

Assessment of Habitat Use by Stocked Lake Sturgeon in the Genesee River

INTRODUCTION

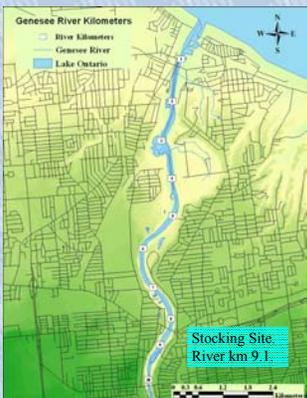


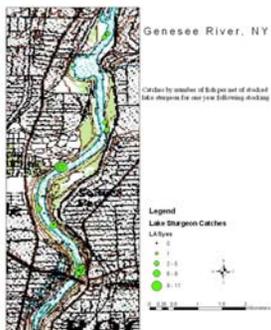
Figure 1: Experimental sturgeon stocking section of the Genesee River. Assessment area is from just down stream of the first natural barrier, Lower Falls, at km 10, north to the harbor area.

Historically one of the populous sturgeon waters of New York was the lower Genesee River. The Genesee flows from PA north through Rochester NY and into Lake Ontario. This river has had significant water quality improvements in the past 20 years (Elliott 1997). Successful management of threatened species requires an extensive assessment and the evaluation of the availability and quality of physical and biotic habitats for all life stages of the species of concern over multiple years (Busch and Lary 1996, Threader et al. 1998). One technique is the evaluation of possible habitat use by stocking of hatchery reared fish. We present the habitat use and juvenile lake sturgeon growth results from this first year of experimental stocking evaluation. This experiment in the Genesee River conceived as a response to a window of opportunity for improvement of the fish community in the Genesee River and enhance Lake Sturgeon populations in New York.

OBJECTIVES:

1. Assessment of Genesee River habitat use by experimentally stocked Lake Sturgeon.
2. Assessment of physical and biotic habitat parameters in the areas of sturgeon capture.

RESULTS: Capture of Stocked Sturgeon



The second most successful capture site 2, river km 6.2. West side of river. The deepest spot (10m) in the assessment area.



rkm 8.2 Gravelly sediment
rkm 6.2 Sandy/gravelly with Zebra mussels

166 total captures & recaptures



The most successful capture site was at river km 8.2. East side of the river just downstream of the Rt.104 Bridge.



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METHODS

Lake sturgeon were reared in the New York State Department of Environmental Conservation Oneida hatchery. 900 3 month old juvenile sturgeon were released into the Genesee in September 2003 and 1000 were released in September 2004. All individuals were marked by scute removal. The release site, at river kilometer 9.1, is the most upstream spot out of the main flow of the river. The substrate is sandy/silty and < 1m deep.



Stocking Site

Sturgeon Assessment:

We conducted systematic gill netting from km 9 to km 2.5 using experimental nets with 5 25' panels of 1/2" to 3" bar mesh. Recaptured fish were marked with a numbered floy tag.

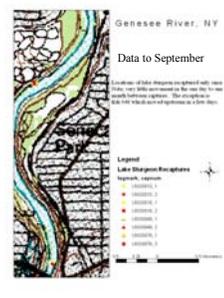


Environmental Measures: Water flow, depth, temperature, and substrate characteristics were recorded at sturgeon capture sites. Data on the benthic macroinvertebrate community were collected using standard benthic invertebrate sorting and identification techniques after sampling with a ponar grab.

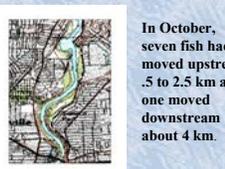


Recapture results and patterns

Schnabel population estimate for the 2003 Year class.
366 juvenile sturgeon in the river 1 year after release.
40.6% of the 900 fish stocked in 2003.
95 % confidence interval is 248 to 563 fish



11 out of 20 recaptured fish had moved < .1 km.



In October, seven fish had moved upstream .5 to 2.5 km and one moved downstream about 4 km.



Fisherman Eric Hirst. Sturgeon caught 9/03 on hook and line at rkm 3.

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ABSTRACT

Lake sturgeon (*Acipenser fulvescens*) has been identified by fisheries managers as a key target species for recovery and restoration in the Lake Ontario - St. Lawrence River system. The Genesee River is one of the major tributaries to Lake Ontario and part of the Rochester Embayment Area of Concern. In September of 2003, 900 juvenile lake sturgeon were released at river kilometer 9.1. Experimental gill netting was conducted from river km 2.5 to 9.1. The first year of stocked sturgeon assessment resulted in 166 captures. The most successful capture site was the first deep area downstream of the release site, (river km 8.2). It averages over 6 m depth and has gravelly/shelly substrate. The second most successful capture site (rkm 6.2) is a deep hole (9 to 10m) with gravelly, rocky substrate with zebra mussels. 2003 YC released sturgeon had an average length of 210mm and an average weight of 43.6g. In November of 2003, five captured fish averaged 242mm long. In October of 2004, 57 2003 YC fish captured fish averaged 357.8 mm and 178.5 g. Schnabel population estimate is 366 individuals of the 2003 YC still in the river 1 year later. These results indicate that the juvenile sturgeon are successfully using the available Genesee river habitat. Results of this research in the Genesee River will provide information needed for future steps in the restoration and enhancement of lake sturgeon in Lake Ontario and associated tributaries.

Growth Characteristics of stocked Lake Sturgeon

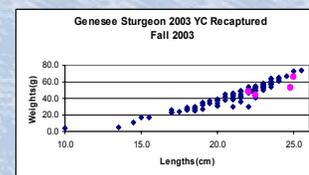


Figure 2. Sizes of the 4 2003 YC sturgeon recaptured in October 03 compared to the size distribution at stocking.

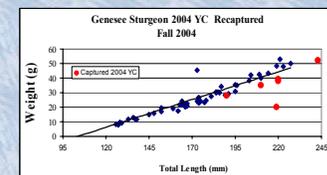
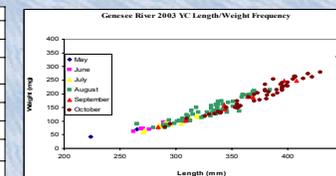
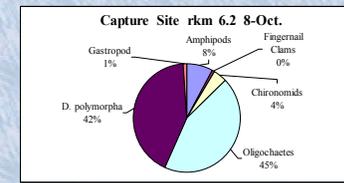
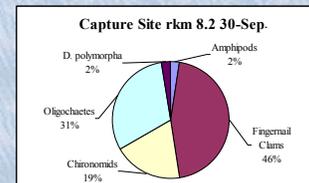


Figure 3. Sizes of the 6 2004 YC sturgeon recaptured in October 04 compared to the size distribution at stocking.

Month	2003 YC Sturgeon Characteristics 2004 Field Season		N	Length Range	
	Average Length (mm)	Average Weight (mg)		Smallest	Largest
May	244.5	57.0	2	224	265
June	273.4	74.8	5	262	329
July	295.4	91.9	14	271	320
August	328.7	137.0	60	265	384
September	347.4	162.4	9	284	458
October	357.8	178.5	57	190	446



Benthic Resources: Invertebrate Community



Current Summary

- Juvenile sturgeon are staying the river in good numbers.
- The habitat in which the fish were captured was gravelly to sandy.
- Most captures were in the deepest sections of a given river reach.
- Growth for the 2003 year class was an average of 115.8 mm. Similar to 1 yr growth in other systems.
- Benthic invertebrates typical of sturgeon diets are present.

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