

Correctly Classifying Streams to Protect Fisheries and Domestic Water Supplies



The Idaho Forest Practices Act

State Forester Forum

Harvesting of forest tree species is a part of forest management by which wood for human use is obtained and by which forests are established and tended. It is recognized that during harvesting operations there will be a temporary disturbance to the forest environment.

One of the purposes of the Idaho Forest Practices Act (IFPA) is to establish minimum standards for forest practices that ensure the continuous growing and harvesting of tree species while protecting and maintaining the benefits provided by forest resources such as the forest soil, air, water resources, wildlife and aquatic habitat. To ensure that beneficial uses such as domestic water supply and salmonid spawning are protected, streams are classified as Class I or Class II based on the presence of domestic water users or fish.

Rule 010.58.a of the IFPA defines a Class I stream as those streams that are used for domestic water supply or are important for the spawning, rearing, or migration of fish. Domestic use waters shall be considered to

be Class I upstream from the point of diversion for a minimum of 1320 ft. Domestic use waters do not include streams that provide water only for livestock, irrigation, or other uses not directly associated with human health.

Rule 010.58.b of the IFPA defines Class II streams as those streams that are usually headwater streams or minor drainages that are used by few, if any, fish for spawning or rearing. The rule states that "Where fish use is unknown, consider streams as Class II where the total upstream watershed size is less than 240 acres in the north forest region and 460

acres in the south forest region." The principle value of Class II streams lies in their influence on water quality downstream in Class I streams. Stream classification calls are primarily based on direct observation and professional judgment, and should not rely on the acreage breaks stated in this Class II definition as an absolute.

Generally, Class II stream designation (few if any fish) is given to streams without any historic or existing fish populations. This means that any



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stream that historically had fish and is capable of supporting them in the future through proper management can be classified as a Class I stream.

The IFPA stream protection rules were designed to ensure fish habitat and water quality are protected. These rules state the minimum amount of shade, large organic debris, and vegetative buffer that must be left along a stream based upon its classification. It is important to remember that the intent of these rules is to ensure that forest practices do not impair beneficial uses of streams. The IFPA specifies only the minimum standards for the conduct of forest practices, and consequently will not apply in all situations. Steep side slopes, unstable or overly wet conditions, low elevation trout bearing streams or streams with important fishery needs are all cases where the listed minimum standards may not provide the protection a stream needs to maintain a self sustaining fish opulation or provide clean water for domestic users.

Determining Stream Classification

Domestic Use

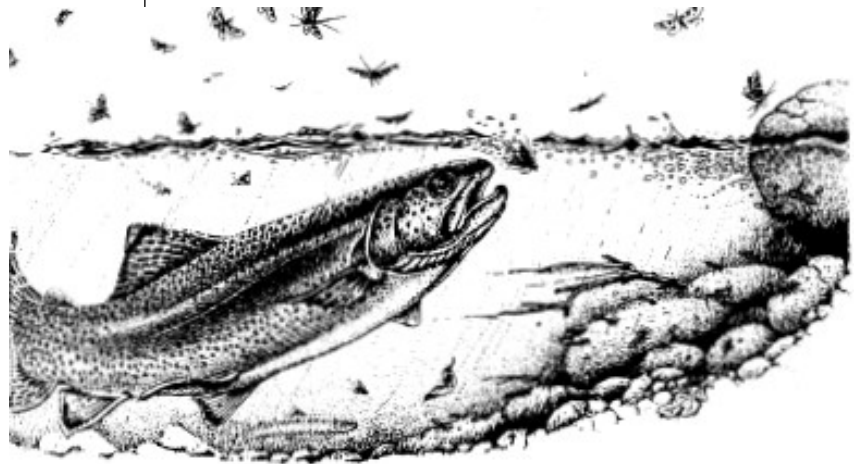
Domestic water use can sometimes be confirmed by the Idaho Department of Environmental Quality (IDEQ) and/or Idaho Department of Water Resources (IDWR). The IDEQ maintains a list of public water supply watersheds (>25 users) and IDWR registers water rights and domestic water sources. Presence or absence of a water right does not constitute domestic use and should be verified. Numerous other domestic users are not registered with DEQ or IDWR and must be investigated case by case. The Idaho Department of Lands will conduct (by policy, not rule) a preoperational inspection for logging operations that occur in public water supply watersheds.

Fish Presence

Stream Classification by fish presence can be difficult to determine, particularly on smaller streams, and has resulted in the misclassification of many streams in the past. Often, all it takes to determine if fish are present in a stream is to walk along it slowly during lower flows when the water

is clear. Do not assume fish do not use a stream just because they are not observed. Many fish blend in with their surroundings or seek security during daylight hours. Fish may only use a stream seasonally or for specific life stages. Finally, the stream may have been degraded by historical practices (skidding down stream channel), causing the fish population to be lost altogether. Such streams, if properly managed, can recover and support fish.

Do not assume that fish will not exist above impassible barriers, overly steep gradients or in



small or intermittent streams. An impassable barrier, while it limits the upstream distribution of migratory species, does not prevent fish from living upstream. Salmonids (trout, whitefish and salmon) began colonizing Idaho over a million years ago, before many of today's barriers were formed. The Pend Oreille, Spokane, and upper Snake Rivers all have impassible barriers but were colonized by salmonids before these barriers were formed. Fish may also colonize above barriers through headwater capture, which occurs when a downcutting stream intercepts another stream and alters its path. Fish in the redirected headwater become established in another watershed. Many salmonids colonized the Lost River and Bear Lake drainages through headwater capture. Finally, fish introductory programs have placed fish populations above many impassible barriers.

Small and intermittent streams can be very important to fish. In fact, many salmonids will only spawn in small streams, and it is not

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unusual for trout to spawn in streams that dry up or flow subsurface for part of the year. The fry in these streams will migrate to lakes or other streams, stream sections where year-round flow occurs or seek refuge in stranded pools until the water level rises. Trout can even survive beneath gravel in dry streams, if subsurface flows and inter-gravel spaces are adequate. Small streams also provide a cool water refuge for fish during warm summer months and support ideal habitat for juvenile trout.

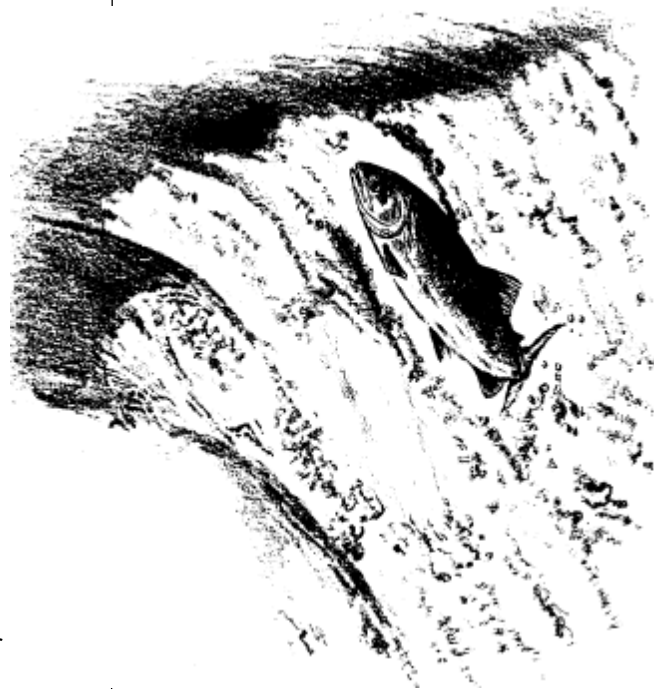
In many cases, impassible barriers do mark the upstream limit of fish, especially in smaller streams. Falls, steep gradients, intermittent flow and subsurface flow are all conditions that may limit upstream distribution of fish.

The height of a falls a fish can ascend depends largely on the species and size of fish present and the type of jumping pool available. A good rule of thumb is, a fish can jump 2-3 times as high as its body length, with a adequate jumping pool to start from (varies by species). A 24 inch rainbow trout, for instance, can ascend 6 ft. falls under the proper conditions.

Perhaps the most readily observed and accurate predictor of fish presence or absence in a stream network is stream gradient. Extensive surveys have revealed that fish do not occupy stream segments with sustained gradients exceeding 22%. The reason for fish absence is that the stream is incapable of maintaining adequate pool habitat necessary for fish to rest and maintain position at this steep gradient. Gradients exceeding 22% often reveal the upstream extent of fish occupancy in mountainous settings. Further investigations in the Coeur d'Alene River drainage have revealed that stream gradients from 15% up to 22%, if sustained over a ½ mile distance, limit the upstream distribution of fish.

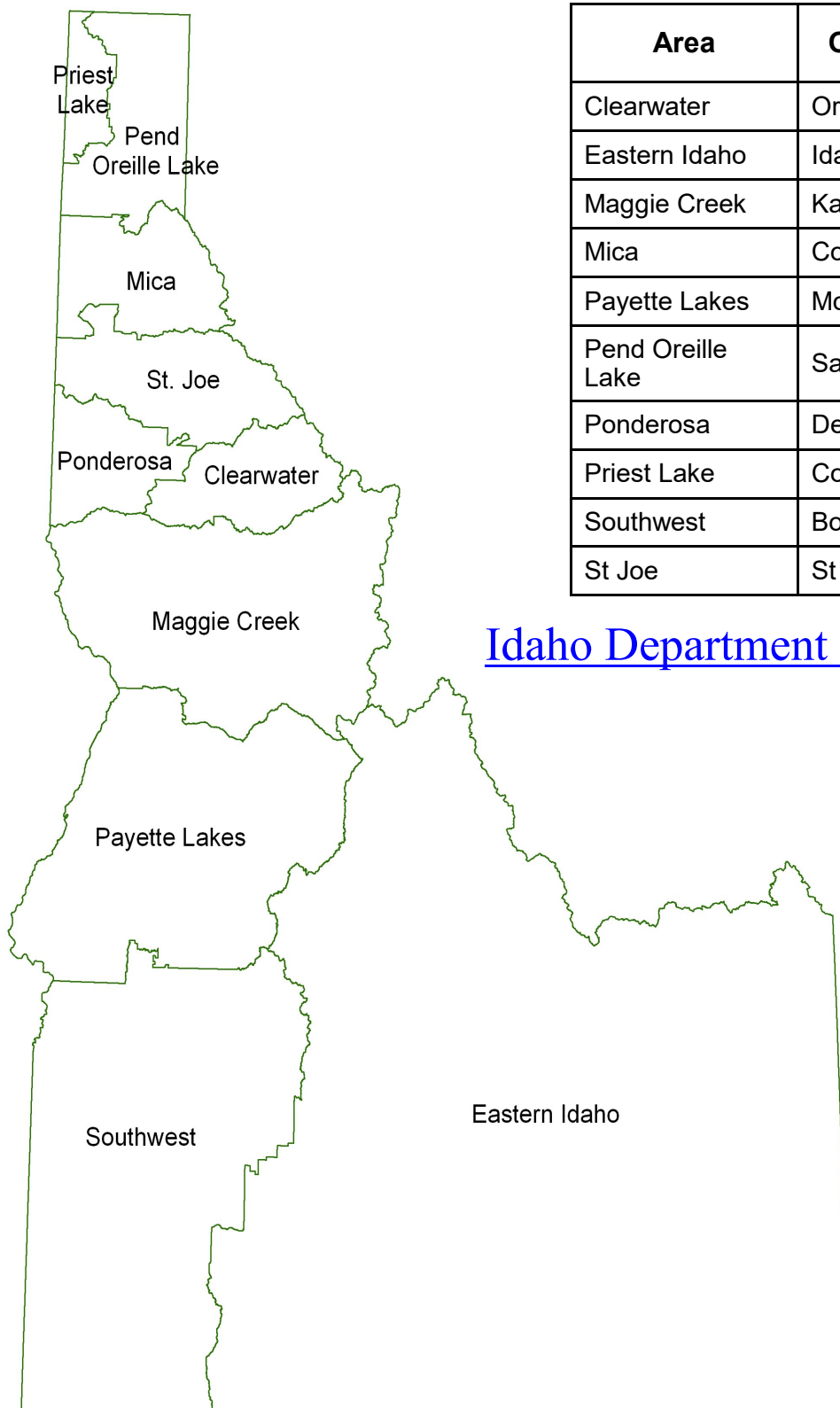
Correct stream classification is vital if streams are to be protected and their designated beneficial uses maintained. If uncertain about the presence of fish in a stream: either follow rule 010.58.b of the IFPA, (which states that where

fish use is unknown, consider streams as Class II where the total upstream watershed is less than 240 acres in the north forest region and 460 acres in the south forest region). Or consult your local Forest Practice Advisor or a fish biologist. Remember, stream classification calls are based on observation and professional judgment and should not rely on the acreage breaks as an absolute.





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