

# 1:24K Fish Habitat Distribution Development Project

## Procedures Manual

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# Project Overview

## **Introduction:**

The goal of this project is to develop consistent and comprehensive fish habitat distribution data for all salmonid species at a scale of 1:24,000. This distribution data will represent the known or probable presence of all salmonid species within the anadromous zones of Oregon. Data will be compiled from a variety of sources including resource agencies, tribal entities, watershed councils and other interested public or private groups. Similar projects have preceded this current effort. Prior to 1995, distribution data was available at the 1:250K scale through the Oregon Rivers Information System. Beginning in 1997, the Oregon Department of Fish and Wildlife (ODFW) compiled data using consistent criteria and definitions at the 1:100K scale. Data have been processed using this standard since that time, and is available for almost all areas containing anadromous salmonid species (data from the northeastern portion of the state still exists in the 1995-96 format).

ODFW's distribution data is likely the most comprehensive source of consistent distribution information available at the 1:100K scale simply because it crosses all municipal boundaries. However, the scale of this data is sometimes too general to ensure management actions target the most appropriate areas. The lack of consistent distribution data at a resolution finer than the 100K scale limits restoration, monitoring, and evaluation actions outlined by the Oregon Plan. This was one of the driving forces that lead to the inception of this effort.

Another major driver for this effort is the wide-spread need for this kind of information. Requests to ODFW field staff, as well as staff from other natural resource agencies for salmonid presence information often stem from specific legislative direction or new management activity. Other requests originate from activities carried out by local planning authorities, regulatory agencies, private groups, etc. who all need basic information on the location of salmonid species. These requests frequently require analysis at finer resolutions than the 1:100K scale provides. Although management activities are unique in many respects, the need for distribution data is universal. Without a single comprehensive database, each evaluation of fish distribution is conducted using inconsistent standards dictated by immediate and/or local needs. It is our hope that by creating a single data set designed for multiple users and uses, the result will be a common foundation from which future management efforts may begin.

## **Overview of the Data:**

The target species for this project are Chinook, Coho, Steelhead, Chum, Sockeye (where known to occur), resident Rainbow, Redband, and Bull Trout. If additional funds become available, resident and sea-run cutthroat data will also be compiled. Where possible, seasonal runs (spring, summer, fall, and winter) for native, wild, natural, and hatchery fish will be distinguished.

Adult migration barrier data will also be captured in order to bring ODFW's current data to a more comprehensive, and therefore more useful level. This effort will include both natural and man-made structures (or conditions) that impede the upstream migration of adult fish.

Documented fish observations will be collected to support the fish habitat distribution data as well as documentation for all other data types being compiled. Written information that contain specific pieces of information related to the data type being compiled will be considered suitable documentation .

Origin and present production information will be captured along with fish habitat distribution information. This will allow users of the data to detect potential genetic changes or mixing over time.

Life stage timing data will be collected for each target salmonid species, but will also include cutthroat. This data tracks the 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.

## 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 will be based on documented observation or best professional judgement.”

### A. 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 (4<sup>th</sup> Hydrological Unit Code)
- Use-type (Distribution types)
- Quality rating
- Year (year or date last revised)
- Comments
- Source Name
- Source Agency
- StreamNet Library Reference number

### B. Distribution types (use-types):

- Spawning and Rearing: defined as areas where eggs are deposited and fertilized, where gravel emergence occurs, and where at least some juvenile development occurs.
- Rearing and Migration: defined as areas outside primary spawning habitats where juvenile fish take up residence during some stage of juvenile development and utilize the area for feeding, shelter, and growth. Some migration also occurs as juvenile and adult fish move between the ocean and spawning areas.
- Migration only: defined as areas where juvenile and/or adult fish pass through as they move between the ocean and spawning and rearing areas. While all migratory corridors provide some rearing opportunities, areas with this designation are distinguished by fish moving through fairly quickly making contributions to juvenile rearing insignificant.
- Previous/Historic: defined as areas of suitable habitat that fish no longer access and will not access in the foreseeable future without human intervention.

- Present (use-type mixed or use-type unknown) :defined as areas where a species occurs and utilizes the habitat but the use is mixed or unknown.
- Unknown: defined as areas where no information exists to confirm or refute the existence and use of a particular species.
- Absent: A stream reach will show as “absent of fish” under two different scenarios:
  - Absent Criteria 1: Based on the data providers' judgement, fish can't access the area now and they never have as far as can be determined.
  - Absent Criteria 2: Following a Fish Presence Survey-like effort where the end of fish use was established and comments were provided that indicate the habitat above is not suitable, and there's no documented proof that the habitat above that endpoint is suitable for fish use (and never has been), the stream reach will be labeled as "absent" of fish habitat.

*See Expanded criteria for applying the "Absent" distribution type*

- Disputed: Area in which two or more data provider can not agree about a species distribution.

**See the *Dispute Resolution Decision Tree and Conditions for Disputing Previously Established Distribution Type Designations for more information***

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

**C. Quality rating (or data provider confidence level) for non-documented distribution:**

*Note: this is rating the presence of the fish, not what the fish are doing (the use-type).*

- 1** Present based on undocumented professional observation: Areas where data providers have observed the species in question, or know of other professionals who have observed the species in question, but the observation was not recorded in a manner that allows it to be used as distribution data documentation.
- 2** Present based on strong professional opinion: Areas where data providers believe the species in question is present, but where they had not been specifically surveyed. This classification is usually based on geographically similar information. (i.e. data from neighboring streams strongly supports presence in the stream in question).
- 3** Present based on modest professional opinion: Areas where data providers believe the species in question is present, because there is nothing to suggest the species shouldn't be present. This classification is not based on geographically similar information (i.e. there is no data from neighboring streams to support or refute presence).

## **Expanded criteria for applying the "Absent" distribution type:**

The "**Absent**" distribution data type will be applied when the following conditions occur:

### **Condition #1:**

The habitat (suitable or not) is above a complete fish passage barrier (based on professional judgement) which prevents access by fish. Typically, habitat above man-made barriers that could realistically be augmented or removed to pass fish would not fall into this category,  
AND  
there is nothing to suggest fish accessed that habitat in the past (present day to pre-European settlement).

*Plain English: Based on the data providers' judgement, fish can't access the area now and they never have as far as can be determined.*

OR

### **Condition #2:**

The area has been surveyed within the past five reproductive cycles (for the species in question) using an adopted survey protocol designed to establish the upper extent of fish use and specific information indicates that the habitat above that endpoint is not suitable for fish,  
AND  
there is nothing to suggest fish accessed that habitat in the past (present day to pre-European settlement),  
AND  
the habitat has not been evaluated and deemed suitable for fish use by any other method.

*Plain English: Following a Fish Presence Survey-like effort where the end of fish use was established and comments were provided that indicate the habitat above is not suitable, and there's no documented proof that the habitat above that endpoint is suitable for fish use (and never has been), the area should be labeled as "absent" of fish habitat.*

***NOTE: If the species was thought to have occupied the area previously (based on professional judgement), but has not been observed or documented, the habitat should be categorized as "Previous/Historic".***

***If the Fish Presence Survey-like effort does not specifically indicate that the habitat is not suitable, and there's no knowledge about past use, the habitat should be categorized as "unknown".***

## Procedure for Updating Distribution

### Preparation Steps:

- 1) Prepare a contact list for your area. Include staff from agencies/entities such as ODFW, Bureau of Land Management (BLM), U.S. Forest Service (USFS), U.S. Fish and Wildlife Service (USFWS), Oregon Department of Forestry (ODF), Native Tribes, Watershed Councils, and private industrial landowners that may have information pertinent to this project.
- 2) Contact by phone the person who can best provide the information for each agency/entity in the area where you are compiling data.
  - Contact the data provider. Briefly explain project goals and describe what information is needed and give an approximate amount of time that needs to be set aside.
  - Meet with the first data provider available. Whenever possible, meet with ODFW District staff first.
  - Make clear that, if at all possible, meetings must take place on the agreed upon date since the date of future meetings will closely follow the conclusion of the initial meeting.
  - Ask each data provider for names of other knowledgeable sources who should be interviewed.
  - Be clear that the meeting will require adequate space for several 36"x28" maps to be laid out.
  - Let the ODFW data provider know that you will be spending approximately 5 days in their office. Let them know 90% of the time will be spent updating distribution and life stage timing with them directly. The remaining 10% of the time will be spent locating and reviewing documentation and updating current documentation data. The rest of the data providers (USFS, BLM, est.) can expect the meeting take 2 to 3 days.
  - Acquire appropriate physical or email address at which to send a follow up contact letter. Refer to page 19 for the contributor letter.
  - After meeting date is set, send contact letter iterating project goals and methods used during meeting.
- 3) Organize maps by species by hydrologic unit (HUC) starting at the mouth working up to the headwaters prior to the meeting.
  - Allow Data Provider to choose a species with which to start. If there is no preference choose on for them.



## **Updating distribution with Data Providers**

- Procedure of interviewing data providers during initial data compilation :
  - 1) Teams will be made up of two people. Decide who will be the interviewer and who will be the notetaker.
  - 2) Present 24K scale maps with Duralar overlay.
  - 3) On the Duralar, trace the map corners (for easy future alignment), and write the quad numbers, date, and species being mapped . Refer to page
  - 4) Put the 1<sup>st</sup> data provider's name and affiliation in upper right corner and assign letters alphabetically to names of sequential editors downward.  
Example: A- Joe Provider, ODFW District Bio- Corvallis 6/01/01  
B- Joanne Provider BLM District Bio- Corvallis 6/12/01  
C- Jim Provider Weyerhaeuser Corp.- Springfield 6/13/01  
D- Jane Provider ODF Philomath- 6/14/01  
E- Jack Provider Watershed Coordinator 6/15/01
  - 5) Explain or review (whichever is appropriate) Use types and quality ratings for professional judgment decisions (provide *Legend* if necessary).
  - 6) Explain any data that may already exist on the map (100K data, known documentation of presence, etc.) and on the Duralar (other data provider's notes).
  - 7) Add origin/present production at the bottom of the Duralar for each sub-basin. If a map contains more than one subbasin use black pen to trace the subbasin lines in order to separate them, and write the appropriate information in the corner corresponding to the appropriate subbasin.
  - 8) Allow the data provider to begin adding distribution data on the Duralar. As he/she is drawing, the interviewer is to make note (in black) of the letter code (assigned to the data provider) and confidence level of the data provider doing the updating (refer to pages 45-50 for sequential examples)
    - Note taker is to make detailed notes of data provider's comments as he/she is explaining the nature of the change, including any areas of dispute.
  
- Reviewing the data provider's updates/additions when all meetings are completed:
  - 1) Organize all distribution (maps & Duralar) data, keeping all the information from one area together. Make sure that all distribution data adheres to the prescribed format.
  - 2) Make a final visit to the ODFW District staffer who performed the initial review, point out changes/additions/disputes and make sure they with the new information. .
  - 3) Arbitrate any disagreements between data providers using the established 'Dispute Resolution Decision Tree and reach agreement upon a final view of the maps.
  - 4) Transfer all information from the Duralar 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*).
  - 5) Using the Data Capture Tool, compare the processed electronic data layers to the Duralar and hardcopy maps, and note any errors.
  - 6) Correct errors, and if necessary, contact data providers to clarify discrepancies.
  - 7) Finalize the distribution data.

## Barrier Data Outline

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

B. Barrier Types

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

\*If a ladder or fishway exists along with a barrier, it will be denoted with an “L”

C. 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 should be 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.

\*\*\*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 Data Outline

## Fish Habitat Distribution Documentation:

- A. Data Description: Written information describing the observed life stage and/or behavior of a given species and run (if available) 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.
8. Name of person or people who verified or collected the data.

- B. Categories and requirements:

Full documentation: a written account of an observation providing “desired content” items 1 – 6.

Gray documentation: a written account of an observation providing “desired content” items 1 – 4

Documented unseen: a written account that there were no fish seen during a presence absence survey.

- 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 (4<sup>th</sup> Hydrological Unit Code)
- Documentation extent (see definitions below)
- Year (of observation)
- Date (of observation)
- Comments
- StreamNet Library reference number
- Documentation Matrix (Quality Control )

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 (for mouth of estuary or bay)  
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 but information is not descriptive enough to determine the exact location (i.e. above Johnson's bridge).

**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.
- **Origin Documentation:** written information describing the initial discovery or introduction of a given species and run of fish in a specific stream or area.
- **Present Production 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.

## Documentation Matrix

**The documentation matrix is a quality control feature for any fish distribution document gathered. The following codes are used:**

- 1) **A** Survey with protocol with QA/QC, by a professional (ex. Research)
- 2) **B** Survey with protocol with no QA/QC by a professional (ex ODFW, ODF, BLM, etc.)
- 3) **B** Survey with protocol with QA/QC supervised by a professional
- 4) **B** Casual observation made by a professional and documented
- 5) **C** Survey without protocol with QA/QC supervised by a professional
- 6) **C** Casual observation made by a non-professional (with training) and documented
- 7) **D** Casual observation made by a non-professional (without training) and documented (i.e. “Anecdotal observation”)

If unknown it goes down one level or all the way down to a “D”

## 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 (generally 6<sup>th</sup> field HUC or larger). Biologists will give professional opinion of activity intensity percentages for all salmonids.

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. 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

D. Activity intensity categories:

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

### Life-stage Timing Data (Periodicity) Table

Rock Creek (Giliam Co.) Anadromous Species

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

		Represents 90% of the periods of peak use based on professional opinion.
		Represents 10% of use based professional opinion
		Represents periods of presence-no level of use indicated
	X	Represents Document
#203320- Stock Summary Reports for Columbia River Anadromous Salmonids		



## Origin Data Outline

For each basin, data providers will be asked what the historic origin is for each stock, and how each stock is presently being sustained (referred to as present production). Origin data will be captured at the sub-basin level (i.e. North Fork Nehalem).

### E. Data Descriptions:

- **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 Production:** 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 within the past five reproductive cycles.

### F. Origin and Present Production categories:

#### Origin: (how the initial population came to exist within the subbasin):

- **Native:** indigenous species that were present within the subbasin prior to European settlement.
- **Non-native introduced:** Any species introduced to an area where it did not exist historically.
- **Native reintroduced:** A species from within the subbasin that has repopulated an area within the subbasin that has become void of that species.
- **Non-native reintroduced:** the original stock within the subbasin was extirpated, but non-native fish (fish from outside the subbasin) were introduced to re-establish the historic distribution.

#### • Present Production (the means by which the population is currently sustained):

- **Native production:** natural reproduction of the species that was present prior to European settlement (the indigenous species).
- **Wild/Natural production:** natural reproduction of indigenous and non-indigenous species.
- **Mixed (Hatchery and non-hatchery) production:** reproduction from a mix of hatchery, native, introduced, and/or wild/natural populations.
- **Hatchery production:** Production is the result of fish being propagated in a hatchery and released into the wild.
- **Introduced production:** Production is the result of routine introductions of a species with no fish returning and naturally reproducing.

## Work Supplies List

- ◆ 1:24K scale quad maps of target areas with existing 1:100K distribution, barriers, and documentation information displayed.
- ◆ BLM and ODFW maps (where available, these maps indicate areas where BLM and ODFW have similarities and differences between distribution datasets)
- ◆ Card board, leather, or vinyl map portfolios
- ◆ 0.05” thick Duralar cut to size of the hardcopy maps.
- ◆ Permanent markers. One color for each of the life stages as well as black .
- ◆ Laptop computer with necessary software
  - Commercial - WinZip, Arc View 3.2, MS Access 97, Excel, and Word.
  - Custom Developed - Data Capture Tool, TopoScout, and EventMapper
  - Reference Library (24K Database)
- ◆ Paper notepad
- ◆ Pens and pencils
- ◆ Day Planner or calendar
- ◆ Report of operations form
- ◆ Cell phone
- ◆ Paper clamps
- ◆ ODFW uniform
- ◆ Extension cord
- ◆ Rubbing alcohol for cleaning the Duralar
- ◆ Quad map index
- ◆ Vehicle
- ◆ Legends (Bio and compiler, pages 23-26)
- ◆ Magnifying glass for map features that are difficult to see
- ◆ Straps for securing portfolios

## Data Contributor Letter

To Data Provider:

ODFW's Natural Resources Information Management Program (NRIMP), in conjunction with the Governor's Natural Resources Office, the StreamNet Project, and the Oregon Watershed Enhancement Board, is currently working on a project to compile fish habitat distribution data at the 1:24,000 scale. At this time, our effort is targeted within the anadromous zones of Oregon (e.g. coastal and Columbia River watersheds). Information will be captured for all salmonids except cutthroat – no funding was provided to include cutthroat at this time. In addition to fish habitat distribution data, we are also compiling life-stage timing, passage barrier, and species origin and present production information, along with any written documentation related to these kinds of data. The goal of this effort is to develop a consistent and comprehensive database of fish habitat distribution and related information.

Over the next several months, NRIMP staff will be visiting ODFW District Offices as well as other agencies and organizations to collect information on current and potential fish habitat distribution. Data providers will be asked to review our existing information (displayed on 7.5 minute quad maps) and add, remove, or modify this information as necessary using a consistent set of criteria and definitions. Changes will be captured on plastic sheets (called Duralar) overlaid onto pre-printed maps, and may be based on either written documentation or professional opinion. If possible we would prefer to obtain copies of any written documentation that is used. Barriers to fish migration and species origin (at a basin or sub basin scale) will also be captured onto the Duralar. Life-stage timing information will be captured on periodicity tables (see attached example) by species and run. The scale of the timing information will depend upon the uniqueness of the run timing within a species and run.

To adequately capture this information, we request a meeting place with enough space to lie out several 36"x28" maps. If you have other maps that may prove helpful in the effort, we encourage you to bring them to the meeting. Given the complexity and diversity of information we are trying to compile, we ask that you anticipate spending up to 4-6 days with us (depending on the size of your area of responsibility). We understand that it may be difficult to spend that length of time with us so we will try to work in 2-3 consecutive day segments for approximately 6 hours a day.

Definitions of distribution use-types, as well as examples of the various data types and a sample map are included in this packet. These may be helpful in familiarizing yourself with what to expect during the meetings and may help to move the data capture process along more quickly.

If you have any questions or concerns, please contact Michael Hogansen, (Assistant Project Leader) at 541-757-4263 ext. 247 (office) or 541-602-5914 (cell), or email your questions/comments to [michael.hogansen@orst.edu](mailto:michael.hogansen@orst.edu).

We look forward to meeting with you and thank you in advance for your contributions to this project.

## Data Compiler Notation Key

(All notes to be taken with small black sharpie)

- = Use straight lines to denote breaks in data provider opinions and/or confidence levels.
- A, B, C = Data provider letter indicator.  
(“A” is usually the ODFW District Biologist; others are added sequentially in the order they perform edits.)
- 1, 2, 3 = Confidence level to accompany all letter indication for non-documented opinion.
- 1 = Present based on undocumented professional observation
  - 2 = Present based on strong professional opinion.
  - 3 = Present based on modest professional opinion

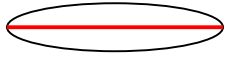
Circle all letter/number combinations- i.e.

C3

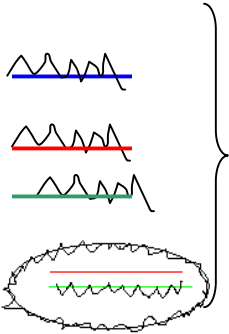
- △ = Indicates a barrier (must be accompanied by letter code and height if applicable)
- D = Dam\*\*
- F = Falls\*\*
- C = Culvert
- H = Hatchery structure\*\*
- N = Natural (debris jam, land slide, etc.)
- G = Gradient
- O = Other- specify on Duralar (Insufficient flow, Temperature, Tide gate, Water diversion, etc.)

\*\*When a Ladder or Fish way exists along with a barrier must be noted with an “L”

## Data Compiler Notation Key (con't)



= Circle areas of dispute until resolved.



= Cross out previous data when agreement has been reached between data providers.

## Data Provider Legend for 24K Map Notation

(Provide to data providers as needed)

### Confidence Levels:

**1** = Present based on Undocumented professional Observation. Areas where data providers have observed the species in question, or know of other professionals who have observed the species in question, but the observation was not recorded in a manner that allows it to be used as distribution data documentation.

**2** = Present based on Strong professional Opinion. Areas where data providers feel the species in question is present, but where they had not been specifically surveyed, will be included in this category. This classification is usually based on geographically similar information. (i.e. data from neighboring streams strongly supports presence in the stream in question).

**3** = Present based on Modest professional Opinion. Areas where data providers feel the species in question is present, because there is nothing to suggest the species shouldn't be present, will be included in this category. This classification is not based on geographically similar information (i.e. there is no data from neighboring streams to support or refute presence).

### Color Codes For Updating Distribution Use-Types:

Red Line----- = Spawning and Rearing areas

Green Line----- = Migration and Rearing

Yellow Line----- = Migration

Purple line----- = Previous/ Historic (present prior to the last five generations, no use within that time period)

Blue Line----- = Unknown (presence is not known)

Brown Line----- = Absent (see supplemental description)

Orange Line----- = Present (where use-type is mixed or unknown)

## **Questions to ask data provider during interview**

- 1) For each addition, what is your level of confidence about the distribution that you have described? (Interviewer writes in with black pen and circles it)
- 2) Are you aware of on-the-ground observation data or information that supports the distribution you have described? (Find out where to get documentation)
- 3) Are you aware of any partial or complete barriers/blockages that might impede the distribution of the species in question? (Get documentation if available)
- 4) Are you aware of the origin of the fish (historic, hatchery, etc.) within the sub-basin? If origin is defined, make sure note taker gets detailed information to add as a footnote for each sub-basin.
- 5) Are you aware of any other helpful and credible sources who might be able to contribute data?

## Use-Types, Origin and Production Legend

### Use-Type Definitions:

**1 = Spawning and Rearing** is defined as areas where eggs are deposited and fertilized, where gravel emergence occurs, and where at least some juvenile development occurs. These areas are displayed in red on the maps.

**2 = Rearing and Migration** is defined as areas outside primary spawning habitats where juvenile fish take up residence during some stage of juvenile development and utilize the area for feeding, shelter, and growth. Some migration also occurs as juvenile and adult fish move between the ocean and spawning areas. These areas are displayed in green on the maps.

**3 = Migration** is defined as areas where juvenile and/or adult fish pass through as they move between the ocean and spawning and rearing areas. While all migratory corridors provide some rearing opportunities, areas with this designation are distinguished by fish moving through fairly quickly making contributions to juvenile rearing insignificant. These areas are displayed in yellow on the maps.

**4= Previous/Historic** ODFW's representation of current species distribution will be defined as "Areas of suitable habitat that fish no longer access and will not access in the foreseeable future without human intervention".

**5= Present:** is indicated where a specific use type cannot be specified.

**6= Absent** is defined as areas that currently have no fish use. These areas will only be above a documented barrier and no-fish seen above documented data points provided by ODF presence absence surveys.

### Origin: (how the initial population came to exist within the subbasin):

- **Native:** indigenous species that were present within the subbasin prior to European settlement.
- **Non-native introduced:** Any species introduced to an area where it did not exist historically.
- **Native reintroduced:** A species from within the subbasin that has repopulated an area within the subbasin that has become void of that species.
- **Non-native reintroduced:** the original stock within the subbasin was extirpated, but non-native fish (fish from outside the subbasin) were introduced to re-establish the historic distribution

### • Present Production (the means by which the population is currently sustained):

- **Native production:** natural reproduction of the species that was present prior to European settlement (the indigenous species).
- **Wild/Natural production:** natural reproduction of indigenous and non-indigenous species.



- **Mixed (Hatchery and non-hatchery) production:** reproduction from a mix of hatchery, native, introduced, and/or wild/natural populations.
- **Hatchery production:** Production is the result of fish being propagated in a hatchery and released into the wild.
- **Introduced production:** Production is the result of routine introductions of a species with no fish returning and naturally reproducing.

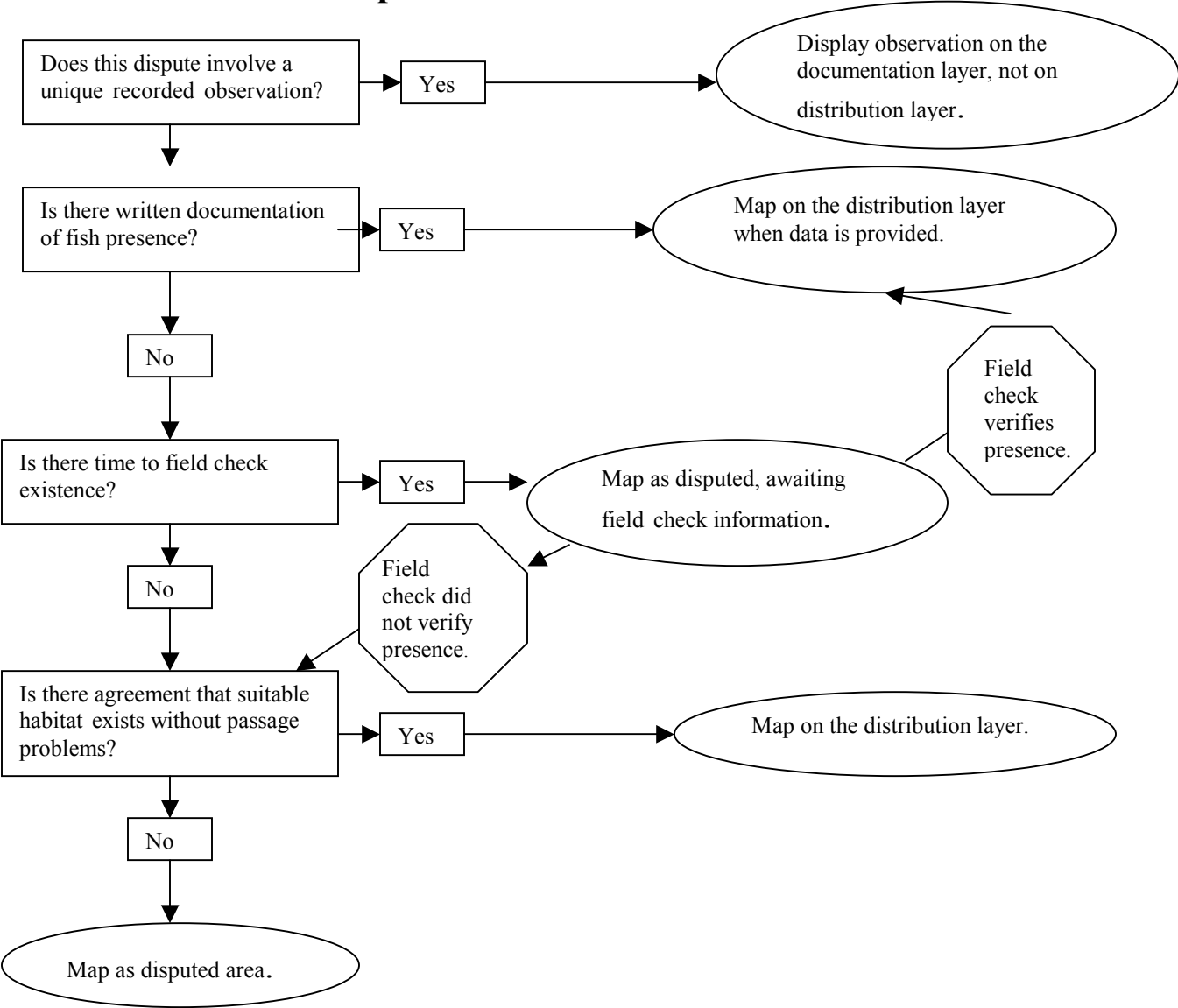
## **Origin and Present Production Data Legend**

Note data providers' comments on origin of fish stocks throughout interview. Specific details on historical events effecting genetic stock of run are important and they should be noted. However, since the data is to be captured at the sub-basin level, don't spend too much time on specifics. Get a summary of origin for each species at the sub-basin level and attach notes on a separate page and attach to the distribution maps.

Important attributes of Origin and Present production data:

1. Keep each species/run combination separate.
2. Overview provided of the entire sub-basin and attached to distribution maps
3. Make note of hatcheries, special projects, and other things that would influence origin of fish stocks in the sub basin.
4. Enter origin data into MS Word and file along with distribution notes for each sub-basin.

# Dispute Resolution Decision Tree



## Conditions for Disputing Previously Established Distribution Type Designations

As with all distribution types, areas where consensus cannot be reached between data providers (after using our disagreement resolution protocol) will be designated as "**Disputed**" until someone can provide evidence that another designation is warranted. Data providers are not bound by previously established distribution types if they have just-cause to believe that the previously established distribution type is in error. If field reconnaissance plays a role in the justification, the month (or season) and year should also be provided, with documentation, if it exists.

In the case of Fish Presence Surveys, where actual data exists indicating the end of fish use, the habitat above an established 'end of fish use' location can be labeled as having suitable habitat upstream (spawning, rearing, migrating, previous/historic, etc.) if the habitat has been observed and sufficient justification can be provided. If the FPS data does not speak to the suitability of the habitat for fish use and there is no other information available, the habitat should be categorized as 'unknown'. If a dispute arises, the justification of the disputing parties will be clearly documented in the comment field in the database. Examples of sufficient justification include (but are not limited to):

The data provider placing suitable habitat above the established 'end of fish use' location:

- Has done a field reconnaissance of the reach in question and observed fish and/or habitat.
- Has done a field reconnaissance of the reach in question and there's no discernable change in habitat quality for a distance beyond the endpoint.
- Has done a field reconnaissance of the reach and the downstream migration reach and identified suitable habitat without downstream barriers.
- Has done a field reconnaissance of the reach and identified suitable habitat with only man-made or man-caused (anthropogenic) barriers downstream.
- Does not trust the results of a prior survey because of lack of confidence in the field crew's work performance (Note: must be explicit as to why this is so).
- Did not have sufficient time to review the FPS or other data sheets to adequately assess the validity of the 'end of fish use' location. (Note: If this justification is used, the area in question would be designated unknown until the data provider reviews the FPS data and either agrees with the absent designation or goes out and looks at the habitat and determines that one of the other justifications is applicable. This review must be done before the distribution update work is complete in the hydrologic unit - if it is not, the distribution type will remain as it was prior to this project.)
- Other: \_\_\_\_\_
- Other: \_\_\_\_\_
- Other: \_\_\_\_\_
- Other: \_\_\_\_\_

This list can, and likely will be expanded as the project moves forward

Specific conditions pertaining to FPS surveys: It has been agreed that if 'undocumented' or "undetected" habitat is placed above an established 'end of fish use' location (as determined by

FPS protocol), the 'end of fish use' location would still be maintained on FPS maps and used for forest practice related activities. This will be maintained until an actual fish observation is made above the established 'end of fish use' location.

## **Time management tips for interviewing Data Providers**

- 1) Before meeting with data providers be clear about what amount of time you need.
- 2) Clarify that we will need an appropriate space to conduct the interviews. Our maps are approximately 36"x28" in size. A large table with plenty of room around the table for easy movement will be needed.
- 3) Keep meetings to a length that doesn't exceed the attention span of each specific data provider. This increases the odds of collecting the best information in the most efficient manner.
- 4) Keep data providers on track, minimizing time spent on side discussions and anecdotal stories .
- 5) Schedule distribution mapping days as consecutively as possible to collect consistent data.
- 6) If at all possible, don't let the data providers back out of meetings. Express the value of a completed project and stick to your guns.
- 7) Have all your materials thoroughly prepared to avoid any frustration for the data provider, keep the meeting as smooth as possible.
- 8) If the data provider is very familiar with the area and can add distribution without having to work sequentially through the maps, allow them to do so. Be sure to point out any streams that may have been overlooked

## Guidelines for Note takers

1. Take as many notes as possible!
2. Start a new page for each species, data provider, or meeting.
3. Indicate which quad number for which you're taking notes.
4. Separate each creek's notes by listing a title then make notation below until the data provider moves on to a new creek.
5. Note explanations of barriers, disputes, and special conditions.
6. Record the name, date, and situation in which the observation was made for undocumented observations.
7. Provide information on which notes are associated with documentation and provide document name.
8. Keep notes organized in folders for each sub-basin.
9. Enter the notes in MS Word while your memory of the context is still fresh.
10. Note discrepancies on names of creeks with an asterisk.
11. Provide notes to data entry person in outline form as described below.

### Format for notes

**Date:** June 1, 2001

**Data Provider Name, Status, and Affiliation:** Russ Stauff

**Interviewer(s):** John Interviewer and Jill Interviewer

**Sub-basin:** Rogue River

**Species and Run:** Spring Chinook

**Origin:** Native

**Present Production:** Mixed

#### **Quad #: 01234567 Gold Beach**

Rogue River/ Lobster Creek                      Extend spawning up to culvert barrier at mouth of NF  
Lobster Cr.

Rogue River/ Lobster Creek/ Miller Creek:                      Spawning up to 3<sup>rd</sup> unnamed trib on right  
bank

## Checklist for each sub-basin

For each sub-basin, complete checklist and comment area for each species completed

### First Priority (must be done before handing in completed maps)

- All maps are complete with format outlined in training manual.
- Attached notes are complete to note specific information with each stream.
- All helpful contributors have been interviewed:
  - ODFW District Biologist \_\_\_\_\_
  - ODF Biologist \_\_\_\_\_
  - Federal Biologist \_\_\_\_\_
  - Watershed Coordinator \_\_\_\_\_
  - Tribal Biologist \_\_\_\_\_
  - Private Corporate Biologist \_\_\_\_\_
  - Other \_\_\_\_\_
  - Other \_\_\_\_\_
  - Other \_\_\_\_\_
  - Other \_\_\_\_\_
  - Other \_\_\_\_\_
- Final interview with ODFW Biologist complete.
- Notes have been entered into MS Word format.
- Life stage timing data has been compiled and agreed on by all data providers.
- Genetic Origin data has been compiled from all data providers.
- Barrier data has been compiled from all data providers.
- For areas of dispute, data providers with differences of opinion have been contacted and disputes resolved. (Make clear notes on disputes below)

**Notes: Comment on any specific area of dispute, incomplete, or unclear data**



## Glossary

### **General:**

**Absent:** Is defined as areas that currently have no fish use. These areas will only be above a documented barrier or no-fish seen above documented data points provided by ODF presence absence surveys.

**Adfluvial:** Populations that generally migrate between smaller streams used for spawning and juvenile rearing and lakes or reservoirs used for adult rearing.

**Adult Fluvial or Adfluvial Migration:** the time in which adults move between adult rearing areas to natal spawning areas.

**Adult Holding:** a natural interruption of migration while waiting for appropriate physiological and/or environmental conditions which causes them to move.

**Anadromous:** Populations that migrate from salt water to fresh water to spawn

**Adult Spawning:** the time in which eggs are being deposited into redds and fertilized.

**Adult/Sub-Adult Rearing:** General time that fish are present for the purposes of feeding and self-preservation.

**Currently:** (as applies to fish runs)= existing in the area outlined within the past five reproductive cycles.

**Current Distribution Identification Criteria:** ODFW's representation of current species distribution will be defined as, "Areas of suitable habitat currently believed to be utilized by wild, natural, and/or hatchery fish populations". Areas displayed may not be utilized by a species of fish on an annual basis due to natural variations in run size, water conditions, and other environmental factors.

**Documentation:** any 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.

**Downstream Juvenile Migration:** the time in which juveniles are actively moving downstream with the purpose of getting out of the system and to the ocean.

**Egg Incubation through or Fry Emergence:** the period from the time the eggs are deposited in the gravel to the time when the yolk sack is fully absorbed and the fry are out or up from the gravel into the free-flowing water column.

**Fish habitat distribution:** Areas of suitable habitat currently believed to be utilized by wild, natural, and/or hatchery fish populations.

**Fluvial:** Populations that generally migrate between smaller streams used for spawning and early juvenile rearing and larger rivers used for adult rearing.

**Full Documentation:** any written information that contains: Name of the body of water, Date of the observation, Species and run observed, Number and/or type (or unit) of observations, Distance of the observed area, and Exact location of the observation.

**Gray Documentation:** any written information containing at least the first four criteria of full documentation as above.

**Hatchery reproduction:** Fish propagated in a hatchery and released into the wild.

**Historic Origin:** How the initial population came to exist within the subbasin

**Introduced production:** Production resulting from the routine introduction of a species.

**Juvenile Rearing:** the time juvenile fish spend feeding in nursery areas of rivers, lakes and streams prior to migration or establishment of residence.

**Juvenile/ Sub-Adult Migration:** the time in which juveniles are actively moving with the purpose of getting to adult rearing areas. Not applicable for resident populations.

**Mixed (hatchery and non-hatchery) reproduction:** Hatchery, native, and/or Wild/Natural populations that have successfully reproduced in the wild.

**Native:** indigenous species that were present within the subbasin prior to European settlement.

**Native reintroduced:** A species native to the basin that has repopulated a specific area or subbasin

**Native reproduction:** indigenous species present prior to European settlement successfully reproducing in the wild

**Non-Anadromous Fish:** Populations that don't migrate from salt water to fresh water to spawn. This includes resident, adfluvial and fluvial populations.

**Non-native introduced:** Any species introduced to an area where it did not exist historically

**Non-native reintroduced:** original stock within the subbasin went extinct, but non-natives (from outside the basin) were introduced to re-establish stock distribution.

**O. Mykiss:** Juvenile populations that cannot be discerned between steelhead or resident rainbow.

**Present Production:** Means by which the population is currently sustained

**Previous/Historic Distribution Identification Criteria:** ODFW's representation of previous or historic species distribution will be defined as, "Areas of suitable habitat that no longer access and will not access in the foreseeable future without human intervention".

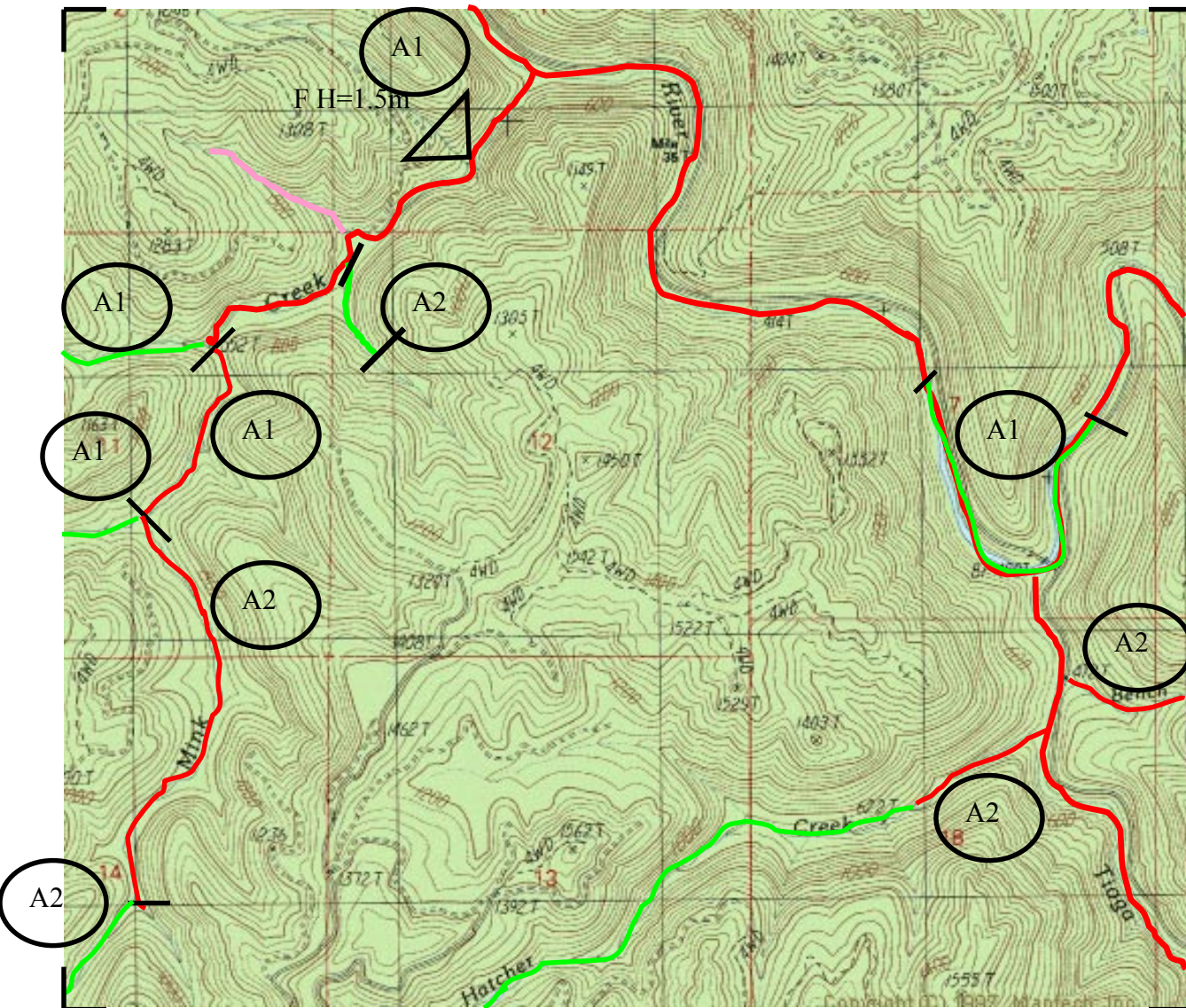
**Resident:** Populations that confine their migration within their natural stream or watershed.

**Upstream Adult Migration:** the time in which adults and/or jacks move between the ocean or adult holding areas and natal spawning areas.

**Wild/Natural reproduction:** Native and Wild/Natural populations that have successfully reproduced in the wild.

# Coho

A= Mike Gray  
ODFW DB  
5/12/01



## Quad name

- = BLM Modeled Spawning and Rearing habitat
  - = Spawning and Rearing Habitat
  - = Rearing and Migration Habitat
  - = Breaks in Data Provider opinion or confidence
  - △ = Barrier
- |   |   |                    |
|---|---|--------------------|
| D | = | Dam                |
| F | = | Falls              |
| C | = | Culvert            |
| H | = | hatchery structure |
| G | = | Gradient           |
| N | = | Natural            |
| O | = | Other              |

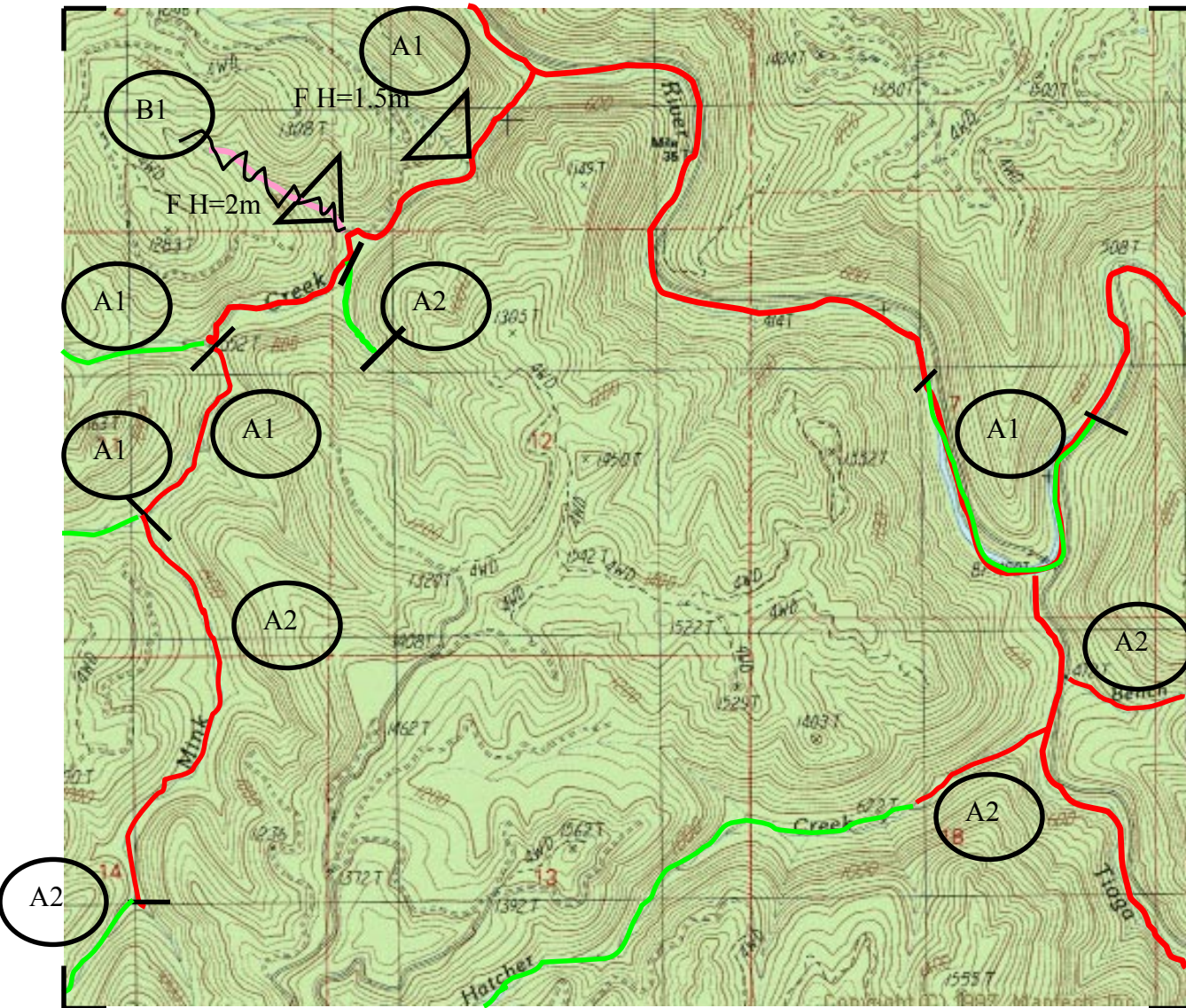
1= Present based on undocumented professional observation

2= Present based on strong professional opinion

3= Present based on modest professional opinion

**Coho**

A= Mike Gray  
ODFW DB  
5/12/01  
B= Bill Hudson  
BLM DB  
5/13/01

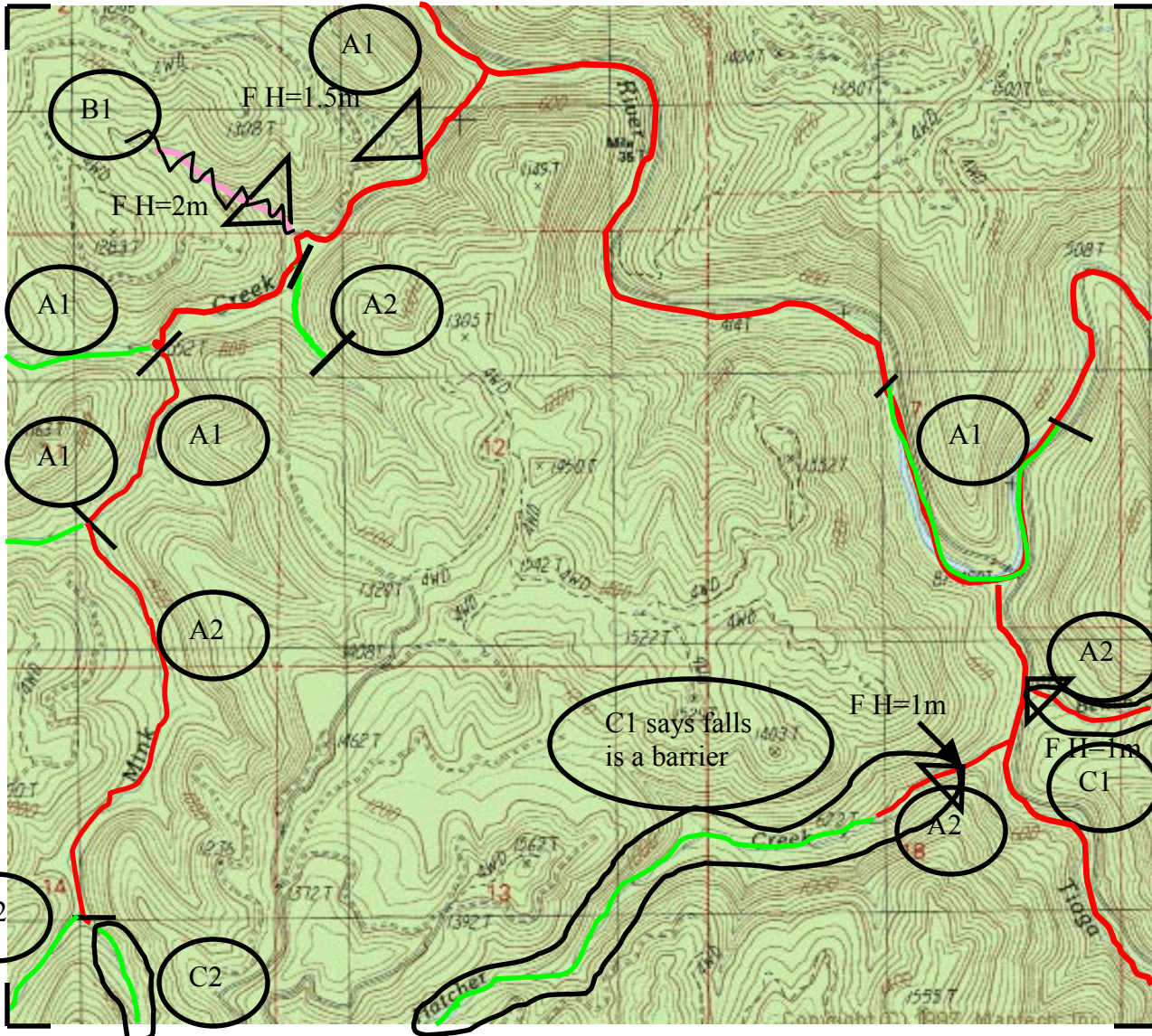


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# Coho



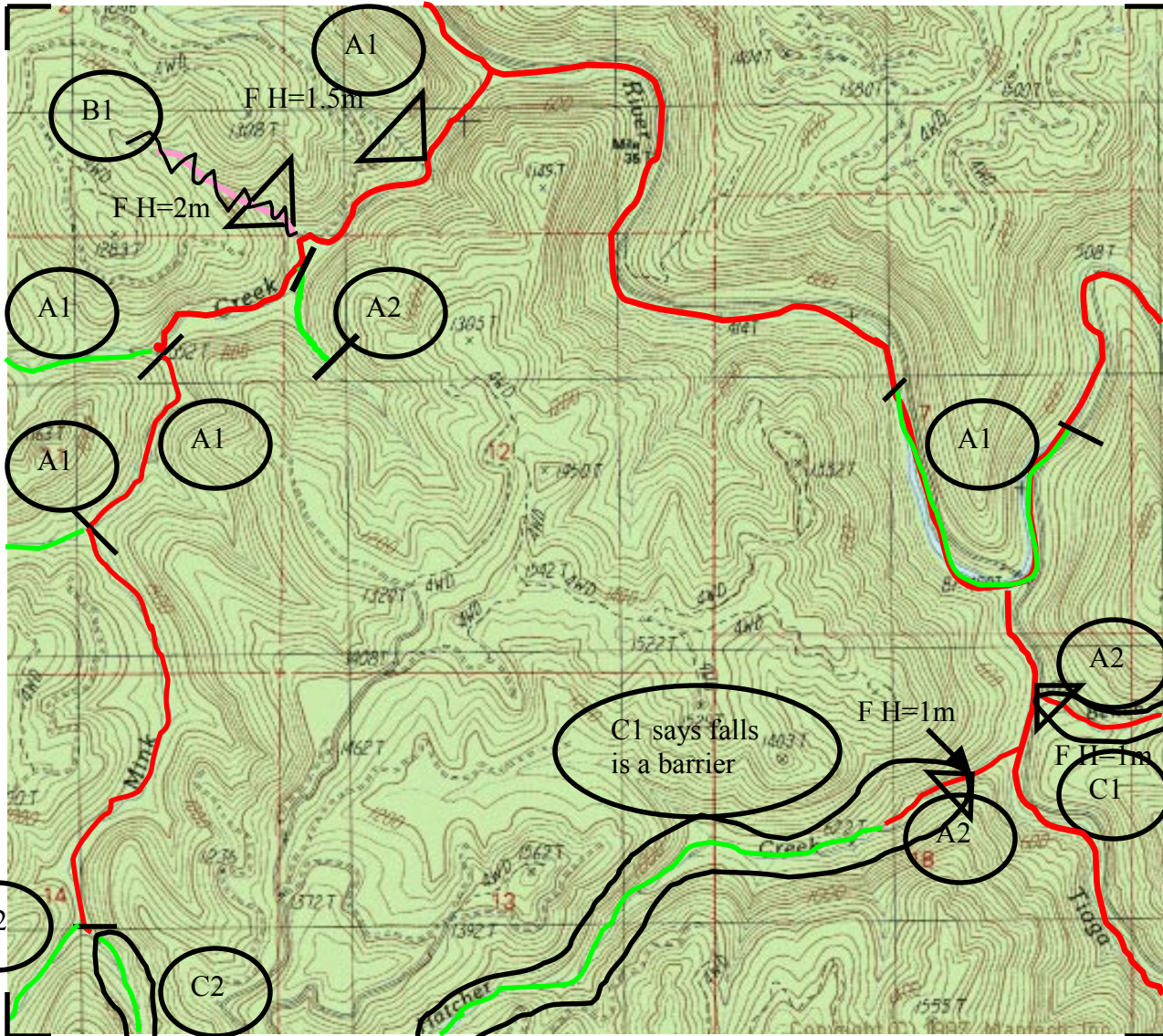
A= Mike Gray  
ODFW DB  
5/12/01  
B= Bill Hudson  
BLM DB  
5/13/01  
C= Brian Riggers  
ODFW Corvallis  
5/15/01

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# Coho



- A= Mike Gray  
ODFW DB  
5/12/01
- B= Bill Hudson  
BLM DB  
5/13/01
- C= Brian Riggers  
ODFW Corvallis  
5/15/01
- D= Jim Clark  
Weyco Bio  
5/20/01

## Quad name

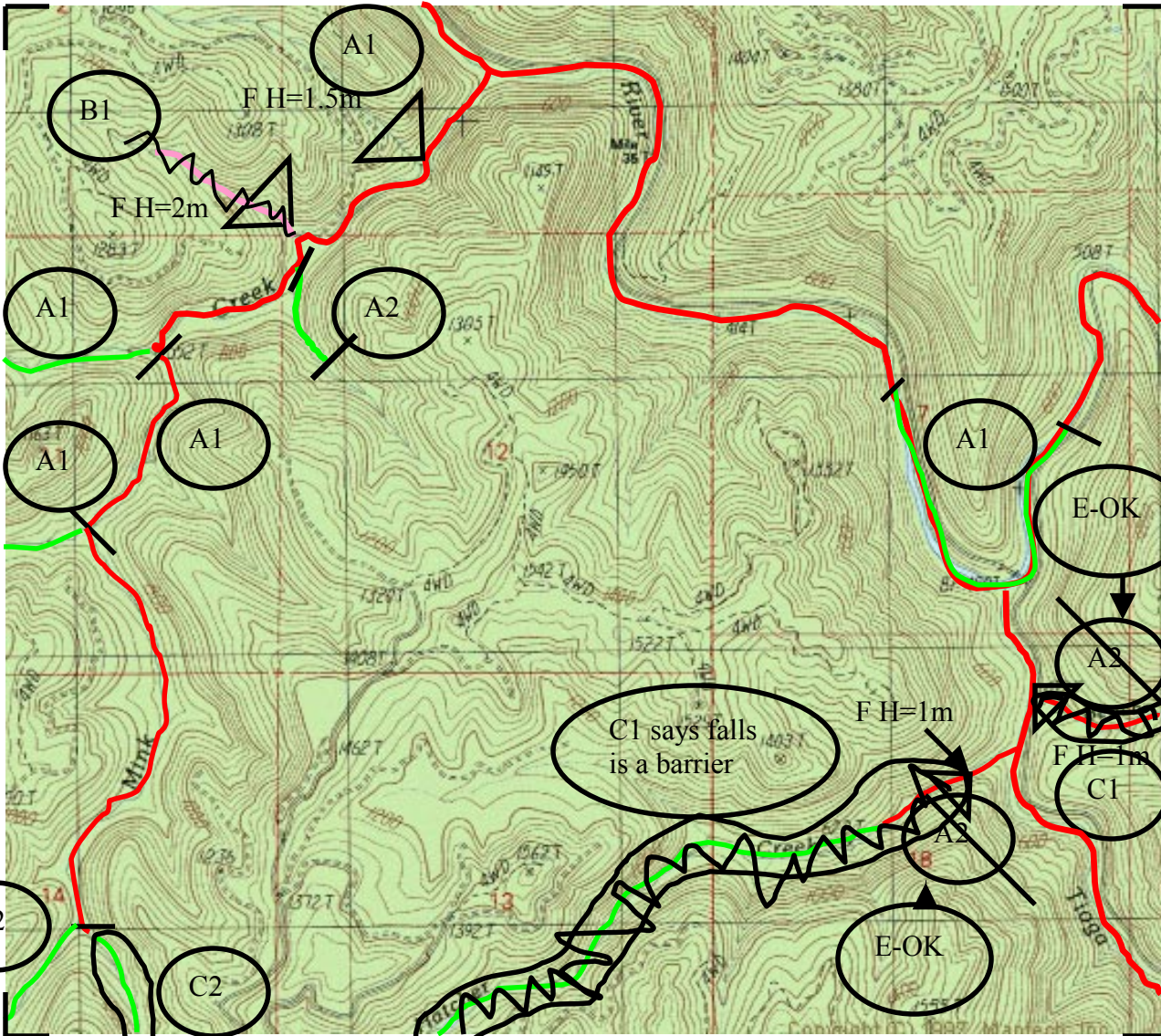
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- 3= Present based on modest professional opinion

D1 says no habitat

C1 says falls is a barrier

# Coho



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ODFW DB  
5/12/01
- B= Bill Hudson  
BLM DB  
5/13/01
- C= Brian Riggers  
ODFW Corvallis  
5/15/01
- D= Jim Clark  
Weyco Bio  
5/20/01
- E= Mike Gray  
ODFW DB  
6/07/01

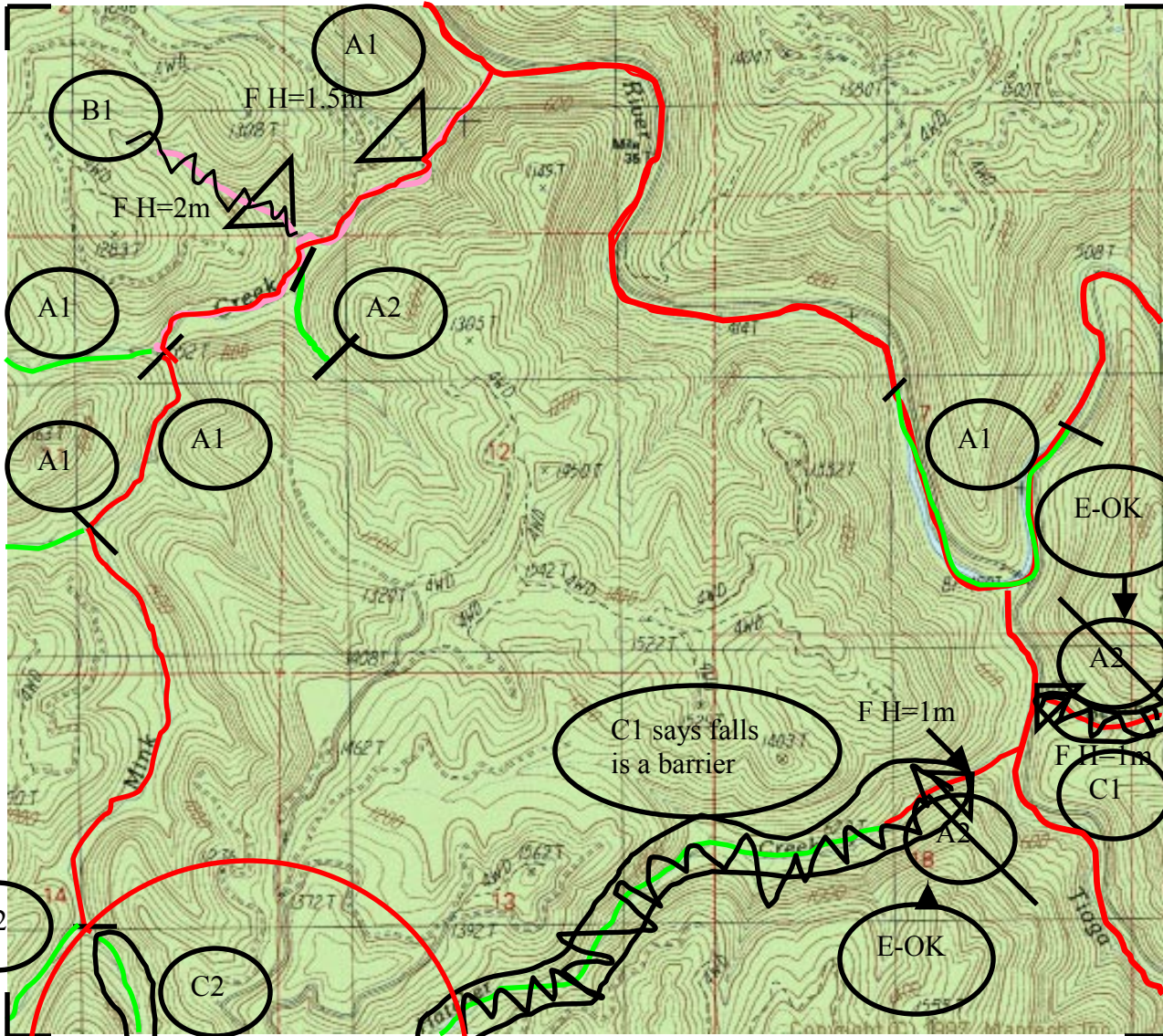
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# Coho



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Still Disputed