

Instream Flow

Clearing the Air on Water

Real instream flow isn't just water under the bridge

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I was fishing on the Encampment River late last summer and having my usual luck. The day was almost warm, the water was almost crystal clear and the trout at the head of the pool were almost biting. But on this day they were more content to just sit there, waiting for real food. As I worked my way through every fly in the box, I found myself pondering a remark from a recent meeting where someone had candidly stated, "If you want a real instream flow, it's got to come from storage in a dam." Like a lot of the comments I hear about instream flow, this one had a ring of truth to it; but it struck me that there really is a little more to it than that.

Flailing the water with my three flies, I surmised that there surely wasn't a fish in the stream that ever wondered where the water came from. As long as it was cold enough, clean enough and gave them a place to hide, rest and feed, they couldn't care less about how the water got there. And I also suspected a fair number of people seem to think sort of the same thing – that instream flow is simply water for fish, and they often don't care where it comes from as long as there's a fish in the water or on the end of their line. I probably had too much time to think that day, but I concluded that while instream flow may indeed be about the fish, a real instream flow is about the river.

Though people can argue for hours on end (or years), the simple fact is that instream flow just means water in the creek in any amount at any time of year from any source. Instream flow can and does come from melting snowfields, groundwater springs, dams, irrigation returns, or even sewage treatment plants. The source, type and degree of use all affect what the receiving stream channel looks like and the kind of fish that live there. Obviously, water is the single element needed to produce life, but just because you've got water in a stream doesn't mean you'll find the same kind and number of fish in every stream.

A real instream flow, on the other hand, is something that creates and maintains the form, function and ecological processes of a river and maintains those features over long periods of time. It does that by maintaining deep pools, clean riffles and flood plains (geomorphology), supplying the right water chemistry (water quality), providing enough of the right kind of habitat to perpetuate all of the critters and plants that live in and adjacent to the stream (biology), and providing enough water at the right time of year so fish and other organisms can get to parts of the stream system that are important for spawning or growing (connectivity). On each stream, these functions are all interrelated in complex and unique ways that are related to the timing, duration and amount of water at different times of the

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Most of the water in the Encampment River west of Riverside is a real instream flow that presently maintains all the ecological characteristics necessary for a healthy fishery. Wyoming Game and Fish Department photo

year or in different years (hydrology).

Though there's a lot we don't yet know, there is a wealth of scientific information that helps us understand how these factors interact. Today we know that changes in the timing, magnitude and duration of natural flow patterns can result in changes in the shape of some stream channels and modification of riparian vegetation. Flow changes that affect the amount of sediment and gravel moving into and through some streams can either cause more erosion or greater deposition, which may change the number, shape, size and quality of pool and riffle habitat. Changes in flow that affect the temperature, turbidity or quality of the water affects the fish in the stream, too, as do flow changes that affect the ability of fish to move upstream to spawn or inhibit the downstream drift of their offspring when they hatch. Depending on the stream and the extent of change, the species and number of fish in these areas will change right along with the habitat.

To be sure, keeping a minimum amount of water in a stream is an instream flow, and sometimes it's enough to keep fish alive. But maintaining our existing fisheries requires a real instream flow that does much more than just keep fish alive.

So what does it all matter? Well, if you're a fish – or a fisherman who simply wants enough water for fish to live where you can catch 'em pretty easy – it doesn't really matter whether you just have some water in the creek or a real instream flow. But if you want to manage rivers so future generations can experience the same thrills or frustrations that you do today, then the picture changes,

and you need the kind of water that'll maintain all of the organisms that live in and along the stream today. That means having the right amount of water at the right time of year to maintain channel shape, fish and wildlife communities, water quality and connectivity. The issue becomes much bigger than just keeping a little water in the creek for fish.

Not every stream or stream segment can or should have just enough water to keep the fish alive. Likewise, it's unrealistic, and certainly not a Wyoming Game and Fish Department goal, to expect the kind of real instream flows that provide long-term, fully functioning aquatic ecosystems in every stream in the state. Managing instream flows really comes down to making choices on a stream-by-stream, segment-by-segment, case-by-case basis based on scientific information, public desires and what the law will allow. The conflict, if that's how you cast it, is basically all about what we want our world to look like now and far into the future.

Making decisions involves choices and an appreciation that all of our actions have consequences. To make wise decisions, it's important we don't characterize any problem or any answer as just one thing. We need to make informed choices that strike a balance reflecting our need to use water for survival and prosperity while maintaining a quality of life that makes living a kind of enjoyable thing without causing irreparable harm to the world we leave for those future generations.

Do we need instream flows or real instream flows? Frankly, we need them both. We can't have both everywhere, but we can have one or the other in a lot of places. Each provides a piece of the fabric of our water heritage that makes Wyoming one of the finest places on the planet to live and fish. As long as we make informed choices and have laws that let us implement those choices, there's a good chance we'll be able to make that boast long into the future.

For more information about instream flows, go to: <http://gf.state.wy.us/fish/watermangtISF/index.asp>