

# The Fly Angler

Spring 2013



## What's up? At a glance

### Spring, 2013

Beaver dam removal for the UsKaBwanka River.

### June 18th, 2013

AFF meeting at Chambers Grove.

### June 18th

Duluth Heritage Center fish camps

### June 14-16, 2013

Third Annual AFF Women's Fly Fishing Retreat.

### July 6th weekend

AFF Hex camp.

### July and August

No meeting of the AFF. Enjoy fishing !

### September 17th

AFF meeting at the Clyde Iron

### November 1st-3rd, 2013

Arrowhead Fly Fishers 8th Annual Fall Steelhead Rendezvous. Location: Brule River, WI.

### Guess where!

Each newsletter there will be a photo from a club member. You try to guess where it was taken. There will be a prize for who guesses correctly first. email to:

[Arrowheadflyfishers@aol.com](mailto:Arrowheadflyfishers@aol.com)

Didn't guess the photo location? You can still contribute by emailing your photo for the contest.

*submitted photos are available for use by the Arrowhead Fly Angler and Arrowhead Fly Fishers club*



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## AFF Library

Check out the material in the AFF library. Give us a review on the material you checked out. Also, the library is a good place to donate your books and DVDs that you have made good use of. See the AFF webpage for details.

web link : [AFF library](#)

## Chambers Grove Picnic – June 18, 2013

Come and join your fellow AFF club members for an evening of grilling, fly casting (with prizes) and maybe even some fishing! Bring a dish to share, your own item for the grill and a beverage. Last year was a memorable picnic. It was the night of the STORM! See what happens this year.

## Third Annual AFF Women's Fly Fishing Retreat June 14-16, 2013

This is a chance for women of the club to get together and get away for a really fun fly fishing experience, good food, and lots of laughs. Day one is spent floating and fly fishing the Brule, day two will be fly fishing on a small lake for bluegill and largemouth bass, and day three will be walking in and wade fishing on the Brule. For more information and to reserve your spot, contact Kathy Lansing at: [naturegirl669@gmail.com](mailto:naturegirl669@gmail.com) or 218-310-0855.

## 23rd Annual Hex Camp July 6, 2013

You are invited to Hex Camp in Grand Marais, MN, on July 6, 2013. Bring a friend! On Sat July 6, 2013, we will assemble at the Grand Marais Municipal Campground, by the lake, for the 23rd Annual, AFF Hex Camp Dinner. Meet at the Pavillion at 4pm and meat goes on the grill 5-5:30pm. Bring something to grill and a dish or item to pass. You can hit the lakes of Cook County after dinner and fellowship--or stay in camp to visit till dark. Bring a warm hat and jacket as evenings can be cool in Grand Marais. Contact John Connolly if you have questions. 218-387-4521

Remember the AFF has 5 and 6 wt. rods for members to check out by placement of a deposit.

The AFF also has fly tying vices and kits with tools to check out with placement of a deposit.

Contact any board member for details.

# An in-depth discussion on limnology and trolling for trout in lakes

J. Howard McCormick

Let's start with some earth shattering information: you don't catch many fish if there are no fish where you are fishing!

If your goal is to catch fish, trout in this case, there are a number of things that can improve your chances. The purpose of this discussion will be to present information about three key environmental factors that strongly govern the distribution and concentration of trout in lakes. Once we understand how these factors influence trout distribution they can guide us in our efforts to catch trout. These factors are: **water temperature**, **dissolved oxygen**, and **forage**. These factors are important to fish distribution and concentration through preferences and avoidances. These, of course, are not the only factors, but they are among the most important and will be the subject of this presentation.

Knowledge of temperature and dissolved oxygen are more important to the person seeking trout in lakes than to those seeking them in flowing water. This occurs because in turbulent, well mixed water these factors tend to be uniform throughout whole stretches of streams. You either find them at adequate levels or you don't. In lakes however, they can be radically different from location to location, primarily related to solar heating, depth, and to some extent wind direction and intensity. Fish are very capable of detecting these differences and gradients in their degree and/or concentration. These gradients become vectors in the fish's movements and contribute to fish concentrations.

Due to solar radiation, surface waters are warmer. Warmer water is less dense and floats upon cooler water (except near freezing). These density changes eventually result in thermal stratification of a lake as the seasons progress from spring to summer. When this happens the warmer water is found at the surface and cooler water has descended to the bottom. Oxygen dissolved in the water is related to exposure to the air, wind induced turbulence, and biological oxygen demand (loss due to consumption). Oxygen is consumed by respiration of living organisms and the decomposition of dead organic material. Oxygen concentrations are highest near the surface and lowest near the bottom of lakes.

Forage comes in four forms: zooplankton (small poorly swimming microorganisms), benthos (immature aquatic insects, crayfish and the like), forage fishes (minnows and other small fish), and terrestrials that fall on lake surfaces. The distribution of the first three types is influenced by temperature and available oxygen as well as food and light. Benthos tends to concentrate near vegetation, and both are most abundant in a lake's littoral zone, that area where light can reach all the way to the bottom enabling rooted plant growth. These bottom dwelling organisms do, however, make a once in a lifetime trip to the surface – an emergence – to mature and reproduce (dry fly time!). This is preceded by nymphs passing from the bottom to the surface (time for emergers).

In some lakes zooplankton are the prime forage for both trout and smaller forage fish. When zooplankton feeding is prevalent, it is useful to know that zooplankton are diurnal in nature, moving down the water column by day and moving slowly up the water column as light diminishes at twilight. The fish that feed on zooplankton will be following this diurnal distribution or movement. This is streamer or bucktail time since it is quite difficult to tie a zooplankton fly which would have to compete with clouds of cladocera, or zooplankton. Streamers or bucktails will sometimes distract the fish from their fixation on zooplankton (more calories gained per calories used in capture). Fishing with small fish imitations would be a likely choice at this time because small fish would be in the water column feeding on zooplankton.

These are the underlying, principal factors that govern fish distribution and concentrations.

In lakes, temperature and available oxygen gradients are particularly important when, and if, the lake becomes thermally stratified. The surface layer, the epilimnion, is composed of warmer, less dense water with a relatively rich oxygen supply. Directly below this layer is the thermocline, a transitional layer with somewhat declining temperature from top to bottom. Ultimately there is the hypolimnion, extending below the thermocline to the bottom of the lake. The physical characteristics of these layers are critical to trout distribution. An understanding of the relationships between these layers, their characteristics, and the trout sought by the angler are vital to enhanced success in placing flies where the trout are most likely to be concentrated.

In general terms, the epilimnion is warmer than those layers below. The thermocline is transitional in both temperature and available oxygen. The hypolimnion is the coolest layer with oxygen concentrations that decline over the stratified period, from abundant early after stratification, to scarce later in the season. The rate of oxygen depletion in this layer is related to the eutrophic (nutrient richness) of the particular water body. The more eutrophic the more rapid the rate of oxygen decline. Anoxia (no oxygen available) late in the season is a real possibility near the bottom of eutrophic trout lakes. The cool water of the hypolimnion can be very “attractive” to trout as the layers above warm, but the available oxygen can be limiting and even lethal. Trout are much more demanding of cool oxygen rich water than are most other fishes.

Figuratively, trout live between the jaws of a giant ecological vise. The jaws are made up of water of different temperatures and dissolved oxygen concentrations. The figure 1 will help to visualize this concept.

When thermal stratification has not yet been established, temperatures throughout a lake are usually well below those preferred by trout and dissolved oxygen is abundant. At this time trout become more prevalent in the warmest water available. This warmer water tends to be found in shallow bays along the north shore of lakes or on the downwind shores where the sun warmed surface water has been blown by the wind. In the fall of the year after “turnover”, favorable surface water zones can return and influence trout distribution as after ice out.

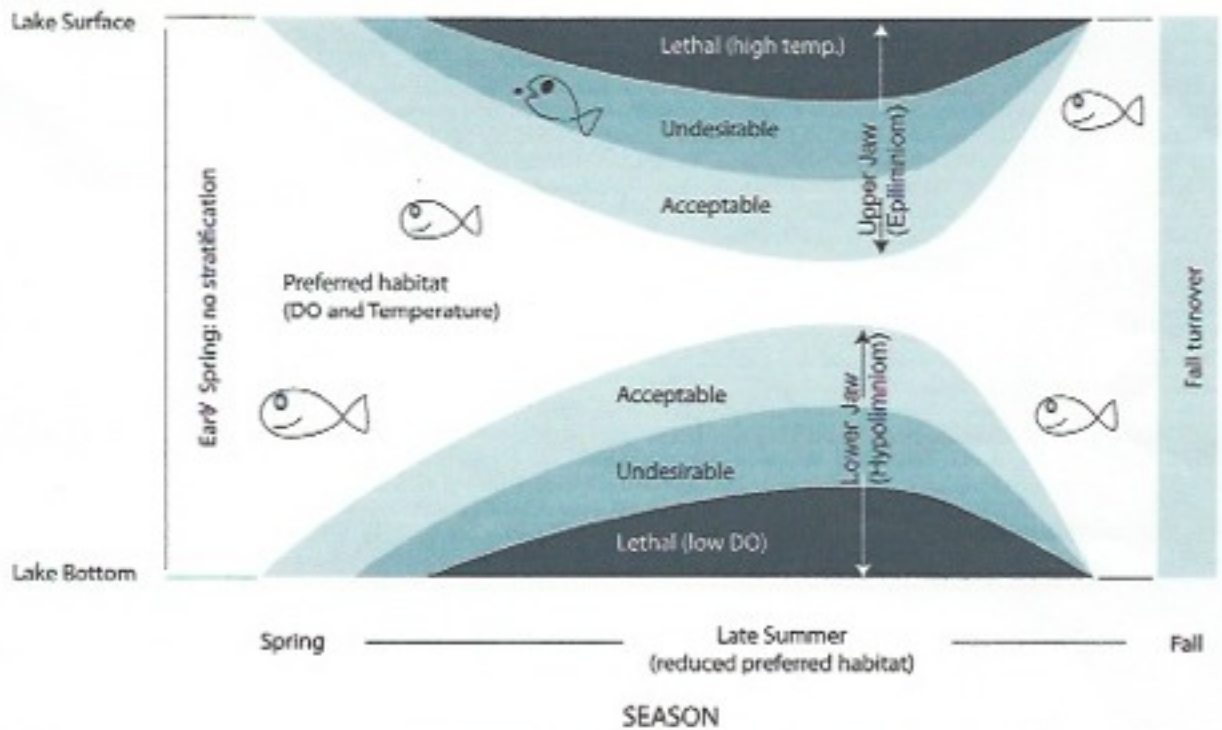


Fig. 1: A Lake that Becomes Thermally Stratified in Summer

illustration by Cameron McCormick



Fall turnover is a problematic period as temperature and dissolved oxygen are no longer predictably different one place to another. They are mixed and somewhat homogeneous from the top to the bottom of the lake. Also, if the depleted oxygen of the hypolimnion has a large volume, when mixed with the volume of the layers above, the entire lake may develop an average oxygen concentration well below desirable for trout. Under such conditions they may go off the feed to compensate for the increased oxygen demand of chasing down and digesting food. (Fishing is not good then; go to a less eutrophic lake.) At this point it should be mentioned that some lakes do not thermally stratify. They are too shallow or have long wind fetches. Such lakes can be dealt with like other lakes before stratification.

All these things are pretty fundamental, but it is my belief that it is helpful to keep all these factors governing lake water and fish behavior “rolling” around in your mind when trying to put your flies in front of the trout. As an aside, I don’t think fish “seek” optimums of these factors. I rather believe that through preferences and avoidances fish move until they are most satisfied with the environmental conditions in a particular location. With that said, fish are very capable of detecting gradients in these factors and will be guided by these gradients to preferred conditions. It is where these preferred conditions are located where the fish will collect over time and where fishing can be expected to be best.

Each species has its own preferred temperature as well as lethal temperature. Lethality is dependent on time of exposure. Trout have similar responses and limitations for available dissolved oxygen. As far as forage, it seems safe to say that trout would prefer not to be hungry.

As the season advances the effect of solar radiation accumulates and the surface water, the epilimnion, becomes warmer and eventually exceeds the comfort level for trout. Oxygen is therefore not usually a limiting factor in the epilimnion. The epilimnion is in contact with air and oxygen is constantly being replenished by absorption. This is particularly true on windy days with more vigorous mixing of water and air. When the water becomes too warm the trout move deeper to cooler water. When they encounter water temperature more to their liking, all other factors being acceptable, they cease moving and over time more and more fish encounter these more favorable conditions and begin to accumulate there and become more abundant. This is the place to fish at this time.

So what does all this limnology mean for the angler?

First, I troll backwards to keep the lines out of the motor’s propeller. I use an electric motor for quiet and speed control. I almost always fish with one other person. As we start each day we each use a line with different sink rates. We troll until it becomes apparent that one is producing more fish than the other. The least productive line is then reeled in and replaced with one which has the effective sink rate. Over the course of the day there may be some additional experimentation with lines of different sink rates until we believe we are doing as well as can be expected. We try to keep our flies above rather than below the fish; trout seem to take flies better if they are above the fish. Admittedly, this is a trial and (I hate to say it) error approach, but it works.

When fishing these lines with different sinking rates we are essentially asking at what depth are the fish most concentrated. Knowing the preceding information, I believe, aids in selecting an appropriate line to be more successful in catching trout in lakes.

After ice out a lake is uniformly cold, well below preferred temperature even for trout. There are, however, some areas that are a little warmer. These areas are in shallow bays on the north side and along the downwind shore where the wind has blown the sun warmed surface water. Oxygen is abundant throughout the lake at this time and doesn’t influence trout distribution. During this period, up until the lake becomes thermally stratified, fishing is usually best where these warmer waters are present. My preference in line selection under these conditions is an intermediate sinking line. I use a camouflage

intermediate sinking line manufactured by the Cortland Line Co. as recommended by Denny Rickards in his book "Fly Fishing Stillwaters for Trophy Trout".

Once thermal stratification occurs the surface waters may still be the best, with lines just mentioned to achieve the most productive presentations. However, as the season progresses and the surface water warms to exceed the preferred temperature, the fish will move deeper to cooler water. Oxygen in the beginning of this period remains adequate in most instances and does not affect distribution. To reach these deeper fish I resort to a sink tip line of about 130 grains (a Teeney T-130) line. I think this puts my flies somewhere in the upper depths of the thermocline. Later I may find a TeeneyT-250 or 300 grain sinking tip line preferable.

In late summer, warming of the upper layers of water may drive the trout into the depths of the hypolimnion seeking refuge from the excessive heat above.

This is when available oxygen may become limiting, particularly in eutrophic lakes. If forced down by lethal temperature above to an area of low dissolved oxygen the trout may go off feed as a means of reducing stress from biological oxygen demand during digestion. Deeper and cooler is not always best when oxygen depletion occurs. To reach these fish that have retreated from warmer water or that may be in search of deep zooplankton or benthos, a deep, full sinking line is in order. For this I use a VI Scientific Angler line (with sinking lines, short four to six foot leaders are appropriate). When it can be determined that the trout are concentrating on zooplankton you may find you have your flies at just the right level only to lose contact with them as the sun sinks to tree top level. If so, try raising your presentation as the zooplankton may have ascended in the water column in response to dwindling light.

I try to keep all these things in mind as I troll for trout in inland lakes. I think it helps. I hope it helps you. To capitalize on these principles I usually have two, frequently three, rods in my boat, each rigged with lines with different sinking rates. This enables me to quickly change from fishing one depth to another. I also frequently have a fourth rod in my car that I can go back for if things get really tough.

Good luck!

P.S. Turnover time is difficult. Temperature is uniform throughout the water column as is oxygen concentration. The fish tend to be scattered. How do you find them? What causes them to be more prevalent in one place vs. another? I don't know!

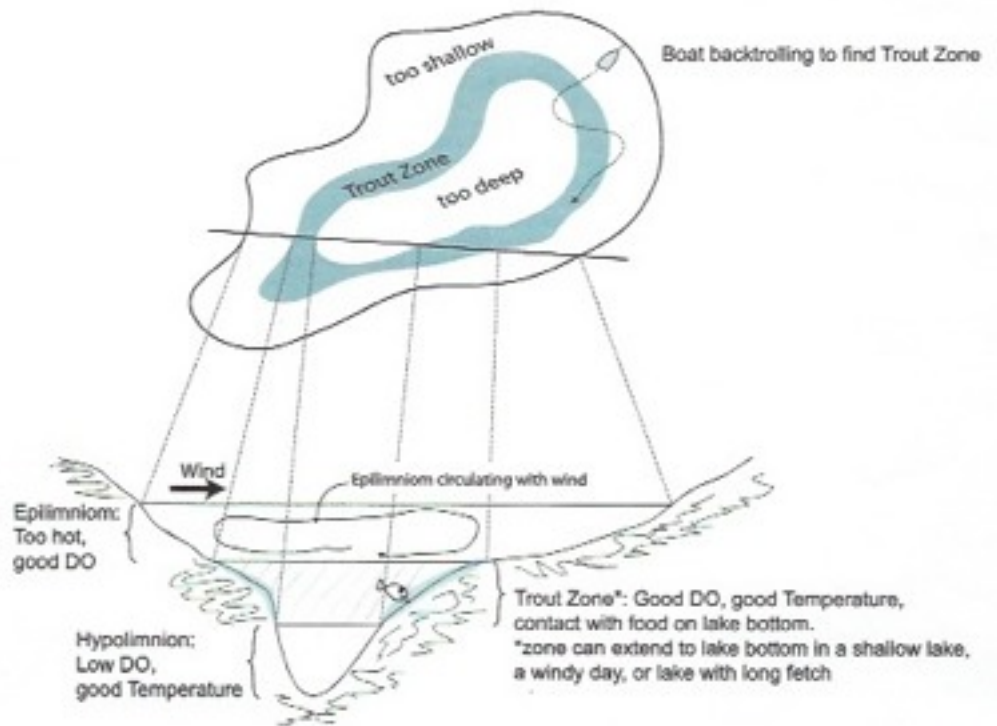


Fig. 2: Trolling Strategy for a Stratified Lake

illustration by Cameron McCormick

The author would like to thank Phil Johnson for helping put the original manuscript into typed format.

# Who we are...

The Arrowhead Fly Fishers is a group of men and women dedicated to promoting fly angling of all types and to preserving fisheries throughout the Arrowhead region.

## What we offer:

- Interesting meeting topics
- Formal casting instruction
- Stream improvement projects
- Group fishing adventures
- Fly tying sessions
- Fellowship and Fun



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## Board of Directors

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"We may say of angling as Dr. Boteler said of strawberries: 'Doubtless God could have made a better berry, but doubtless God never did'; and so, if I might be judge, God never did make a more calm, quiet, innocent recreation than angling."

-Izaak Walton

# Arrowhead Fly Fishers Membership Form

Dues are payable in January

Name: \_\_\_\_\_

Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_

Phone: \_\_\_\_\_ email: \_\_\_\_\_

## Membership Type:

Individual—\$15

Family—\$20

New Member  Renewing Member

Return to: Arrowhead Fly Fishers

Arrowhead Fly Fishers

5249 McQuade Rd.

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