Lake Sturgeon Restoration and Botulism E, 2004

Rodger M. Klindt and Blanche Town
New York State Department of Environmental Conservation
Watertown, New York 13601

Lake sturgeon (*Acipenser fulvescens*) are the largest freshwater fish inhabiting New York State. Once common in the St. Lawrence River and its major tributaries, the lake sturgeon is currently listed as threatened by the New York State Department of Environmental Conservation (NYSDEC).

A restoration program was begun in 1993 to re-establish viable, self sustaining populations within St. Lawrence River tributaries. This program has been expanded to include other waters in NY from which sturgeon populations have been depressed or extirpated. Since 1996, broodstock for this project have been collected and processed immediately below the St. Lawrence F.D.R. Power Project, Massena NY.

Sturgeon were captured over a four day period from 24 to 27 May, 2004, utilizing monofilament gill nets measuring 8x300ft with 10 in stretch mesh. A total of 107 unique individuals were captured ranging from 30-60 inches total length. Seven fish were recaptured within the sampling week. Total catch per unit effort (CUE) was 10.4 fish/net/night.

A total of 3 female (23- 42 lbs) and 9 male (20-33 lbs) sturgeon were held for egg take. Holding facilities and methodology for egg take are described in Klindt et. al. (2001) and Conte et. al. (1988) respectively. A complete inventory of biological information from fish captured can be found in the NYS Bureau of Fisheries Database (NYSDEC, 1986).

Approximately 116,000 fertilized eggs were obtained utilizing ova from three females. Nine unique genetic crosses were anticipated, although only six were produced (Table 1). Sperm production from several fish was lower than expected, requiring some duplication of crosses. Fertilized eggs were transported and cultured at both the NYSDEC Oneida Fish Culture Station (Constantia, NY) and U.S. Fish and Wildlife Service Pittsford National Hatchery Hatchery (N. Chittenden, VT). Sperm samples and approximately 5,000 eggs, both fertilized and unfertilized, were provided to Ohio State University for cryo-preservation experimentation.

A total of 8390 fingerling sturgeon were produced and stocked into the waters of New York State in 2004 (Table 2). This marks the final year of stocking under the original sturgeon recovery plan (Bouton, 1994). Future work with regards to stocking activities will be determined by updated restoration plans.

Restoration of lake sturgeon has been the primary focus of activities in the past decade. A potential stumbling block relative to recovery has been the recent occurrence of Botulism E in the lower Great Lakes. Botulism E outbreaks in Lake Erie have been linked to accelerated mortality of adult sturgeon (D. Einhouse, NYSDEC, pers. communication). Lake Ontario waters, primarily in western New York, have produced varying numbers of dead adult sturgeon annually since 2001, presumably the result of botulism toxicity (M. Wilkinson, NYSDEC, pers. communication) (Table 3). Due to the proposed link of dreissenid mussels and round gobies, both of which are consumed by adult sturgeon, the possibility exists for significant mortality in Lake Ontario waters should a major Botulism E outbreak occur.

References

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