

Wading Into The Future



Iceland – a landscape of extremes. What better place to test the Thermo-WADE...



... in search of its magnificent golden brown trout?

Flyfisher and engineer Michael Commons brings us the Thermo-WADE, a wading staff that offers more than your standard stick.

For as long as I can remember, people always have something to say about the weather. Hot, cold, damp, windy; perpetual conversation between people and anglers alike. Early season, many of my fly fishing friends will comment on how the water is still a bit cold for fish to come on and we patiently wait for spring and early summer to warm up our rivers and streams.

We know through observations that fish become more active as water temperature increases, with a peak at summertime due to long hours of radiation from the sun. Fish become increasingly more active as

temperatures increase and it requires them to conserve energy by seeking cooler pockets of water, known as thermal refuge. Water temperature fluctuations are becoming an increasing challenge to fish stocks and their food sources; both locally and globally as the earth experiences environmental changes. It was only when I got into fly fishing as a young teenager that I took an interest in river and lake ecology. This quickly led to a lifetime obsession with matching the hatch with my flies, which most of us can relate to on our journey to seek fishing perfection.

As a schoolboy I hadn't a penny; I used my father's

vice-grips clamped to my homework table as a starting point to create imitations that I found above and below the surface of my local River Liffey.

Luckily, I joined the fly-tying guild in my home town. The building owner was a friend of my mother who used to recover the waste materials after a night fly tying. This became a staple source of material for my early creations. Soon I was tying flies for busy anglers with certain requirements. Looking back, they never paid me but I learnt from them and that was the important thing.

Childhood Observations

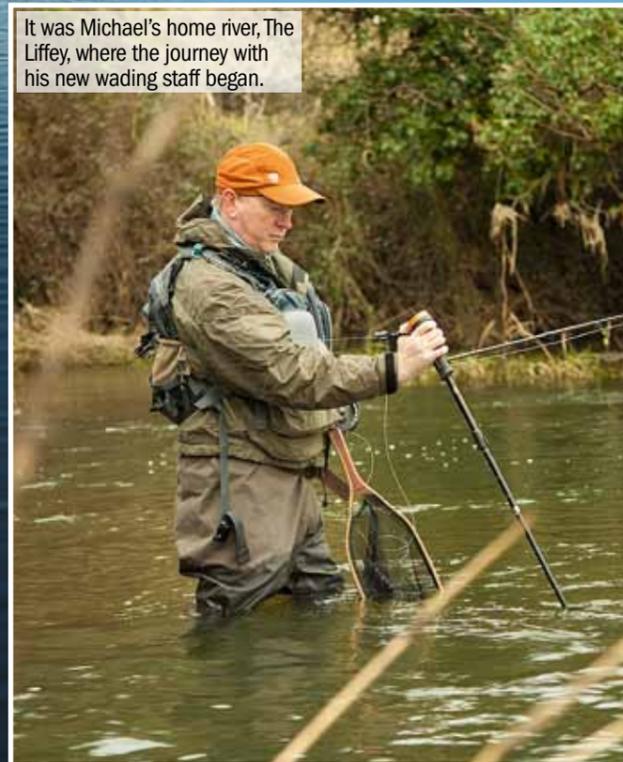
Observations on late summer's evenings chasing the sedge

fly hatch on the River Liffey opened my eyes to the patterns of large brown trout moving from their holding positions into shallow warmer waters where fly hatches were more prolific. I thought to myself: "If only I could capture that information." So began my journey with Thermo-WADE.

During research on my local river, I was amazed to see the temperature ranges vary so much – from 15.7°C to 10.4°C on the same stretch at different times in the day – with strong thermal differentials discovered between static water and adjacent flowing water. I knew this would be very useful information for my

local waters. Indeed, one thing I have learnt from years of fishing and travelling is that fishing is like politics – local information is important to be successful. The discovery of how cold spring waters could be was soon felt when the holes in my waders became unrepairable. However, gratefully, the water that accumulated at the bottom of my waders soon heated up as I raced from one secret fishing spot to the next. I now know those waters were as low as a cool 4°C – happy memories.

I think, as a fishing community, we are only now beginning to question and understand the profound impact of temperature in the rivers, lakes and seas that



It was Michael's home river, The Liffey, where the journey with his new wading staff began.

we fish. Some fishermen use water thermometers as a guide. My research shows a temperature variation from the bottom of a river to the water surface. Many insects and flies come from the water bottom, making this temperature more of a critical indicator to the hatch than water surface temperature. On a good day's fishing, some of my friends would ask: "What fly and size did you take the fish on?" I now ask what the temperature was.

I recently had the privilege of fulfilling a lifelong dream to travel and fish in Iceland. This was also an opportunity for Thermo-WADE testing in a landscape of extremes; to say no two rivers are the same is an understatement, especially where rivers are fed by cool glacial streams on one side and thermal hot springs feeding the other. While fishing there, not many fish were showing on the Tungulfjot River; the water appeared cold at times when wading and not cold in adjacent areas. When I took the river bottom temperature it read 8°C, from which my



The Thermo-WADE meets the needs of young and old in terms of simplicity and gadgetry.



friend commented: "No way, this water is freezing!" He was in a different location. I dropped my small black streamer at the start of this micro thermocline that was uncovered by Thermo-WADE, which was instantly hit by what felt like a freight train stealing line from my 6-wt light setup. Once landed, I was struck by the golden brown colour on this Icelandic brown trout.

These micro thermal streams were very evident in Iceland but the principle applies everywhere. Temperature variation can be a result from external inputs such as direct radiation from

the sun on the water surface, the speed and depth of the river, inbound feeding streams/land run-off and the riverbed temperature itself. When you combine all these factors you have a thermal melting pot of temperatures in your river. This is why Thermo-WADE was created to help make sense of the waters we wade and generate a thermal map of the water system we fish in.



The ruler along the shaft of the stick allows you to measure your fish and record the depth of the water you wade.

Designed By Fly Anglers For Fly Anglers

Once a proof of concept was completed we met with fly anglers to see what they wanted from this concept tool. Given the space constraints and practicality of a wading staff, it was clear we needed a compact device serving several purposes. Sound alarms soon got knocked from the drawing board when we considered the constant sound of water, especially by wading through it. I separated the feedback into must-haves and what was nice to have. It soon became evident there was an age divide, with more mature anglers looking for simplicity and younger anglers gadget-hungry in these modern times. I think we just about found the sweet spot for both sets of users.

We started off with collecting water temperature at the bottom of the river because this is a more accurate reading of ambient temperatures, where fish are lying and insect water temperature columns help match the hatch because

there is a direct correlation between water temperature, fly hatching and fish feeding. Simultaneously, we wanted to monitor the air temperature above the river to offer the user information for ratio differences of both temperatures. Time and date was also going to be necessary when it came to capturing this information at the touch of a button and would appear during or post a fishing session later on.

Water temperature variation indicator and pre-set water temperature alert allows the angler to hunt for a particular temperature while wading. Other minor features were added such as eight hour auto power down while still holding valuable data collected held in the Thermo-WADE unit.

More Than A Wading Staff

When we had a good look at wading staff requirements, adjustable height and extended bottom probing was soon added as an important requirement. Ergonomic



Attached to a Gear Keeper retractor the staff can be clipped to the back of your waistcoat when fishing.

“ Environmentalists regularly track water temperature where certain species have been caught. ”

design with a double injection mould came in as an important feature for comfort and user experience. Also, a ruler along the bottom of the shaft for measuring fish size on a light 7075 aluminium

collapsible staff.

During Thermo-WADE research, late in the evening, I found myself fumbling with a small thermometer in the dark. We learnt from that and installed an eight second



Testing the Thermo-WADE in subzero conditions means the Kelly Kettle is put to good use.

Measuring both air and water temperature along with the time and date will allow anglers to build a picture of their river in relation to fly hatches and fish catches.



delayed LED backlight for dusk and night fishing viewing for the mobile flyfisher.

Changing World

One thing that is constant in the modern world is change – in particular, technology. For many years analogue devices were relied upon for measurements in all industries. In recent times, the digital revolution dominated technology development. However, we are now standing on the precipice of change, with a marriage between digital and analogue through the explosion of connected devices offering us real-time information at our fingertips under the umbrella term IoT (internet of things). There are currently 20 billion sensors connected, which is set to rise to 50 billion by 2020. The patent and end state for the

Thermo-WADE temperature-sensitive wading staff will have upload capability to a smartphone app that will waterfall into a national and global database offering important information locally and globally of water temperature by time, date and location. This will make anglers an important integral part for monitoring and highlighting changes to the thermal topography. This is not something new because historically anglers are the first point of escalation for environmental threats like fish kills from pollution.

There has also been some government agency interest as field environmentalists regularly track water temperature where certain species have been caught to help understand migration habits of our nation's fish stocks. Upon reviewing species

Michael Commons with his Thermo-WADE staff – combining the practical requirements of a wading stick with the ability to monitor the temperature of the water.

like grayling, warm summer temperatures have been identified as a critical limiting factor for such cold-water fish species during their juvenile stage, with temperatures greater than 8°C proving to be a danger range.

Some people ask where I got the concept for the Thermo-WADE wading staff from. I guess I always have had a few ideas in the hopper at any one time. I am an engineer and a flyfisherman, or should I say a flyfisherman who also happens to be an engineer. Having worked in the tech industry for many years with some very clever people, the greatest innovator I have ever known was my father, who could develop solutions

to problems from very little. Indeed, my first fishing rod he fashioned from a bamboo rod with sheet metal wrapped around a spool of line for a reel. The foundation for many breakthrough technologies that come through focused problem solving.

I met someone who became a good friend years ago while travelling to the northwest of America to work. We exchanged telephone numbers on the plane and met up regularly to fish. One thing I noticed about him was he always carried a wading staff when in the water. I fell in love with wading staffs there in the US and would not get in the water without one thereafter. A wading staff is great when



negotiating deeper stretches of river while trying to get into position to drop a dry fly upstream on the nose of a rising fish. So why not combine temperature monitoring and recording with a practical tool like a wading staff? Although wading staffs are slowly on the increase, I sometimes think they are perceived much like seat belts were 30 years ago.

While at ICAST this year, we were overwhelmed with positive feedback. However, there were some good questions about wading in big waters over large boulders and rocks. Luckily we were able to tell them about the TW03

'big river' non-folding rugged wading staff suitable for large rivers due later in 2017. One thing I had not anticipated is the diversity of uses for this temperature-sensitive wading staff. I got a sense of this at ICAST/IFTD, with people wanting the staff in pursuit of red fish and other species that I was not too familiar with. Since the product launch we have received enquiries from all continents for all kinds of fishing and other potential applications. I believe we never really arrive, be it fishing or in life itself, because it's our hunger to learn that drives us on. TFF



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