



## The Importance of Temperature in Ethical Angling

As Spring and Summer 2015 shapes up to be one of the driest in BC's recorded history, stream flows are much lower and water temperatures are much higher than we're used to. These two factors are critical for the health of our fish populations as they determine the amount of oxygen dissolved in the water as well as their metabolic rates. As temperatures go up, dissolved oxygen goes down and metabolic rates go up. In simplistic terms, that means a fish has to breathe harder and eat more food than it would in cooler water. These two factors are crucial in determining whether fish will survive and/or be healthy enough of spawn.

Most BC salmonids can cope with intense physical exertion (like being dragged around by the mouth against their will) up to temperatures of 18C. From 18C to 25C there is a variable zone where depending on several factors such as the strain of fish and how it has evolved, the exercise can be non-lethal but damaging or lethal. Above 25C fish start floating belly up. As a basic rule that is easy to remember, if the water temperature is approaching or is at 18C, start thinking about tying flies instead.

So with that understanding, what is the best way for anglers to ensure they aren't causing irreparable damage to the fish they are releasing? A thermometer of course! In the world of thousand dollar rods and reels, this piece of kit is one the cheapest and most effective tools a fly angler can add to their arsenal. Most fly shops have analog thermometers for under \$20 and they often come in protective and ported metal or plastic sleeves to make them more hardy. A cheaper alternative, with less protection, are the simple glass units that you can get at pharmacies and dollar stores.

It might seem obvious but there is a right way and a wrong way to take a water temperature reading. Ensure that it is completely submerged and if you are holding it in your hand, make sure your fingers are away from the bulb at the bottom so as not to affect the reading. After submersion, allow 30 to 60 seconds for the reading to stabilize. In a stream, take the reading in an area that has flow and where water is circulating as opposed to a part that doesn't have flow or where the water is stagnant as shown in Figure 1.



Figure 1. The head of the pool where there is flow (red) is a good place to take a reading. The still water with little flow and depth (blue) is not as good.

If you're planning to fish in one of the streams that Environment Canada monitors (<http://wateroffice.ec.gc.ca/>) and if there is a temperature gauge at the station, you can check the temperature before setting out as shown in Figure 2.

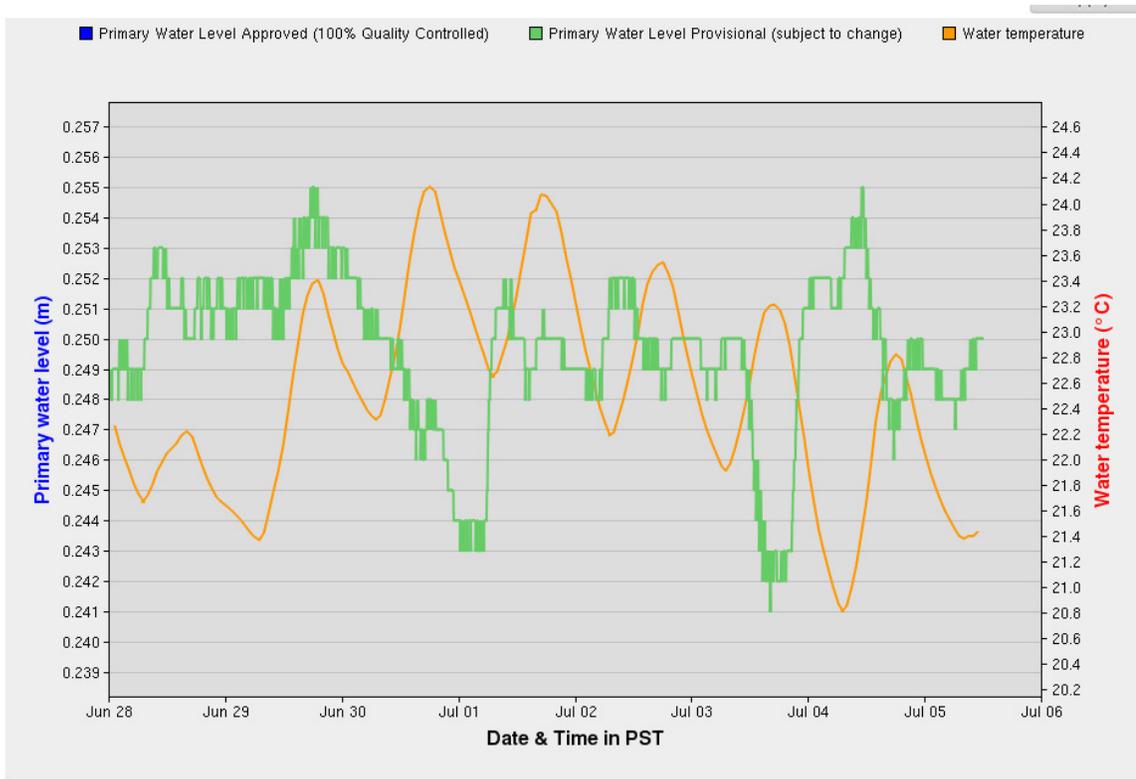


Figure 2. The Cowichan River (at Lake Cowichan) station showing a temperature variance of 20.8C to 24.1C. Time to leave the rod at home and take the tube instead!

In a lake from a boat, take readings at different depths. You can do this by using a string with measured increments marked on the string the same way you might mark your anchor rope to determine depth. You can even use the anchor setup by using a carabiner or similar device to attach the thermometer to the anchor rope. Take a reading at the bottom and at regular intervals all the way up to the surface. For example, if you're in 20' of water, take readings at the bottom, 10', and just below the surface for a total of three readings. Add all three readings and divide by three to get the mean temperature and if it's below 18C, you're good to go. Doing this also provides insight as to what depth you're likely to find fish.

There are some situations where the fish should simply be left alone, even if Fish and Wildlife hasn't closed the sport fishery. A good example is Region 1 and 2 summer run steelhead. These populations, despite their resiliency, are very vulnerable to predation under the low water conditions we are seeing due to their low numbers and the way they often concentrate in a select few deep water pools, stranded until Fall rains come to continue their spawning migrations. These fish are best left alone as they have enough predators to deal with. We would also suggest anglers consider not pursuing these fish in the Fall when conditions will likely improve to a point where under normal seasonal conditions, ethical angling could take place. The stress caused by the drought conditions will likely result in lower spawning success rates and with many populations being as small as they are, catch and release mortality could have a measureable impact.