UNDERWATER PHOTOGRAPHY IN KANSAS

BY
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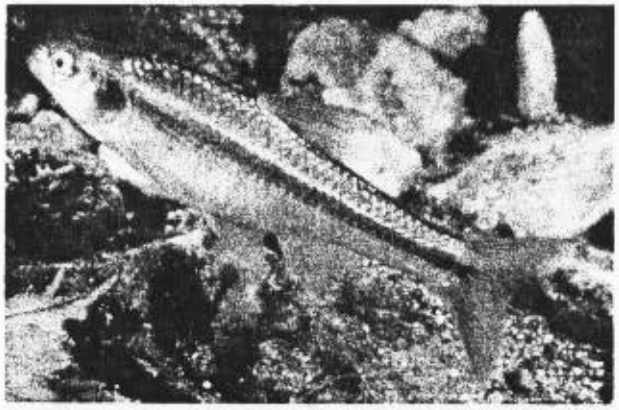
Kansas is not known for having gin clear waters; in fact it has been rated as having the highest percentage of polluted streams and rivers in the United States. This does not mean all of the streams are polluted. In a few isolated areas of the state there are still a few clear, pristine streams. Most of them are on private lands with very limited access and are not noticeable from public roads.

Over the past few years I have met with land owners to gain permission to explore some of these areas. This was not an easy chore as many land owners have had major problems with trespassers and a real distrust for any environmental organizations. As a condition to having continued access to these streams, several land owners have requested that I do not reveal their locations. The requests and conditions set by a land owner are not only something to be followed but are also a form of protection for the streams themselves. The photographic equipment I use is really a hodgepodge of acquired pieces form over 20 years of doing underwater photography. What I am using would not be considered top of the line or state of the art. I use a Nikonos II with a flash port conversion that accepts Ikelite Ai and Ms sub strobes. I mainly use the Ms strobe as a slave. I use a Nikonos 35mm lens with combinations of extension tubes, either 2:1, 1:1 or 1:2. In addition I also use Hydro Photo TI, T2 or T3 screw mount close-up lens in combination with the 35mm lens. This combination of lens and tubes gives me a range of area coverage from approximately 3/4" by 1", 1,1/4" by 1,3/4", 2,1/4" by 3,1/4", 3" by 5", 5" by 7", and 8" by 12", with focal distances of from 3" to 15". I also use a Nikonos 20mm lens, which gives me the ability to photograph larger subjects, such as an 18" Largemouth bass, less than 2 feet away from the lens. The short focal lengths are extremely important when photographing in murky water. Unless the visibility is over 10 feet, I will rarely photograph a subject more than 12" from the lens.



Notropis topeka, By G. Sneegas

I have used some of the newer automatic cameras in murky water conditions and have found that when the camera takes an average reading of the available light, you often end up with an average picture with a murky background. There is a rule of thumb in underwater photography that you should not try to photograph a subject any further than 1/4 of your visibility. I have also found you get a better image if the background is not exposed more than a 1/4 of your visibility.

I use a strobe about 90% of the time, to control exposure, to bring out the true colors and to photograph at night. Using a strobe also allows you to use a high f/stop with a slow speed film to get the highest quality image. I use Fujichrome Velvia slide film because I like the results and I can develop it myself using E-6 processing.

There are some real disadvantages to underwater photography. Water turbidity, temperature, depth and the behavior of your subjects limit what you can do. When you are in a stream just about everything is moving, fish, you, your camera and in riffle areas sometimes the bottom is moving. Steadying yourself and your camera is something that is a matter of practice and being comfortable in the aquatic environment you are in.

The greatest advantage to photographing fish underwater is that you can capture their peak spawning colors and natural behaviors in a way that can not be duplicated in an aquarium. You can not duplicate the varying conditions of aquatic environments and the random interactions between migrating fish species and other aquatic inhabitants.

Capturing an image of spawning male darters, displaying at their peak moment of excitement in the wild, requires being in the right place at the right time. You may be lucky and stumble onto this situation in a matter of minutes or you may have to spend hours submerged in 50 degree water monitoring an area. This brings up the need for a cold water exposure suit. Neoprene wet suits are the most common suits used for diving in cold water however I have found a high quality dry suit to be far superior. If you are doing several dives a day in 50 degree water they are just about a necessity.

After spending hours snorkeling in shallow streams, I have found it is better not to use a weight belt. This adds a safety factor in that there is no way you are going to sink into deep water and it enables you to float into very shallow areas of a stream, without kicking up a lot of silt or debris. One other advantage of wearing a dry suit, even in warm summer months, is that it limits your exposure to parasitic critters such as leeches.

Light refraction between air and water is a phenomenon that an underwater photographer needs to be aware of. Refraction between the air/water interface of a divers mask has the effect of making everything a diver views appear 25 percent larger and closer. When you are estimating the camera-to-subject distance underwater you are estimating the apparent distance, the actual distance is 25 percent further away. Because the submerged camera lens also has an air/water interface the cameras' "view" is the same as the divers'.

Waterproof camera housings will either have a flat or dome lens port. If you place a 28mm land lens behind a submerged flat port, refraction will cause an image distortion and change the viewing angle of the 28mm lens to that of a 35mm lens. Dome ports are designed to correct for this image distortion.

The effects of refraction is something a diver has to adjust to, not only in photography, but also in viewing aquatic life. There is no need to panic when you see a snapping turtle that appears to be the size of a small truck heading straight for you- its' not as big as it appears.

An interesting fact that I have learned about turtles is that some fish are not particularly afraid of turtles. In fact fish such as *Lepomis megalotis* often follow turtles around looking for insect larvae that turtles dislodge while they are moving around. In a similar vein

Lepomis megalotis w/turtle, G. Sneegas

when you first enter a pool and come upon a school of fish they will usually scatter. After a few minutes if you glance behind you, you may discover the entire school is swarming all over your legs and fins feeding on debris and larvae you have stirred up. You can take advantage of this behavior to photograph fish by acting like a big turtle. To do this you need to be in an area with flowing water, such as the upper end of a pool where a current is entering. Position your camera near the bottom and gently start fanning the bottom in front of your lens with your free hand. The current will carry the debris downstream, away from your lens, while fish will move upstream to the source of the fanning, which is right in front of your lens. You have to remain still and allow some time to past for the fish to become accustomed to this huge new "turtle" stirring up the bottom.

Some species of fish are so active and skittish during the day that they are just about impossible to photograph. If you venture into the pool at night you may find them laying motionless on the bottom. With a careful approach you may be able to move close enough to photograph your subject.

In my efforts to understand and photograph the fishes of Kansas I have found it necessary to explore their habitats not only during diurnal and nocturnal periods but also during all the seasons. In doing so one also becomes aware of the other inhabitants that coexist with the fishes. I have not only enjoyed photographing the common aquatic organisms the general public is familiar with such as crayfish, turtles, and insect larvae but also some unusual invertebrates like freshwater sponges, bryozoans and hydras.

The more I have learned about aquatic subjects, and how to look for them, the more I realize I have barely began to cover of the number of subjects there are to photograph in what appears to be nothing more than a simple little stream. So next time you peer into the waters of a prairie stream take a moment to consider the diversity of life within its waters and appreciate the myriad of life contained within Truly those waters are a source of great beauty and wonderment.