THE MONTANA STREAM FISHERY CLASSIFICATION MAP

1. The absence of a satisfactory method for measuring the total worth of a recreational fishery, the social as well as the economic value, is one of the more serious obstacles confronting preservation of Montana's fishing streams. Unlike other water uses, recreational fishing does not lend itself to a material measurement which often results in an underselling of the fishery resource at the bargaining table of comprehensive planning.

2. Montana has long boasted of "32,000 miles of well stocked fishing streams." As the years go by the boast attracts less and less attention simply because so many other states also claim many thousands of miles of "top quality" fishing streams. Neither the basis of the estimate nor its accuracy is being questioned, but let's pause for a minute and consider some questions that become more pressing every day in the conservation of our stream fisheries. What is the over-all effect of other water uses on Montana's fishery resource? What is the significance of losing 10, 50, or 100 miles of fishing streams per year? Where is our fishing located? Just how good is it? How much of it do we have? Which reaches of our streams offer the most for the future? Unless we know what we've got to work with, that is an inventory and appraisal of our fishing waters, these questions will go largely unanswered. And--fishery conservation will continue to be characterized by an amoeboid movement.

3. Recognizing the need for an inventory and appraisal that would indicate the relative worth of one fishing stream to another and the expected contribution of each to the over-all fishery of the State, a committee composed of personnel of the Montana State Fish and Game Department, the Montana State College, and Missouri River Basin Studies explored various ideas for classifying Montana streams. Data used in classifying the streams was accumulated over a period of years, from many sources, and interpreted in the light of equally extensive field observations. "Worth", as used in the classification, includes social, biological and economic considerations, thus indicating extent or degree of many of the intangibles that have not been possible to measure by previously used methods of appraisal. The more important factors influencing the worth of the fishery resource to the people have been interpreted in the light of the potential contribution of the fishery locally, state and nationwide.

4. With the many new and increasing demands being made on our waters, it is evident that fishery interests cannot remain on the sidelines and expect that other water users will save a place in the over-all program of water use for recreational stream fisheries. A prerequisite to the conservation of stream fisheries is the preservation of suitable habitat. We cannot expect recreational fisheries to receive much more than incidental attention in water use planning until we more forcefully demonstrate the real benefits of fishery resources than we have to date. Fishery conservation does not have the

support of the public at large simply because Montanans are not aware of what the potential worth of our recreational fisheries can mean to their social and economic well being.

5. The reasons for fishing have changed considerably since pioneer days when food obtained was more important than recreation. Nevertheless our fishery resource continues to offer social and economic values of major importance. Creel census studies and other observations reveal fishermen expenditures of thousands of dollars per mile annually on some of the better streams in the Northern Rocky Mountain area. Fishing today is usually for fun, a social value; however, it is the opportunity afforded for a particularly desirable type of recreation that attracts an ever-increasing number of anglers to our streams. In many areas this increased activity is being recognized for its very real material worth, the economic aspect in the form of tourist dollars.

6. A major difficulty has been to devise a system of appraisal that would be simple enough for practical application, broad enough to include all factors contributing to a stream's worth as a fishing stream, and capable of being portrayed in an understandable manner. It is believed that the stream classification map provides an easily understood and reliable measure of the amoun and the relative worth of the stream fisheries of Montana. Being an appraisal as well as an inventory it provides a management base sufficiently broad to encourage coordination of conservation activities such as administration, rules and regulations, research, habitat preservation, stocking programs, I & E Programs, river basin studies investigations, and comprehensive planning.

7. The committee conferred with the fishery manager of each district of the fishery division of the Montana State Fish and Game Department. Using the method described in the following pages, 436 streams or parts of streams, (totaling 8923 stream miles) were classed as fishing streams. District fishery managers were invaluable in rating the streams according to their relative worth within each district. Following a thorough review of the district ratings with district fishery managers, the committee applied the same method in classifying the streams according to their relative worth on a state-wide basis. The results have been recorded in three ways: (1) a map designating stream class by color, (2) a card index listing the principal characteristics of each stream classified, and (3) an alphabetical tabulation by Class on the reverse side of the map.

8. A method of rating four basic factors in terms of existing and expected conditions followed by the consideration of these factor ratings is the basis of the Classification.

9. The factors are: (1) availability, (2) esthetics, (3) use, and (4) productivity. For purposes of this discussion the words "factor", "rating", "class", and "stream" are defined as follows:

Factors are the four major headings, availability, esthetics, use, and productivity, each of which is rated on an appraisal of potential quality.

Factor ratings are the actual letters, a, b, c, d, and e assigned to each factor.

Class is the final classification based on an appraisal of the relative significance of the factor ratings.

Stream - any course of flowing water regardless of size, that is important or may be important as a fishing stream.

Colors selected for the four classes are as follows:

Class 1 streams - blue (on the map)

Class 2 streams - red

Class 3 streams - yellow

Class 4 streams - gray

Class 5 streams - not colored

10. Wherever possible river miles have been taken from official references such as mileage tables of the Bureau of Reclamation, or the Corps of Engineers. However, in the case of most of the smaller streams the committee has had to rely on measurements made by map measure, and estimates based on local knowledge of the streams involved.

11. In the interest of uniformity general conditions were established as a guide in the rating of each factor. As an example the guidelines set up for rating the factor of "Esthetics"

Esthetics

(Naturalness - including wilderness qualities.
(Beauty - attractiveness of surroundings, particularly unique types of beauty.
(Usableness - climate and biological factors (pests).

"a" rating.--A stream of outstanding natural beauty usually of a unique type and possessing wilderness characteristics. Streams usually clean and clear. Climatic characteristics that add to the pleasure of fishing.

"b" rating.--A stream comparable to (a) except that it often lacks wilderness characteristics. Presence of human developments such as roads, farms, or commercial establishments usually comprise the chief differences between (a) and (b). This type of stream usually has high use by tourists.

In some cases, however, the limiting consideration might be climatic or biological. Excessive rainfall, extreme cold or insect pests might be so bothersome as to limit esthetic value.

"c" rating.--A stream of considerable natural beauty but of a more common type than listed under (a) and (b). Clean and usually clear streams flowing through attractive agricultural areas or rough lands with picturesque scenery. This type of stream often is favored by tourists.

"d" rating.--An area with average scenic or esthetic qualities. This type of stream is fairly common and has some attraction for nonresident tourists. The waters are clean, the scenery is appealing. The land is not abused. The area, however, lacks what usually are considered unusual or outstanding scenic qualities.

"e" rating.--A stream with fair esthetic qualities. Water is often turbid. The surrounding country has only mediocre scenic appeal and is of common occurrence. A lack of stream-side cover often is apparent. Mud banks are common and stream flows occasionally may become so low as to expose extensive expanses of mud flats and sand bars. Obnoxious domestic and industrial wastes may occur. This type of stream's primary esthetic appeal usually lies in the fact that although it may not be attractive, it does offer local people an opportunity to get outdoors near some water.

12. Comparable guidelines were established for each of the remaining factors but in the interest of brevity only the more important considerations are given here.

Availability

(Roads - type, condition, proximity to stream, and
(vehicular access to stream-side.
(Stream access in terms of posting and availability
(to use, natural factors such as brush,
(marshes, canyons, and mud flats which might
(limit access.
(Lodging and campsites-number, cost and convenience.
(Location in reference to centers of human population.

Esthetics (covered in full above)

Use

Expected number of fisherman days annually per mile of stream:

factor ratings	examples
(a) Over 1000	Missouri River, Cascade to Holter Dam.
(b) 500 - 1000	Blackfoot River, mouth to Nevada Creek.
(c) 250 - 500	Beaverhead R. Blaine to Baratts.
(d) 100 - 250	Dearborn River.
(e) Under 100	Clark Fork Columbia River, Bonner to mouth of Little Blackfoot.

Productivity

Present biological and morphological qualities of the stream which determine its natural capacity to produce recreational fishes.

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Primary Considerations	Stream size - in terms of width rather than flow.
	Morphometry - the interspersion of pools and riffles, gradient, and barriers to fish migration.
	Cover - depth, boulders, under cut banks, vegetation.
	Spawning sites for useful fishes.
	Fish food - production of plankton, insects and crustaceas.
	Water quality - fertility, temperature and pollutants.

13. Prerequisites were established such as a minimum of two a's and two b's for Class 1 and on down the line for Classes 2, 3, and 4. After considerable time and effort it was obvious that a hard and fast rule for each class was not possible. However, the 1959 Classification reveals that Class 1 streams with a single exception, rate two a's and two b's or higher (ratings of the individual factors). The one exception is an exceedingly productive, available, and heavily used 20-mile reach of the Missouri River a short distance below its origin - the confluence of the Gallatin, Madison, and Jefferson Rivers. This reach of stream is bordered by dry arid hills and the factor of esthetics rated "d." The classification ran into many comparable situations which greatly complicated attempts at establishing minimum qualifications for each class.

14. In this type of stream classification where judgment appraisals serve as the basis, it is almost impossible to explicitly define all considerations. The factor definitions do overlap and are not strictly definitive. Classification of streams by this method will not result in 100 percent agreement among individuals. The approach does have certain values: (1) It identifies the major factors considered in the overall worth of a fishery. (2) The classification of stream fisheries is on a state-wide level - a level comparable with statewide management programs. (3) The classification clearly sets forth the relative importance of the streams in the statewide fishery picture rather than leaving this important determination unanswered.

15. There are a number of small creeks with varying degrees of fish life that have not been classified (automatically in Class 5 with those of restricted local value). Some of these streams may even be added to Class 4 as we learn more about them. Class 4 is capable of much expansion without impairing the significance of Classes 1, 2, and 3. The classification as it now stands covers practically all streams on which Montana must rely for stream fishing in the future. Looking at it another way, we might say that by the time the fishery of the Class 4 and 5 streams becomes vitally important in the state-wide fishery picture, Montana will have lost a lot of infinitely better recreational fishing streams. (Classes 1, 2, amd 3)

16. The interest of all the people and of all water uses are fundamental in an inventory and appraisal such as we have compiled for Montana. Considerations range from local to national levels, and include social, biological, and economic factors. Even with a fairly extensive knowledge of field conditions, we have not been able to devise a formula, chart, or graph that will give an inventory and appraisal of our recreational stream fisheries as promising as the Classification Map.

17. The Classification Map has had an enthusiastic reception since its appearance in late December (1959). Requests for the map, along with commendations, have been received from private and public conservation organizations and from local through national levels. Acclaim has not been limited to those primarily concerned with fishery resources. It has come from other water interests too. This is particularly noteworthy since altogether too often in the past comprehensive planning has been rendered ineffective by the unwillingness of some water interests to "lay the cards on the table." Fishermen, including some of national repute, in lauding the Classification declare it is a big step forward in long range planning for the conservation of Montana's fine fishing streams. The Fish and Game Department, Montana State College, and Missouri River Basin Studies of the Bureau of Sport Fisheries and Wildlife are gratified with the reception; however, they are fully aware that the classification is not the end but only a step forward in conservation of the resource.

18. If there is an alternative to the classification in assessing the potentialities of our recreational fishing streams, can it be anything other than more of what we have already had--the rating of our waters by most anyone other than the career men of fishery conservation? We think not!

The above draft compiled by
Joe M. Halterman, member Montana
Stream Classification Committee,
17 August 1960.

Copies to: Dr. C.J.D. Brown,
Montana State College,
Chairman.

George D. Holton,
Montana Fish and Game Department,
Member.

Perry H. Nelson, Montana Fish
and Game Department, Member.