Component II
Historical Conditions Assessment

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Component II
Historical Conditions Assessment

INTRODUCTION

Historical information can provide clues to the status of the watershed around the time of European exploration/settlement, and to how conditions have changed through time. A great variety and abundance of historical information exists, including museums, agency archives, literature, and oral histories. It is important to focus the search of historical materials to emphasize issues that relate to landscape conditions, aquatic/riparian habitat, fish populations, and water quality. Issues to be explored through investigation of historical information include settlement patterns, direct impacts to the stream channels, riparian vegetation patterns and change, natural and human-caused disturbance such as floods and fire, fish presence and distribution, and resource use through time.

Critical Questions

1. What were the characteristics of the watershed's resources at the time of European exploration/settlement?

2. What are the historical trends and locations of land use and other management impacts in the watershed?

3. What are the historical accounts of fish populations and distribution?

4. Where are the locations of historic floodplain, riparian area, channel, and wetland modifications, and what was the type and extent of the disturbance?

Assumptions

- Historical accounts provide clues that can be used to develop an understanding of the condition of key watershed resources before settlement.

- Some historic land use, management, and in-channel activities have changed the quality and/or quantity of aquatic habitat resources from European settlement conditions.

Materials Needed

- 7.5-minute US Geological Survey (USGS) topographic maps of the watershed (from Start-Up and Identification of Watershed Issues component)

- Project base map or Mylar overlay the size of the base map (from Start-Up and Identification of Watershed Issues component)

- Sharp pencil, colored pencils, thin permanent markers (optional: colored adhesive dots)

- USGS topographic map symbols (from Start-Up and Identification of Watershed Issues component)

- Historical data and information from many sources (see Step 1: Gather Existing Information, below)

- A map wheel (or an engineer's ruler with inches marked in 10ths so you can easily enter measurements into a calculator will work if you measure carefully)

Necessary Skills

Uncovering historical accounts and documents about a watershed requires a lot of detective work. The minimum skills necessary to produce a historical condition report include: (1) the ability and desire to search for and compile information from a variety of information sources and individuals, and (2) the ability to summarize information in a report format. The ability to use aerial photographs will help you accomplish this task, but is not required.

Final Products of the Historic Conditions Component

The final product will be a concise report on your watershed's historical conditions that includes the following seven components:

1. A descriptive historical narrative

2. Historical conditions time line

3. Historical information referenced by stream/subwatershed location

4. Historical Channel and Riparian Modification Inventory (from Form HC-1) and Map

5. A summary of historical information and trends, and conclusions on impacts on aquatic/riparian resources

6. A comprehensive listing of the sources of information

7. Confidence Evaluation (Form HC-2)

Appendix II-A provides a suggested outline of the historical condition report. Note that the Historical Channel and Riparian Modification Inventory will be carried over to the Channel Modification Assessment component to help produce a comprehensive picture of the channel modifications that may be impacting aquatic resources. The current degree of impact from the historical channel modifications will be determined in that assessment. As a result, it is important that these tasks are coordinated; you are encouraged to read the Channel Modification Assessment component before beginning the investigation of historical conditions.

METHODS

Step 1: Gather Existing Information

Begin assembling and investigating historical information from a variety of sources. It is impossible to list all of the sources of historical information for a watershed; the following information sources

are good starting points. Places to look for such information include local historical societies; city, state, and university libraries; government agencies and their archives; and so on.

- Old maps
  - explorers' sketches
  - old timber cruise maps
- Landscape photographs
- Aerial photographs
- Accounts from literature
  - local and state history books
  - newspaper accounts
  - scientific journals and other studies
  - published oral histories
- Historical archives and museums
- Oral history interviews
  - long-time watershed residents
  - resource agency personnel
- County, state, and federal agency reports/databases
  - General Land Office survey records
  - US Army Corps of Engineers snag removal records
  - fish hatchery records
  - fish catch records
  - navigability reports
  - fish counts at dams and other passage facilities
  - stream habitat surveys
  - spawning surveys
  - stream channel-obstruction reports
  - tax records

Step 2: Complete a Descriptive Historical Narrative

This section weaves together a "story" of the watershed. The historical narrative begins by describing the status of your watershed's resources from the time of the earliest recorded accounts, and traces land use changes, fish populations, and resource management of the watershed through time. It is important to use a variety of information sources to construct this history, including historical documents and interviews with agency personnel and long-time watershed residents. Begin by reviewing written literature and agency reports on a watershed, then proceed to interviews. Reviewing the written materials first will provide a context for historical information that will help you frame questions for the interview process.

There is usually a wealth of historical information available for any watershed. As a result, it is important to focus the scope of the investigation on information that provides clues on impacts to riparian/aquatic systems, including issues that have impacted water quality, fish habitat, and changes in fish abundance.

General information on landscape conditions at the time of exploration/settlement (for example, vegetation patterns, fire history, and wildlife sightings) provides a context, then can be used when interpreting land use development and management impacts through time. The description of presettlement conditions should emphasize vegetation patterns, Native American use, presence and abundance of fish and wildlife species, fish habitat, and natural disturbance patterns. The description of historical land use patterns and trends should focus on settlement patterns and resource management through time. Appendix II-B provides an example of historical information used to construct a narrative.

Step 3: Complete Historical Conditions Time Line

The historical conditions time line provides a chronological list of natural and human-caused events that have helped shape the watershed. The historical narrative will help you determine the events that should be included in the time line. Appendix II-C provides an example of a historical conditions time line.

Step 4: Organize Historical Information by Subwatershed

Describing the specific location of historical observations provides a way to interpret the location, extent, and intensity of habitat modifications through time. Historical literature (especially agency reports such as habitat surveys), resident interviews, and photographs can provide locations of floodplain, riparian, channel, and wetland habitats, as well as land use modifications.

Organize the relevant historical information by each subwatershed (or tributary stream) within the larger watershed analysis area. You can produce a table that organizes observations for a specific subwatershed within four categories: (1) vegetation/wildlife patterns, (2) patterns of settlement and agricultural practices, (3) stream channel/riparian habitat, (4) fish species and abundance, (5) water quality information, and (6) other observations. Appendix II-D provides an example of an approach for organizing the historical observations.

Step 5: Map Historical Channel and Riparian Modifications

The collected and summarized historical information is used to map and categorize historical channel and riparian vegetation modifications. The objective of the mapping is to capture historical activities that impacted the watershed's habitat, especially actions that continue to influence stream channels and riparian vegetation. Historical channel modifications include activities such as channelization and dikes, removal of large wood, splash dams, and other activities that can impact the quality of channel habitat. (See the Watershed Fundamentals component of this manual for more on activities that impact streams.) Historical activities that could impact riparian vegetation include roads and railroads along streams, agricultural practices, logging, old homesteads, and grazing.

The following steps apply to mapping historical channel and riparian modifications.

- Use the historical assessment, especially information generated about the subwatersheds, to determine the locations of documented channel and riparian impacts.

- Create a map legend with symbols (or pen colors) to represent each type of impact (large wood cleaning, areas with dikes, dam sites, logging railroads, homesteads, etc.).

- Map different types of impacts using different techniques. For example, map small features in one location (an old dam or homestead, for example) with an X or brightly colored dot; map linear features (impacts from large wood removal or roads, for example) in or along the stream channel with a colored marking pen.

- Draw each modification site or area onto the Historical Channel and Riparian Modification Map using the appropriate number from the Historical Channel and Riparian Modification Inventory (Form HC-1), which contains information about the activity. Where more than one modification activity overlaps, draw both mapping symbols. Where you are unsure of the exact beginning or end of a feature, put a question mark at the beginning and/or end of the map symbol.

- Label each historical channel and riparian modification/disturbance site with a number. Fill out the first three columns on the Historical Channel and Riparian Modification Inventory (Form HC-1) for each site.

- Sign and date the map.

Step 6: Complete Summary and Conclusions

In this section you will briefly summarize the key findings, emphasizing historical conditions at the time of exploration/settlement and change through time. The conclusions should concentrate on historical factors that have modified channel habitat and are limiting current watershed conditions, especially in floodplains, riparian areas, and wetlands.

Step 7: Document Sources of Information

It is important to document where you obtained your historical information, including interviews. Reference every statement you make and cite the source of the information at the end of the historical assessment report. Reference sources of information on channel impacts on the Historical Channel Modification Inventory form.

Step 8: Evaluate Confidence in the Assessment

You can evaluate the strength of your historical channel and riparian modification mapping by considering the resources used, whether resources reached similar conclusions, and so on. Form HC-2 provides criteria for the evaluation. If the type or quality of information used to map the fish distributions differs significantly from area to area, fill out one form for each general area. If the type or quality of information used to map historical channel and riparian modifications in the watershed differs significantly from area to area, fill out a form that evaluates each general area.

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University of Oregon Map Library, http://libweb.uoregon.edu/map/ This online library has a number of historical maps and aerial photographs, including a cartobibliography of United States Geological Survey Topographic Maps of Oregon, 1889 to the present.

Appendix II-A
Outline of the Historical Conditions Report

APPENDIX II-A: OUTLINE OF THE HISTORICAL CONDITIONS REPORT

1. Descriptive historical narrative for the watershed
    A. Watershed resources at the time of exploration/settlement
        1. Vegetation
        2. Native American uses (fire, etc.)
        3. Presence and abundance of fish species
        4. Fish habitat
        5. Natural disturbance patterns (e.g., fire and floods)
    B. Historical settlement, land use, and resource management patterns and trends
        1. Settlement patterns and development: rural and urban
        2. Roads
        3. Dikes
        4. Logging practices
        5. Agriculture
        6. Urbanization
        7. Grazing
        8. Mining
        9. Water use, diversions (withdrawals, dams, etc.)
        10. Fisheries exploitation
        11. Changes in disturbance patterns (e.g., fire)
        12. Fish hatcheries and production records

2. Historical conditions time line

3. Historical information referenced by stream/subwatershed location
    A. Channel/riparian habitat
    B. Observations of fish species and abundance
    C. Water quality information
    D. Other observations

4. Map of historical channel and riparian modifications

5. Summary and conclusions
    A. Summary of presettlement historical conditions and change
    B. Conclusions about historical conditions that are currently impacting channels/riparian vegetation and other watershed resources

6. Sources of information

Appendix II-B
A Historical Conditions Narrative for a Watershed

APPENDIX II-B: A HISTORICAL CONDITIONS NARRATIVE FOR A WATERSHED

Watershed Resources at the Time of Exploration/Settlement

Vegetation: One account in 1885 stated: "The amount of green timber is small…the devastating fire of several years ago…destroyed many square miles of timber leaving a forest of dead trees…These defunct monarchs of the forest are now rapidly decaying and disappearing, and as they go…"

Fish Species and Abundance: Fishing records from the early 1900s suggest that the Yaquina Basin coho salmon run may have been in the 20,000–30,000 range, and the chinook salmon run was over 10,000 fish (ODFW 1991).

Fish Habitat: Beavers were probably historically numerous in the tributary streams, which would have created pool, backwater, and wetland habitats. Although there are no recorded accounts of beaver activity from the 1800s, interviews with watershed residents provide clues that beavers were once more abundant, especially in the lower portions of key tributaries.

Natural Disturbance Patterns: There is evidence that, historically, the Oregon Coast Range experienced infrequent forest fires that covered large areas. On August 25, 1849, Lieutenant Theodore Talbot reported from the central Coast Range that: "The mountains were enveloped with such a dense mass of smoke, occasioned by some large fires to the south of us, that we could see but little of the surrounding country. These fires are of frequent occurrence in the forests of Oregon, raging with violence for months, until quelled by continued rains of the winter season…" (Lincoln County Historical Society 1980, p. 3).

Floods: There are a number of recorded accounts of flooding in the Yaquina Watershed. Major floods were noted in 1889-1890, 1911, 1921, 1964, and 1996.

Settlement History and Management Trends

Summary: Since the period of settlement in the 1870s, lowland forests and areas along the streams have been cleared for homes, agriculture, and grazing.

Logging: Big Elk Creek provided a convenient method for moving logs to the mill sites: "The logs would slide down [the hill] into the river or river bottom. Sometimes they would build chutes at the bottom of the hill leading to the river, and when the logs slid to the bottom of the hill, they would hit the chute and slide into the river…After they got the logs in the river they would raft them down to the mill…" (Hodges 1978, p. 218).

Fishing, Hatcheries, and Fish Population Trends: Commercial fishing for coho salmon in the Yaquina Basin began in the 1880s (ODFW 1991). Gillnets were the most common gear used in the river between Elk City and the mouth. It is estimated that in 1908 nearly 26,000 coho salmon were canned (ODFW 1991).

Appendix II-C
A Historical Conditions Time Line for a Watershed in Oregon

APPENDIX II-C: A HISTORICAL CONDITIONS TIME LINE FOR A WATERSHED IN OREGON

(From the Weyerhaeuser Co.'s South Fork of the Coos River Watershed Analysis 1998.)

Coos Indians

1853	Pioneers arrive
1853-1884	"Rowboat" Pioneers clear "woodsy-bottoms"
1874	Earliest log drive documented
1880s	Smith Basin logging with bull teams
1890	Big flood with snow
1891-1917	US Army Corps of Engineers blast boulders and remove snags
1897	Fish hatchery established
1900s	Scowboats, ferries, and steamers
1909	Flood year
1910	½-mile channel blasted from McKnights Landing to Salmon Creek
1900s	Summer homes built
1909	Flood year
1924 & 1932	Coos River ice-bound
1942	Lower splash dam built
1943	Tioga splash dam built
1945	Flood year
1954	Flood year
1955	Flood year
1957	Splash dams removed

Appendix II-D
Organization of Historical Information on Watershed Resources by Subwatershed Locations

APPENDIX II-D: ORGANIZATION OF HISTORICAL INFORMATION ON WATERSHED RESOURCES BY SUBWATERSHED LOCATIONS

Subwatershed	Channel/Riparian Habitat	Fish Species and Abundance	Water Quality	Other Observations
Beaver Creek	1950 stream habitat survey report: A commercial fisherman on Yaquina River reported…logging on Beaver Creek…left the stream badly jammed…[He] stated that Beaver Creek was a good salmon producing stream…[The stream was surveyed.] The bottom is composed mostly of clay and mud with a few small patches of gravel…Three impassible obstructions [were noted] (OR Fish Comm.) 1953 stream habitat survey report of the lower 3.5 miles: In this lower part the water is brownish colored and the bottom is badly silted in the pools. The upper part of the stream appears to have good spawning areas of fine gravel (OR Fish Comm.)	1991 ODFW Fish Management Plan: Spawning chum salmon observed in some years (p. 8) 1953 stream habitat survey report: A resident living about 1.5 miles up Beaver Creek stated that large fish resembling silver salmon were seen…Silver and trout fry were quite abundant near the mouth even though visibility in the colored water was poor. Silver fry present to end of survey. (OR Fish Comm.)	68/July @ 1:45 and Lower tributaries at mouth: 56ºF @ 3:00 53ºF @ 3:50 57ºF @ 3:55 (OR Fish Comm. 1953)	[Before the logger] moves from this area he should be required to clean up the stream in the area of his logging operation. The three impassable obstructions…must be removed…The remaining slash and debris should be removed to bring the area into full production. Although this stream is not considered to be a good salmon stream in this section, it is only by utilizing all possible spawning areas of every stream that the runs of salmon can be maintained at a high level (OR Fish Comm. 1950) [The logger] responsible for debris in the [lower portion of Beaver Creek] should be made to clean up this mess while they are still logging the area (OR Fish Comm. 1953) (Mapped Channel Modification)
Bull Creek	1953 stream habitat survey report of the lower 1.25 miles: A farmer living near the mouth…says that it is primarily a silver stream, with very few other fish entering it. He says the stream often goes dry just above the mouth during the summer, but there is plenty of water this year. From the mouth upstream for about 0.5 mile the stream [has a] good cover of alders. Above this the stream opens out into a broad meadow of 0.25 mile with some willows growing along the stream. Beyond the meadow…alders again cover the stream (OR Fish Comm.)	1953 stream habitat survey report of the lower 1.25 miles: Silver fry were seen in small numbers the entire length of survey…(OR Fish Comm.)	56/July @ 11:45 and 53ºF @ 12:25 above tributary (OR Fish Comm. 1953)	

Appendix II-E
Blank Forms

Form HC-1: Historical Channel and Riparian Modification Inventory

Watershed: **Page_____of_____**

Name: **Date:**

Site No.	Historical Channel and Riparian Modification Activity Description	Data/Information Source	Channel Habitat Type	Channel Length (mi)

Form HC-2: Historical Channel and Riparian Modifications Confidence Evaluation

Watershed: **Form # ____ of _____**

Area, sub-basin:

Name of mapper(s):

Technical expertise or relevant experience:

Confidence in historical channel and riparian modification mapping:

☐ **Low to moderate:** Used one source of historical information; unsure of the credibility

☐ **Moderate:** Used several sources of historical information that reach the same conclusion

☐ **Moderate to high:** Used source of information from agency records or from other trained observers; multiple sources of historical information that reach the same conclusion

☐ **High:** Used source of information from agency records or from other trained observers with documented quality control; or multiple sources of historical information that reach the same conclusion and photographic documentation

☐ **If none of the above** categories above fits, describe your own confidence level and rationale: