

## Species Status Assessment

**Class:** Osteichthyes (bony fishes)  
**Family:** Centrachidae (sunfish)  
**Scientific Name:** *Lepomis peltastes*  
**Common Name:** Northern sunfish (formerly longear sunfish)

### Species synopsis:

The longear sunfish subspecies found in New York was designated as a full species by the American Fisheries Society in 2013. It is now called the northern sunfish, *Lepomis peltastes*. This species is restricted in range to certain large streams in eastern-central North America, occurring from southern Quebec and Ontario through the eastern United States and west to Oklahoma, Texas, and northeastern Mexico. It is found in clear, low gradient streams and lakes with submerged aquatic vegetation and a gravelly to sandy bottom. It is native to 3 of 18 watersheds in western and central New York. It has declined to levels below detection in the Oswego watershed, and there are major declines in tributaries of Lake Ontario. The only remaining area with a sustained population is a 6 km segment of Tonawanda Creek near Buffalo and a small introduced population in Cayuga Creek, Niagara County. The species has not been captured in Tonawanda Creek since 2006.

### I. Status

#### a. Current and Legal Protected Status

- i. **Federal** Not Listed **Candidate:** No
- ii. **New York** Threatened, SGCN

#### b. Natural Heritage Program Rank

- i. **Global** GNR
- ii. **New York** S1 **Tracked by NYNHP** Yes

### Other Rank:

(COSEWIC): Not at Risk (01Apr1987)

**Status Discussion:**

Northern sunfish is not globally ranked, but in New York it has a state rank of Critically Imperiled (NatureServe 2012).

**II. Abundance and Distribution Trends**

**a. North America**

**i. Abundance**

declining  increasing  stable  unknown

**ii. Distribution:**

declining  increasing  stable  unknown

**Time frame considered:** last 30 years

**b. Regional**

**i. Abundance**

declining  increasing  stable  unknown

**ii. Distribution:**

declining  increasing  stable  unknown

**Regional Unit Considered:** Northeast (Species of Concern)

**Time Frame Considered:** last 30 years

**c. Adjacent States and Provinces**

<b>CONNECTICUT</b>	<b>Not Present</b> <u>  X  </u>	<b>No data</b> _____
<b>MASSACHUSETTS</b>	<b>Not Present</b> <u>  X  </u>	<b>No data</b> _____
<b>VERMONT</b>	<b>Not Present</b> <u>  X  </u>	<b>No data</b> _____
<b>NEW JERSEY</b>	<b>Not Present</b> _____	<b>No data</b> _____

**i. Abundance**

\_\_\_ declining \_\_\_ increasing \_\_\_ stable \_\_\_ unknown

**ii. Distribution:**

\_\_\_ declining \_\_\_ increasing \_\_\_ stable \_\_\_ unknown

Time frame considered: \_\_\_\_\_

Listing Status: Not Listed- considered exotic SGCN? No

<b>ONTARIO</b>	<b>Not Present</b> _____	<b>No data</b> _____
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**i. Abundance**

\_\_\_ declining \_\_\_ increasing   X   stable \_\_\_ unknown

**ii. Distribution:**

\_\_\_ declining \_\_\_ increasing   X   stable \_\_\_ unknown

Time frame considered: last 30 years

Listing Status: Not at Risk

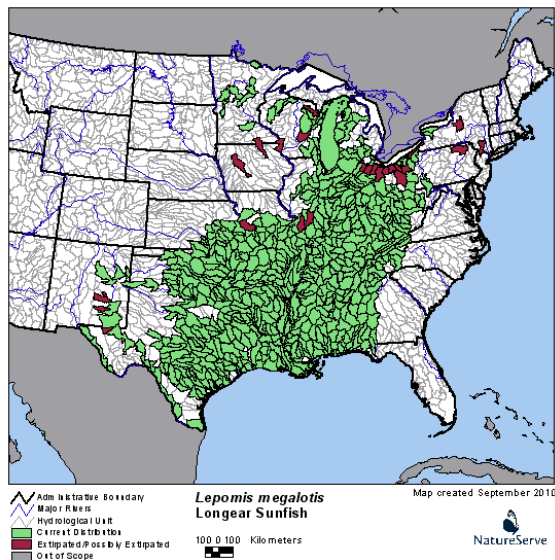


## Monitoring in New York.

Monitoring programs are carried out by the NYSDEC Rare Fish Unit, 1998-2012 (Carlson 2012). Extensive monitoring was completed in 2004-05 by Wells and Haynes (2007). This was followed by random sampling via SUNY Brockport and NYSDEC from 2006-2012. Focused sampling will begin again in May 2013 via a HERC grant from NYPA awarded to SUNY Brockport (J. Haynes).

## Trends Discussion:

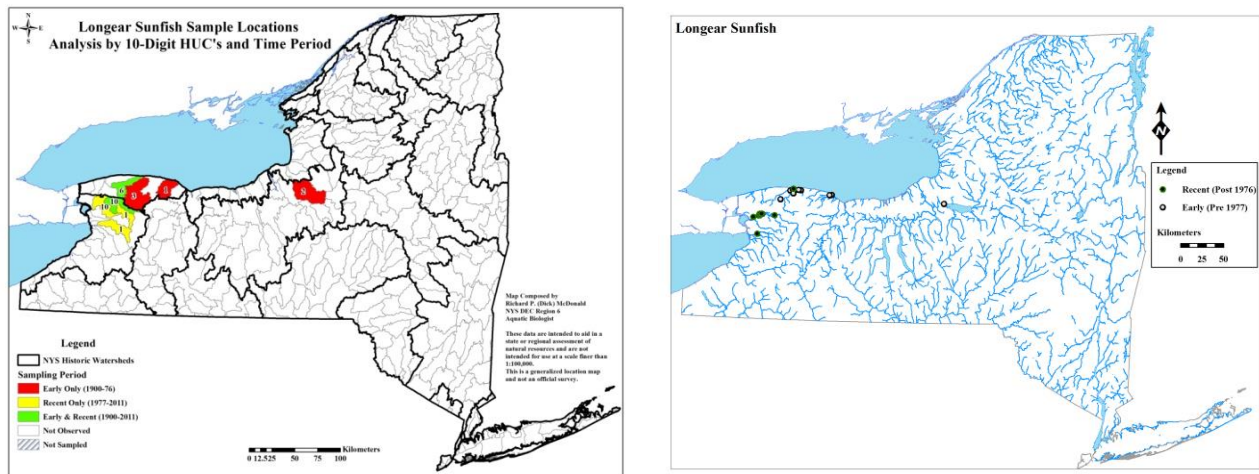
Northern sunfish occurs in the northern Mississippi River Basin and Great Lakes Basin. (Figures 1 and 2). It also occurs in the St. Lawrence River. It is found from southeastern Ontario and western New York to northeastern Iowa to southwestern Ontario, including the states of Ohio, Indiana, Illinois, Michigan, Minnesota and Wisconsin. It was recently separated as a distinct species from the much more common and widely distributed longear sunfish (*Lepomis megalotis*).



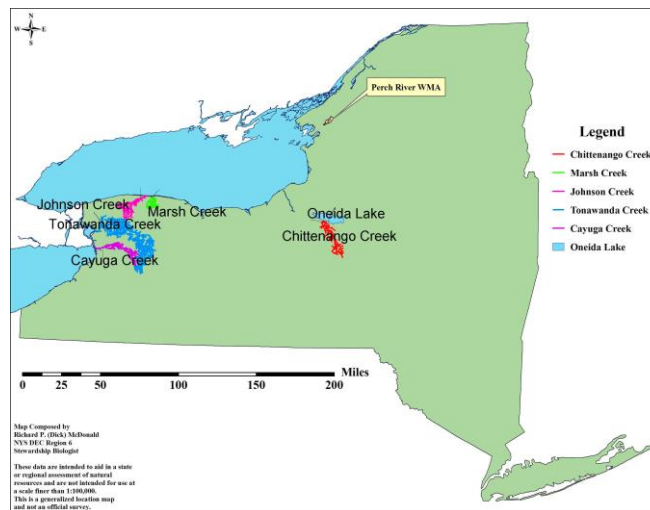
**Figure 1.** Distribution of northern sunfish in the United States by watershed (NatureServe 2012).

In New York, longear sunfish were historically found in 6 waters; only one remnant population remains, but the species has been re-introduced in other waters (Carlson 2012a). The native range is declining (or gone or dangerously sparse) in 2 of the 3 watersheds. Population levels are largely unknown in the very small section of the one stream. There are more than 40 authenticated catches since 1974, with all but two from Tonawanda Creek. The two catches in Johnson Creek (2003-04) are thought to be incidental and not part of an established population since they have yet to be repeated. The recent captures in Tonawanda Creek come along with a preponderance of round goby, and this raises serious concern.

The differences in frequency occurrence in comprehensive stream surveys from these watersheds show the decline in Ontario went from 4% to 1% for periods of the 1930s and the 2000s. The distribution of this species among sub-basins within the Erie and Ontario watersheds (HUC 10) has changed dramatically, with records from 5 of the units from all time periods and from only 2 units since 1976. Statewide, there are 52 records for this species, 25 of which since 1977.



**Figure 2.** Northern sunfish distribution in New York, depicting fish sampled before 1977 and from 1977 to current time, also shown with the corresponding HUC-10 units where they were found and the number of records. The right map depicts the range of longear sunfish in New York.



**Figure 3.** Stocking locations of longear sunfish in New York (Carlson 2012b).

Watershed name	Total # HUC10	Early only	Recent only	both	Watershed status
Erie-Niagara	1	0		1	
Ontario	3	2	0	1	

Oswego	1	1	0	0	loss
sum	5	3	0	2	

**Table 1.** Records of rare fish species in hydrological units (HUC-10) are shown according to their watersheds in early and recent time periods (before and after 1977) to consider loss and gains. Further explanations of details are found in Carlson (2012).

**III. New York Rarity, if known:**

<b>Historic</b>	<b><u># of Animals</u></b>	<b><u># of Locations</u></b>	<b><u>% of State</u></b>
<b>prior to 1977</b>	_____	<u>27 records</u>	<u>3/18 watersheds</u>
<b>prior to 1980</b>	_____	_____	_____
<b>prior to 1990</b>	_____	_____	_____

**Details of historic occurrence:**

Northern sunfish were historically found in western New York in the Lake Erie and Lake Ontario drainages. It was not caught in the 1928 survey of Lake Erie watershed, nor did it occur in upper Tonawanda Creek as mapped by Smith (1985). Three tributaries of Lake Ontario were inhabited in 1938: West Creek, Johnson Creek (also in 1940) and Oak Orchard Creek. Oneida Lake also had a northern sunfish record from 1916 and the 1940s, but has not been reported since. One of the northern streams flowing from New York into the Chautauguay River in Quebec may contain this species, as it was collected 10 mi downstream in Hinchinbrook Brook (Mongeau et al. 1979). Healthy populations of longear sunfish were also found by D. Carlson in Ontario (2005).

<b>Current</b>	<b><u># of Animals</u></b>	<b><u># of Locations</u></b>	<b><u>% of State</u></b>
<b>(since 1977)</b>	_____	<u>25 records</u>	<u>2/18 watersheds</u>

**Details of current occurrence:**

Stocking programs have been underway in all 3 watersheds and the number of occurrences does not include stocked fish.

There are more than 40 authenticated catches since 1974, with all but two in Tonawanda Creek. The two catches in Johnson Creek (2003-04) are thought to be incidental and not part of an established population. Other records (likely introduced or incorrect) are shown by Lee et al. (1980). Smith (1985) feels these were other sunfish species or were hybrids of redbreast sunfish and pumpkinseed. Large adult male pumpkinseed sunfish resemble longear sunfish, but in eastern New York many records were redbreast sunfish. In 2010, there were captures in Murder Creek and Cayuga Creek at Slate Bottom Creek (Carlson 2012b). In 2011, sampling occurred but nothing was seen. In 2012, adults were captured in

Elliot Creek.

**New York's Contribution to Species North American Range:**

<b>% of NA Range in New York</b>	<b>Classification of New York Range</b>
<input type="checkbox"/> 100 (endemic)	<input type="checkbox"/> Core
<input type="checkbox"/> 76-99	<input checked="" type="checkbox"/> Peripheral
<input type="checkbox"/> 51-75	<input type="checkbox"/> Disjunct
<input type="checkbox"/> 26-50	<b>Distance to core population:</b>
<input checked="" type="checkbox"/> 1-25	<u>400 miles</u>

**IV. Primary Habitat or Community Type:**

1. Small River, Low-Moderate Gradient, Moderately Buffered, Neutral, Warm

**Habitat or Community Type Trend in New York:**

Declining  Stable  Increasing  Unknown

**Time frame of decline/increase:** \_\_\_\_\_

**Habitat Specialist?**  Yes  No

**Indicator Species?**  Yes  No

**Habitat Discussion:**

The northern sunfish prefers streams with clear, shallow, quiet and warm waters, but can tolerate turbidity (i.e. lower Tonawanda Creek). It prefers densely weeded areas with a gravel or sand bottom but is found over silt substrate as well (Wells and Haynes 2006). It generally avoids strong currents and silt but tolerates current more than other sunfishes in New York. Habitat includes areas of clear streams where preferred habitat such as submerged aquatic vegetation exists over sand in backwaters and current breaks (lower Huron River, MI) or in emergent vegetation and LWD in turbid streams with a high silt load (lower Tonawanda Creek, NY). The species is often found along redbfin shiner in such area as the confluence of Tonawanda and Mud Creeks (Millersport, NY) (Wells 2009).



**V. New York Species Demographics and Life History**

- Breeder in New York**
  - Summer Resident**
  - Winter Resident**
  - Anadromous**
- Non-breeder in New York**
  - Summer Resident**
  - Winter Resident**
  - Catadromous**
- Migratory only**
- Unknown**

**Species Demographics and Life History Discussion:**

Longear sunfish has an intermediate length life span and may reach 10 years of age (Werner 2004). Individuals become sexually mature in 2nd or 3rd summer. Spawning occurs during summer months in New York State (Jun-Aug). This species often breeds in colonies of closely spaced nests. Males are often larger and may guard eggs and hatchlings for up to a week or more after hatching (Becker 1983, NatureServe 2012). Males are very aggressive and exhibit colorful dimorphism even in turbid water and compete against each other for mates, often flaring their ear flaps at one another as intimidation behavior.

**VI. Threats:**

In New York, several populations have likely disappeared. Biologists attribute the decline in this sunfish's numbers to several causes including siltation and water quality deterioration. Perhaps the spread of another sunfish species, the green sunfish, is a threat, as they were not caught here in 1975 but have been abundant since 1998, apparently moving from west to east in New York State. Round goby is a known egg predator that invaded Tonawanda Creek in 2005. They compete for food and space with northern sunfish and all the other native fishes in the systems where they are now abundant.

Northern sunfish was classified as “presumed stable” to predicted climate change in an assessment of vulnerability conducted by the New York Natural Heritage Program (Schlesinger et al. 2011).

**Are there regulatory mechanisms that protect the species or its habitat in New York?**

No       Unknown

Yes

The northern sunfish is listed as a threatened species in New York and is protected by Environmental Conservation Law (ECL) section 11-0535 and the New York Code of Rules and Regulations (6 NYCRR Part 182). A permit is required for any proposed project that may result in a take of a species listed as Threatened or Endangered, including, but not limited to, actions that may kill or harm individual animals or result in the adverse modification, degradation or destruction of habitat occupied by the listed species.

The Protection of Waters Program provides protection for rivers, streams, lakes, and ponds under Article 15 of the NYS Conservation Law.

**Describe knowledge of management/conservation actions that are needed for recovery/conservation, or to eliminate, minimize, or compensate for the identified threats:**

Recovery efforts started in 2005 with a breeding program consisting of hatchery ponds at a WMA in Jefferson County with fish from Huron River of Michigan and Moira River in Ontario, Canada (Carlson 2012b). Seven waters were stocked to a total of 12,087 fingerlings (Table 2). During 2007-2009, fish from Tonawanda Creek were also brought to the production ponds, and a third strain was created (Carlson 2012b). During the ensuing years, 2008-09, some juveniles were stocked as surplus production into Murder Creek, a tributary of Tonawanda Creek, but they were considered of extremely limited parentage. Continued stocking through 2011 provided a slightly better mixture of brood stock parents. In 2010, they were stocked farther upstream (36 miles) in Tonawanda Creek and in 2010 and 2011 in Ellicott Creek, Niagara County. The New York strain was stocked in 7 locations and to a total of 4,654 sunfish (Carlson 2012b).

**Table 2.** Numbers of northern sunfish stocked by water (Carlson 2012b).

<b>Water body</b>	<b>Dates</b>	<b>Number</b>
Marsh Creek (Mich str.)	Fall 2006 & 07	1,720
Cayuga Creek at Slate Btm Ck(Mich. str)	Spr 2007 &08	1,957
Cayuga Creek near L. Buff. Ck (Mich. str.)	Fall 2009	1,090
Oneida Lake at Briggs Bay (Ont. str)	Summ 2007	2,179
Chittenango Creek (Ont. str)	Spr & Fall 2007 & 08	1,585
Scriba Creek (trib of Oneida Lake) (Ont. str)	Fall 2008	400
Fish Creek (trib of Oneida Lake) (Ont. str.)	Fall 2008	1,200
Johnson Creek (Ont. str)	Spr & Fall 2007 & 08	1,956
Murder Creek (NY str.)	Spr 2008& 09, Summ 09	1,040
Tonawanda Creek, N. Alex. (NY str.)	Fall 2010	250
Ellicott Creek, Bowmansville (NY str.)	Fall 2010	500
Fish Creek (trib of Oneida Lake) (NY. str.)	Summ 2011	850
Barge Canal/Tonawanda Ck (blw Ransom Ck)	July 15, 2011	325
Caughdenoy Ck, trib of Oneida R (NY str.)	Summ 2011	554
Ellicott Creek, Bowmansville (NY str.)	Summ 2011	700
Murder Creek (NY str.)	Summ 2011	45
Tonawanda Creek abv Murder (NY str.)	Summ 2011	390
Caughdenoy Ck, trib of Oneida R (NY str.)	Oct 2012	975

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