

1:24K Fish Habitat Distribution Development Project

Data Format Outlines and Data Compilation Protocols

Information Workshop,
Salem, Oregon
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Fish Habitat Distribution Data Outline

A. Data description: Areas of suitable habitat currently believed to be utilized by wild/natural, native, and/or hatchery fish populations. The term "currently" is defined as within the past five reproductive cycles. This information may be based on documented observations or best professional judgment.

B. Fields (Attributes - not the actual names)

- Species
- Run
- LLID (unique stream identifier; captured for 100K streams only)
- Beginning measure (captured for 100K streams only)
- Ending measure (captured for 100K streams only)
- HUC (4th Hydrological Unit Code)
- Use-type (Distribution types)
- Quality rating
- Year (year or date last revised)
- Comments
- Source Name
- Source Agency
- StreamNet Library Reference number

C. Distribution types (use-types):

- Spawning and Rearing
- Rearing and Migration
- Migration only
- Previous/Historic
- Present (use-type mixed or unknown)
- Unknown
- Absent
- Documented Undetected
- Disputed

Note: most resident distribution will be categorized as 'present' due to lack of knowledge or mixed habitat usage.

D. Quality rating for non-documented distribution

- **PUO** Present based on **U**ndocumented professional **O**bservation.
- **PSO** Present based on **S**trong professional **O**pinion.
- **PMO** Present based on **M**odest professional **O**pinion.

100K and 24K Data Compilation Protocol

(Including Documentation Procedures)

A. Data Capture Method:

Hardcopy Map & Mylar: Maps are produced using Digital Raster Graphic (DRG) representations of the USGS 7.5 minute quad maps. Clear plastic mylar is used to overlay the maps and modifications are made onto the mylar.

Data Capture Tool: This approach relies on interfacing MS Access with ArcView. We will use this tool to project 7.5 minute quad map images (as well as other relevant datasets) onto a screen, and based on information provided by data contributors, capture the spatial component of the distribution data using ArcView and develop the attribute information within MS Access.

B. General Compilation Steps:

- 1) Solicit and centralize all existing electronic 1:100K and 1:24K species distribution layers and produce hardcopy comparative maps using DRGs as the background or within the Data Capture Tool.
- 2) Schedule initial meeting with ODFW biologists, plan the species and area to be compiled, and provide the criteria and definitions prior to the meeting.
- 3) Identify other potential data providers for the area and contact them to schedule individual meetings.
- 4) Conduct a literature review for documented observation references using readily available sources. (*Note: In an effort to minimize confusion, documentation records are not shown on the hardcopy comparative maps. This may change as data compilation moves forward*)
- 5) Assign all references a library reference number and submit a copy to the StreamNet Library.
- 6) Compile information of the known and suspected distribution of all anadromous and resident salmonid species. This will be done through a series of individual meetings with data providers. Also, solicit additional documented observation information from data providers.
- 7) Arbitrate any disagreements between data providers using established 'decision tree' protocols and agree upon a final view of the distribution.
- 8) Transfer agreed upon distribution from the mylar to the hardcopy map. Submit the hardcopy map to the GIS Coordinator for processing. (*Note: this step may not be necessary depending on how we use the Data Capture Tool*)
- 9) Process 100K distribution (use-types) as lines along the stream and generate points to delineate 24K use-types along 24K streams.
- 10) Using the Data Capture Tool, compare electronic data layers to the mylars and note any errors.
- 11) Correct errors, and if necessary, contact data providers to clarify discrepancies.
- 12) Finalize the distribution and documentation data.
- 13) Finalize metadata for all distribution and documentation data.
- 14) Develop 8-1/2x11 images of each 4th field HUC showing 100K fish distribution and make available via the web.
- 15) Create zipped coverage and shape files of all distribution data and make them available via the web.

***Project tracking maps will be updated regularly to communicate project status and data availability. These maps are posted on the NRIMP web-site at <http://osu.orst.edu/dept/nrimp/>.

Documentation Outline

Fish Distribution Documentation:

- A. Data Description: Written information describing the observed life stage and/or behavior of a given species and run of fish in a specific body of water.

Desired Content:

1. Name of the body of water
2. Date of the observation
3. Species and run observed
4. Number and/or type (or unit) of observations (redds, total live fish, etc.)
5. Distance of the observed area
6. Exact location of the observation
7. The extent to which fish were seen throughout the observed area (see E. below)

- B. Categories and requirements:

Full documentation requires desired contents 1 – 6

Gray documentation requires desired contents 1 – 4

- C. Fields (Attributes - not the actual names)

- Category
- Species
- Run
- LLID (unique stream identifier; captured for 100K streams only)
- Beginning measure (captured for 100K streams only)
- Ending measure (captured for 100K streams only)
- Coordinates (for 24k streams)
- Waterbody name
- HUC (4th Hydrological Unit Code)
- Documentation extent
- Year (of observation)
- Date (of observation)
- Comments
- StreamNet Library reference number

D. Observation/Survey types that typically do and do not provide suitable information:

Provide suitable information:

Spawning count survey
Juvenile snorkel survey
Redd count survey
Stream habitat surveys ***
Fish presence/absence surveys ***
Tagging efforts ***

Do not provide suitable information

Smolt trap
Hatchery release data
Creel survey
Voluntary angler reporting data
Estuary surveys
Water quality surveys

*** Depending on information provided.

E. Documentation extent rating:

- (1) **Observation and Site-Specific:** documents one or more observations of the mapped species throughout a specific area within a waterbody, thereby verifying the presence of the mapped species throughout the specific area indicated.
- (2) **Site-Specific:** documents one or more observations of the mapped species somewhere within a specific area within a waterbody, but does not specify whether the mapped species was observed throughout the specific area indicated.
- (3) **Non Site-Specific:** documents one or more observations of the mapped species somewhere within a waterbody (some location information may be provided, i.e. above Johnson's bridge, but the specific location is not identified in the data source).

NOTE: Documentation criteria and descriptions will be developed for the following data types after a review of various potential documentation materials.

- **Adult Migration Barrier Documentation:** written information describing the extent, location, and/or description of a barrier to upstream migration.
- **Life-stage Timing Documentation:** written information describing the life stage and/or behavior of a given species and run of fish in a specific stream or area based on actual observation. Written opinions lacking supportive observation data will not be compiled as documentation.
- **Historic Origin Documentation:** written information describing the initial discovery or introduction of a given species and run of fish in a specific stream or area. Documentation of professional opinion may be used in the absence of other, more verifiable information.
- **Present Origin Documentation:** written information describing the current production activity or activities that are being employed to support or sustain a given species and run of fish in a specific stream or area.

Barrier Data Outline

A. Data description: Natural or man-made condition that impedes the upstream migration of adult fish.

B. Fields (Attributes - not the actual names)

- Barrier ID
- Barrier type
- Barrier name
- Height
- LLID (unique stream identifier; captured for 100K streams only)
- Beginning measure (captured for 100K streams only)
- Ending measure (captured for 100K streams only)
- HUC (4th Hydrological Unit Code)
- Owner
- Year initiated
- Year completed
- Year removed
- Fishway
- Comments
- StreamNet Library reference number

C. Barrier Type

- Falls
- Cascade/Gradient/Velocity
- Culvert
- Debris jam
 - ❖ Beaver
 - ❖ Log jam
 - ❖ Land slide
- Dam
 - ❖ Hydroelectric
 - ❖ Flood control
 - ❖ Irrigation
- Hatchery facility-related structure
- Insufficient flow
- Temperature
- Tide gate
- Water diversion

D. Secondary Information - Fish-barrier Information: describes the impact a barrier has on a particular species and run of fish.

- Blockage Extent:
 - Passable
 - ❖ Fish can successfully and routinely migrate upstream past the barrier.
 - Complete blockage - impassable
 - ❖ Allows no passage of the species at all times.
 - Partial Blockage (if used, the conditions of the blockage are described in a separate field)
 - ❖ Fish can migrate with human intervention (e.g. opening of a weir, etc.).
 - ❖ Fish can migrate given proper flow conditions.
 - ❖ Etc.

Barrier Data Compilation Protocol

(Including Documentation Procedures)

A. Data Capture Method:

Hardcopy Map & Mylar: Maps are produced using Digital Raster Graphic (DRG) representations of the USGS 7.5 minute quad maps. Clear plastic mylar is used to overlay the maps and modifications are made onto the mylar.

Data Capture Tool: This approach relies on interfacing MS Access with ArcView. We will use this tool to project 7.5 minute quad map images (as well as other relevant datasets) onto a screen, and based on information provided by data contributors, capture the spatial component of the barrier data using ArcView and develop the attribute information within MS Access.

B. General Compilation Steps:

- 1) Solicit and centralize all existing electronic 1:100k and 1:24k barrier data layers and produce hardcopy comparative maps using DRGs as the background or within the Data Capture Tool.
- 2) Prior to initial distribution data compilation meetings with ODFW biologists, provide the criteria and definitions associated with barrier data compilation.
- 3) Identify other potential data providers for the area and contact them to schedule individual meetings.
- 4) Conduct a literature review for documented barrier references using readily available sources.
- 5) Assign all references a library reference number and submit a copy to the StreamNet Library.
- 6) During distribution data compilation meetings, compile information on known and suspected barriers to adult migration for all anadromous and resident salmonid species. Also, solicit additional documented barrier information from data providers.
- 7) Arbitrate any disagreements between data providers. (*Note: if necessary, protocols will be developed specifically for barrier-related arbitration.*)
- 8) Transfer agreed upon barrier information from the mylar to the hardcopy map and submit the hardcopy map to the GIS Coordinator for processing. (*Note: this step may not be necessary depending on how we use the Data Capture Tool*)
- 9) Using the Data Capture Tool, compare electronic data layers to mylars and note any errors.
- 10) Submit the completed barrier attribute tables to data providers for final review.
- 11) Correct errors, and if necessary, contact data providers to clarify problematic errors.
- 12) Finalize the barrier layers and documentation data.
- 13) Finalize metadata for all barriers and documentation data.
- 14) Develop 8-1/2x11 images of each 4th field HUC showing the general location of barriers and make images available via the web.
- 15) Create zipped coverage and shape files of all barrier data and make them available via the web.

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Life-stage Timing Data Outline

- A. Data description: General time of year that a particular life-stage and/or behavior of a specific species and run of fish occur in a specific geographic area (6th HUC or larger). Timing information is for wild, natural, and native salmonid populations.

Life-cycle types to be captured:

- Anadromous
- Non-Anadromous Fish
 - Resident
 - Fluvial
 - Adfluvial

- B. Life-stages to be captured:

1) Anadromous:

- Upstream Adult Migration
- Adult Holding
- Adult Spawning
- Egg Incubation through or Fry Emergence
- Juvenile Rearing
- Downstream Juvenile Migration

2) Non-Anadromous:

- Adult/Sub-Adult Rearing
- Adult Fluvial or Adfluvial Migration
- Adult Spawning
- Egg Incubation through Fry Emergence
- Juvenile Rearing
- Juvenile/ Sub-Adult Migration

- C. Fields (Attributes - not the actual names) - DRAFT

- Species
- Run
- SupercodeID (unique identifier representing multiple stream LLIDs)
- Supercode Description (text description of supercoded geographic area)
- HUC (4th Hydrological Unit Code)
- Basin name
- Life-stage timing activity
- Activity status
- Activity Intensity
- Month
- Month range (1st – 14th or 15th – end of the month)
- Comments
- StreamNet Library Reference number

D. Activity status categories:

- Likely No Use: Species of fish is currently not found within a geographic location.
- Not Applicable: Species of fish does not display a particular life-stage within a geographical location.
- None Observed: Species of fish has not been seen in geographic location but potential presence exists.
- Unknown: Life stage timing is unknown. Not enough information to speculate timing data.
- *Documented*
- *Undocumented: based on best professional judgment*

E. Activity intensity categories:

- Peak Use: (x% of this activity occurs in this period range)
- Lesser Use: (y% of this activity occurs in this period range)
- No intensity provided

Life-Stage Timing Data Compilation Protocol

(Including Documentation Procedures)

A. Data Capture Method:

Periodicity Tables: Tables are constructed in MS Excel work sheets using ODFW's In-Water Work Timing Guidelines to initially populate the tables (see Table 1).

B. General Compilation Steps:

- 1) Create draft periodicity tables using In-Water Work Timing Guidelines to delineate geographic separations and populate the tables with the inverse of the Timing Guidelines.
- 2) Schedule initial meeting with ODFW biologists, plan the species and areas to be compiled, and provide the criteria and definitions prior to the meeting.
- 3) Identify other potential data providers for the area and contact them to schedule individual meetings.
- 4) Conduct a literature review for documented timing observation references using readily available sources. *(Note: In an effort to minimize confusion, documentation records are not shown on the draft periodicity tables. This may change as data compilation moves forward)*
- 5) Assign all references a library reference number and submit a copy to the StreamNet Library.
- 6) Compile information of the known and suspected life-stage timing of all anadromous and resident salmonid species. This will be done through a series of individual meetings with data providers. Also, solicit additional documented observation information from data providers.
- 7) Arbitrate any disagreements between data providers. *(Note: if necessary, protocols will be developed specifically for timing-related arbitration.)*
- 8) Submit the complete periodicity tables to data providers for final review.
- 9) Correct errors, and if necessary, contact data providers to clarify discrepancies.
- 10) Finalize life-stage timing and documentation data and input data into the Life-stage Timing database in MS Access.
- 11) Finalize metadata for all life-stage timing and documentation data.
- 12) Relate tabular data to fish distribution data and delineate specific timing activities by life-stage by location.
- 13) Develop 8-1/2x11 images of each 4th field HUC showing life-stage timing activities on 100K streams, and make available via the web.
- 14) Create zipped coverage and shape files of all life stage timing data and make them available via the web.

(Note: Steps 12 - 14 will only be done if time and resources allow. Data may be made available following step 11.)

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Table 1. Example periodicity table for compilation of life-stage timing information. This example is for anadromous data capture.

Rock Creek (Giliam Co.) Anadromous Species

Life Stage/Activity/Species	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Upstream Adult Migration												
Summer Steelhead	X	X	X	X	X	X	X			X	X	X
Adult Holding												
Summer Steelhead			Likely no use									
Adult Spawning												
Summer Steelhead			X	X	X	X	X	X				
Egg Incubation Through Fry												
Emergence												
Summer Steelhead			X	X	X	X	X	X				
Juvenile Rearing												
Summer Steelhead	X	X	X	X	X	X	X	X	X	X	X	X
Downstream Juvenile Migration												
Summer Steelhead			X	X	X	X	X					

	Represents periods of peak use based on professional opinion.
	Represents lesser level of use based professional opinion
	Represents periods of presence-no level of use indicated
	Represents Document
	X203320
#203320- Stock Summary Reports for Columbia River	
Anadromous Salmonids	

Origin Data Outline

A. Data Descriptions:

- **Historic Origin:** The initial discovery or introduction of a given species and run of fish in a specific stream or area (i.e. how the species and run came to exist in an area originally).
- **Present Origin:** Current production activity or activities that are being employed to support or sustain a given species and run of fish in a specific stream or area.

B. Origin production categories: (**Draft** – will be defined by legal definitions and the delineation of data providers).

- Historic Origin:
 - Native
 - Non-native introduced
 - Native reintroduced
 - Non-native reintroduced
- Present Origin:
 - Native reproduction
 - Wild/Natural reproduction
 - Mixed (hatchery and non-hatchery) reproduction
 - Hatchery reproduction
 - Introduction (*Note: numerous types exist*)

C. Fields (Attributes - not the actual names) - Draft - data may be captured either as an additional attribute in the distribution data or as a separate attribute table listed below.

- Species
- Run
- LLID (unique stream identifier; captured for 100K streams only)
- Coordinates (for 24k streams)
- Waterbody name
- HUC (4th Hydrological Unit Code)
- Historic Origin
- Present Origin
- Year (year or date last revised)
- Comments
- StreamNet Library Reference number

Origin Data Compilation Protocol

(Including Documentation Procedures)

A. Data Capture Method:

Hardcopy Map & Mylar: Maps are produced using Digital Raster Graphic (DRG) representations of the USGS 7.5 minute quad maps. Clear plastic mylar is used to overlay the maps and origin information is captured directly on the mylar along with the distribution information.

Data Capture Tool: This approach relies on interfacing MS Access with ArcView. We will use this tool to project 7.5 minute quad map images (as well as other relevant datasets) onto a screen, and based on information provided by data contributors, capture the spatial component of the barrier data using ArcView and develop the attribute information within MS Access.

B. General Compilation Steps:

- 1) Prior to initial distribution data compilation meetings with ODFW biologists, provide the criteria and definitions associated with origin data compilation.
- 2) Identify other potential data providers for the area and contact them to schedule individual meetings.
- 3) Conduct a literature review for documented origin references using readily available sources. *(Note: In an effort to minimize confusion, origin information is not shown on the hardcopy distribution maps prior to in-person meetings. This may change as data compilation moves forward)*
- 4) Assign all references a library reference number and submit a copy to the StreamNet Library.
- 5) During distribution data compilation meetings, compile information on known and suspected origin information for all anadromous and resident salmonid species. Also, solicit additional documented barrier information from data providers.
- 6) Arbitrate any disagreements between data providers. *(Note: if necessary, protocols will be developed specifically for origin-related arbitration.)*
- 7) Transfer agreed upon barrier information from the mylar to the hardcopy map. Submit the hardcopy map to the GIS Coordinator for processing. *(Note: this step may not be necessary depending on how we use the Data Capture Tool)*
- 8) Using the Data Capture Tool, compare electronic data layers to mylars and note errors.
- 9) Correct errors, and if necessary, contact data providers to clarify discrepancies.
- 10) Finalize origin and documentation data.
- 11) Finalize metadata for all origin and documentation data.
- 12) Develop 8-1/2x11 images of each 4th field HUC showing 100K fish origin and make available via the web.
- 13) Create zipped coverage and shape files of all origin data and make them available via the web.

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