

## MFISH Data Definitions

<b>Introduction</b>	<b>2</b>
<b>Bull Trout Core/ Bull Trout Nodal Areas Help</b>	<b>2</b>
<b>Fish Distribution</b>	<b>3</b>
<b>Fish Stocking (Plants)</b>	<b>4</b>
<b>Genetic Samples</b>	<b>4</b>
<b>Habitat Measurements</b>	<b>4</b>
<b>Population Surveys</b>	<b>4</b>
<b>Angling Days Per Year - Fishing Pressure</b>	<b>5</b>
<b>Fisheries Resource Values</b>	<b>5</b>
<b>Fishing Logs</b>	<b>5</b>
<b>MFWP Dewatering Concern Areas</b>	<b>6</b>
<b>Instream Flow Protection/Quantification</b>	<b>6</b>
<b>Management</b>	<b>6</b>
<b>Protected Designation</b>	<b>7</b>
<b>References</b>	<b>8</b>
<b>Stream Restoration Projects</b>	<b>8</b>
<b>Montana FWP Instream Leases/Conversions</b>	<b>8</b>
<b>Appendix 1 Expanded Data Definitions and Descriptions</b>	<b>9</b>
Fishing Pressure	9
Fisheries Resource Values	15
Instream Flow Protection/Quantification	21
Protected Designation	22

## Introduction

The Montana Fisheries Information System (MFISH) is a database containing information on fish species distribution, supporting data for distribution, and stream level information for lakes and streams in Montana. The database is managed and maintained by the Information Management Bureau (IMB) of the Information Services Division of Montana Fish, Wildlife, and Parks and is annually updated through interviews with MFWP, US Forest Service (USFS), US Fish and Wildlife Service (USFWS), Bureau of Land Management (BLM) and tribal fisheries biologists and supplemented with information provided in technical documents and reports.

## Bull Trout Core/ Bull Trout Nodal Areas Help

**Bull Trout Nodal Areas** - bull trout nodal habitat areas (nodal habitat is "waters which provide migratory corridors, overwintering areas, or other critical life history requirements" according to the Bull Trout Status Report, Montana Bull Trout Scientific Committee, March, 1996.

**Bull Trout Core Areas** - Delineation of Bull Trout Core Areas for the Montana Bull Trout Scientific Committee. Core areas are drainage's that historically and currently contain the strongest populations of bull trout; usually relatively undisturbed habitat.

Data displayed in MFISH is the rivermile begin and end measure along the stream of either Nodal or Core area.

## Fish Distribution

MFISH reports fish distribution for all surveyed streams in Montana. Distribution includes game species, non-game species and species of special concern. Fields for each species listed include a relative abundance assigned by the biologist collecting the sample, a stream use by the species (if known), a data quality rating and a data source. Additional fields for species of special concern include a "Genetic Status" determined by genetic sampling of a population. These are cumulative records for a stream and may not reflect current species composition in a stream. Please check the date on the survey record, which will provide information on the last time the stream, was surveyed. The Data Source column identifies the origin of the distribution record based on the references provided. In many instances several agencies or individuals have or will report congruent distribution for a species. See the list below of Data Source codes and their corresponding Agency.

DataSource	Agency
BL	U.S. Bureau of Land Management
BR	U.S. Bureau of Reclamation
DNRC	Montana Department of Natural Resources and Conservation
ERI	Ecosystems Research Institute
FS	U.S. Forest Service
FWP	Montana Department of Fish, Wildlife, and Parks
FWS	U.S. Fish and Wildlife Service
GS	U.S. Geological Survey
MDEQ	Montana Department of Environmental Quality
MSU	Montana State University
NHP	Montana Natural Heritage Program
OH	Other
PC	Personal Consultant
PL	Plum Creek Timber Co.
RI	Other Private
SCP	Scientific Collector Permit
SD	South Dakota State University
SK	Confederated Salish and Kootenai Tribes
SL	Other State
UI	University of Idaho
UM	University of Montana
UN	Unknown

## Fish Stocking (Plants)

State sanctioned fish supplementation records.

Data includes: Date, location of plant, number of fish, fish species, average length in inches and supplying hatchery.

## Genetic Samples

The Montana Fisheries Information System (MFISH) houses all the fish species of special concern information for the state of Montana. Included in these data are the genetic results received from the University of Montana's Conservation Genetics Laboratory on fish collected by MFWP, BLM and USFS fisheries biologists. The sample results are sent to the biologists and the staff at MFWP in letter form which describes the stream name, the number of fish in the sample, the sample location, date sampled, collector, genetic results in percent by species or count of each genetically distinct species present, and date analyzed. These data are then input into a tabular database.

## Habitat Measurements

Information gathered by biologists during a data collection effort typically in conjunction with a species population survey. Data gathered includes in-stream physical measurements as well as associated streamside habitat measures.

## Population Surveys

In 1966, the Montana Fish and Game Department developed electrofishing sampling gear and formulated uniform statistical methods for fish population estimates. Equipment and techniques evolved rapidly and the basic Peterson's formula:

$$\text{Population} = \frac{\text{number of marked fish} * \text{number of fish in sample}}{\text{number of marked fish recaptured in the sample}}$$

has been modified over the years. Currently there are several estimation methods being used in Montana and reported in MFISH other than the mark and recapture methods.

Often times, a qualitative sample may be taken that does not reflect an estimate of a population. These are also reported in MFISH. Please notice whether you are looking at an estimate of a population or a qualitative count.

Data collected includes:

Location: The waterbody name and rivermile location along the waterbody where survey took place.

Date: Date survey was conducted

Collector: Name of personnel conducting sampling

Species: species captured or observed at the site

Est: The estimate or count of the species

SecUnit: The unit applied to the estimate. If not an estimate the SecUnit will be "no estimate, counts only".

Method: The collection method used to capture the fish.

Length: Minimum, Maximum and Average length of the fish in the estimate field and the corresponding Units

Gear: Sampling gear used during data collection

Data Rating: Rating reflective of the level of sampling that has occurred.

Data Source: Refers to the same listing as Fish Distribution [above](#)

## Angling Days Per Year - Fishing Pressure

The use of a waterbody calculated by the number of anglers who fish the stream. Data reported includes:

**Total Days Fished:** Estimated yearly fishing use in angler days (one angler fishing one body of water in one day for any amount of time). Total pressure is for both residents and non-residents.

**Trips:** The number of times that a section of water was reported as having been fished (used to estimate the number of "Days Fished").

**Resident Days Fished:** Estimated yearly fishing use in angler days by Montana residents.

**Resident Trips:** The number of times that a section of water was reported as having been fished by Montana residents.

**Non-Resident Days Fished:** Estimated yearly fishing use in angler days by non-Montana residents.

**Non-Resident Trips:** The number of times that a section of water was reported as having been fished by non-Montana residents.

**State Rank:** How this section of water ranked among all surveyed sections in the state or region, based on "Days Fished" in a survey year.

**Ranking State:** How the section of water ranked among all surveyed sections in the state, based on "Days Fished" in a survey year.

**Ranking Region:** How the section of water ranked among all surveyed sections in the region, based on "Days Fished" in a survey year.

For more detailed information on fishing pressure click [here](#)

## Fisheries Resource Values

Montana Stream Fisheries Classification Assessment Guidelines January 1999

The classification of rivers in Montana for recreational fisheries was published in 1959. The classification stemmed from a concern over a ... "lack of satisfactory methods for measuring . . . their total (stream) fishery - both economical and social". This assessment was updated in 1980 to include species and habitat information and updated again in 1984-85 as part of the MRS. This classification system, with a complex set of data fields for each stream, became the basis for MRS which became the Montana Rivers Information System (MRIS) in 1989.

For more information on Fisheries Resource Values click [here](#).

## Fishing Logs

Fishing logs are fishing records voluntarily provided by anglers taking part in MFWP's Fishing Log Program. Information includes year, angler, fish species caught, number caught, and hours fished. Data is summarized by quarters based on the calendar year. The full report defaults to the previous years angler logs; however additional years records can be viewed by modifying the selection on the "Display Criteria" page.

## **MFWP Dewatering Concern Areas**

**List Created:** January 24, 1991; updated January 15, 1994 and December 1, 1997

**Initial Intent:** Requested by the Legislature's Water Policy Committee

**Compiled by:** Montana Fish, Wildlife and Parks (MFWP) regional fisheries biologists; maintained by [MFWP's Water Resources Program Manager](#)

**Definitions:** Dewatering refers to a reduction in stream flow beyond the point where stream habitat is adequate for fish.

Chronic problem: streams where dewatering is a significant problem in virtually all years

Periodic problem: streams where dewatering is a significant problem only in drought or water-short years

**Further Description:** The list is of Montana streams that support important fisheries or contribute to important fisheries (i.e., provide spawning and rearing habitats) that are significantly dewatered by man-caused flow depletions. Most man-made dewatering occurs during the irrigation season (July-September). Although most dewatering is caused by irrigation withdrawals, a few of the listed waters are dewatered through dam manipulations for both agricultural use and power production.

## **Instream Flow Protection/Quantification**

Instream flow rights and reservations provided by Murphy Rights and the Montana Water Use Act used for the preservation of Fish and Wildlife Habitats. Data includes location, data range, priority date, and quantity of protected water.

For more information on instream Flow Protection/ Quantification, click [here](#).

## **Management**

Montana has been divided into 7 fisheries management regions by the MFWP. Administrative Headquarters are located in Kalispell (Region 1), Missoula (Region 2), Bozeman (Region 3), Great Falls (Region 4), Billings (Region 5), Glasgow (Region 6) and Miles City (Region 7).

Additionally, Montana has been divided into 3 fishing districts: the Western, the Central and the Eastern Fishing Districts. Each district has its own set of fishing regulations.

## Protected Designation

**Northwest Power Planning Council's Protected Areas Program** Beginning in 1983, the Northwest Power Planning Council (Council) directed extensive studies of existing habitat and has analyzed alternative means of protection. In 1988, the Council concluded that: 1) the studies had identified fish and wildlife resources of critical importance to the region; 2) mitigation techniques cannot assure that all adverse impacts of hydroelectric development on these fish and wildlife populations will be mitigated; 3) even small hydroelectric projects may have unacceptable individual and cumulative impacts on these resources; and 4) protecting these resources and habitats from hydroelectric development is consistent with an adequate, efficient, economical, and reliable power supply. The Council, relying on these studies, designated certain river reaches in the basin as "protected areas," where the Council believes hydroelectric development would have unacceptable risks of loss to fish and wildlife species of concern, their productive capacity or their habitat. River reaches to be protected are those reaches or portions of reaches listed on the "Protected Areas List" adopted by the Council on August 10, 1988, and subsequently. For each river reach listed on the Protected Areas List, the fish and wildlife to be protected are those on the list. For more detailed information concerning protected areas click [here](#).

### **Data Fields Available for Protected Areas:**

River miles where protection is in effect.

### **Protection Types:**

NWPPC Fisheries and Wildlife Protected Area

Federal Wild, Scenic and/or Recreation River

NWPPC Fisheries Protected Area

Federal Wild River

Federal Recreation River

Federal Scenic River

Federal Wild and Scenic River - Study Area

NWPPC Wildlife Protected Area

Reasons:

Explanations of Fish and/or Wildlife reasons for protecting the waterbody.

## References

The Fisheries Division of MFWP has an in-house library resource for the Fisheries Division's Helena and regional staff. It was designed to fill occasional requests from the public and other state and federal agencies. The Division provides 3 copies of each document MFWP publishes to the Montana State Library for cataloging.

Beginning in 1998, all documents published by MFWP were electronically cataloged into the Fisheries Library Database. Fields included in the database are Publication date, agency, publisher, author, title, WLN number, abstract, key words, fish species referenced and its life stage if cited and water body.

Generally data in the MFISH database is tied to a reference. Electronic documents are available by clicking the hyperlink in the "Repository ID" field. If no number exists in the "Repository ID" field the document is currently not electronic. Please contact the [Montana State Library](#) if interested in receiving a hard copy of one of the referenced documents.

## Stream Restoration Projects

**Description:** The FWP Restoration database function is to capture data about ongoing or completed habitat restoration projects that benefit fish and/or fish habitat. For FWP this is primarily Future Fisheries Program data, but may include other agency data as requested by FWP personnel. Only those projects that have been completed are displayed in the web report. Data in this database are updated frequently; however data are provisional.

**Initial Intent:** The 1995 Montana Legislature passed the Future Fisheries Improvement Program to restore essential habitats for the growth and propagation of wild fish populations in lakes, rivers and streams.

**Compiled by:** Montana Fish, Wildlife, and Parks (MFWP) Habitat restoration program officer.

**Database Created:** November 2000/reviewed and updated May 2005.

**Maintained by:** Montana Fish, Wildlife, and Parks, Information Management Bureau, Helena.

Comments, questions or suggestions on restoration projects can be directed to the MFWP [Habitat Restoration Program Office](#).

## Montana FWP Instream Leases/Conversions

Water rights leased to FWP and FWP-owned water rights that have been converted for the purpose of fish and wildlife restoration. Data includes location, lease type, term, expiration date and the amount of water being leased. For more information, contact [MFWP's Water Resources Program Manager](#).



## Appendix 1 Expanded Data Definitions and Descriptions

### Fishing Pressure

#### INTRODUCTION:

The Montana Department of Fish, Wildlife and Parks has conducted statewide angling mail surveys in the past. Bishop (1959, 1960 & 1961) conducted the first recorded mail survey of fishing pressure on a statewide basis for Montana. He found that residents fished 1,323,129 angler days, nonresident season license holders fished 60,632 angler days, and nonresident 6-day permit holders fished 40,933 angler days for the 1958 season. In 1959 residents fished 1,345,000 angler days, nonresident season license holders fished 54,000 angler days, and nonresident 6-day permit holders fished 121,000 angler days. In 1960 the third annual survey was conducted and residents fished 1,356,000 angler days, nonresident season license holders fished 53,000 angler days, and nonresident 7-day permit holders fished 112,000 angler days.

In 1968 Holton (1970) again initiated the statewide angling pressure mail survey. He found residents had fished 1,519,126 angler days, nonresident season license holders fished 69,653 angler days, and nonresident 6-day permit holders fished 161,772 angler days. Holton (1971) conducted another statewide survey for the 1969 license year. No results were reported because it was felt they were too high due to sampling problems.

In 1975, Gaffney (unpublished data) conducted a statewide survey of angling pressure by mail. He found residents fished a total of 2,314,030 angler days and nonresidents 508,034 angler days for a statewide total of 2,822,093 angler days. An attempt was made to continue that statewide survey in 1976 using the 1975 mailing lists. This did not provide adequate samples for nonresidents, so only resident pressure was obtained.

Holton (1974) stated, "The lack of up-to-date fishing pressure information on individual waters has been a handicap in fisheries management. It is recommended that (the) evaluation of (a) mail survey to fill this need be accomplished as soon as feasible."

The surveys were started again in 1982 and run for four consecutive years (McFarland, 1989). The statewide angling pressure ranged from 2,197,402 to 2,723,713 angler days. In 1986 the surveys were again canceled for lack of funding.

In 1989, the Montana Legislature approved funding for an "Enhanced Survey of Angling Pressure". The funding was such that the survey was to be conducted every other year. In March 1989, the statewide angling use mail survey was again re-initiated. The statewide angling pressure was estimated at 2,336,085 angler days (McFarland, 1991). In 1991, 1993, and 1995 the statewide use was estimated at 2,300,880, 2,578,495, and 2,504,855 angler days respectively (McFarland & Hughes, 1993, 1995 & 1997).

#### METHODS:

The 1997 statewide angling mail pressure survey began in March of 1997 and was conducted for the license year ending in February 1998. Samples were drawn from the Department's Sportsman's Database.

There are six types of fishing licenses available to residents: a season license, a combo license, a sportsman's license, a "senior" license, a "youth" license and a disabled license. A season license is required for those resident anglers between the ages of 15 and 61 inclusive (a conservation license is required as a prerequisite to purchasing any fishing license). Residents between the ages of 12 and 14 inclusive are required to purchase a conservation license to fish. These were determined by using the date of birth on the Conservation license and were classified as "youth" license holders. The combo license combines a season fishing license and a conservation license. A sportsman's license provides a deer "A" tag, elk tag, bear tag, conservation license, a game bird stamp and a fishing license. Residents 62 years of age and older are entitled to fish by purchasing a conservation license.

These were determined by using the date of birth on the Conservation license and were classified as "senior" license holders. Residents who are certified as permanently and substantially disabled may purchase a "Disabled Persons Conservation License". The "senior", "youth", and "disabled" licenses were combined for the "SYD" population.

Nonresidents 15 years of age and older must have a valid Montana fishing license to fish. Those nonresidents under the age of 15 may fish by buying a nonresident license or by being in the company of an adult with a valid Montana fishing license. If the latter, the combined limit may not exceed the limit for one adult. Nonresidents have four types of licenses available for fishing in Montana; a combo license, a seasonal license, a two-day permit, and the big game combo. A nonresident conservation license is required as a prerequisite to purchasing any nonresident-fishing license. The combo license combines a nonresident conservation license and seasonal fishing license. The big game license includes a conservation license, an elk tag, a deer "A" tag, a black bear tag, a fishing license and an upland game bird license. A two-day permit enables the nonresident angler to fish for two consecutive days of their choice. Anglers may purchase as many two-day permits as they want.

A computer program was written in ORACLE to create three populations of anglers from which to draw samples. A resident population, a nonresident population and a "SYD" population were created each month. The resident population comprised the following license types: combo, season, and sportsman. The nonresident population comprised the following license types: nonresident combo and nonresident season. The "SYD" population consisted of the following license types: senior (62 years of age and older), youth (between 12 and 14 years of age inclusive), and disabled.

Gaffney (1982) sampled the 17,000 nonresident big game license holders in 1980 and found that 29.6% had fished while in Montana. They averaged 3.9 days fishing per person, which would account for nearly 20,000 man-days of use. This is less than 1% of the total pressure in the state. Due to budgetary constraints and the small amount of pressure, the big game license holders were not included in the nonresident sampling for 1995.

An ORACLE computer program was used to pull a random sample from each population. The amount pulled from each population was proportionally allocated to the angling pressure each population exerted from previous surveys. This proportion remained constant throughout all sampling periods.

Sampling was done on a stratified basis. Strata (waves) were monthly for the resident, seasonal nonresident, and SYD populations (Table 1).

The sample from each population was copied into a dBASE format structure and wave information and sequential serial numbers added. A dBASE computer program was written to affix names and address as well as bar codes directly to each questionnaire. The questionnaire and a return envelope were stuffed into window envelopes and mailed (see appendix for examples).

Nonresident 2-day license holders could not be sampled directly, so nonresident conservation license holders were sampled and questions asked to ascertain if they were valid 2-day permit holders.

These questionnaires were sent out at the beginning of March 1998 since less than 1% (1,163) of the 2-day permits are remitted after this date. The questionnaire asked about their fishing in Montana for the entire license year.

Authorized private dealers sell fishing licenses throughout the state. In addition, the seven regional headquarters and the Helena office sell licenses. All licenses are to be remitted to the licensing bureau in Helena by the 10th of the following month of the sale. Each license is a five-part form. The original remains with the angler, the first copy was sent to Bozeman for use in the surveys, the second copy was retained in Helena, the third copy was sent to the area warden and the fourth copy was retained by the license dealer. The licenses usually arrived in Bozeman one week after they were remitted to Helena. Licenses are then keyed and entered into the Sportsman's Database. Samples for the previous month were then pulled and the questionnaires mailed around the 20th of the following month. For example, samples for August would be pulled and sent around the 20th of

September.

Table 1. Period of time covered for waves for the 1997 statewide angling survey.	
Wave	Time Period covered
1	March '97
2	April
3	May
4	June
5	July
6	August
7	September
8	October
9	November
10	December
11	January '98
12	February
99	Nonresident 2-day

Past surveys indicated that residents provide approximately 80% of the pressure (Gaffney 1975, McFarland 1991, McFarland 1993, McFarland 1995, McFarland 1997), therefore sampling was done on a 80/20 split between residents and nonresidents (i.e. proportional allocation). Actual numbers sent varied slightly from wave to wave (Table 2). For the "summer" waves 10,000 residents and nonresidents were sampled. In the "winter" the rate dropped to 5,000 residents and nonresidents. Since waves 1 and 2 had fewer license holders from which to sample, these two waves were sampled at a less intense level.

Two survey questionnaires were used, one for residents and season nonresidents and the other for 2-day nonresidents. The resident/nonresident questionnaire (see appendix A for examples), included questions on: what water was fished; nearest landmark, town, or county; section of stream or river fished (taken from map on back of questionnaire); date fishing occurred; number of days fished; whether the water selected was their second choice because their first choice had whirling disease; and to rate their fishing experience on a scale of 1 = poor to 5 = excellent. The 2-day questionnaire was the same basic design but included questions to ascertain if the respondent was a valid 2-day fishing permit holder and how many permits they bought. The survey also asked about their entire year of fishing versus a single month.

To ease the sorting process different colored forms were used for each wave and also for initial and remail mailings.

Table 2. Number of questionnaires sent for each wave by residency for 1997

Wave	Mailed Res	Nonres	Useable Res	Nonres	Returns Res	Nonres
1	325	26	312	24	190	13
2	4631	365	3118	268	1624	160
3	9269	730	8792	668	5538	440
4	9270	728	8834	629	5291	535
5	9567	429	9063	390	5425	251
6	9568	424	9085	395	5221	258
7	9567	422	8982	382	5479	267
8	9568	424	9035	388	5495	258
9	4635	360	4387	337	2547	220
10	4635	363	4364	336	2725	232
11	4634	365	4324	334	2712	226
12	4635	360	4344	328	2721	232
99		10031		9186		4106

Surveys were mailed first class for wave 1. For wave 2 and the initial mailing on wave 3 the surveys were mailed bulk rate. To qualify for bulk rate the addresses had to be matched to the United States Postal Services file of valid addresses. This posed a problem for rural addresses. Since a rural route address is valid but not on the USPS list these were all excluded. Starting with the remail on wave 3 and continuing for the rest of the survey, the mailings were made using first class postage. This ended up saving money by not having to pay for the undeliverables to be returned when using bulk rate postage.

Remail questionnaires were mailed to those individuals who had not yet responded, from two to four weeks after the initial mailing. Returns for each wave were monitored and when they slowed down to a few each day the remail was sent. Included in the remail was an explanation, (see appendix A for examples), a duplicate questionnaire and a return envelope. Returns were grouped and counted according to type of license, wave and mailing (initial or remail).

Phone surveys were made to small sample of resident anglers license holders who had not responded in either the initial or remail survey. The phoning was not done for all waves because of time constraints. Thus no comparison of non-response bias could be made. Because of budgetary constraints, nonresident 2-day, and non-resident season were not phoned. Data from this survey was to be used to determine if a non-response bias existed and to make adjustments if necessary.

The formula used was:

$$A_{ij} = R_{ij} + \frac{P_{ij}}{M_{ij}} [1 - R_{ij}]$$

where  $A_{ij}$  = Adjustment factor for non-response for the  $i^{\text{th}}$  wave and  $j^{\text{th}}$  residency

$R_{ij}$  = Response rate for mail survey for  $i^{\text{th}}$  wave

and  $j^{\text{th}}$  residency (response rate is the total number of returns divided by the total number of surveys mailed out minus the number of undeliverable surveys)

$P_{ij}$  = Phone rate of days fished per respondent for  $i^{\text{th}}$  wave and  $j^{\text{th}}$  residency

$M_{ij}$  = Mail rate of days fished per respondent for  $i^{\text{th}}$  wave and  $j^{\text{th}}$  residency

Adjustment factors were set to 1.0 since the phoning was not done for enough waves or in a large enough sample size to be useful. After all questionnaires were received those that had fished in

Montana during the period in question were separated from those who said "no". The "yes" respondents were then hand coded and assigned a numeric code for each water fished. They were visually edited for accuracy and completeness.

All data were then keypunched with each day of fishing recorded as a single record. Edits were run to correct invalid water codes. FORTRAN computer programs were written to analyze the data, calculate fishing pressure and standard errors, and to calculate the angler satisfaction levels.

Estimates were made for individual waters based upon the formula:

$$P_j = \sum_{i=1}^n \left[ \frac{E_{ij} * D_{ij}}{R_{ij}} \right] * A_{ij}$$

$P_j$  = estimate of fishing pressure for an individual water by the  $j^{\text{th}}$  residency

$E_{ij}$  = Number of anglers for the  $i^{\text{th}}$  wave and  $j^{\text{th}}$  residency

$D_{ij}$  = Days fished that particular water for the  $i^{\text{th}}$  wave and  $j^{\text{th}}$  wave

$R_{ij}$  = Number of respondents from the survey for the  $i^{\text{th}}$  wave and  $j^{\text{th}}$  residency

$A_{ij}$  = Adjustment factor for non-response for the  $i^{\text{th}}$  wave and  $j^{\text{th}}$  residency

$n$  = number of waves in the estimate year or season

$j$  = number of residency types (resident, nonresident, or total) the variance was then calculated using

$$VAR(P_j) = \sum_{i=1}^n \left[ \frac{E_{ij}^2 * VAR(D_{ij})}{R_{ij}} \right] * A_{ij}^2$$

Where  $P_j$ ,  $E_{ij}$ ,  $R_{ij}$ ,  $D_{ij}$ , and  $A_{ij}$  are the same as above.

Pressure estimates between waves and residency were assumed to be independent so variances were summed to obtain total variances. The square root of the variance was taken and this number was reported as the error for fishing pressure.

#### LITERATURE CITED

- Bishop, Clinton G. 1959. Statewide creel census, census of fisherman's creel. Job completion Rept. Fed Aid in Fish and Wild. Rest. Acts. Prog. Rept. F-4-R-8, Job III. 9 pp.
- \_\_\_\_\_. 1960. Statewide creel census, census of fisherman's creel. Job completion Rept. Fed Aid in Fish and Wild. Rest. Acts. Prog. Rept. F-4-R-9, Job III. 9 pp.
- \_\_\_\_\_. 1961. Statewide creel census, census of fisherman's creel. Job completion Rept. Fed Aid in Fish and Wild. Rest. Acts. Prog. Rept. F-4-R-10, Job III. 11 pp.
- Fredenberg, Wade. 1984. South Central Montana fisheries investigations, Bighorn Lake and Bighorn River post-impoundment study. Job completion Rept. Fed Aid in Fish and Wild. Rest. Acts. Prog. Rept. F-20-R-27, Job IV-a. 46 pp.
- Gaffney, John J. 1975. Unpublished data. Montana Department of Fish, Wildlife and Parks. Bozeman, Mt.
- \_\_\_\_\_. 1982. Fishery management support services, inventory of resource status and fishing opportunity. Job Prog. rept. Fed Aid in Fish and Wild. Rest. Acts. Prog. Rept. F-4-R-31, Job I-c, 8 pp.
- Holton, George D. 1970. Statewide creel census and statistical services, statewide creel census. Job Prog. Rept. Fed Aid in Fish and Wild. Rest. Acts. Prog. Rept. F-4-R-18, Job I. 16 pp.
- \_\_\_\_\_. 1971. Statewide creel census and statistical services, statewide creel census. Job Prog. Rept. Fed Aid in Fish and Wild. Rest. Acts. Prog. Rept. F-4-R-19, Job I-a. 3 pp.
- \_\_\_\_\_. 1974. Statewide creel census and statistical services, statewide creel census. Job Prog. Rept. Fed Aid in Fish and Wild. Rest. Acts. Prog. Rept. F-4-R-22, Job I-a. 2 pp.
- Holton, George D. 1974. Statewide creel census and statistical services, statewide creel census. Job Prog. Rept. Fed Aid in Fish and Wild. Rest. Acts. Prog. Rept. F-4-R-23, Job I-a. 3 pp.

McFarland, Robert C. 1989. Montana Statewide Angling Pressure Mail Survey 1982-1985. Montana Department of Fish, Wildlife and Parks. Bozeman, Mt. 205 pp.

\_\_\_\_\_. 1991. Montana Statewide Angling Pressure Mail Survey 1989. Montana Department of Fish, Wildlife and Parks. Bozeman, Mt. 43 pp.

McFarland, Robert C. and Janet E. Hughes. 1994. Montana Statewide Angling Mail Survey 1991. Montana Fish, Wildlife and Parks. Bozeman, MT. 55 pp.

\_\_\_\_\_. 1995. Montana Statewide Angling Mail Survey 1993. Montana Fish, Wildlife and Parks. Bozeman, MT. 58pp.

\_\_\_\_\_. 1997. Montana Statewide Angling Mail Survey 1995. Montana Fish, Wildlife and Parks. Bozeman, MT. 58pp.

Peterson, Norman W. 1970. The yield of wild and hatchery trout from Big Spring Creek, Montana. M.S. thesis, Mont. State Univ., 35 pp.

Spence, Liter. 1971. Rock Creek creel census, summer census Final report. Job Prog. Rept. Fed. Aid in Fish and Wild. Rest. Acts. Prog. Rept. F-27-R, Job I, 64 pp.

Stevenson, H. R. 1975. The trout fishery of the Bighorn River below Yellowtail Dam, Montana. M.S. thesis, Mont. State Univ., 67 pp.

U. S. Fish and Wildlife Service. 1977. 1975 national survey of hunting, fishing and wildlife-associated recreation. U. S. Dept. of Interior, Washington D. C., 99 pp.

## Fisheries Resource Values

Montana Stream Fisheries Classification Assessment Guidelines January 1999

The classification of rivers in Montana for recreational fisheries was published in 1959. The classification stemmed from a concern over a ... "lack of satisfactory methods for measuring . . . their total (stream) fishery - both economical and social". This assessment was updated in 1980 to include species and habitat information and updated again in 1984-85 as part of the MRS. This classification system, with a complex set of data fields for each stream, became the basis for MRS which became the Montana Rivers Information System (MRIS) in 1989.

### Category 1 – Habitat and Species Value of a Stream Reach

The class of each reach is determined by a point system in which most points are awarded for important habitats of fishes of special concern. Fewer points are awarded for less important habitats of fishes of special concern and for the occurrence of widespread species found in substantial numbers. Least points are awarded for occurrence of non-indigenous species considered of minimal value. Additional consideration is given stream reaches with especially important spawning habitat. Points are also given for local community value where a stream, being one of a few or the only one in the immediate area, is important to a community for scientific study, nature study, and/or recreation. Spring creeks are given special recognition.

#### Procedure for Species and Habitat Category

Table 1 contains information on how a stream receives points in the habitat and species category for Montana's fish species of special concern. The row across the top indicate the genetic code of a species and the columns down represent the species or class of species and their habitat code following the slash mark. The junction of the column with the row are the points received for a particular species and its genetic and habitat code; i.e. the presence of a cutthroat trout in a stream reach with the best habitat, A (Table 5) and an A (Table 6) in column 1 would receive 18 points.

Table 1. Matrix for determining points for presence of Species of Special Concern.

#### Genetic Codes

Species/Habitat Code	A	B	C	D	E	I	J	K	L
Cutthroat Trout/ A	18	10	10	10	0.6	10	18	10	8
Cutthroat Trout/ B	18	18	5	5	0.6	10	18	10	8
Cutthroat Trout/ C	10	5	3	3	0.6	5	18	5	3
Cutthroat Trout/ D	5	3	0.6	0.6	0.6	3	5	3	2
Cutthroat Trout/ N	0	0	0	0	0	0	0	0	0
FSSC* Class A**/ A	18	18	10	10	0.6	18	18	10	
FSSC Class A/ B	18	18	5	5	0.6	18	18	18	
FSSC Class A/ C	10	10	3	3	0.6	10	10	10	
FSSC Class A/ D	5	5	0.6	0.6	0.6	5	5	5	
FSSC Class A/ N	0	0	0	0	0.6	0	0	0	
FSSC Class B***/ A	10	10	5	5	0	10	10	10	

FSSC Class B/ B	5	5	3	3	0	5	5	5	
FSSC Class B/ C	3	3	1.5	1.5	0	3	3	3	
FSSC Class B/ D	0.6	0.6	0.6	0.6	0	0.6	0.6	0	
FSSC Class B/ N	0	0	0	0	0	0	0	0	
FSSC Class C****/ A	5	5	3	3	0	5	5	5	
FSSC Class C/ B	3	3	1.5	1.5	0	3	3	3	
FSSC Class C/ C	1.5	1.5	0.6	0.6	0	1.5	1.5	1.5	
FSSC Class C/ D	0.6	0.6	0.6	0.6	0	0.6	0.6	0	
FSSC Class C/ N	0	0	0	0	0	0	0	0	

\*Fish species of Special Concern

\*\*Class A species of special concern include White Sturgeon, Pallid Sturgeon, Paddlefish, Arctic Grayling, Bull trout, Westslope and Yellowstone Cutthroat trout

\*\*\* Class B Species of Special Concern include: Native rainbow trout, sturgeon chub, and sicklefin chub

\*\*\*\*Class C Species of Special Concern include shortnose gar, pearl dace, northern redbelly dace x finescale dace, trout-perch, shorthead sculpin, and spoonhead sculpin

Table 2. Additional points received for species other than species of special concern.

0.6 points	Abundant or common population of either native fish not included above, non-native class A game or sport fish or non-native trout.
0.4 points	Same as above only abundance is uncommon
0.2 points	Same as above only abundance is unknown but present
0.1 points	Presence of any species not listed above
3.0 points	Local Community Importance: Stream is one of few streams or the only one in the immediate area and is important to community for scientific study, nature study, and/or recreation.

### Spring Creeks

Stream is a **spring creek** of: Upgrade to

outstanding value	Class 1
high value	Class 2
substantial value	Class 3

### Spawning Habitat

**E = Habitat** (including passage) is essential to maintaining the population of the receiving stream; stream reach is upgraded to a Class 1 or 2 habitat and species value if the spawning habitat is for a Class 1 or 2 sport fishery value, respectively.



**I = Habitat** (including passage) is an important source of recruitment but population would not be lost if habitat eliminated; stream reach is upgraded one class but not higher than a Class 3.

Table 4. Assignment of Habitat and Species Class  
Species and Habitat Class Points

Class 1	18.0 or more
Class 2	9.0 to 17.9
Class 3	5.0 to 8.9
Class 4	0.4 to 4.9
Class 5	0.0 to 0.3
Class 6	0

Table 5 . Genetic ratings used in MRIS.

Code Definition

A	Genetically pure, determined by electrophoresis
B	Potentially pure with no record of contaminating species
C	Potentially pure, contaminating species planted in drainage historically
D	Especially valuable genetically pure or potentially pure trout with contaminating species
E	Potentially pure with contaminating species
H	Hybridized species based on electrophoresis
I	Genetically pure; could be invaded by contaminating species
J	99.0%-99.9% pure based on electrophoresis
K	95.0%-98.9% pure based on electrophoresis

Table 6. Habitat ratings used in MRIS\*. Code Definition

A	Best habitat
B	Substantial habitat value
C	Moderate habitat value
D	Limited value habitat
N	Unknown

\*The habitat value for a fish of special concern reflects biological values, such as competing species, as well as physical attributes and is a judgment decision by a fisheries biologist.

### Category 2 – Sport Fishery Value of Stream Reach

#### Criterion I. Fish Abundance - Award of Points and Assignment of Grade

Table 7. Points for all trout species with recorded biomass

Biomass (pounds/1,000 ft)\* Points

110 or more	9.0
33 to 110	7.0
11 to 32.9	5.0
7.7 to 10.9	2.0
2.2 to 7.6	1.0
0.0 to 2.1	0.0

\*If available, up to 3 years of biomass data for each species present in a stream reach were totaled and average to calculate biomass.

Table 8. Points for abundance of trout with unrecorded biomass and class A game fish.

Abundance Rating Points

Abundant	2.0
Abundant with large fish*	3.0
Common	1.0
Uncommon	0.5

Note: Maximum for mountain whitefish is 2.0 points

\*The presence of large fish were determined from the population estimate data for a stream reach (trout > 12 inches).

Table 9. Assignment of abundance grade  
Points Grade

9.0 or more	4
6.0 to 8.9	3
3.0 to 5.9	2
1.0 to 2.9	1
0.0 to 0.9	0

Criterion II. Ingress - Assignment of Grade

Table 10 . Ingress ratings, grades and definitions

Ratings Grade Definition

1	4	Almost entirely public lands
2	3	Mix of private/public lands, none significantly unavailable
3	3	Ingress readily available by permission
4	2	Ingress limited, but some fishing is allowed
5	1	Public fishing is available for a fee
6	0	Little or no ingress allowed, to small to float
7	0	On public lands; access through posted private land or locked gates

Criterion III. Esthetics - Assignment of Grade

Table 11. Esthetic Ratings, Grades and Definitions

Ratings Grade Definition

A	3	Natural beauty in a pristine setting
B	2	Natural beauty but lacking pristine setting; presence of human development
C	1	Clean stream in a natural setting
D	0	Stream and area with fair esthetics
E	0	Stream and area with low esthetics
F	4	National renown

**Criterion IV. Use (Fishing Pressure) - Assignment of Grade**

Table 12. Assignment of Fishing Pressure Grade

Angler days/year/mile\* Grade

204 or more	4
49.6 to 203	3
10.9 to 49.5	2
4.9 to 10.8	1
0 to 4.8	0

\* If available, the last three years of fishing pressure were used to calculate angler days per mile; the 3 years were averaged together. Data were obtained from the FWP Mail Survey.

**Computation of Sport Fishery Value Score and Assignment of Class**

a. **Score** = Sum of (Grade for each criterion x multiplier (multiplier for fish abundance is 2; multiplier for other criteria is 1.))

b. **Assignment of Class**

<u>Score</u>	<u>Conditions</u>	<u>Sport Fishery Value Class</u>
17 or more	Fish production based on natural production and ingress rating of 1,2 or 3 and esthetics rating of A, B, C or F and use greater than 235 angler days/year/mile <b>OR</b>	1
	<u>Wilderness Sport Fishery</u> Fish Production based on natural reproduction and westslope cutthroat numbers >200/1,000 ft and fishing pressure > 45/mile <b>OR</b>	1
	Fish Production based on natural reproduction and Paddlefish with Abundance of B and ingress rating of 1,2 or 3 and esthetics rating of A, B, C or F	1
14 or more	Ingress rating of 1, 2, or 3 and use greater than 75 angler days/year/mile <b>OR</b>	2
	<b>Remote Sport Fishery</b> Fish Production based on natural reproduction	2
11 or more		3
4 to 10	Game or sport fish present	4
0.1 to 10	No game or sport fish present	5
0	No fisheries data available	6

**ASSIGNMENT OF FISHERY RESOURCE VALUE CLASS**

The fishery resource value class is the higher class given for Category 1 or 2 above.

## **Instream Flow Protection/Quantification**

The water policy of Montana specifies that "the water resources of the state must be protected and conserved to assure adequate supplies for public recreational purposes and for the conservation of wildlife and aquatic life (Section 85-1-101(5), MCA). As the maintenance of instream flows has grown to be a major use of western water, several strategies have become available to protect instream flows. Together they provide an uncoordinated, yet relatively comprehensive, set of strategies. In 1969, the Montana Fish and Game Commission was given the authority by the Legislature to file for water rights on the unappropriated waters of 12 streams to maintain stream flows necessary for the preservation of fish and wildlife habitat (Section 89-901 (2), RCM 1947). The appropriated "*Murphy Rights*" (named after the principal sponsor of the bill), have a priority only until a district court determines that such waters are needed for a more beneficial use. To date, the appropriations have not been challenged in court by other water uses. No future instream values can be protected by the Murphy Rights because its statutory authority is no longer applicable.

**The Montana Water Use Act** was passed in 1973 and established a mechanism for the protection of instream values through a systematic and comprehensive approach (Section 85-2-316, MCA). The Act developed a process for future diversionary and consumptive uses by the state or the United States or any political subdivision or agency thereof to reserve water for existing or future beneficial uses or to maintain a minimum flow level for water quality (Section 85-2-316 (1), MCA). Instream flows were reserved on 2,078 stream miles in 69 stream segments in the Yellowstone River Basin in 1978. The Clark Fork and Missouri River drainages have been reserved in the 1990s.

A third strategy to protect instream values is the use of "*reasonable use*" or "*public interest*" criteria for initial permit applications and for changes in appropriative rights (Section 85-2-311 (2)(c), MCA). Because the criteria only apply to applications for very large amounts of water, their effectiveness to protect instream flows are limited.

The use of two federal statutes which condition hydropower licenses have also been used to protect instream values of water in Montana. The **Federal Power Act** has been used by the state to condition licenses by requiring the release of a certain flow at specified times for the protection of valuable fisheries. A measure in the Northwest Power Planning Council's Fish and Wildlife Program addressed the protection of fisheries below the Hungry Horse Dam by requiring a minimum flow release from the reservoir. In addition to condition water rights permits, the state has also successfully negotiated with reservoir operators for voluntary release of water.

The MFWP may represent the public in adjudication proceedings for purposes of establishing any public recreation uses of water prior to 1973 (Section 85-20-223, MCA). The policy of the MFWP is to represent the public only when a specific request is received.

For full documentation of Montana's instream flow protection strategies they have been addressed in an issue paper produced by the Water Resources Division of the DEQ as part of the State Water Plan (MDNRC 1987 and 1988).

## Protected Designation

Northwest Power Planning Council's Protected Areas Program

Beginning in 1983, the Northwest Power Planning Council (Council) directed extensive studies of existing habitat and has analyzed alternative means of protection. In 1988, the Council concluded that: 1) the studies had identified fish and wildlife resources of critical importance to the region; 2) mitigation techniques cannot assure that all adverse impacts of hydroelectric development on these fish and wildlife populations will be mitigated; 3) even small hydroelectric projects may have unacceptable individual and cumulative impacts on these resources; and 4) protecting these resources and habitats from hydroelectric development is consistent with an adequate, efficient, economical, and reliable power supply. The Council, relying on these studies, designated certain river reaches in the basin as "protected areas," where the Council believes hydroelectric development would have unacceptable risks of loss to fish and wildlife species of concern, their productive capacity or their habitat. River reaches to be protected are those reaches or portions of reaches listed on the "Protected Areas List" adopted by the Council on August 10, 1988, and subsequently. For each river reach listed on the Protected Areas List, the fish and wildlife to be protected are those on the list.

### Section 12 of the Fish and Wildlife Program FUTURE HYDROELECTRIC DEVELOPMENT

Much of this program has focused on mitigating damage done to Columbia River Basin fish and wildlife by hydropower development and operations in the past. But the future is equally important. The Corps of Engineers and the Bureau of Reclamation continue to study the need for additional federal hydroelectric projects and to plan for new development in the basin. The Federal Energy Regulatory Commission has many permits and applications pending for hydroelectric development in Idaho, Oregon, Montana and Washington. Many of those applications and permits are for projects throughout the Columbia River Basin. Dozens of small or medium-sized hydroelectric projects are proposed for tributary drainage basins that contain important anadromous fish habitat. However, most new hydroelectric development will be accomplished by private or non-federal public entities licensed by the Federal Energy Regulatory Commission.

Many of the proposals are for hydroelectric projects that would produce less than 5 megawatts of electricity. Although individual small projects may have no significant adverse effects on the fish and wildlife resources of the basin, the cumulative effects of such development throughout a river basin could be quite harmful. These cumulative effects need to be taken into account fully.

The Council estimates that 4,600 stream miles of Columbia River Basin salmon and steelhead spawning and rearing habitat have been lost to development, not including losses of migration routes and of resident fish and wildlife habitat. Minimizing further habitat loss is especially important in view of the Council's goal of doubling salmon and steelhead runs in the Columbia River Basin consistent with system policies (see Sections 2 and 4). Development in critical fish and wildlife areas leads to divisive and expensive conflicts that the Council believes can be avoided through resource planning. The Council finds that future hydroelectric developers in the basin should be required to mitigate harm to fish and wildlife and has adopted program measures calling for such mitigation. New hydroelectric development has the potential to cause further damage to the basin's fish and wildlife resources as well as to negate ongoing Council efforts to remedy damage caused by the existing hydropower system. Federal agencies also should assess and mitigate the cumulative effects on fish and wildlife of multiple hydroelectric projects.

The Council also intends to continue to review applications for Federal Energy Regulatory Commission permits and licenses and for Corps of Engineers and Bureau of Reclamation proposals

for hydroelectric development. The purpose of this review is to identify program measures related to the proposed development to ensure that any new development in the basin is consistent with this fish and wildlife program and the Council's Northwest Power Plan. The Council's reviews would complement and recognize, not supplant, the role of the fish and wildlife agencies and tribes in reviewing proposals for hydroelectric projects.

## 12.1 FUTURE HYDROELECTRIC DEVELOPMENT

### 12.1A Conditions

Federal Energy Regulatory Commission, Corps of Engineers, Bureau of Reclamation and Bonneville

#### 12.1A.1

Do not license, exempt from license, relicense, propose, recommend, agree to acquire power from, grant billing credits for, or otherwise support any hydroelectric development in the Columbia River Basin without providing for:

consultation with the fish and wildlife agencies and tribes and the Council throughout study, design, construction and operation of the project; specific plans for flows and fish facilities prior to construction; the best available means for aiding downstream and upstream migration of salmon and steelhead; flows and reservoir levels of sufficient quantity and quality to protect spawning, incubation, rearing and migration; full compensation for unavoidable fish losses or fish habitat losses through habitat restoration or replacement, appropriate propagation, or similar measures consistent with the provisions of this program; assurance that the project will not inundate the usual and accustomed fishing and hunting places of any tribe; assurance that the project will not degrade fish habitat or reduce numbers of fish in such a way that the exercise of treaty rights will be diminished; and assurance that all fish protection measures are fully operational at the time the project begins operation.

#### 12.1A.2

Do not license, relicense, exempt from license, propose, recommend, agree to acquire power from, or otherwise support any hydroelectric development in the Columbia River Basin without specifically providing for these development conditions: consulting with the wildlife agencies and tribes and the Council throughout study, design, construction and operation of the project; avoiding inundation of wildlife habitat, insofar as practical; timing construction activities, insofar as practical, to reduce adverse effects on nesting and wintering grounds; locating temporary access roads in areas to be inundated; constructing subimpoundments and using all suitable excavated material to create islands, if appropriate, before the reservoir is filled; avoiding all unnecessary or premature clearing of land before filling the reservoir; providing artificial nest structures when appropriate; avoiding construction, insofar as practical, within 250 meters of active raptor nests; avoiding critical riparian habitat (as designated in consultation with the fish and wildlife agencies and tribes) when clearing, riprapping, dredging, disposing of spoils and wastes, constructing diversions, and relocating structures and facilities; replacing riparian vegetation if natural revegetation is inadequate; creating subimpoundments by diking backwater slough areas, creating islands and nesting areas; regulating water levels to reduce adverse effects on wildlife during critical wildlife periods (as defined in consultation with the fish and wildlife agencies and tribes); improving the wildlife capacity of undisturbed portions of new project areas (through such activities as managing vegetation, reducing disturbance, and supplying food, cover and water) as compensation for otherwise unmitigated harm to wildlife and wildlife habitat in other parts of the project area; acquiring land or management rights where necessary to compensate for lost wildlife habitat at the same time other project land is acquired and including the associated costs in project cost estimates; funding operation and management of the acquired wildlife land for the life of the project; granting management easement rights on the acquired wildlife lands to appropriate management entities; and collecting data needed to monitor and evaluate the results of the wildlife protection efforts.

#### 12.1A.3

Ensure that all licenses for hydroelectric projects or documents that propose, recommend or otherwise support hydroelectric development explain in detail how the provisions of Sections 12.1A.1 and 12.1A.2 will be accomplished or the reasons why the provisions cannot be incorporated into the project.

## 12.2 PROTECTED AREAS

From the inception of this program, the Council has supported the concept of protecting some streams and wildlife habitats from hydroelectric development, where the Council believes such development would have major negative impacts that could not be reversed. Beginning in 1983, the Council directed extensive studies of existing habitat and has analyzed alternative means of protection. In 1988, the Council concluded that: 1) the studies had identified fish and wildlife resources of critical importance to the region; 2) mitigation techniques cannot assure that all adverse impacts of hydroelectric development on these fish and wildlife populations will be mitigated; 3) even small hydroelectric projects may have unacceptable individual and cumulative impacts on these resources; and 4) protecting these resources and habitats from hydroelectric development is consistent with an adequate, efficient, economical, and reliable power supply. The Council, relying on these studies, designated certain river reaches in the basin as "protected areas," where the Council believes hydroelectric development would have unacceptable risks of loss to fish and wildlife species of concern, their productive capacity or their habitat.

River reaches to be protected are those reaches or portions of reaches listed on the "Protected Areas List" adopted by the Council on August 10, 1988, and subsequently. For each river reach listed on the Protected Areas List, the fish and wildlife to be protected are those on the list. The Council will supply a copy of the Protected Areas List to any party free of charge.

### 12.2A Protect Areas From New Hydropower Development

The following are not affected by protected areas:

any hydroelectric facility or its existing impoundment that as of August 10, 1988, had been licensed or exempted from licensing by the Federal Energy Regulatory Commission;

the relicensing of such hydroelectric facility or its existing impoundment;

any modification of any existing hydroelectric facility or its existing impoundment; and

any addition of hydroelectric generation facilities to a non-hydroelectric dam or diversion structure.

Transition projects: The Council recognizes that there exist, as of August 10, 1988, applications for hydroelectric projects that are in various stages of completion before the Federal Energy Regulatory Commission. In many cases the applicants have made substantial investments and have completed, or nearly completed, agreements with all interested parties, including state fish and wildlife agencies. The Council recognizes that the Federal Energy Regulatory Commission may be obligated to complete its processes on these applications, but expects where possible that this measure will be taken into account to the fullest extent practicable.

The Council recognizes that there may exist preliminary permits or applications for licenses or exemptions for hydroelectric projects at sites which were not previously within protected areas but which may be included within protected areas as a result of amendments approved by the Council. An important purpose of protected areas is to encourage developers to site projects outside protected areas. The Council therefore exempts from the effect of an amendment that designates a previously unprotected area as protected, any project for which the developer had obtained a preliminary permit or filed an application for license or exemption prior to the date on which the Council entered rulemaking on the amendment. However, it is the Council's intention that the Federal Energy Regulatory Commission give full consideration to the protection of fish and wildlife resources located at these project sites and provide suitable protection and mitigation for such resources in the event that a license or exemption is approved.

Effect on water rights and riparian areas: This measure should not be interpreted to authorize the appropriation of water by any entity or individual, affect water rights or jurisdiction over water, or alter



or establish any water or water-related right. The Council does not intend this measure to alter or affect any state or federal water quality classification or standards, or alter any management plan developed pursuant to the national Forest Management Act, 16 U.S.C. 1601, et seq., or the Federal Land Policy Management Act, 43 U.S.C. 1701, et seq., except to the extent planning decisions are directly related to hydropower licensing and development. Nor should this measure be interpreted to alter, amend, repeal, interpret, modify, or conflict with any interstate compact made by the states. If this measure is found by a court or other competent authority to conflict with any other interstate compact, this measure will terminate with respect to the area involved, without further action of the Council.

This measure applies to river reaches, or portions of river reaches, and to river banks or surrounding areas only where such areas would be directly affected by a proposed hydroelectric project. In adopting this measure, the Council has not attempted to balance all the factors that may be relevant to land management determinations.

Bonneville Power Administration

#### 12.2A.1

Do not acquire power from hydroelectric projects located in protected areas. The Council believes that the Long-Term Intertie Access Policy's reliance on protected areas is consistent with the Council's power plan and fish and wildlife program as they apply to fish and wildlife in the Columbia River Basin. The Council continues to recommend that Bonneville adopt a similar policy with respect to protected areas outside the Columbia River Basin.

Federal Energy Regulatory Commission

#### 12.2A.2

Under the Northwest Power Act, the Federal Energy Regulatory Commission, and all other federal agencies responsible for managing, operating, or regulating federal or non-federal hydroelectric facilities located on the Columbia River or its tributaries are required to take protected area designations into account to the fullest extent practicable at all relevant stages of decisionmaking processes. The Council recognizes that the Federal Energy Regulatory Commission makes licensing and exemption decisions for nonfederal projects, and does not expect that the Commission will abandon its normal processes with regard to projects located in protected areas. Rather, consistent with Section 4(h)(11) of the Northwest Power Act, the Council expects that the Federal Energy Regulatory Commission will take the Council's judgment into account, and implement that judgment in licensing and exemption decisions unless the Federal Energy Regulatory Commission's legal responsibilities require otherwise.