

A Lake Sturgeon Tale: Part 1

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Lake Sturgeon. *Acipenser fulvescens*. A massive, ancient freshwater fish that can reach lengths of nine feet. Living fossils, they swam while the dinosaurs walked the earth. In our 19th and 20th centuries they ranged from the lower Mississippi and upper Tennessee rivers, throughout the Great Lakes and into the Canadian Northern waters living in the depths of large lakes and rivers. In the spring they migrate to their spawning grounds, often traveling a hundred miles or more to their ideal site. Today the Lake Sturgeon is protected in many of its waters and is nearly extirpated or feared so in much of the southern range. Its numbers had been decimated by slaughter, overfishing and habitat alteration. Recent efforts have been underway to re-establish populations in their known

former ranges.

The Warm Springs National Fish Hatchery in Georgia, along with three other National Hatcheries, has been working since 1989 on raising and restocking these fish to their historically native waters in Tennessee and the Coosa River in Georgia. Recent water quality improvements in the upper Tennessee River have provided habitat that is critical to supporting these fish. In the first years attempts were made to air freight fertilized eggs, but it has proved much more successful for the Warm Springs Crew to collect and transport the eggs themselves. The eggs are collected and fertilized at the river's edge during the early spring spawning season, then treated and carefully transported back to Georgia (Fig. 1) where the newly hatched fry are raised. When the fast grow-



Fig. 1.

The Warm Springs National Fish Hatchery trailer, outfitted with insulated containers, a circulation pump with filtration, oxygen, a generator, a battery backup system, inverter, equipment and gear storage, and a single spare tire, just in case.



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Fig. 2.

A group of Lake Sturgeon preparing to spawn against the rip-rap along Wolf River's bank.

ing young sturgeon reach about 7" in length they are typically released in the autumn of their first year. So far over 70,000 have been released and there are now reports of them being caught by fisherman.

On April 22, 2009, Carlos, Jackie, Chad, Ed and I arrived in Shawano, Wisconsin at the Wolf River Dam. We were greeted by the sturgeon waving the tips of their dorsal and tail fins up and out of the water along the rip-rapped shallows (Fig. 2). Out in the deeper waters they were porpoising: raising their large heads above the surface. Thrashing pods could be seen as males and females jostled for position along the river's rocky edge. Hundreds, even thousands lined the length of the river on both sides for miles. Their home was about a hundred miles downstream in Lake Winnebago. Their desired destination was the ancient spawning grounds up river above the dam in the headwaters on the Menominee Reservation. This dam was built years ago and with another dam blocking access two miles further upstream the sturgeon have no way of reaching it. However, the sturgeon were making use of the rip-rap that lined this place and several sites below. Large females worked their way into position as males came to their sides and all rolled and pushed together into a splashing mass of creation.

The Wisconsin Department of Natural Resources (DNR) has been capturing, documenting and tagging these fish for years. Now protected, the sturgeon are allowed to reproduce each season. They are coming back, and in increasing numbers. The only time fishing for sturgeon is allowed is during the winter, and that is a challenging endeavor. Using only a spear, a fisherman must patiently wait and stare down

through a carved opening in the ice in hopes that a sturgeon will swim by. During spawning season, the Wisconsin DNR assists the Warm Springs Hatchery by catching adults and helping collect eggs and milt. Once collected, the hatchery biologists fertilize the eggs under controlled conditions and carefully transport them back to Georgia for subsequent hatching.

The sturgeon need a narrow band of water temperature, in the low 50s, to begin their spawning in earnest. Our first day was spent collecting males whose milt ran thin and weak and females who were green and unresponsive to their eggs. The river temperature was still too cold. The next day the weather cleared and the air temperature soared but the river was still too cold. On the third day the females began to release ripe eggs with a bit of coaxing and the male's milt began to run opaque. A newly captured sturgeon would be brought to a work pad next to the river. Two or three biologists would hold the sturgeon and stretch it out upon its back. Often milt would spew high into the air and into the faces of the crew as they struggled to control the fish. Quickly they would cover the vent to hold in the milt. Once a male fish was calm, a second crew would move in to collect the milt by firmly squeezing and pushing the lower sides back toward the vent where Jackie would use a needle-less syringe to take in the reproductive fluid from the opening (Fig. 3). Care must be taken because if the milt is contaminated or allowed to get wet the sperm will be useless as exposure to water activates the sperm and its life is measured in minutes. The same care goes for the female's eggs as exposure to water begins to harden the eggs, preventing fertilization. Once a female begins to release



Fig. 3.

Jackie collecting milt with a syringe from a male sturgeon.



Fig. 4.

Collecting ripe eggs into a stainless steel pan, soon to be fertilized.

her eggs they often flow out at an astonishing rate, like black glistening eggs pouring forth as if from a gently flowing water hose. The ripe eggs are collected in stainless steel pans (Fig. 4) and hurriedly and protectively carried back to a work station. There, the female's eggs are equally divided into five pans and sperm from a single, individual male is added to each pan, one male for each pan. Thus each female's eggs are fertilized, potentially, by five different males ensuring genetic diversity. The pans are gently swished, gold-panner style, and river water is added along with a clay that helps harden and de-clump the eggs minimizing fungal issues. This "Cocoa Caviar" appearing mixture must be gently feather-stirred for 30 minutes and then decanted and rinsed well until the water is clear. The now fertilized eggs are then placed in one of the 12 hatchery jars residing in the trailer. This process is repeated using new sturgeon until 12 females' eggs have been collected and fertilized.

This is demanding work, and safety is an issue next to the deep, cold-flowing river. Often the footing is precarious and wrestling a 100-pound thrashing sturgeon is no easy task. Attention must be given to their care and the collection of data. Eggs or milt are collected first, if ripe and needed, then any metal tags are read, tiny new tags are injected and scanned, the fish's length measured and finally the sturgeon is returned via a slippery sloping mat back to the river (Fig. 5). This process can take about five minutes but they seem to recover as soon as they splash back into the river. Many captured sturgeon had already been tagged so a good study of historical data gives a sense of their growth rate and health. Some of the sturgeon were outfitted with transmitters so their movement could be monitored

and studied.

This first day was mostly spent along Bamboo Bend, about 50 miles below the Shawano Dam. The state has added a quantity of rip rock lining the bend and sturgeon were using it as spawning habitat. They appear to use the large rocks as bracing for their pushing, jostling and positioning just prior to the spawning act. Crowds had gathered to watch the run and observe the DNR crews capturing and gathering data on the sturgeon. The Wisconsin people are enthusiastic about their sturgeon and the regional news and papers carried leading stories of their return. Cars from other states were seen in the parking areas and folks were generally wide-eyed, inquisitive and sharing of the experience. Children played, laughed and pointed from the banks as adults aimed cameras and their cell phones. Even when the cold rains came people stayed and huddled under umbrellas or in rain gear and hoods. I had been told to pack light and that soon became an issue as the rain soaked my legs to a numbing chill.

Our first night was spent relaxing at a Shawano Cantina. An evening blend of American and Mexican cuisine yielded fresh walleye tacos, avocado and salty margaritas. Rice, beans, chips and homemade salsa complimented our plates. Satisfied, we moved to the bar and pool table where Ed's "Where's George" dollar in the jukebox played Elvis' "Love Me Tender". This promptly cleared the bar and table for our use while Johnny Cash sang "Ring of Fire" with the Mexican horn section. Neil Young's "Southern Man" and Skynyrd's "Alabama" followed along for a back-to-back harmonious play. This place has been a touchstone for the crew the last few years and we all enjoyed cracking the billiards and trying our best to sink stripes or solids. Warm



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Fig. 5.

Returning a documented sturgeon to the river via a rubber mat slide.

clothes, a shower and a night's rest put us in mode and mood for the beautiful day Friday brought, but the sturgeon were not ready, nor yet in the mood.

Friday was wonderful, with higher temps and sunny skies. Even though we visited several sites, only rarely would we capture a ripe and ready female and the requisite males. The river was still too cold, the females mostly green, and the day unproductive, but the pretty weather, adventure, conversations and scenery were enjoyed. I especially appreciated seeing new country, new landscapes and hearing that unique Wisconsin accent. I admired the stark, white birch trees lining the woods. I peeled a section of bark from a dead birch and tried to envision how a Native American could build a canoe from such material. We split up that evening and Chad, Ed and I visited a different establishment that offered pike (walleye), perch (yellow) and bluegill on the menu. After another round of margaritas we decided to each order one of the three offered so we could pass the plate, to speak. I'm not sure which I liked more as they were all fresh and delicious but, Ed maintained his favorite fish is the fried walleye. Back in Chattanooga we have a choice of catfish

or catfish, so it was a real treat to see these native fishes on the menu.

Saturday we awoke to rain, plunging temps, tornado sirens and waves of yellow and green on the Doppler radar. I stood under the canopy and looked out. I was not prepared for such and had taken the "pack light" instructions to heart. I bailed. I had no rain gear. I apologized to Carlos and went back inside as they drove away. I reached for a paper and opened it and saw in a small column, dated today, Saturday the 25th, the Menominee Nation Sturgeon Feast (Fig. 6).

I inquired of the young lady at the counter if she had heard of such and where Keshena and the Menominee High School were located. She knew little, but a housekeeper spoke up and told me that it was but seven miles away. I asked if a taxi service was available and was handed a card, but the cheerful lady offered to see if her husband would take me. Wow, that was considerate and I quickly studied my options. She called him and after a bit of errands he would be by in an hour or so to pick me up. I hurriedly showered, changed clothes and gathered my gear. Her husband, Scott, drove up and we introduced ourselves and off to the "it has everything" Wal-mart to get some needed rain gear for the next day. He guided me back to the sporting goods section and I quickly found a full-sized, bright blue, rain suit, as traffic yellow was not available. We headed to the reservation, passing the gambling casino and its morning parking lot already filled with cars. Not for losing any time or money we drove on to the high school where I thanked Scott gratefully for his kindness. I was to find that I needed to return much, after experiencing such kindness for the day that lay before me.

I was early, as the feast was not to begin until 1:00 pm. A large group of the Menominee had already begun an offering walk to the river but they were well ahead of me. I wandered inside and introduced myself to smiling faces. I told them of what I was doing and offered to help if they needed any assistance with the celebration. I was soon introduced to a man named Doug Cox and we quickly decided we were of no recent kinship, me being of Quaker descent and him very much a Native American. I soon found out Doug had been instrumental in organizing the Native American's division of the American Fisheries Society. He quickly shared with me the hopes of the sturgeon returning home to their ancient spawning sites above the dams and the various spiral structures that would hopefully allow this. This day's celebration was all about the sturgeon's return and has been carried on for years. Sturgeon provided needed sustenance after a long hard winter in these northern lands. Doug was very busy with his responsibilities and excused himself so I wandered over to the



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Fig. 6.

The Menominee tribal banner honoring members for the feast.


kitchen to see what was cooking. The ladies soon had me designated as the Fry Bread Cook (Fig. 7) and that I was for the next hour. Menominee means “People of the Wild Rice” and I watched as they prepared a steaming pot of the long-grained, dark rice for the feast. To my left was another giant pan of steaming liquid. Loretta stirred the soup, bringing the simmering puffy corn to the surface. It is called Hull Corn Soup and made from whole kernel corn that has been treated with hard wood ashes, and similar to the hominy of my south, but seasoned with pork, onions and various spices. I learned a bit of their culture and how they are made of five clans: the Bear, the Eagle, the Wolf, the Crane, and the Moose. I inquired of their Christian names and was told that most are Christian but the young are beginning to choose Menominee names from their past. A few of the fry breads went a bit on the dark side during my talking and was smilingly reprimanded to keep an eye on the hot oil more carefully during my many questions. They were so kind and I was glad to be among them preparing for the feast.

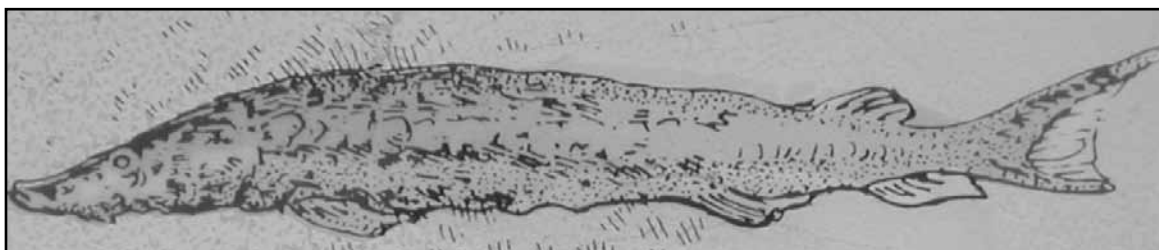


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Fig. 7.

The author and Fry Bread Cook.

...continued in the next issue of AC 





A young Lake Sturgeon (*Acipenser fulvescens*) soon to be released into the French Broad. Photo by Casper Cox.