table	FISH_TBL
Definition	Indicates if the fish species is present or absent at the sampling point.
Required/Optional	Required
Domain (Valid Values)	dom_FISH_PRESENCE
Data Type	String (3)

7.29 SAMPLE_GRP

Geodatabase Name	SAMPLE_GRP
BLM Structured Name	Sample_Group_Identifier
Alias	Sample Group
Inheritance	Inherited from Entity SAMPLING
Feature Class Use/Entity Table	FISH_SAMPLE_PT
Definition	A sample grouping identifier, if needed.
Required/Optional	Optional
Domain (Valid Values)	No Domain. Examples: A, Rattlesnake, North, South
Data Type	String (20)

7.30 SAMPLE_GUID

Geodatabase Name	SAMPLE_GUID
BLM Structured Name	Sample_Globally_Unique_Identifier
Alias	None

Inheritance	Inherited from Sampling
Feature Class Use/Entity Table	FISH_SAMPLE_PT, FISH_TBL
Definition	Unique identifier for the Sample Points feature class. Used to relate records to the FISH_SAMPLE_PT feature class.
Required/Optional	Required
Domain (Valid Values)	Example value: “{E37EF156-4C20-4A78-A9BE-9EB4E6F00544}”
Data Type	GUID

7.31 SAMPLE_ID

Geodatabase Name	SAMPLE_ID
BLM Structured Name	Sample_Identifier
Alias	Sample ID +
Inheritance	Inherited from Entity SAMPLING
Feature Class Use/Entity Table	FISH_SAMPLE_PT
Definition	Unique identifier for each sample point for the particular type of sampling indicated in SAMPLE_TYPE. Serves as the link to an external table (if any) with detailed measurement information by date (a one-to-many relationship). Districts are encouraged to develop standard naming schemes.
Required/Optional	Required
Domain (Valid Values)	No Domain. Examples: 5531-009, YA_1.5, WLD_RD_7, LUBI-01
Data Type	String (60)

7.32 SAMPLE_METH

Geodatabase Name	SAMPLE_METH
BLM Structured Name	Sample_Method_Code
Alias	Method +
Inheritance	Inherited from Entity SAMPLING
Feature Class Use/Entity Table	FISH_SAMPLE_PT
Definition	The method or standard protocol used to conduct the sampling activity at this point. The method is dependent on the SAMPLE_TYPE.
Required/Optional	Required

Domain (Valid Values)	dom_SAMPLE METH FISH
Data Type	String (30)

7.33 SAMPLE_TYPE

Geodatabase Name	SAMPLE_TYPE
BLM Structured Name	Sample_Type_Code
Alias	Sample Type +
Inheritance	Inherited from Entity SAMPLING
Feature Class Use/Entity Table	FISH_SAMPLE_PT
Definition	The purpose for taking the sample at this location. The default value for this field is "Fish".
Required/Optional	Required
Domain (Valid Values)	dom_SAMPLE TYPE FISH
Data Type	String (30)

7.34 SPECIES_CD

Geodatabase Name	SPECIES_CD
BLM Structured Name	Fish_Distribution_Species_Code
Alias	Species +
Inheritance	Inherited from Fish Distribution
Feature Class Use/Entity Table	FISH_TBL
Definition	The code for the fish species associated with the record. The value in the subtype field FISH_TYPE, determines which domain is available to the user during editing.
Required/Optional	Required
Domain (Valid Values)	dom_FISH ANADROMOUS , dom_FISH NONNATIVE , dom_FISH RESIDENT
Data Type	String (10)

7.35 STRM_FLOW

Geodatabase Name	STRM_FLOW
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BLM Structured Name	Fish_Stream_Flow_Code
Alias	Stream Flow
Inheritance	Not Inherited
Feature Class Use/Entity Table	FISH_SAMPLE_PT
Definition	Code to indicate stream flow conditions at the time of the sampling.
Required/Optional	Optional
Domain (Valid Values)	dom_STRM_FLOW
Data Type	String (10)

7.36 SUMMARY_YN

Geodatabase Name	SUMMARY_YN
BLM Structured Name	Summary_Reach_YN_Code
Alias	Reach Summary? +
Inheritance	Not Inherited
Feature Class Use/Entity Table	FISH_TBL
Definition	A code to indicate if the record is an end of reach summary. End of reach summary includes the total number of fish observed or collected, or Redds observed on a stream reach. New records are assigned N (No) by default.
Required/Optional	Required
Domain (Valid Values)	dom_YN
Data Type	String (1)

7.37 SURVEY_LOC

Geodatabase Name	SURVEY_LOC
BLM Structured Name	Fish_Survey_Location_Code
Alias	Survey Loc +
Inheritance	Not Inherited
Feature Class Use/Entity Table	FISH_SAMPLE_PT
Definition	A code to indicate the Fish Sample Points location within the overall fish survey.

Required/Optional	Required
Domain (Valid Values)	dom_FISH_SURVEY_LOC
Data Type	String (20)

7.38 VERSION_NAME

Geodatabase Name	VERSION_NAME
BLM Structured Name	Geodatabase_Version_Text
Alias	Version Name
Inheritance	Inherited from Entity ODF
Feature Class Use/Entity Table	All tables
Definition	<p>Name of the corporate geodatabase version previously used to edit the record.</p> <p>InitialLoad = feature has not been edited in ArcSDE.</p> <p>Format: username.XXX-mmddyy-hhmmss = version name of last edit (hours might be a single digit; leading zeros are trimmed for hours only). XXX=theme abbreviation.</p> <p>Example: sfrazier.FIRE_POLY-121210-111034</p> <p>Only appears in the transactional (edit) version. Public version (which is also the version used internally for mapping or analysis) does not contain this attribute.</p>
Required/Optional	Required (automatically generated)
Domain (Valid Values)	No domain
Data Type	String (50)

7.39 WEATHER

Geodatabase Name	WEATHER
BLM Structured Name	Weather_Code
Alias	Weather
Inheritance	Not Inherited
Feature Class Use/Entity Table	FISH_SAMPLE_PT

Definition	Code to indicate weather conditions at the time of the sampling.
Required/Optional	Optional
Domain (Valid Values)	dom_FISH_SMP_WEATHER
Data Type	String (20)

7.40 WETTED_WIDTH_FT

Geodatabase Name	WETTED_WIDTH_FT
BLM Structured Name	Water_Wetted_Width_Feet_Measure
Alias	Wetted Width (ft)
Inheritance	Inherited from Water Quality & Quantity
Feature Class Use/Entity Table	FISH_SAMPLE_PT
Definition	The estimated width (in feet) of the channel that contains flow (is wetted) at the location where measurements were taken.
Required/Optional	Optional
Domain (Valid Values)	No domain.
Data Type	Double (7,2)

7.41 WTR_CLARITY

Geodatabase Name	WTR_CLARITY
BLM Structured Name	Water_Clarify
Alias	Water Clarity
Inheritance	Not Inherited
Feature Class Use/Entity Table	FISH_SAMPLE_PT
Definition	Water clarity is a measure of how far light can penetrate through the water column.
Required/Optional	Optional
Domain (Valid Values)	dom_WTR_CLARITY
Data Type	String (10)

7.42 WTR_TEMP_F

Geodatabase Name	WTR_TEMP_F
BLM Structured Name	Water_Temperature_Fahrenheit_Measure
Alias	Water Temp F
Inheritance	Inherited from Water Quality & Quantity
Feature Class Use/Entity Table	FISH_SAMPLE_PT
Definition	The temperature measured by the sampling instrument at the time of the sample. Values are recorded in degrees Fahrenheit and rounded to two decimal places.
Required/Optional	Optional
Domain (Valid Values)	Range domain: 0 – 115.0
Data Type	Double (5,2)

8. LAYER FILES (PUBLICATION VIEWS)

8.1 GENERAL

Master corporate feature classes/datasets maintained in the edit database (currently orsoedit) are “published” to the user database (currently orsovctr) in several ways:

- A. Copied completely with no changes (replicated).
- B. Copied with no changes except to omit one or more feature classes from a feature dataset.
- C. Minor changes made (e.g., clip, dissolve, union with ownership) in order to make the data easier to use. Feature classes that have been changed are indicated by “PUB” in their name. They are created through scripts that can be automatically executed and are easily rebuilt from the master (orsoedit) data whenever necessary.

Layer files are not new data requiring storage and maintenance but point to existing data. They have appropriate selection and symbolization for correct use and display of the data. They provide the guidance for data published on the web. Layer files are created by simple, documented processes, and can be deleted and recreated at any time.

8.2 SPECIFIC TO THIS DATASET

A publication dataset will be created for Fish Sampling that meets these requirements:

- Data from the Fish table will be joined to the Fish Sample Points feature class to “flatten” the relationship between the tables. Fish Sample Points will be duplicated if there are more than one related record in the fish table.
- Data in the publication dataset will not be available on public-facing websites.
- Data in Fish Sample Points will not be appended to the larger Sample Point publication dataset, because data in the Sample Points publication dataset is available on public-facing websites.

9. EDITING PROCEDURES

9.1 MANAGING OVERLAP (GENERAL GUIDANCE)

Overlapping points are allowed in this dataset. However, editors should check for and delete unintentional duplicate records.

9.2 THEME SPECIFIC GUIDANCE

Where possible, Fish Sample Points should be snapped to the NHD Hydrography.

The species code “ALLSPECIES” should only be used when PRESENCE_CD = ‘AV’.

10. OREGON/WASHINGTON DATA FRAMEWORK OVERVIEW

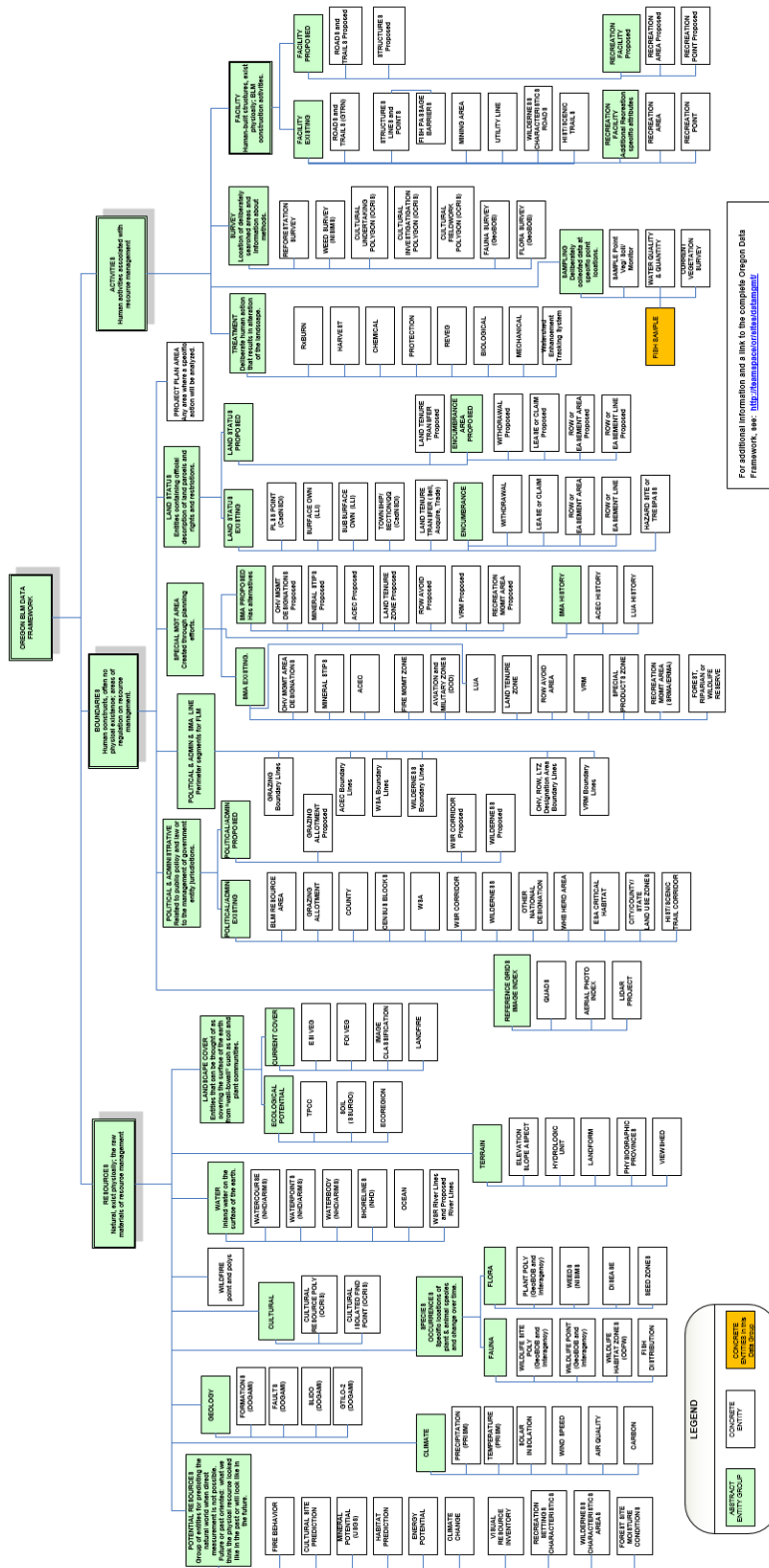


Figure 2 Oregon Data Framework Overview

11. ABBREVIATIONS AND ACRONYMS USED

(Does not include abbreviations/acronyms used as codes for particular data attributes or domain values)

Abbreviations	Descriptions
ARC	GIS line feature
BLM	Bureau of Land Management, U.S. Department of the Interior
CADNSDI	Cadastral National Spatial Data Infrastructure
DEM	Digital Elevation Model
DLG	Digital Line Graphs
FOIA	Freedom of Information Act
GIS	Geographic Information System
GPS	Global Positioning System
GTRN	Ground Transportation GIS dataset
IDP	Interdisciplinary
NAD	North American Datum
NARA	National Archives and Records Administration
NEPA	National Environmental Policy Act
ODF	Oregon Data Framework
OR/WA	Oregon/Washington BLM Administrative State
POLY	GIS polygon feature
PUB	Publication
RMP	Resource Management Plan
SDE	Spatial Database Engine
USFS	United States Forest Service, U.S. Department of Agriculture
USGS	United States Geological Survey, U.S. Department of the Interior
WEB	Worldwide Web (internet)

Table 2 Abbreviations/Acronyms Used

APPENDIX A: DOMAINS (VALID VALUES)

These are the domains at the time the data standard was approved. Domains can be changed without a re-issue of the data standard. Some of the domains used in this data standard are also available at the following web site: <https://www.blm.gov/about/data/oregon-data-management>.

For domains not listed at that site contact the [State Data Administrator](#) for current lists. The State Data Administrator's contact information can be found at: <https://www.blm.gov/about/data/oregon-data-management>.

A.1 dom_COORD_SRC

Coordinate Source Code. The source of the geographic coordinates (lines, points, polygons).

CADNSDI	CADNSDI – Lines from or snapped to the CADNSDI dataset
CFF	CFF – Lines duplicated or buffered from Cartographic Feature Files (USFS)
DEM	DEM – Digital Elevation Model (30m or better accuracy) used for creation of contours
DIS	DIS – Lines generated to connect discontinuous features
DLG	DLG – Lines duplicated or buffered from (24K scale accuracy) USGS Digital Line Graphs
DOQ	DOQ – Screen digitized linework over Digital Orthoquad backdrop
DRG	DRG – Screen digitized linework over Digital Raster Graphic backdrop
GCD	GCD – Lines snapped to Geographic Coordinate Database Points
GPS	GPS – Lines obtained from a Global Positioning System device
IMG	IMG – Linework derived from interpretation of satellite or other non-photographic imagery
MAP	MAP – Digitized linework from hardcopy map
MTP	MTP – Lines duplicated from Digital Master Title Plat
SOURCEL	SOURCEL – Source Layer from BLM GIS
SRV	SRV – Survey methods were used to create the linework (e.g., COGO)
TIGER	TIGER – Tiger Data
TRS	TRS – Coordinates only given as a legal description (township, range, section)
UNK	UNK – Unknown coordinate source
WOD	WOD – WODDB Photogrammetric

A.2 dom_FISH_ALL

All Fish Species Codes. Fish species codes for all fish. The code is an alpha short code and the display value is the Scientific Name and Common Name.

ACME	Acipenser medirostris / Green Sturgeon
ACTR	Acipenser transmontanus / White Sturgeon
ACAL	Acrocheilus alutaceus / Chiselmouth
ALSA	Alosa sapidissima / American Shad

AMME	Ameiurus melas / Black Bullhead
AMNA	Ameiurus natalis / Yellow Bullhead
AMNE	Ameiurus nebulosus / Brown Bullhead
ARIN	Archoplites interruptus / Sacramento Perch
CACA	Catostomus catostomus / Longnose Sucker
CACO	Catostomus columbianus / Bridgelip Sucker
CAMA	Catostomus macrocheilus / Largescale Sucker
CAOCLAA	Catostomus occidentalis lacusanserinus / Goose Lake Sucker
CAPL	Catostomus platyrhynchus / Mountain Sucker
CARI	Catostomus rimiculus / Klamath Smallscale Sucker
CARISSPA	Catostomus rimiculus ssp / Jenny Creek Sucker
CASN	Catostomus snyderi / Klamath Largescale Sucker
CATA	Catostomus tahoensis / Tahoe Sucker
CAWA	Catostomus warnerensis / Warner Sucker
CHBR	Chasmistes brevirostris / Shortnose Sucker
COAL	Cottus aleuticus / Coast Range Sculpin
COAS	Cottus asper / Prickly Sculpin
COBAA	Cottus bairdii / Malheur Mottled Sculpin
COBA	Cottus bairdii / Mottled Sculpin
COCO2	Cottus confusus / Shorthead Sculpin
COGU	Cottus gulosus / Riffle Sculpin
COPE	Cottus perplexus / Reticulate Sculpin
COPI	Cottus pitensis / Pit Sculpin
COPR	Cottus princeps / Klamath Lake Sculpin
CORH	Cottus rhotheus / Torrent Sculpin
COSPP	Cottus spp. / Freshwater sculpins
COTE	Cottus tenuis / Slender Sculpin
CYCA	Cyprinus carpio / Common Carp
DELU	Deltistes luxatus / Lost River Sucker
ENLE	Entosphenus lethophagus / Pit-Klamath Brook Lamprey
ENMI	Entosphenus minimus / Miller Lake Lamprey
ENSI	Entosphenus similis / Klamath River Lamprey
ENTRA	Entosphenus tridentatus / Goose Lake Lamprey
ENTR	Entosphenus tridentatus / Pacific Lamprey
ENTRB	Entosphenus tridentatus / Upper Klamath Basin Pacific Lamprey
GAAF	Gambusia affinis / Mosquitofish
GAAC	Gasterosteus aculeatus / Threespine Stickleback
GIAL	Gila alvordensis / Alvord Chub
GIBI	Gila bicolor / Tui Chub
GIBO	Gila boraxobius / Borax Lake Chub
GICO	Gila coerulea / Blue Chub
ICPU	Ictalurus punctatus / Channel Catfish
LARI	Lampetra richardsoni / Western Brook Lamprey (Pacific Brook Lamprey)
LECY	Lepomis cyanellus / Green Sunfish
LEGI	Lepomis gibbosus / Pumpkinseed
LEMA	Lepomis macrochirus / Bluegill
LEMI	Lepomis microlophus / Redear Sunfish
LOLO	Lota lota / Burbot

MIDO	<i>Micropterus dolomieu</i> / Smallmouth Bass
MISA	<i>Micropterus salmoides</i> / Largemouth Bass
MYCA	<i>Mylocheilus caurinus</i> / Peamouth
NOCR	<i>Notemigonus crysoleucas</i> / Golden Shiner
ONSSPC	<i>Oncorhynchus clarkii</i> / Cutthroat Trout Hybrid
ONCLCL	<i>Oncorhynchus clarkii clarkii</i> / Coastal Cutthroat Trout
ONCLHE	<i>Oncorhynchus clarkii henshawi</i> / Lahontan Cutthroat Trout
ONCLLE	<i>Oncorhynchus clarkii lewisi</i> / Westslope Cutthroat Trout
ONGO	<i>Oncorhynchus gorboscha</i> / Pink Salmon
ONKE	<i>Oncorhynchus keta</i> / Chum Salmon
ONKI	<i>Oncorhynchus kisutch</i> / Coho Salmon
ONMYH	<i>Oncorhynchus mykiss</i> / Inland Columbia Basin Redband Trout
ONMYI	<i>Oncorhynchus mykiss</i> / Oregon Basin Redband Trout
ONMYJ	<i>Oncorhynchus mykiss</i> / Rainbow Trout
ONMYL	<i>Oncorhynchus mykiss</i> / Summer Steelhead
ONMYK	<i>Oncorhynchus mykiss</i> / Winter Steelhead
ONNEC	<i>Oncorhynchus nerka</i> / Kokanee Salmon
ONNE	<i>Oncorhynchus nerka</i> / Sockeye Salmon
ONTSN	<i>Oncorhynchus tshawytscha</i> / Fall Chinook Salmon
ONTSM	<i>Oncorhynchus tshawytscha</i> / Spring Chinook Salmon
ONTSO	<i>Oncorhynchus tshawytscha</i> / Summer Chinook Salmon
ORCR	<i>Oregonichthys crameri</i> / Oregon Chub
ORKA	<i>Oregonichthys kalawatseti</i> / Umpqua Chub
PEFL	<i>Perca flavescens</i> / Yellow Perch
PIPR	<i>Pimephales promelas</i> / Fathead Minnow
POAN	<i>Pomoxis annularis</i> / White Crappie
PONI	<i>Pomoxis nigromaculatus</i> / Black Crappie
PRCO	<i>Prosopium coulterii</i> / Pygmy Whitefish
PRWI	<i>Prosopium williamsoni</i> / Mountain Whitefish
PTOR	<i>Ptychocheilus oregonensis</i> / Northern Pikeminnow
PTUM	<i>Ptychocheilus umpqua</i> / Umpqua Pikeminnow
RHCA	<i>Rhinichthys cataractae</i> / Longnose Dace
RHCASSP	<i>Rhinichthys cataractae ssp</i> / Millacoma Dace
RHEV	<i>Rhinichthys evermanni</i> / Umpqua Dace
RHOSA	<i>Rhinichthys osculus</i> / Foscett Speckled Dace
RHOS	<i>Rhinichthys osculus</i> / Speckled Dace
RHOSKLB	<i>Rhinichthys osculus klamathensis</i> / Speckled Dace (Klamath Basin)
RIBA	<i>Richardsonius balteatus</i> / Redside Shiner
RIEG	<i>Richardsonius egregius</i> / Lahontan Redside Shiner
SATR	<i>Salmo trutta</i> / Brown Trout
SACO	<i>Salvelinus confluentus</i> / Bull Trout
SAFO	<i>Salvelinus fontinalis</i> / Brook Trout
STVI	<i>Sander vitreus</i> / Walleye
THPA	<i>Thaleichthys pacificus</i> / Eulachon
ALLSPECIES	All Species - should only be used for negative survey results where Presence = AV (Absence Verified)

A.3 dom_FISH_ANDROMOUS

Fish Anadromous Species Code. Fish species codes for anadromous fish. The code is an alpha short code and the display value is the Scientific Name and Common Name.

ACME	Acipenser medirostris / Green Sturgeon
ENTR	Entosphenus tridentatus / Pacific Lamprey
ONGO	Oncorhynchus gorboscha / Pink Salmon
ONKE	Oncorhynchus keta / Chum Salmon
ONKI	Oncorhynchus kisutch / Coho Salmon
ONMYL	Oncorhynchus mykiss / Summer Steelhead
ONMYK	Oncorhynchus mykiss / Winter Steelhead
ONNEC	Oncorhynchus nerka / Kokanee Salmon
ONNE	Oncorhynchus nerka / Sockeye Salmon
ONTSN	Oncorhynchus tshawytscha / Fall Chinook Salmon
ONTSM	Oncorhynchus tshawytscha / Spring Chinook Salmon
ONTSO	Oncorhynchus tshawytscha / Summer Chinook Salmon
ALLSPECIES	All Species - should only be used for negative survey results where Presence = AV (Absence Verified)

A.4 dom_FISH_NONNATIVE

Fish Non-Native Species Code. Fish species codes for non-native species of fish. The code is an alpha short code and the display value is the Scientific Name and Common Name.

ALSA	Alosa sapidissima / American Shad
AMME	Ameiurus melas / Black Bullhead
AMNA	Ameiurus natalis / Yellow Bullhead
AMNE	Ameiurus nebulosus / Brown Bullhead
ARIN	Archoplites interruptus / Sacramento Perch
CYCA	Cyprinus carpio / Common Carp
GAAF	Gambusia affinis / Mosquitofish
ICPU	Ictalurus punctatus / Channel Catfish
LECY	Lepomis cyanellus / Green Sunfish
LEGI	Lepomis gibbosus / Pumpkinseed
LEMA	Lepomis macrochirus / Bluegill
LEMI	Lepomis microlophus / Redear Sunfish
MIDO	Micropterus dolomieu / Smallmouth Bass
MISA	Micropterus salmoides / Largemouth Bass
NOCR	Notemigonus crysoleucas / Golden Shiner
PEFL	Perca flavescens / Yellow Perch
PIPR	Pimephales promelas / Fathead Minnow
POAN	Pomoxis annularis / White Crappie
PONI	Pomoxis nigromaculatus / Black Crappie
SATR	Salmo trutta / Brown Trout
SAFO	Salvelinus fontinalis / Brook Trout
STVI	Sander vitreus / Walleye

ALLSPECIES	All Species - should only be used for negative survey results where Presence = AV (Absence Verified)
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A.5 dom_FISH_PRESENCE

Fish Presence Code. The code to indicate if the species is present at the geographic extent of the feature.

PV	PV – Presence Verified
PNV	PNV – Presence Suspected, Not Verified
AV	AV – Absence Verified

A.6 dom_FISH_RESIDENT

Fish Resident Species Code. Fish species codes for resident species of fish. The code is an alpha short code and the display value is the Scientific Name and Common Name.

ACTR	Acipenser transmontanus / White Sturgeon
ACAL	Acrocheilus alutaceus / Chiselmouth
CACA	Catostomus catostomus / Longnose Sucker
CACO	Catostomus columbianus / Bridgelip Sucker
CAMA	Catostomus macrocheilus / Largescale Sucker
CAOCLAA	Catostomus occidentalis lacusanserinus / Goose Lake Sucker
CAPL	Catostomus platyrhynchus / Mountain Sucker
CARI	Catostomus rimiculus / Klamath Smallscale Sucker
CARISSPA	Catostomus rimiculus ssp / Jenny Creek Sucker
CASN	Catostomus snyderi / Klamath Largescale Sucker
CATA	Catostomus tahoensis / Tahoe Sucker
CAWA	Catostomus warnerensis / Warner Sucker
CHBR	Chasmistes brevirostris / Shortnose Sucker
COAL	Cottus aleuticus / Coast Range Sculpin
COAS	Cottus asper / Prickly Sculpin
COBAA	Cottus bairdii / Malheur Mottled Sculpin
COBA	Cottus bairdii / Mottled Sculpin
COCO2	Cottus confusus / Shorthead Sculpin
COGU	Cottus gulosus / Riffle Sculpin
COPE	Cottus perplexus / Reticulate Sculpin
COPI	Cottus pitensis / Pit Sculpin
COPR	Cottus princeps / Klamath Lake Sculpin
CORH	Cottus rhotheus / Torrent Sculpin
COSPP	Cottus spp. / Freshwater sculpins
COTE	Cottus tenuis / Slender Sculpin
DELU	Deltistes luxatus / Lost River Sucker
ENLE	Entosphenus lethophagus / Pit-Klamath Brook Lamprey
ENMI	Entosphenus minimus / Miller Lake Lamprey
ENSI	Entosphenus similis / Klamath River Lamprey
ENTRA	Entosphenus tridentatus / Goose Lake Lamprey

ENTRB	Entosphenus tridentatus / Upper Klamath Basin Pacific Lamprey
GAAC	Gasterosteus aculeatus / Threespine Stickleback
GIAL	Gila alvordensis / Alvord Chub
GIBI	Gila bicolor / Tui Chub
GIBO	Gila boraxobius / Borax Lake Chub
GICO	Gila coerulea / Blue Chub
LARI	Lampetra richardsoni / Western Brook Lamprey (Pacific Brook Lamprey)
LOLO	Lota lota / Burbot
MYCA	Mylocheilus caurinus / Peamouth
ONSSPC	Oncorhynchus clarkii / Cutthroat Trout Hybrid
ONCLCL	Oncorhynchus clarkii clarkii / Coastal Cutthroat Trout
ONCLHE	Oncorhynchus clarkii henshawi / Lahontan Cutthroat Trout
ONCLLE	Oncorhynchus clarkii lewisi / Westslope Cutthroat Trout
ONMYH	Oncorhynchus mykiss / Inland Columbia Basin Redband Trout
ONMYI	Oncorhynchus mykiss / Oregon Basin Redband Trout
ONMYJ	Oncorhynchus mykiss / Rainbow Trout
ONNEC	Oncorhynchus nerka / Kokanee Salmon
ORCR	Oregonichthys crameri / Oregon Chub
ORKA	Oregonichthys kalawatseti / Umpqua Chub
PRCO	Prosopium coulterii / Pygmy Whitefish
PRWI	Prosopium williamsoni / Mountain Whitefish
PTOR	Ptychocheilus oregonensis / Northern Pikeminnow
PTUM	Ptychocheilus umpquae / Umpqua Pikeminnow
RHCA	Rhinichthys cataractae / Longnose Dace
RHCASSP	Rhinichthys cataractae ssp / Millacoma Dace
RHEV	Rhinichthys evermanni / Umpqua Dace
RHOSA	Rhinichthys osculus / Fosskett Speckled Dace
RHOS	Rhinichthys osculus / Speckled Dace
RHOSKLB	Rhinichthys osculus klamathensis / Speckled Dace (Klamath Basin)
RIBA	Richardsonius balteatus / Redside Shiner
RIEG	Richardsonius egregius / Lahontan Redside Shiner
SACO	Salvelinus confluentus / Bull Trout
ALLSPECIES	All Species - should only be used for negative survey results where Presence = AV (Absence Verified)

A.7 dom_FISH_SMP_GEAR_TYPE

Fish Sample Gear Type Code. The type of equipment used to conduct the fish sampling activity.

Visual	Visual
Hook/Line	Hook/Line
Net	Net
Electroshock	Electroshock
Snorkeling	Snorkeling
eDNA Pump	eDNA Pump
Other	Other

A.8 dom_FISH_SMP_WEATHER

Weather Code. Code to indicate weather conditions at the time of the sampling.

Sunny	Sunny
Cloudy	Cloudy
Partly Cloudy	Partly Cloudy
Light Rain	Light Rain (mist, drizzle, soft rain)
Moderate Rain	Moderate (obscuring rain)
Heavy Rain	Heavy Rain (intense rain)
Snow	Snow

A.9 dom_FISH_SURVEY_LOC

Fish Survey Location Code. A code to indicate the Fish Sample Points location within the overall fish survey.

Start Survey	Start Survey - The point is the starting location of the stream survey.
End Survey	End Survey - The point is the ending location of the stream survey.
Max Upstream	Max Upstream - The point represents the maximum upstream distribution point for the species detected.
Fish Observation	Fish Observation - The point represents the observation of one or more fish species. The point could be related to a Fish Survey or may be a standalone observation.

A.10 dom_FISH_TYPE

Fish Type Subtype Code. A code that defines the type of fish and controls which species appear in the Species domain in the Fish table.

1	Anadromous
2	Resident
3	Non-Native

A.11 dom_SAMPLE_METH_FISH

Fish Sample Method Code. Method used to conduct a fish sampling activity. This domain is a subset of the Sample Method Code.

eDNA	eDNA
Presence/Absence	Presence/Absence
Salvage	Salvage
Spawning AUC	Spawning Area Under the Curve

Spawning Other	Spawning (Other) – Includes mass, peak, trend.
Other	Other

A.12 dom_SAMPLE_TYPE

Sample Type Code. The purpose for taking the sample.

ACEC	ACEC - RNA monitoring
AIM	AIM - Assessment, Inventory, & Monitoring
Aspen	Aspen - Stand monitoring
BMP	BMP - Best Management Practice
Contract	Contract - Monitoring of a contract or permit
Erosion	Erosion - Monitoring
Fire Effects	Fire Effects - Monitoring
Fish	Fish
Greenline	Greenline - Riparian measurement
HAF	HAF - Habitat Assessment Framework Monitoring
HMA	HMA - Wildhorse use or count
Juniper	Juniper - Measurement
MIM	MIM - Multiple Indicator Monitoring
Mineral Potential	Mineral Potential - Test wells or drill sites
Photo	Photo Sample Point
Range Trend	Range Trend - Monitoring
Range Utilization	Range Utilization - Measurement
Recreation Use	Recreation Use - Monitoring
Riparian	Riparian - Monitoring
Riparian Utilization	Riparian Utilization
Road/Trail	Road/Trail - Documentation
Sensitive Birds	Sensitive Birds - Monitoring
Sensitive Plants	Sensitive Plants - Monitoring
Shade	Shade - Measurement
Soil	Soil - Description
Soil Crust	Soil Crust - Monitoring
Stand Exam	Stand Exam
Stand Exam-EcoSurvey	Stand Exam-EcoSurvey
Study Plot	Study Plot - Research
Treatment	Treatment - Effectiveness or implementation monitoring
Vegetation	Vegetation - Plant Community
Water Contaminants	Water Contaminants - Measurement
Water Temperature	Water Temperature - Measurement
Water (Multiple)	Water (Multiple)
Wilderness Use	Wilderness Use – Monitoring
Wildlife Utilization	Wildlife Utilization - Measurement
Other	Other
Unknown	Unknown

A.13 dom_STRM_FLOW

Stream Flow Code. Code to indicate stream flow conditions at the time of the sampling.

Low	Low
Medium	Medium
High	High
Flooding	Flooding

A.14 dom_WTR_CLARITY

Water Clarity Code. Code to indicate the clarity of the water at the time of the fish sampling.

Clear	Clear
Moderate	Moderate
Turbid	Turbid

A.15 dom_YN

Yes/No Flag. Generic domain for Yes/No/Unknown coding

Y	Yes
N	N
U	Unknown

APPENDIX B: DATA ENTRY SCENARIOS

These are some common field data collection scenarios and descriptions of how the data should be entered into the Fish Sample Points data objects.

B.1 Data Entry Scenario #1 – Electrofishing to Determine Fish Presence

The following describes the data entry for a simple field example of electrofishing to determine fish presence. A high quality pool was sampled and three Coastal Cutthroat Trout (2 adults, 1 juvenile) were collected.

- a. Create a single Fish Sample Point and assign the attributes:
SURVEY_LOC = “Fish Observation”
SAMPLE_METH = “Presence/Absence”
GEAR_TYPE = “Electroshock”
- b. Create a record related to the Fish Sample Point in the Fish table and assign the attributes:
FISH_TYPE = 2 (Resident)
SPECIES_CD = ONCLCL (*Oncorhynchus clarkii clarkii* / Coastal Cutthroat Trout)
PRESENCE_CD = “PV”

TOTAL_CAPTURED_NR = 3

ADULTS_CAPTURED_NR = 2
JUVENILES_CAPTURED_NR = 1

OR

ADULTS_ALIVE_NR = 2
JUVENILES_ALIVE_NR = 1

B.2 Data Entry Scenario #2 – Visual Observations of Resident Fish

The following describes the data entry for visual observations of resident fish during base flows to determine fish presence. No fish are captured, but five Coastal Cutthroat Trout are observed (4 adults, 1 juvenile).

- a. Create a single Fish Sample Point and assign the attributes:
SURVEY_LOC = “Fish Observation”
SAMPLE_METH = “Presence/Absence”
GEAR_TYPE = “Visual”
- b. Create a record related to the Fish Sample Point in the Fish table and assign the attributes:
FISH_TYPE = 2 (Resident)
SPECIES_CD = ONCLCL (*Oncorhynchus clarkii clarkii* / Coastal Cutthroat Trout)
PRESENCE_CD = “PV”

TOTAL_OBSERVED_NR = 5

ADULTS_ALIVE_NR = 1
JUVENILES_ALIVE_NR = 1

B.3 Data Entry Scenario #3 – Electrofishing a Survey Reach to Determine Fish Presence

The following describes the data entry for electrofishing multiple points along a survey reach to determine fish presence. While sampling the entire reach, a total of 100 Coastal Cutthroat Trout were observed (98 alive, 2 died).

- a. Create a Fish Sample Point to mark the starting point and assign the attributes:
SURVEY_LOC = “Start Survey”
SAMPLE_METH = “Presence/Absence”
GEAR_TYPE = “Electroshock”
SAMPLE_GRP = <assign a grouping name that will associate all of the points in the reach together>
- b. Create another Fish Sample Point to mark the ending point and assign the attributes:
SURVEY_LOC = “End Survey”
SAMPLE_METH = “Presence/Absence”
GEAR_TYPE = “Electroshock”
SAMPLE_GRP = <enter the same Sample Group as above>
- c. Create a record related to the Reach Summary Fish Sample Point in the Fish table and assign the attributes. The fish counts at the end point will represent the total (summary) counts for the reach.
FISH_TYPE = 2 (Resident)
SPECIES_CD = ONCLCL (*Oncorhynchus clarkii clarkii* / Coastal Cutthroat Trout)
PRESENCE_CD = “PV”

TOTAL_CAPTURED_NR = 100
JUVENILES_CAPTURED_NR = 100
JUVENILES_ALIVE_NR = 98
JUVENILES_DEAD_NR = 2

SUMMARY_YN = “Y”

B.4 Data Entry Scenario #4 – Fish Salvage at a Culvert Replacement Project Site

The following describes the data entry for recording a Fish Salvage at a culvert replacement project site. 250 juvenile Coho were collected – 246 alive, 3 dead, 1 injured.

- a. Create a single Fish Sample Point and assign the attributes:
SURVEY_LOC = “Fish Observation”
SAMPLE_METH = “Salvage”
- a. Create a record related to the Fish Sample Point in the Fish table and assign the attributes:

FISH_TYPE = 1 (Anadromous)
 SPECIES_CD = ONKI (*Oncorhynchus kisutch* / Coho Salmon)
 PRESENCE_CD = "PV"

TOTAL_CAPTURED_NR = 250
 JUVENILES_CAPTURED_NR = 250
 JUVENILES_ALIVE_NR = 246
 JUVENILES_DEAD_NR = 3
 JUVENILES_INJURED_NR = 1

B.5 Data Entry Scenario #5 – Redd or Spawning Survey along a Reach

The following describes the data entry for recording a Redd or Spawner survey along a reach. During the survey, the following Fall Chinook were observed: 25 Redds; 10 carcasses – 6 wild female, 3 wild male, 1 unknown; 3 live adults – 2 females, 1 unknown.

- a. Create a Fish Sample Point to mark the starting point and assign the attributes:
 SURVEY_LOC = "Start Survey"
 SAMPLE_METH = "Spawning Trend"
 SAMPLE_GRP = <assign a grouping name that will associate all of the points in the reach together>
- b. Create another Fish Sample Point to mark the ending point and assign the attributes:
 SURVEY_LOC = "End Survey"
 SAMPLE_METH = "Spawning Trend"
 SAMPLE_GRP = <enter the same Sample Group as above>
- c. Create a record related to the End Survey Fish Sample Point in the Fish table and assign the attributes. The fish counts at the end point will represent the total (summary) counts for the reach.
 FISH_TYPE = 1 (Anadromous)
 SPECIES_CD = ONTSN (*Oncorhynchus tshawytscha* / Fall Chinook Salmon)
 PRESENCE_CD = "PV"

TOTAL_OBSERVED_NR = 13
 ADULTS_ALIVE_NR = 3
 ADULTS_DEAD_NR = 10
 REDDS_NR = 25

SUMMARY_YN = "Y"

In the comments field, you have the option of listing details of sex, hatchery, and wild origin.

B.6 Data Entry Scenario #6 – Individual Redd Location

The following describes the data entry for recording data on an individual Redd, when interested in Redd location data to evaluate fish response to restoration actions.

- a. Create a single Fish Sample Point and assign the attributes:
SURVEY_LOC = "Fish Observation"
SAMPLE_METH = "Spawning Trend"
- b. Create a record related to the Fish Sample Point in the Fish table and assign the attributes:
FISH_TYPE = 1 (Anadromous)
SPECIES_CD = ONTSN (*Oncorhynchus tshawytscha* / Fall Chinook Salmon)
PRESENCE_CD = "PV"

ADULTS_ALIVE_NR = 2
REDDS_NR = 1
In the comments field, record the male-female wild pair at the Redd.

B.7 Data Entry Scenario #7 – Negative Survey Results

The following describes the data entry for recording data where no species were found.

- a. Create a Fish Sample Point to mark the starting point and assign the attributes:
SURVEY_LOC = "Start Survey"
SAMPLE_METH = <enter appropriate method>
SAMPLE_GRP = <assign a grouping name that will associate all of the points in the reach together>
- b. Create another Fish Sample Point to mark the ending point and assign the attributes:
SURVEY_LOC = "End Summary"
SAMPLE_METH = <enter appropriate method>
SAMPLE_GRP = <enter the same Sample Group as above>
- c. Create a record related to the Fish Sample Point in the Fish table and assign the attributes:
FISH_TYPE = <any> Can leave as default 1.
SPECIES_CD = "ALLSPECIES" (*The "ALLSPECIES" species code should only be used to record absence of all species surveyed for.*)
PRESENCE_CD = "AV"
SUMMARY_YN = "Y" (*If the record summarizes a reach.*)