

Pacific Northwest Rivers Study

Assessment Guidelines: Oregon

State of Idaho
State of Montana
State of Oregon
State of Washington

NW Indian Tribes

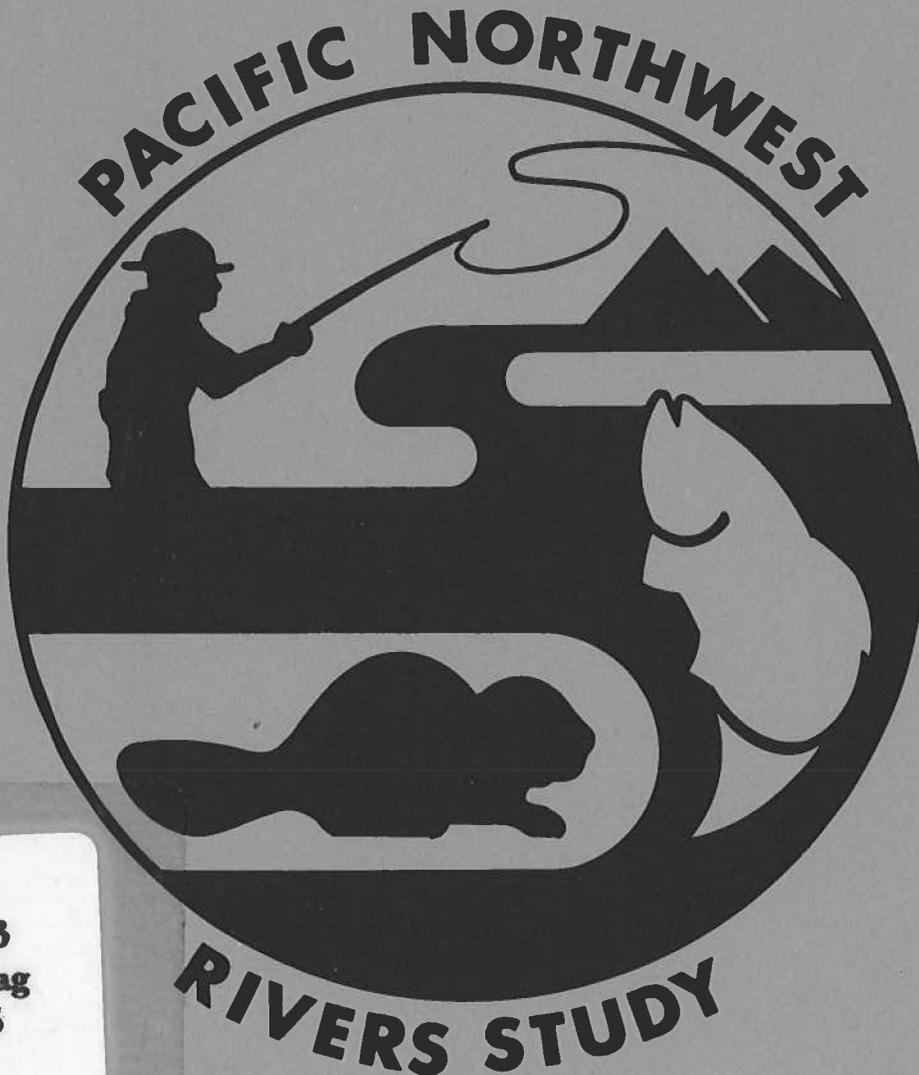
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PACIFIC NORTHWEST RIVERS STUDY ASSESSMENT GUIDELINES

OREGON

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The Rivers Study staff extends special thanks to Mr. Drew Parkin and Mr. J. Glenn Eugster of the National Park Service's Mid-Atlantic Region for their help and professional guidance. It has been the key to the success of the Pacific Northwest Rivers Study.

PACIFIC NORTHWEST RIVERS STUDY ASSESSMENT GUIDELINES
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CHAPTER 1

OVERVIEW

Introduction

This document presents the process that the state, Federal agencies, and Indian tribes will follow to complete the Pacific Northwest Rivers Study (Rivers Study). It identifies assessment guidelines for each river resource category, provides reporting formats for data collection and presentation, and describes expected results and applications.

Agency Considerations

In order to effectively respond to existing policies and programs as well as to reflect differences in river character, data availability, and public concerns, the study has been organized into four state level studies. State, Federal, Tribal, and interest group participants will conduct the assessment using state boundaries as the geographical framework.

It is not the intent of the study to circumvent the management responsibilities of any state, Federal agency, or Indian tribe. The study is a cooperative planning effort which will benefit all participants. Results do not constitute official policy and by themselves imply no specific action by any participant.

Time Schedule and Products

The Rivers Study is an 18-24 month effort by the 4 northwest states, Federal agencies, and the Tribes. Funding of approximately 1.0 million dollars is being provided by the Bonneville Power Administration (BPA). Concurrently, the Northwest Power Planning Council (NPPC or Council) will provide \$540,000 to evaluate anadromous fish resources and Indian cultural/archeological values. Rivers Study activities and goals, budgets, and time schedules are listed in the September 1984 Pacific Northwest Rivers Study Plan available from BPA.

Applications

The Rivers Study will produce a consistent and verifiable river resource data base. While this information may have utility for a variety of applications, the specific purpose of the project is to identify resource considerations which might have a bearing on hydropower development. The ultimate objective is to use this information to identify areas where minimal impact can be anticipated and thus where development might be appropriate. The study responds to the expressed need for resource information for the following:

1. Energy Supply Forecasting - NPPC and BPA
2. Protected Areas - NPPC: 1984 Columbia River Basin Fish and Wildlife Program §1204(c)(1).
3. Site Ranking - NPPC: Northwest Conservation and Electric Power Plan §14.2.

CHAPTER 2

RIVER ASSESSMENT PROCESS

Process

The major objective of the process is to identify the significance of river segments and systems for natural, cultural, and recreational resource categories. Comparative assessment is a major feature of this process. The process does not, however, result in rivers being ranked in numerical order. Rather, it clusters stream reaches into groups according to their relative resource significance.

The study is not an inventory or data collection exercise. The focus is on evaluation by recognized resource experts. The effort will rely on existing information and expertise with field survey kept to a minimum. Study conclusions will ultimately be the responsibility of these resource specialists. The states, Tribes, and Federal agencies will be represented in the evaluation process commensurate with their legal authorities and management responsibilities.

The following is a detailed description of the assessment process.

Step 1: Identification of fish, wildlife, natural, recreational, cultural, and institutional river resource categories.

Categories were chosen to: 1) accurately reflect the overall value of rivers and streams as natural resources; 2) reflect the interests of various public agencies and private interest groups; 3) acknowledge the resource responsibilities of the Tribes, states, and Federal agencies; and 4) reflect the priorities of the Pacific Northwest Electric Power Planning and Conservation Act [(Regional Act) P.L. 96-501]. Tribal cultural and archeological values will be included through a NPPC contract, as will regional anadromous fish values. Tribal participation in determining other river values will be through state level studies.

A "senior resource expert" and cooperating experts have been designated in each state to oversee activities related to each specific resource category. Cooperating experts will provide input into the assessment through the senior resource expert. This manual in Chapters 4-9 describes the methods to be used in the state level effort.

Step 2: Inventory of Existing Information and Identification of Experts

Each state task force has inventoried the availability of expertise and information in each of the six resource categories. Agencies, groups, individuals, or other sources possessing useful data or with the capacity to produce useful data within the study period were identified, including key contact person(s). A list of resource experts is included as Appendix A.

Step 3: Evaluation Criteria and Standards Development

For each river resource category, regional staff and senior resource experts have identified minimum standards and criteria by which data will be evaluated. These were subsequently adapted to meet the needs of each

format will likely be used as the mechanism for displaying this information. The matrix will identify the total number of resource values associated with each river segment and system and will indicate significance ratings. Ultimately, this information will be incorporated into a computerized data management system. The specific format of this system is to be determined. For purposes of information synthesis, river segments will likely be defined using the following guidelines:

1. Where a river possesses a combination of overlapping values, the outer boundaries of the overlapping values determines the boundary of the segment.
2. A tributary stream which flows into, and is connected to, a larger river area generally is included in the larger river segment description if the tributary stream: a) possesses natural, cultural, or recreational values consistent with those of the main river area, and b) significantly enhances the overall value of the larger river segment's resources. The specific mechanism for entering data on tributary streams is to be determined.
3. A tributary stream with natural, cultural, or recreational values greater than those of a connecting main river area is listed separately.
4. Larger connecting rivers may be listed as tributaries to a river system in certain unique situations, e.g., where: a) the rivers are free flowing and within an undeveloped watershed, and b) the rivers in the watershed exhibit a high degree of hydrological and ecological interdependence.

Step 7: Composite Resource Value Evaluation (Optional)

Using information obtained through this process, it is possible to conduct a composite resource value evaluation. The objective would be to determine overall resource significance of segments and systems and to achieve a sense of agreement between interests as to these findings. This step is optional following completion of the Rivers Study and will not be funded by BPA as part of the current effort.

Composite value findings can give an indication of multiple public values and can thus guide the Council, the states, the Tribes, and Federal agencies in setting priorities. If such an effort is undertaken, it should be structured so as to not diminish the individual category findings derived in Step 4 as they relate to programs directed at specific resource categories.

Step 8: Documentation and Presentation

The study's findings will be documented and graphic presentations of data prepared. Detailed state by state reports and a summary regionwide report will be prepared. A special effort will be made to document the significance of reaches and systems found to possess high and/or unique resource values, as well as those reaches reflecting the priorities of the Regional Act. Statutory recognition (Wild and Scenic Rivers, National Parks, inclusion in Wilderness Areas, etc.) will be included. The final report prepared by regional staff with state, Tribal, and agency assistance will include identification of potential protected areas, narrative descriptions, tabular information, and maps which depict and document the comparative significance of resources for each value category.

CHAPTER 3

METHODOLOGY GUIDELINES

Criteria and Standards

The following chapters identify the assessment guidelines to be followed in conducting the Rivers Study. They were originally derived from the Maine Rivers Study, the Idaho Rivers Inventory, the Montana Fish and Wildlife Valuation Procedures, and the New Hampshire River Protection and Energy Development Project and have been modified to suit unique state, agency, and Tribal requirements. While specific methods will vary by state and resource category, an attempt has been made to ensure an acceptable level of consistency throughout the region.

For each river resource category listed below, regional staff and senior resource experts have identified standards and criteria by which data will be evaluated. "Standards" refer to the evaluation measures used to determine "minimum thresholds of significance." "Criteria" refers to those attributes used to critically evaluate specific rivers or river systems meeting the minimum threshold of significance for a given resource category. Minimum thresholds will be set by each state level staff in consultation with regional level project management and participating agency and Tribal resource experts. As a general rule, thresholds will be set to ensure the valuation of all rivers where documented resource data exists. Both quantitative and qualitative criteria will be employed. In the development of standards and criteria, documented or planned resource "potential" will be taken into account.

Resource experts will assign each river segment to a value class based on best available information and judgment. The assessment guidelines shown in Chapters 4-9 were designed to help determine the appropriate class. Guidelines were developed in order to promote objectivity and consistency.

Resource Categories

Fish and wildlife, natural, recreational, cultural, and institutional river resource categories were chosen to:

1. Accurately reflect the overall value of rivers and streams as natural resources;
2. Reflect the interests of various public agencies and private interest groups;
3. Acknowledge the resource responsibilities of the Tribes, states, and Federal agencies;
4. Reflect the priorities of the Regional Act.

Fish and wildlife categories based on qualitative measures of habitat value have been included to ensure that the study meets the needs of the Council's Fish and Wildlife Program. Tribal cultural and archeological values will be included through a Council contract as well as Tribal participation in the state level studies. Regional anadromous fish values will be developed by the Council. A senior resource expert in each state will be designated to coordinate activities related to each specific resource category. Public and private experts will provide input into the assessment. The resource categories will include, at a minimum, the following:

for review by user groups, river interests, and citizens to assure the proper application of the criteria and standards. There is no requirement that total consensus be achieved. Differences will be noted as such.

Scope of Effort

Initially, any river segment with a significant resource value known to a resource expert should be included in the Rivers Study. Perennial streams which appear on 1:100,000 scale maps will be included. Generally, values within 1,000 feet of a stream will be included. If streams must be excluded, the following can be used to determine stream exclusion:

1. Intermittent streams;
2. Small tributaries;
3. Federal institutional constraints (e.g., National Parks, etc.).

Other exclusion criteria may be identified by state study staff and used following approval by the regional staff. Connected streams may be clustered where resource values are of consistent quality.

River Reach Determination

River segments may be any reasonable length greater than one mile. Normally, segments will be 10 miles or more. Each study coordinator should identify appropriate reach lengths for his state for each resource category consistent with the budget, time available, and map scales to be used.

Value Classes

Value classes are the resource significance levels that are assigned to river segments to denote their value. Participants will assign one of 4 value classes to each river reach to denote its relative significance to a given resource category. As applicable, an "Unknown or Unclassified" or "Resource Not Present" designation may be given in lieu of a rating.

Value Class Definition

- 1 Unique or Outstanding Resources
- 2 Substantial Resources
- 3 Moderate Resources
- 4 Limited Resources
- 5 Unknown or Unclassified
- 6 Resource Not Present

Data Presentation

° Data Entry Forms

Senior resource experts have prepared river resource rating forms for each state level effort. These forms will be used to present pertinent background information and to document evaluation decisions. Individual cells on each data form will reflect the scores for each criteria. The form briefly notes features of the segment which give it value, sums values, and assigns value class. The form provides space for additional descriptive information regarding individual segments. As applicable, segment descriptions will be included on the data forms. State coordinators have identified a comprehensive coded list of rivers for each state. Lists will be made

It is anticipated that the "Unknown or Unclassified" designation will predominate on any one map. For purposes of efficiency, participants will not be required to color stream segments in this category. Uncolored segments will be assumed to be either unknown or unclassified. To decrease production time, an arrow at the upstream terminus of a colored section will signify that all segments above that point are of consistent value. Upstream exceptions may be noted in the appropriate color.

BPA plans to digitize mapped values as presented on study maps and as referenced on data forms. State, agency, and Tribal coordinators will consolidate all value designations on the map for that resource category and return the maps with a copy of data sheets to BPA.

° Study Reports

Each quarter (3 months) the study participants under BPA contract will provide a letter summarizing study progress during the past quarter and briefly outlining future events. Annually, each participant will prepare as a fourth quarter report a brief summary of the past years' activities. By November 1985, each state level coordinator will complete and provide one set of maps, rating forms, and supportive material for river values to the regional level staff for review and printing.

Resident Fish

PACIFIC NORTHWEST RIVERS STUDY

Method for Assessing the Significance of River Segments and Systems for Resident Fish Resources in Oregon.

LEAD AGENCY

Oregon Department of Fish and Wildlife

SENIOR RESOURCE EXPERT AND STAFF

Brent O. Forsberg, Senior Resource Expert
Louis Fredd, Project Staff Supervisor

COOPERATING RESOURCE EXPERTS

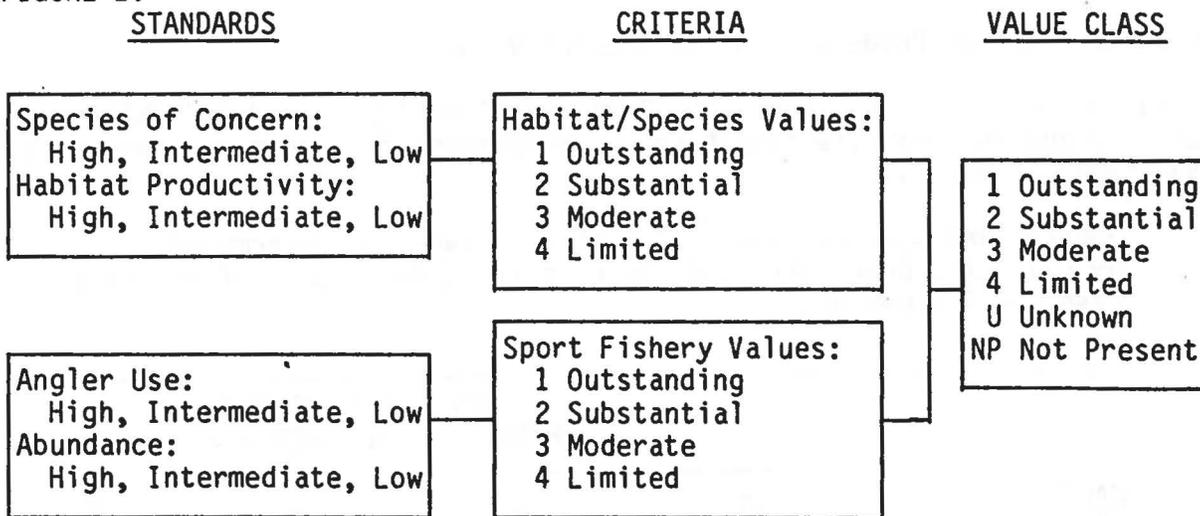
Del Skeesick, U.S. Forest Service
Art Oakley, Bureau of Land Management
Dick Giger, U.S. Fish and Wildlife Service

INTRODUCTION

The Pacific Northwest Rivers Study was initiated to assess the significance of river segments and systems for a variety of fish, wildlife, natural, recreational, and cultural resource values. The Oregon Department of Fish and Wildlife has been designated to take the lead in assessing the value of rivers and streams for resident fish resources in the state of Oregon.

This report summarizes the method which will be used to complete this assessment. It identifies the value classes to which river segments will be assigned, the criteria which will be used to determine those value classes, the standards used to apply those criteria, and the process by which the standards will be determined (Figure 1).

FIGURE 1:



Habitat productivity is determined by weighing a variety of factors including water quality, habitat quality and diversity, and relative abundance of those species in question. Examples of these factors may include dissolved oxygen, in-stream flow, substrate composition, availability of cover, abundance of food items, stream bank stability, riparian vegetation, etc.

Species of high concern include: a) Resident game fish species of regional importance based on angler preference, ecological significance, and/or rarity in the region (Appendix A), and b) Threatened or Endangered, and resident fish species of limited distribution (Appendix B).

Species of intermediate concern include: a) All other game fish species in Appendix A, and b) Oregon non-game fish species of ecological significance (e.g. a sculpin population serving as forage for a species of high concern).

Species of low concern include all Oregon non-game fish species, except as noted above.

The following example is given to clarify the determination of the Habitat/Species value. The example stream has four resident fish species present; rainbow trout, redbreast shiner, smallmouth bass, and largescale suckers. The stream is small and has cool temperatures, good insect production, gravel bottom, overhanging riparian vegetation, relatively stable flows, and structural diversity.

First, species are given a level of concern as determined by the definitions. For the example stream, the local biologist determines that trout are "high", shiners are "intermediate", bass are "high", and suckers are "low". Next, the habitat productivity, which includes suitability and quality, is determined for each species. The local biologist determines the habitat productivity for trout is "high", shiner is "intermediate", bass is "intermediate", and sucker is "low".

Therefore, by using the matrix in Table 1, the value for trout in this stream (since it is a high species of concern and habitat productivity for them is high) is 1 or outstanding, shiner (intermediate species/intermediate habitat) is 3 or moderate, bass (high species/intermediate habitat) is 2 or substantial, and sucker (low species/low habitat) is 4 or limited value.

The same procedure is repeated for all streams, or reaches of streams if conditions or resources change. The highest value obtained within a stream reach is assigned as the value for the Habitat Productivity and Species criterion. In the above example stream, the value for the Habitat/Species criterion is 1 (outstanding) because of rainbow trout.

If species data are lacking for a stream, it will be assigned a value of "U" (unclassified or unknown). However, if a classified stream has a tributary with undocumented resources, but adequate knowledge indicates that the resources of the two streams are similar, the tributary will be assigned the value of the classified stream. If it is known that no resident fish are present in a stream, it will be assigned a value of "NP" (not present).

Levels of abundance (high, intermediate and low) will be defined pending further investigation, but will be correlated with catch per mile within a given stream reach or other population data if available.

Levels of angler use (high, intermediate and low) will be defined pending further study, but will be quantified as fisherman-days per unit area.

As in the previous example, but using Table 2, if rainbow trout receives intermediate angler use and the abundance of catchable fish is relatively high, a value of 2 (substantial) is assigned for trout in the stream reach. For smallmouth bass, if use and abundance are both intermediate, the value for bass in the stream reach is 3 (moderate).

The same procedure is repeated for resident game fish species present in all stream reaches. The highest value obtained within a stream reach is the value for the Sport Fishery criterion. For the above example stream, the Sport Fishery value is 2 (substantial) because of rainbow trout. Therefore, since the Habitat/Species value was 1 (outstanding) in the example, the overall value class for resident fish in the stream reach is 1 (outstanding), which is determined from the higher of the two criterion.

Four exceptions to the standards for the Sport Fishery criterion are noteworthy:

1. Quality of Angling Experience: If exceptional aesthetic qualities, or the occurrence of uncommonly large fish significantly enhance the angling experience in the stream reach, the Sport Fishery value could be adjusted one or more values upward. Conversely, if poor aesthetic qualities, or the occurrence of stunted fish populations significantly detract from the angling experience in the reach, the Sport Fishery value could be adjusted one or more values downward.
2. Economic Importance: If the sport fishery in a stream reach is important to the regional economy (e.g. through retail sales), the Sport Fishery value could be adjusted one value upward.
3. Angling Opportunity: If a particular resident fish resource in a stream reach is unique in the immediate area (e.g. the only brown trout fishery within a 50-100 mile radius), the Sport Fishery value could be adjusted one value upward.
4. Potential Value: If the sport fishery in a stream reach is expected to improve significantly in the near future (e.g. through habitat improvement measures, species introductions, improved access, etc.), "potential" abundance of catchable fish or "potential" angler use could be used in Table 2. Conversely, if the sport fishery is expected to deteriorate in the near future, "potential" levels of abundance or angler use could be used to determine the Sport Fishery value of the reach.

EVALUATION PROCESS

The evaluation process will consist of using the criteria and standards to determine the value class of stream reaches in the state for resident fish.

DATA FORM ENTRIES

Drainage Basin:

Stream Level:

Stream Name:

Lower River Mile (of stream reach):

Upper River Mile (of stream reach):

Environmental Values:

Species Value:

Habitat Value:

Species/Habitat Value Class:

Use Values:

Use Values:

Abundance Values:

Use/Abundance Value Class:

Overall Value Class (of stream reach):

Comments:

Appendix B. THREATENED OR ENDANGERED, AND RESIDENT FISH SPECIES OF LIMITED DISTRIBUTION IN OREGON

<u>COMMON NAME</u>	<u>SCIENTIFIC NAME</u>	<u>STATUS*</u>
Hutton Spring Tui Chub	<i>Gila bicolor</i> ssp.	1,3,4
Borax Lake Chub	<i>Gila boraxobius</i>	1,3,4
Foskett Spring Dace	<i>Rhinichthys osculus</i> ssp	1,3,4
Jenny Creek Sucker	<i>Catostomus rimiculus</i> ssp.	2,3
Warner Sucker	<i>Catostomus warnerensis</i>	2,3,4
Shortnose Sucker	<i>Chasmistes brevirostris</i>	2,3
Alvord Cutthroat Trout	<i>Salmo clarki</i> ssp.	3
Tahoe Sucker	<i>Catostomus tahoensis</i>	3
Alvord Chub	<i>Gila alvordensis</i>	3
Catlow Tui Chub	<i>Gila bicolor</i> ssp.	2,3
Lahontan Redside	<i>Richardsonius egregius</i>	3
California Roach	<i>Hesperoleucus symmetricus</i>	3
Sheldon Tui Chub	<i>Gila bicolor eurysoma</i>	2,3
Oregon Lakes Tui Chub	<i>Gila bicolor oregonensis</i>	2
Summer Basin Tui Chub	<i>Gila bicolor</i> ssp.	2
Oregon Chub	<i>Hyboscus crameri</i>	2
Goose Lake (Sacramento) sucker	<i>Catosomus occidentalis</i> ssp.	2
Klamath Largescale Sucker	<i>Catostomus snyder</i>	2
Malheur Mottled Sculpin	<i>Cottus bairdi</i>	2
Pit Sculpin	<i>Cottus pitensis</i>	3

*STATUS:

- 1) Endangered Specie Act: Endangered or Threatened List, July 27, 1983, updated March 28, 1985
- 2) Candidate Species for addition to the Endandered or Threatened List, December 30, 1982
- 3) Special Species List from Natural Heritage Plan, ORS 273.561-591
- 4) Protected Nongame, OAR 635-44-130

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Wildlife

PACIFIC NORTHWEST RIVERS STUDY

Method for Assessing the Significance of River Segments and Systems
for Wildlife Resources in Oregon.

LEAD AGENCY

Oregon Department of Fish and Wildlife

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Brent O. Forsberg, Senior Resource Expert
Louis Fredd, Project Staff

COOPERATING RESOURCE EXPERTS

Del Skeesick, U.S. Forest Service
Bill Nietro, Bureau of Land Management
Dick Giger, U.S. Fish and Wildlife Service

INTRODUCTION

The Pacific Northwest Rivers Study was initiated to assess the significance of river segments and systems for a variety of fish, wildlife, natural, recreational, and cultural resource values. The Oregon Department of Fish and Wildlife has been designated to take the lead in assessing the value of rivers for wildlife resources in the state of Oregon.

This report summarizes the method which will be used to complete this assessment. It identifies the value classes to which river segments will be assigned, the criteria which will be used to determine those value classes, the standards used to apply those criteria, and the process by which the standards will be determined (Figure 1).

FIGURE 1:

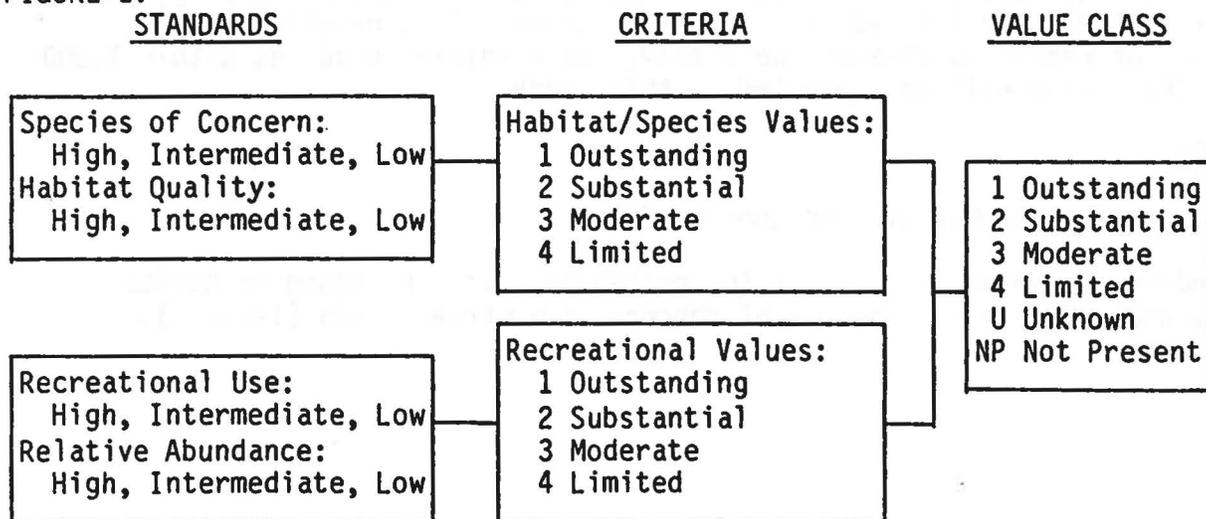


Table 1. Habitat and species values of a stream reach, as determined by habitat quality and the relative significance of resident fish species present.

		SPECIES OF CONCERN:		
		HIGH	INTERMEDIATE	LOW
HABITAT QUALITY:	HIGH	1	2	3
	INTERMEDIATE	2	3	4
	LOW	3	3	4

Species of high concern shall include: a) Game and furbearing animals of regional importance based on hunting preference, ecological significance and/or rarity in the region (Appendix A), and b) Threatened or endangered, and wildlife species of limited distribution (Appendix B).

Species of intermediate concern shall include a) All other game and furbearing animals in Appendix A, b) indicator species of riparian and stream habitats as identified in the review draft of the Oregon Nongame Wildlife Plan, and c) nongame species of local significance.

Species of low concern shall include all other nongame wildlife species except as noted above.

High quality habitats are relatively undisturbed which also are: a) communities of special concern, which shall include river islands, well developed riparian vegetation, old-growth cottonwood bottoms, old-growth coniferous bottoms, and ox-bow sloughs, b) communities with high diversity and productivity of both vegetation and wildlife, and c) important seasonal habitats, (e.g. those occupied by threatened or endangered species, or species of limited distribution, big game winter ranges, nesting habitats, vertebrate species of special interest or concern.

Intermediate quality habitats are: a) habitats that show evidence of man-caused disturbance but still retain obvious values as wildlife habitat, and b) relatively undisturbed habitats which do not satisfy the standards for high quality habitats.

Low quality habitats are those which show evidence of major man-caused disturbance, and limited opportunity for vegetative rehabilitation.

The following example is given to clarify the determination of the Habitat/Species value. The example stream has four wildlife species present; black-tailed deer, raccoon, yellow-bellied marmot, and wood duck. The stream is a small meandering stream in the pastoral zone. It has a gravel bottom, a narrow riparian zone with short growing trees, and evidence of some disturbance in the form of cattle grazing and riprapped banks.

5. **Species Diversity:** If a stream reach has several species of high or intermediate concern, rather than a single species of high or intermediate concern, the Habitat/Species value may be adjusted one value upward because of the species diversity.

Criterion 2: Wildlife Recreational Value

The standards to determine a value for Criterion 2 will be based on wildlife's recreational use and the relative abundance of wildlife species associated with a stream reach (Table 2).

Table 2. Wildlife Recreational values of stream reach as determined by recreational use and the relative abundance of wildlife species present.

		RECREATIONAL USE:		
		HIGH	INTERMEDIATE	LOW
RELATIVE ABUNDANCE:	HIGH	1	2	3
	INTERMEDIATE	2	3	4
	LOW	3	3	4

Levels of abundance (high, intermediate and low) will be based on population estimates or harvest records.

Levels of recreational use (high, intermediate and low) will be based on the relative amount of recreational days for either consumptive or non-consumptive wildlife, and the ability to access the wildlife within a stream reach.

As in the previous example, but using Table 2, if black-tailed deer receives intermediate use because of limited access, and their abundance is relatively high, a value of 2 (substantial) is assigned for deer in the stream reach. For wood ducks, if use and abundance are both intermediate, their value in the stream reach is 3 (moderate).

The same procedure is repeated for game species present in all stream reaches. The highest value obtained within a stream reach is the value for the Recreational criterion. For the above example stream, the Wildlife Recreational value is 2 (substantial) because of black-tailed deer. Therefore, since the Habitat/Species value was 1 (outstanding) in the example, the overall value class for wildlife in the stream reach is 1 (outstanding), which is determined from the higher of the two criterion.

Four exceptions to the standards for the Wildlife Recreational criterion are noteworthy:

1. **Quality of Angling Experience:** If exceptional aesthetic qualities, or the occurrence of uncommonly large or trophy animals enhance the experience in the stream reach, the Wildlife Recreational value could be adjusted one or more values upward. Conversely, if poor aesthetic qualities significantly detract from the experience in the reach, the Wildlife Recreational value could be adjusted one or more values downward.

DATA FORM ENTRIES

Drainage Basin:

Stream Level:

Stream Name:

Lower River Mile (of stream reach):

Upper River Mile (of stream reach):

Environmental Values:

Species Value:

Habitat Value:

Species/Habitat Value Class:

Recreational Values

Use Values:

Abundance Values:

Use/Abundance Value Class:

Overall Value Class (of stream reach):

Comments:

APPENDIX B. THREATENED OR ENDANGERED AND WILDLIFE SPECIES OF LIMITED DISTRIBUTION IN OREGON.

<u>Common Name</u>	<u>Scientific Name</u>	<u>Status</u>
BIRDS: "any nongame bird except starling and house sparrow"		4
Aleutian Canada Goose	<i>Branta canadensis leucopareia</i>	1,3,6
Bald Eagle	<i>Haliaeetus Leucocephalus</i>	1,3,6
American Peregrine Falcon	<i>Falco peregrinus anatum</i>	1,3,6
California Least Tern	<i>Sterna antillarum browni</i>	1
White-faced Ibis	<i>Plegadis chihi</i>	2,3,5
Swainson's Hawk	<i>Buteo swainsoni</i>	2,3,5
Ferruginous Hawk	<i>Buteo regalis</i>	2,3
Western Snowy Plover	<i>Charadrius alexandrinus nivosus</i>	2,3,5,6
Western Yellow-billed Cuckoo	<i>Coccyzus americanus occidentalis</i>	2,3,5
Tricolored Blackbird	<i>Agelaius tricolor</i>	2
Long-billed Curlew	<i>Numenius americanus</i>	2,3
Upland Sandpiper	<i>Bartramia brevirostris</i>	3
Ring-necked Duck (nesting)	<i>Aythya collaris</i>	3
Bufflehead (nesting)	<i>Bucephala albeola</i>	3
Caspian Tern	<i>Hydropogone caspia</i>	3
White Pelican	<i>Pelecanus erthrorhynchos</i>	3
Horned Grebe	<i>Podiceps auritus</i>	3
Red-necked Grebe	<i>Podiceps grisegena</i>	3
Barred Owl	<i>Strix varia</i>	3
Great Egret	<i>Casmerodius albus</i>	3
Bobolink	<i>Dolichonyx oryzivorus</i>	3
Snowy Egret	<i>Egretta thula</i>	3
Black-necked Stilt	<i>Himantopus mexicanus</i>	3
Black Rosy Finch	<i>Leucosticte atrata</i>	3
Warner Valley Plain Titmouse	<i>Parus inornatus zaleptus</i>	3
Blue-grey Gnatcatcher	<i>Polioptila caerulea</i>	3
Lewis' Woodpecker	<i>Melanerpes lewis</i>	3,5
Merlin	<i>Falco columbarius</i>	3
Least Bittern	<i>Ixobrychus exilis</i>	3
Wallowa Gray-crowned Rosy Finch	<i>Leucosticte tephrocotis wallowa</i>	3
Purple Martin	<i>Progne subis</i>	3,5
Western Bluebird	<i>Sialia mexicana</i>	3,5
Spotted Owl	<i>Strix occidentalis</i>	3,5,6
Grasshopper Sparrow	<i>Ammodramus savannarum</i>	3
Spruce Grouse	<i>Canachites canadensis</i>	3
Yellow Rail	<i>Coturnicops noveboracensis</i>	3
Black-shouldered Kite	<i>Elanus leucurus</i>	3
Sharp-tailed Grouse	<i>Pedioecetes phasianellus</i>	3,5
Common Loon	<i>Gavia immer</i>	5
Tundra Swan	<i>Olor buccinator</i>	5
Greater Sandhill Crane	<i>Grus canadensis tabida</i>	5
Great Gray Owl	<i>Strix nebulosa</i>	5
Willow Flycatcher	<i>Empidonax traillii</i>	5
Loggerhead Shrike	<i>Lanius ludovicianus</i>	5
Yellow Warbler	<i>Dendroica petechia</i>	5
Marbled Murrelet	<i>Brachyramphus marmoratus</i>	3
Black-necked Stilt	<i>Himantopus mexicanus</i>	3
Harlequin Duck	<i>Histrionicus histrionicus</i>	3
Black phoebe	<i>Sayornis nigricans</i>	3

Natural Features

PACIFIC NORTHWEST RIVERS STUDY

Method for Assessing the Significance of River Segments and Systems
for Natural Features Resources in Oregon.

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INTRODUCTION

The Pacific Northwest Rivers Study was initiated to assess the significance of river segments and systems for a variety of fish, wildlife, natural, recreational and cultural resource values. The Oregon Natural Heritage Data Base has been designated to take the lead in assessing the value of rivers for natural features in the state of Oregon.

This report summarizes the method which will be used to complete this assessment. It identifies the value classes to which river segments will be assigned, the criteria which will be used to determine the value of river segments, the standards used to apply these criteria and the process by which decisions will be made.

CATEGORY DESCRIPTION

Two major categories of natural features will be addressed: 1) botanical features, and 2) hydrological/geological features. Botanical features include rare, threatened and endangered plant species found in river-related habitats (Table I), and exceptional examples of native plant associations found in

Waterfalls or gorges should be at least 30 feet in height to be considered outstanding. Exceptional geologic sites may be type localities for fossils or formations, areas of unusually diverse or clearly displayed paleontology, areas with unique one-of-a-kind assemblages, or areas which are important and frequently utilized for scientific and educational purposes. Unstable soil areas which are very limiting in the types of activities they can support will also be identified.

VALUE CLASSES

An overall value class will be assigned to each stream or river segment. This value will not be a derived sum of point values, but instead will represent a consensus achieved by reviewing and comparing the individual natural features in a given segment. A higher value class will be assigned to segments with an outstanding diversity of components, or those with an exceptionally rare or high quality example of a given feature or features. The minimum value class assigned to a segment should be no lower than the highest value class of any particular natural feature which falls within it. Value classes to be used in this study are shown below:

<u>Value Class</u>	<u>Definition</u>
1	Outstanding natural features value
2	Substantial natural features value
3	Moderate natural features value
4	Limited to no natural features value
5	Unknown natural features value
6	Resource not present

CRITERIA

Four criteria will be used to evaluate natural features. These criteria are: 1) scarcity; 2) vulnerability; 3) quality, and 4) scientific value, or representativeness. Each natural feature should have these criteria applied to it before overall river and stream segment values are assigned. These criteria

the specific site should be considered. A site which is among the best known examples of its kind should get higher evaluation marks than one which is a marginal or low quality occurrence.

The scientific value or representativeness of a feature or a given site refers to its usefulness and importance as an education resource. The historical, current and potential use, accessibility and taxonomic distinctness of the given feature or site should be considered. Type localities and areas known or set aside as quality study locations should get the highest evaluation marks.

EVALUATION PROCESS

This study will be conducted with two end products in mind: 1) a set of maps identifying the locations of known natural features, and 2) a tabular summary of the natural features ordered by river/stream segments with appropriate value classes assigned to the segments.

In order to insure protection of rare plants and paleontological sites, their exact locations along stream and river corridors will not be provided in this study. They will, however, be noted as occurring within a given stream segment.

This study will rely on the expertise, existing data and cooperation of the participating agencies to the greatest extent possible. No field inventories are planned. Because of the limited scope of this study, it is anticipated that many stream/river segments will be assigned a value class of "5" or unknown.

Academic and agency personnel will be interviewed by mail, telephone and in person for natural features information not currently held by the

TABLE I

A. Listed and candidate federal species

Arabis koehleri var. koehleri
Arenaria franklinii var. thompsonii
Artemisia ludoviciana ssp. estesii
Astragalus applegatei
Astragalus diaphnus
Astragalus kentrophyta var. douglasii
Astragalus robbinsii var. alpiniformis
Corydalis aquae-gelidae
Delphinium leucophaeum
Haplopappus radiatus
Howellia aquatilis
Ivesia rhypara
Lomatium bradshawii
Lomatium laevigatum
Lomatium suksdorfii
Mentzelia mollis
Mentzelia packardiae
Mirabilis macfarlanei
Myosurus minimus ssp. apus
Penstemon barrettiae
Pleuropogon oregonus
Ranunculus austro-oreganus
Rorippa columbiae
Sedum moranii
Senecio ertterae
Sophora leachiana
Sullivantia oregana
Thelypodium howellii var. spectabilis
Thlaspi montanum var. siskiyouense

TABLE II

Riparian Zone Plant Associations (exceptional examples)

Oregon Ash bottomland woodlands
Alder, Cottonwood and Willow woodlands
Cherry, Hawthorne and Willow thickets and woodlands
Quaking aspen groves
Shrub-dominated bogs and wetlands
Rush, sedge and herb-dominated bogs, fens and wetlands
Bulrush and Cattail marshes

NOTE: This list is only preliminary. We anticipate including some upland forest associations in this list at a later date.

DATA SHEET

STREAM/RIVER SEGMENT

NATURAL FEATURES

COMMENTS

VALUE CLASS

Cultural Features

Pacific Northwest Rivers Study

Method for assessing the significance of river segments and systems
for archeological resources in Oregon

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Oregon State Historic Preservation Office (SHPO)

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INTRODUCTION:

The Pacific Northwest Rivers Study was initiated to assess the significance of river segments and systems for a variety of resources including cultural resources. The Oregon State Historic Preservation Office within State Parks has been designated to take the lead in assessing the value of rivers for archeological sites in Oregon.

This report summarizes the method which will be used to complete this assessment. It identifies the value classes to which river segments will be assigned, the criteria which will be used to determine the value of river segments, the standards used to apply these criteria, and the process by which decisions will be made.

CATAGORY DESCRIPTION:

The purpose of the archeological site study is to produce maps and a supporting data matrix for the potential of sites to occur within any river segment in Oregon. Archeological sites consist of concentrations of artifacts of either historic or prehistoric nature that have been identified through

river segment classifications as follows:

CLASS	DESCRIPTION	COLOR
1	Highest potential	Red
2	High potential	Orange
3	Medium potential	Gray
4	Low potential	Green
5	No resource potential	Brown
U	Unknown potential	None

The color codes will give a crude indication of the cross-cutting geomorphic features that were used for extrapolations if they are compared to the data matrix. The colors will be applied to river/stream corridors as they pass through township/range units.

EVALUATION PROCESS:

The initial evaluation and count will be done by Mike Gallagher, an archaeological consultant. This will be reviewed by the senior resource planner at each step in the process. The high and low scores for the units will be graded into the classifications. The confidence intervals will be used as part of the classification decision matrix. Until the data has been gathered and examined, it will not be possible to explain the exact evaluation process. It will be based on the factors as outlined above. The loading factors for the classes will be generated when the matrix is completed.

ADDITIONS:

Each map will include a printed statement to the effect:

This information is a crude predictive model. It does not preclude the need to proceed with Section 106 consultation as required for all projects that may impact a cultural resource

PACIFIC NORTHWEST RIVERS STUDY

Method for assessing the significance of river segments and systems for historic resources.

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INTRODUCTION

The Pacific Northwest Rivers Study was initiated to assess the significance of river segments and systems for a variety of fish, wildlife, natural, recreational, and cultural resource values. The State Parks and Recreation Division has been designated to take the lead in assessing the value of rivers for historic resources in the State of Oregon.

A draft inventory of historic resources will be circulated to the Bureau of Land Management, the United States Forest Service, and the State Historic Preservation Office for review.

VALUE CLASSES

1. Local, statewide or national significance
2. Known sites or structures, value undetermined
3. No local, statewide or national significance

Because the comprehensive planning process has allowed local jurisdictions to determine the significance level of resources within their boundaries, no further weight is given to statewide or national level resources. These resources are for the most part also determined to have local significance.

CRITERIA

1. All cities and their Urban Growth Boundaries (UGBs) will be initially afforded a value class of (1) since the scale of mapping is too large to accurately depict sites or structures that are river or stream influenced.
2. All significant local sites will be accorded a value class of (1) if they are directly associated with a river or stream system.
3. National Register sites and National Register eligible sites will also be in a value class of (1).
4. Only sites within $\frac{1}{4}$ mile of a river or stream will be inventoried.

AC:tsb
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Recreation

PACIFIC NORTHWEST RIVERS STUDY

Methods for assessing the significance of river segments and systems for recreation resources in Oregon.

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INTRODUCTION

The Pacific Northwest Rivers Study was initiated to assess the significance of river segments and systems for a variety of fish, wildlife, natural, recreational, and cultural resource values. The State Parks and Recreation Division has been designated to take the lead in assessing the value of rivers for recreation in the State of Oregon.

VALUE CLASSES

The value classes to be used in the final recreation resource classification are:

1. Outstanding Recreation Resources
2. Substantial Recreation Resources
3. Moderate Recreation Resources
4. Limited Recreation Resources
5. Unclassified or Unknown Recreation Resources
6. Resource not present

If a river segment is not included in one of these classes, the resource value is not present, does not meet minimum standards to be included or was not included in the inventory.

CRITERIA/RATIONALE

The significance of river recreation resources can be judged at least in part by: 1) the quality of the boating, fishing and other recreation activity as expressed by various experts (including river recreation users); 2) the scenic and/or primitive qualities of the river setting; 3) the importance of developed recreation facilities; 4) the ease of access to the river and the surrounding area; and 5) the degree of recreation use.

The three basic river recreation categories - boating, fishing, other recreation - plus scenic and primitive values and developed recreation facilities make up the recreational resource quality. An individual's judgment of the relative importance of each of these factors is an indicator of the recreational value of the river segment. Generally, the greater the importance, the higher the value of the recreation resource.

Ease of access for boating and riverbank activities as measured by limitations to move freely from bank to river or along the riverbank is another important measure. River segments abutting public lands offer easier access than those along private lands and therefore contribute to a higher recreation resource value.

Another factor - degree of use - brings the notion of popularity of a river segment into consideration. Generally, popular, well used rivers are considered to have high recreation resource value.

There are other factors that need to be considered before assigning a final recreation resource rating to a river segment. These factors are: 1) proximity to population centers; 2) unique recreational or scenic attraction; 3) existing institutional recognition (e.g. Wild and Scenic Rivers, Wilderness or State Scenic Waterway designation).

3. Other Recreational Qualities

Rate the quality of recreational opportunities on the river independent from the boating and fishing qualities. These include such things as hiking, swimming, nature viewing, hunting, primitive camping, bicycling, horseback riding, etc.

4. Scenic Qualities

The scenic qualities along a river can be an important aspect of recreation. Rate the quality of the visual aspects of the river and its surroundings, whether man made developments are present or not.

5. Primitive Qualities

Degree of primitiveness can be an important aspect of recreation. Rate the quality of the river in providing a wilderness-like setting where man-made developments are absent or minimal.

6. Developed Recreational Facilities

Along many rivers, the presence of developed facilities such as campgrounds, picnic sites, restrooms, boatramps and trails are an important component to recreational use of the river. On other rivers, they may be less crucial. Please rate the importance of such facilities for each river.

EASE OF ACCESS

Now we'd like you to consider public access to the river for recreational purposes. Access for boating purposes may differ from that for non-boating bank use. Rate the two separately using the following scale:

1. Poor access, severely limits desired use
2. Adequate, but some limitation of desired use.
3. Good, little or no limitation to use.

Again, if you have no knowledge about one or both types of access, mark a "0" and continue on with the survey.

1. Public Boating Access

Consider the number and location of roads and public put-ins and take-outs, and whether they allow appropriate boating opportunities on the river.

2. Non-Boating Bank Access

Rate the public access for non-boating recreational activity - the degree to which the banks are not obstructed or closed to the public for such things as fishing, hiking, primitive camping, etc.

Institutional Constraints

CHAPTER 9

INSTITUTIONAL CONSTRAINTS - REGIONAL SUMMARY

Category Description

Institutional constraints are comprised of statutory/administrative provisions with direct implications for hydropower development. Constraints consist of laws, policies, plans, ordinances or other such instruments imposed and/or administered by agencies of government at the federal, state or local level or by the Tribes. Institutional constraints may prohibit, significantly limit, or otherwise impose conditions on hydropower development.

Constraint Classes

Class Description

1. Federal, state, or local regulations prohibit hydropower development
2. Federally proposed protected areas may prohibit or severely restrict hydropower development
3. Federal, state, or local regulations limit or restrict hydropower development
4. Federal, state, or local regulations permit hydropower development with case specific conditions
5. Unclassified or Unknown

(Note: state and local constraints will vary by state)

Criteria and Standards

° Constraint Class 1 Criteria

- Designated Resource Areas

River reaches within or that contain federal, state, local, or tribal designated resource protected areas may be designated as Class 1.

- Legal Exclusions

River reaches not affected by a designated resource area but otherwise excluded from hydropower development by federal, state, or local law, policy, or plan, etc., shall also be designated as Class 1. Legal exclusions may take the form of state or federal law, resource agency management policies, development plans and local land use restrictions, zoning ordinances, or Tribal decree.

° Constraint Class 2 Criteria

- Potential Prohibitions

Areas explicitly identified for potential inclusion as a Class 1 resource area will be included. Examples: Wild and scenic study rivers, potential wilderness areas, etc.

PACIFIC NORTHWEST RIVERS STUDY

Method for Assessing Institutional Constraints on
River Segments and Systems in Oregon

State and Federal Constraints

Local Constraints

LEAD AGENCIES

Water Resources Dept. (WRD)

Department of Land
Conservation and
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INTRODUCTION

The Pacific Northwest Rivers Study was initiated to assess the significance of river segments and systems for a variety of fish, wildlife, natural, recreational, and cultural resource values, as well as the existing constraints to hydropower development. The Departments of Water Resources and Land Conservation and Development have been designated as lead agencies in assessing the institutional constraints in the State of Oregon. Because of Oregon's strong land use program, these elements have been separated into two sections; state and federal constraints assessed by WRD and local constraints analyzed by DLCD. This report summarizes the method which will be used to complete this assessment of institutional constraints. It identifies the classes to which river segments will be assigned, the criteria which will be used to determine the constraints on river segments, and the process by which decisions will be made.

Legal Exclusions

River reaches not affected by a designated resource area but otherwise excluded from hydropower development by state, or federal law, policy or rule, etc., shall also be designated as Class 1. Legal exclusions may take the form state or federal law or resource agency administrative rules, management policies and development plans.

Constraint Class 2 Criteria

Federally Proposed Protected Areas

River reaches that would receive protection through a resource designation being proposed by either the U.S. Forest Service or the Bureau of Land Management, shall be designated as Class 2 for purposes of the River Assessment Study. This is a constraint class peculiar to the federal regulatory scheme and has no counterpart at the state level. It is included here to address the discretion of the federal agencies in the management of proposed, but not officially designated, resource areas for their intrinsic natural values.

Constraint Class 3 Criteria

Special Management Areas

River reaches affecting, or affected by any of the following special management areas shall be designated as Class 3.

National

Wildlife Refuges
Roadless Areas
Sites in National Register of
Historic Places
National Natural Landmarks
Campgrounds
Trails

State

Waysides
Wildlife Management Areas
State Forests

Local

County Parks
City Parks

Legal Restrictions

River reaches not affected by a special management area but on which hydropower development would otherwise be significantly limited by state or federal statute, rule, policy or plan, etc., shall be designated as Class 3. Significant limits on development may take the form of restricted generating capacity, restricted season of operation, siting restrictions, or instream flow requirements.

Constraint Class 4 Criteria

Case Specific Conditions

River reaches on which hydropower development is permitted generally or not otherwise precluded or restricted by state or federal law, rule, policy or plan, etc., shall be designated as Class 4. It is recognized that hydropower development on these reaches would be subject to case specific conditions based on the merits of a specific proposal.

Constraint Class 5 Criteria

Unclassified

Stream reaches which are not addressed by any state or federal laws, policies, or plans, etc., regarding management or disposition of the stream resource, shall be designated as Class 5.

LOCAL INSTITUTIONAL CONSTRAINTS

Oregon's Land Use Program requires all cities and counties to prepare and adopt land use plans and implementing ordinances consistent with Statewide Goals. This section of the analysis assess the restrictions imposed on a proposed hydropower development by these local plans and ordinances. Because ordinances must be consistent with the adopted plans, the Department's review will focus on zoning ordinances which have more specific requirements and limitations.

CLASSES

Local institutional constraints have been divided into the following categories:

- | | |
|---|-----------------------------|
| 1. A plan/zone change or an "exception" required | Legislative action required |
| 2. Special hydropower restrictions applied | Quasi-judicial action |
| 3. Small projects allowed conditionally (based on height of structure, power generated, etc.) | Quasi-judicial action |
| 4. All projects allowed conditionally | Quasi-judicial action |
| 5. All projects permitted (allowed outright) | Administrative action |
| U. Not classified (this category applied to urban and mixed use areas which are difficult to map accurately). | ----- |

Class five corresponds to the "not present" category for other resources in the study.

EVALUATION PROCESS

To do the assessment, the Department will review the plans and ordinances of all counties, identify the level of restriction applied in each zone, and map the zones by restrictions applied on 1:100,000 scale BLM maps.

Prior to beginning the mapping, the Department will circulate the proposed classes to county planning directors and other interested parties. Mapping should begin by late April.

DATA FORM ENTRIES

The Department's proposed data entry form is attached. The Department may wish to have additional categories included in the data form to allow for easy expansion of the system in the future to meet other needs. An example of the data collected for zones in the John Day Basin in the Strategic Water Planning Project is attached.

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APPENDIX A

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