When Trout Feed

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ELDRIDGE HARDIE

[*Leonard M. Wright, Jr. in 1986 wrote his book* The Ways of Trout *(Nick Lyons Books). One message of that book is that a fisherman can predict the feeding times of trout by using basic observations. In this feature, Wright explains how he does it. His studies and conclusions are not scientific, and he points out that they should be considered the observations of a fisherman.* THE EDITORS.]

THERE IS A LOT OF TRUTH in the old saying that the best time to go fishing is whenever you can get away. Removal of storm windows, mowing of lawns, taxi service to the Cub Scouts, and the like make mighty contributions to the cause of conservation each year.

Yet there are some days, and even some hours of these days, that offer better fishing than others. And the angler who knows when these periods will occur has a greater chance at success because he'll know when it will pay to defer chores, defect, or downright desert. He can be sure the penalties will be worth the crime because he'll be astream when the trout "are really on."

I began to learn how to predict heavy trout-feeding periods purely by accident over 20 years ago when I was made unofficial (and unpaid) manager of a small, Northeastern fishery—about a mile of freestone river that averaged 40 to 50 feet wide and contained wild brook and brown trout. The water was slightly acidic, therefore not very fertile, and by mid-June the hatches became skimpy at best, and those were few and far between.

It was decided that since stocked fish were expensive and added little to the fishery in the long run, the meager available funds would be used to improve the existing wild population. This meant habitat improvement to create more holding water and supplemental feeding to increase growth, keep resident fish in place, and perhaps encourage some recruiting from downstream.

We bought bags of floating pellets and cast the contents upon the waters liberally and frequently, but the pellets just floated merrily down the stream, untouched by trout. This puzzled me, because a couple of miles downriver, on a heavily stocked section, the trout boiled for the very same brand. It slowly dawned on me that wild trout, as opposed to hatchery stock, wouldn't eat pellets. They hadn't been trained to do so from infancy, and the little

MICHEL ROGGO PHOTO

Rainbow trout resting during nonfeeding period.

brown cylinders didn't look or act anything like their natural insect food.

I was about to scratch the feeding program when I remembered that the famous fly fisher and early 20th-century stream conservationist Edward R. Hewitt had fed his stream fish with ground beef lungs, or "lights," and he claimed that his wild fish gobbled them up. So I bought some lungs from a small, nearby abattoir, had my local butcher run them through his grinder, and embarked on "Operation Lungburger."

Ground lungs look much like hamburger—a bit paler and pinker, perhaps—and wild trout think they're the greatest thing this side of McDonalds. Equally important, lung tissue floats. What isn't eaten in the first pool floats down below to the next batch of trout, thus cutting down on waste. And, since most of the little pink blobs stay on the surface, you can easily observe the intensity of feeding activity because the fish must break the surface to get the food.

I quickly noticed that sometimes only a few fish would feed, half-heartedly, while at other times the entire pool would erupt for minutes. Same pool. Same trout. Same amount of food. Why the big difference?

Within a few months, I learned how to predict when the fish would feast and when they would fast, and that saved a lot of wasted lungburger—and money. In the early spring and again in fall, trout fed best on sunny days between 1 P.M. and 4 P.M. In bright, mid-summer weather, they fed most actively from 11 A.M. to 12:30 P.M. and in the evening from 7 P.M. until dark. On cloudy days, feeding was mediocre at best at all times of year.

So far I had merely rediscovered the obvious: Trout take natural flies, artificials, and, of course, lungburger far more eagerly under certain fairly-predictable conditions than they do under other conditions. But why? What did the excellent feeding times, which varied considerably with the weather and time of year, all have in common?

The Magic Mark

TEMPERATURE OFFERED a tempting lead. I'd noticed that trout didn't start to surface feed on spring days until the water reached 45 degrees Fahrenheit and that they shut down almost completely in summer when it hit 72 degrees. Another clue was the biologists' finding that trout metabolism (their efficiency in using oxygen and digesting food) peaked at about 63 degrees.

From this small start, I soon became a temperature addict. I would dunk my stream thermometer many times each day and jot down the readings along with hour, water level, and weather conditions. I discovered that trout in a small freestone river live on a thermal rollercoaster. On a crisp, sunny day when the water flowed at summer levels, the temperature might be as low as 54 degrees in the early morning and climb to 70 or even 72 degrees by mid-afternoon. That's a 16- to 18-degree difference in a 12-hour period.

I also noticed that the best dry-fly fishing and feeding periods occurred on just such days—in the morning when water temperatures raced toward, and passed through, the magic 63-degree mark and again at dusk when readings dropped toward that optimum number. In spring and fall, the trout fed best as the temperature climbed past 45 degrees toward 63 degrees—though it seldom reached that high—and feeding ended abruptly when the temperature dropped lower in the late afternoon.

Chart I shows actual readings taken hourly on sunny days and at moderate water levels on my home river. The top line records a typical mid-summer-day's readings and the bottom line a day in early May. It will help your predictions if you make a similar chart of the river you fish most often. Depending on its altitude above sea level, latitude, volume of flow, and spring-water content, your stream may show a pattern different from my home river.

However, my rule on trout feeding activity on any freestone river—with only two parenthetical qualifiers—can be stated fairly simply: *Trout feed actively when the water temperature (once it has passed 45 degrees or fallen below 72) changes toward 63 degrees, and the faster this rate of change (for that particular river) and the closer it gets to 63, the more active the feeding will be.* I have found no exceptions to disprove this rule in over 20 years of feeding wild trout. However, it is fool-proof *only* on freestoners.

On limestone streams, spring creeks, chalkstreams, or on cool flows below dams, temperatures are much less volatile and hourly readings may show little variation. Yet trout on these types of streams snap on and off the feed as quickly as they do on freestoners. So it appears that while a swing in water temperature was a useful indicator of trout activity, it wasn't, perhaps, the sole *cause* of trout-feeding periods. It might be merely the finger that pulled a distinctly different trigger.

Trout Metabolism

OXYGEN SEEMED A LIKELY element to look into, since it takes oxygen to run muscles, digest food, and put on growth. With the possible exception of food, it is the single most important requirement for trout existence. Trout can live for months without food. They die in minutes without oxygen.

My first glance at oxygen as the prime mover

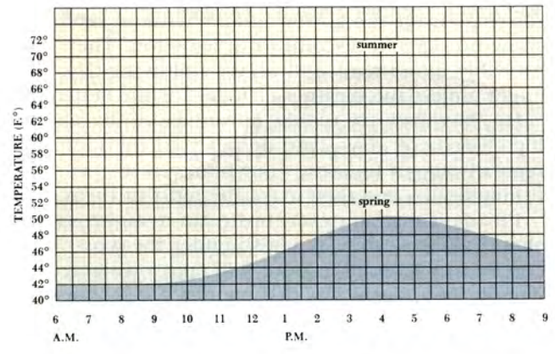

Chart I. Hourly stream water temperatures.

looked unpromising. Water at 45 degrees, where trout feeding barely begins, contains over 25 percent more oxygen than water at the trout's optimum 63 degrees. When the temperature rises during a spring noontime or during a late summer morning (and when the fishing should be excellent), the water is actually losing oxygen. Chart II, which shows the parts per million of dissolved oxygen in fully saturated fresh water, charts this rate of loss.

I began searching learned pamphlets and scientific

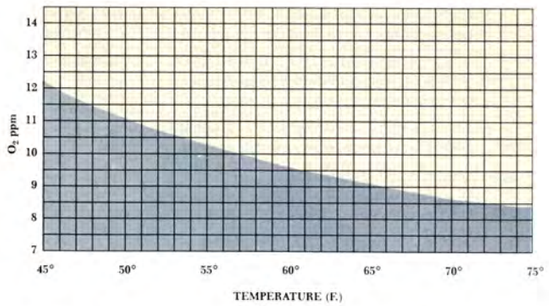

Chart II. Water temperature and parts per million of dissolved oxygen.

journals for another factor, and I finally found it: trout metabolism. This, as I've mentioned, is a measure of the fish's efficiency in digesting food and of its capacity to extract and use oxygen.

I found from one lengthy document that, at top efficiency (presumably 63 degrees), trout can extract 90 percent of the dissolved oxygen from the water that passes through their gill covers. This makes the gill an extremely effective organ. Our lungs take out only about 25 percent of the oxygen from a lungful of air. The question was, however, how much and how fast did the trout's gill efficiency drop off as the temperature rose or fell away from the optimum 63-degree mark?

I could find no research pinpointing the figures on this factor. There were, however, several studies, with charts plotting trout metabolism, and these were based on the trout's rate of depletion of the dissolved oxygen from a tankful of water at varying temperatures. These seemed close enough, and I have used the figures in my calculations. Chart III shows the averaged-out findings from several such studies, and while perhaps not scientifically precise, it should make a useful guide as to how much oxygen a trout pumps into its bloodstream at differing temperatures. Remember, what's available in the water is only one thing. How much of it the trout actually gets is the important factor.

With a little simple arithmetic we can see that at 45 degrees trout blood receives oxygen at the unit rate of 4.9 parts per million (12.2 parts per million in the water, from Chart II, multiplied by .4 gill efficiency from Chart III). At 63 degrees the amount of oxygen a trout gets rises to 8.7 parts per million by the same arithmetic. That's an increase of over 75 percent.

While we may never record that much temperature or oxygen change in any one given day, the variation on a typical summer day (top line, Chart I) is considerable. After a relatively flat oxygen-intake situation during the early-morning hours, the oxygen taken in by the trout between 10:30 A.M. and 12:30 P.M. has increased at a unit rate from 7.9 to 8.4 parts per million. That's an increase of only 7 percent according to the same

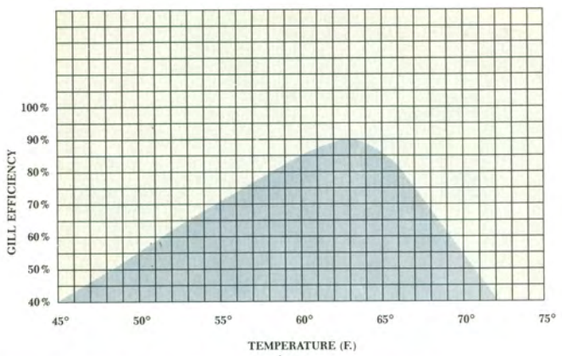

Chart III. The author's trout gill-efficiency calculations.

simple arithmetic used above, but the gain is certainly far greater than that.

Two added factors make the water contain even more oxygen than the chart shows as the temperature rises from 57 to 64 degrees. One is that warming water sloughs off oxygen so slowly that it is often super-saturated or contains more oxygen than the table shows for that temperature. Also, water weeds, diatoms, and algae on the stream bottom are, by photosynthesis, pumping even more dissolved oxygen into the water and further saturating it. As a result, that 7-percent figure could be nearer to 15 percent during this prime feeding period.

However, during the following two hours from 12:30 P.M. to 2:30 P.M., as the temperature climbs from 64 degrees to 67.8 degrees (when fishing and feeding are usually poor), there is, by the same means of calculation, a 22 percent *decline* in the trout's blood oxygen. Oxygen intake continues to drop or remain relatively flat during the rest of the afternoon until we get to the 6:30 P.M. to 8:30 P.M. period, when the oxygen intake shows an *increase* of 22 percent. (Actually, the figure is probably slightly less than this, because cooling water can't take on dissolved oxygen as rapidly as Chart II shows. Still, the surge in bloodstream oxygen is impressive.) This may explain why fishing at dusk in summer is so productive.

During spring and fall days, the only period when trout are receiving an extra shot of oxygen (see bottom line, Chart I) is from about 12:30 P.M. to 3 P.M. You can run the arithmetic, by multiplying the hourly figures from Charts I, II, and III.

Oxygen-intake Theory

FOR SOME INSCRUTABLE reason best known to the trout, total oxygen intake is *not* the cause of trout-feeding activity. It is the sudden increase (after certain temperature requirements have been met) that spurs this activity. For example, on cloudy summer days, when the water temperature hovers around the perfect 63 degrees all day long and the trout are getting a steady, maximum supply of oxygen (9.5 parts per million in the water multiplied by .9 gill efficiency for a unit intake of over 8.5 parts per million), fishing results and response to batches of lights are uniformly mediocre at all times of day.

It may seem that I have complicated things unnecessarily by going into the oxygen-intake theory when the simple temperature readings alone can tip you off on any freestoner. But for those fortunate few who fish limestoners, spring creeks, and the like and where changes in flow and temperature are often barely detectable, it is a necessary second step. Such streams are usually paved with water weed. Bright sunshine can cause the vegetation to pump extra oxygen into the water, making the trout come on the feed suddenly and heavily—even though your thermometer registers little or no change.

It is also interesting to note that there is strong evidence that most (though certainly not all) aquatic insects seem to hatch under similar conditions and in response to the same stimuli. But that's only logical. The genetic strains of wild trout that have survived and reproduced would be precisely the ones best tuned in to their prey's time of greatest availability and vulnerability.

So, after 20 years of observing trout-feeding patterns under relatively controlled conditions, my advice is as follows. Avoid rainy, cloudy days if you have any reasonable choice. Contrary to the old wisdom, they offer poor fishing. Also, don't consult any of the charts or tables that promise to show good feeding days or hours from a year in advance. They are no better than throwing a dart at the calendar. And don't feel that because the fish haven't been feeding well for two days they must be starving. Trout can go for months without food and show no signs of discomfort or agitation. They probably won't feed well on the following day either, unless the weather changes for the better.

Do, however, try to take advantage of the sunny, high-barometer days. And do dip your thermometer regularly to get to know your home river's prime fishing hours, and then make the most of them.

I'll admit that an expert upstream nympher can almost always catch some fish under the worst of conditions. After all, a trout will take a weighted nymph (or a worm, for that matter) if it threatens to bump him on the nose—even though this is more self-defense than actual feeding. However, I find this sort of fishing extremely hard work that demands excruciating concentration. I have more fun and catch far more trout when they're willing to come up off the bottom and take a fly with relish and confidence.

If you watch the weather and your thermometer carefully and fish when the trout are most likely to feed, you'll come to expect better fishing—*if* you don't let minor duties and obligations interfere with something as crucial as your trout fishing.

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