

Egg Harvest at Fish Hatcheries Critical to State Angling Success

Fall is the time of year when fish such as salmon return to Michigan rivers to spawn, beginning the reproduction cycle. It also marks the start of when Department of Natural Resources (DNR) employees at the state's fish hatcheries are busy starting the egg collection process for other species of fish. These eggs are used to begin the next production cycle and to ensure that quality brood stock is available to produce more fish in the future.

Sportfishing is a multi-billion-dollar-a-year industry in Michigan. Approximately 40 percent of all recreational fishing relies on stocked fish, including 70 percent of all fishing that occurs for Great Lakes trout and salmon.

At the Oden Fish Hatchery in Alanson, work is underway to remove eggs from brood fish to begin the next production cycle for brown and rainbow trout. DNR fisheries biologists know from historical data roughly when the adult trout should be "ripe," meaning when females are physically ready to expel eggs. They begin testing the females a week or two ahead of time to make sure the timing is accurate.

The main factor influencing the timing of spawning of captive trout broodstock is photoperiod, or day length. It once was thought that water temperature played a role as well. However, this was found not to be the case when the change to constant water temperatures at the new Oden State Fish Hatchery had no impact on the timing of when the adults "ripened up."

Egg-takes are conducted every two weeks from late September to early February, depending on the strain of fish. Oden rears three strains of brown trout, including Wild Rose, Seeforellen, and Gilchrist Creek, and the



Outdoor Matters

A column from the Michigan Department of Natural Resources



Eagle Lake strain of rainbow trout. Typically, biologists start with the Wild Rose strain of brown trout in late September and the egg-take lasts seven to eight weeks. Then, they move on to other strains, such as Gilchrist Creek in November, Seeforellen at the end of December, and finally rainbow trout in late December and early January.

The day before an egg-take, fisheries technicians sort ripe females from the unripe females. The day of the egg-take, a team of two or three DNR hatchery employees works just on the females. One person sedates the fish, while another person holds the fish to let the third person on the team inject a small amount of compressed oxygen into the body cavity. The compressed oxygen provides just enough pressure so that the eggs flow out. These eggs are caught in a bucket and brought over to the male fish. With younger brood fish, the compressed oxygen is not necessary. Instead, the eggs are stripped by hand.

The males are tested for ripeness while the egg taking process is underway. The males also are sedated and their body cavity is gently squeezed to release a stream of milt, or sperm, into the bucket of eggs. Some water is added and the bucket sits for 30 seconds to one minute for the process of fertilization to occur. The eggs then are rinsed with water and drained to remove any organic matter and left over milt.

Once all the eggs are fertilized, they are treated with an antibiotic for disease prevention and then taken to the tank room's incubation area. The eggs are sampled for size and measured out into the incubation trays at one-and-a-half liters (approximately 25-30,000 eggs) per tray. Once a stack of 15 trays is full, an iodine solution is added to disinfect the surface of the eggs. Ten days later, a sample of eggs is taken and covered with glacial acetic acid. This allows the crew to determine what percent of the eggs were successfully fertilized. Approximately 30 days after they were fertilized, the eggs develop to the point where you can see the eyes of the developing embryo.

At this stage, the eggs are pretty tough and can withstand handling. It is at this point that the live eggs are sorted from the dead eggs, or blanks. This is done either with an automatic egg picker, which utilizes an electric eye to sort live eggs from dead, or by a process known as salting. In the salting process, a salt solution is mixed and a small number of eggs are slowly and carefully placed into it. The live eggs are denser than the dead eggs, so they sink to the bottom. This allows the technicians to skim the dead eggs off the surface. After salting, the good eggs are returned to the incubators. They then are either shipped to another facility to hatch or remain in the Oden facility's incubators until they are ready to hatch, or "pop." With brown trout, that is usually about 60 days after they were fertilized. Rainbow trout develop a little faster. They generally start to pop around 45 days.

After the eggs hatch, the young fish spend the next three to four weeks in the incubators, where they live off of their yolk sac. They then are placed into tanks, where they will spend the next several months under the skillful care of the technicians and biologist.

Developing hatchery facilities is important for a variety of reasons, including rehabilitation of threatened species, mitigation through replacement of fish lost

because of natural or man-made disasters, and to produce fish for enjoyment and use by the state's recreational anglers.

The DNR's hatchery system dates to the early 20th century. "Fish hatcheries historically have played a major role in fisheries management in Michigan," said Fisheries Division Chief Kelley Smith. "It wasn't that long ago that Michigan's beaches were rendered unusable by the seasonal die off of alewives. It was the salmon reared in our fish hatcheries that soon put the alewife population in check. This resulted in the development of a world-class salmon fishery with catch rates that west coast salmon fishermen never have witnessed. With the recent renovations of our state fish hatcheries, our fish culture facilities are poised to serve Michigan's anglers well into the future."

In the 1870s, fish populations in the Great Lakes and inland waters were disappearing due to habitat destruction, dam construction, over-harvest, and pollution. Early logging practices in Michigan destroyed streams. There was little regulation and enforcement into the early 1900s concerning the taking of game and fish. This led to the loss of many fish and game species and the collapse of many populations, such as lake herring. Unregulated fishing of lake herring caused the population to collapse by 1926.

Developing hatcheries was the only technique available to fisheries managers at the time to stem the loss of rapidly diminishing

fish populations. Today, the work of those pioneers is still seen, but the science behind the process is more in-depth. Genetically diverse sources of wild and captive brood stock are kept for species and strains of fish. The species and strains of fish are kept in waters that match where the fish will be stocked. Parent selection and spawning are shaped to avoid inbreeding, which prevents the loss of genetic diversity.

Fish culture is a blend of science and art. There is no question that the science is becoming more and more refined, but there is no substitute for the trained eye of a well seasoned fish culturist. Michigan's fish hatchery system consistently has led the nation in fish culture developments. Each facility consists of a staff including a biologist, several techni-

cians, and a well-trained, highly skilled maintenance crew that tends to the complex physical plant that makes up each hatchery.

Fish are acquired, reared, checked for health concerns, and then distributed to the Great Lakes and inland waters of Michigan by the DNR hatchery system. The result is a sport fishery that draws enthusiasts from all over the state and country to Michigan's waters. The economic impact of fishing in Michigan is significant, and the state hatchery system plays a key role in its success.

The state's six hatcheries are open to the public, and most provide guided tours and educational programs. To learn more about the hatcheries, visit the DNR Web site at www.michigan.gov/dnr and click on the Fishing section.

Joe Bellant Deployed to Korea

Joe Bellant of St. Ignace, a staff sergeant in the Air Force, was deployed to Korea Monday, December 5.

Mr. Bellant will be serving 12 months at Kunsan Air Force Base, then hopes to be transferred to Germany. He had been stationed at Holloman Air Force Base in Alamogordo, New Mexico.

This is Mr. Bellant's second tour of duty to Korea. He served 12 months there in 2000.

He is the son of Fran and the late Joyce Bellant of St. Ignace and was graduated from LaSalle High School in 1998.

Nov. Mackinac Bridge Traffic Dips

Traffic crossing the Mackinac Bridge in November dropped 10.9 percent compared to November 2004, reported Bob Sweeney, executive secretary of the Mackinac Bridge Authority. This November, 282,034 vehicles crossed the span, while 316,411 crossings were reported last November.

Traffic for 2005 is 4.3 percent behind last year's pace, with 4,015,794 crossing this year to date, and 4,196,218 crossing for the same period in 2004.

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Mission Ridge Condominiums - Church St. - Several units available, some bay views, 630-1530 sq. ft. of living area, inc. laundry room, rec room, tall ceilings. inc. 1 car garage. Nice grounds, on bluff, from \$79,900-**\$135,000**

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Mission Ridge Bldg. Lots - Lot B-Buy into a little piece of history and a new development of homes on a private road. 3 back lots remain offering partial views of Rabbits Bay area, Church steeple and Lake Huron. All city utilities to site. This former Ursuline academy site is just a short walk to the new library and downtown. Bring your floor plans and plan your view. **\$36,000+**



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23000 S. CHURCH RD., TROUT LAKE - Great location for outdoor enthusiast - snowmobiling, fishing and hunting for all seasons! This 5 bedroom, 3 bath home is located just South/East of Trout lake on a dead end road. Special features such as Rec. room, walkout basement, breezeway, large deck and attached garage. Very scenic, come take a look. #05-15 **\$145,000**

As the new year approaches, we take time to thank everyone for a wonderful 2005 and to give our heartfelt wishes for a safe, happy, and healthy NEW YEAR!!!!



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ST IGNACE - 3BR, 2 bath home on 3 acres, detached garage w/work shop, open deck, nicely landscaped & borders Federal Forest. (05-636) **\$132,900**

CEDARVILLE - New, luxurious condominium w/2 BR, 2 baths & 1 car attached garage. Private front, rear & garage entries. (05-538) **\$104,500**

MORAN - Nice ranch home located 20 miles north of St Ignace. Quiet country living. Close to hunting & snowmobiling. (05-157) **Reduced! \$74,900**

MORAN - 150' frontage on Brevort Lake. Small cottage needs TLC but would be a great guest cottage. 20 minutes from the Mackinac Bridge. (1999) **\$175,000**

NAUBINWAY - Custom crafted Lake Michigan home w/150' of sandy lakefront & 3.23 acres. Radiant heated tile floors, sunroom, wrap around deck & alternative solar & wind supplement power. (2000) **\$575,000**

PICKFORD - 203' on the Munuscong River. Remodeled home. 2 garages, workshop & Includes extra lot w/3 travel trailer hookups, septic & drain field. (05-1146) **\$169,000**

VACANT

CEDARVILLE - Cedarville Bay waterfront lot (120.75' frontage) High, dry building site. Twp sewer available. (04-93409) **\$175,000**

CEDARVILLE - 5 parcels each with 200' of lakefront in Cedarville Bay on La Salle Island. Deep water access. Beautiful trees. (04-92644-04-92648) **\$165,000 or \$170,000 each**

HESEL - 20 acres on high ground, partially cleared, has 2 older wells, septic-drainfield & electric on lot. Two driveways are cleared to provide access. (05-545) **\$51,900**

PICKFORD - 40 acres of vacant land with 1320' on M-48. Land suitable for farming, hunting or building site. (05-411) **\$50,000**

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