Species Status Assessment

Class: Osteichthyes (bony fishes)
Family: Percidae (perches)
Scientific Name: *Etheostoma fusiforme*
Common Name: Swamp darter

Species synopsis:

Swamp darter inhabits ponds and medium-sized streams with aquatic vegetation. In New York it is found only on Long Island. It is present throughout its historic range and although its range is restricted, populations seem secure. It is vulnerable to habitat loss from wetland degradation and dewatering for residential and urban development.

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 ___ G5 ________________________________

ii. New York ___ S1S2 __________ Tracked by NYNHP? ___ Yes ___

Other Rank:

Status Discussion:

Swamp darter is globally ranked as Secure. Throughout its range, this species is represented by a large number of occurrences and this species is common to abundant in much of its range (NatureServe 2012). However, in New York, swamp darter is listed as threatened and is ranked as Imperiled/Critically Imperiled.
II. Abundance and Distribution Trends

a. North America
   i. Abundance
      ___ declining   ___ increasing   ___X stable   ___ unknown
   ii. Distribution:
      ___ declining   ___ increasing   ___X stable   ___ unknown

Time frame considered: ___ Over the past 10 years (NatureServe 2012) ___

b. Regional
   i. Abundance
      ___ declining   ___ increasing   ___X stable   ___ unknown
   ii. Distribution:
      ___ declining   ___ increasing   ___X stable   ___ unknown

Regional Unit Considered: ___ Northeast ____________________________

Time Frame Considered: _________________________________
c. Adjacent States and Provinces

<table>
<thead>
<tr>
<th>State</th>
<th>Presence</th>
<th>Data Status</th>
<th>Abundance</th>
<th>Distribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>ONTARIO</td>
<td>Not Present</td>
<td>X</td>
<td>No data</td>
<td></td>
</tr>
<tr>
<td>QUEBEC</td>
<td>Not Present</td>
<td>X</td>
<td>No data</td>
<td></td>
</tr>
<tr>
<td>VERMONT</td>
<td>Not Present</td>
<td>X</td>
<td>No data</td>
<td></td>
</tr>
<tr>
<td>CONNECTICUT</td>
<td>Not Present</td>
<td></td>
<td>No data</td>
<td></td>
</tr>
<tr>
<td></td>
<td>i. Abundance</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>___ declining ___increasing ___stable X unknown</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>ii. Distribution</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>___ declining ___increasing ___stable X unknown</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Time frame considered: __________________________________________________________
Listing Status: __________ Not Listed __________ SGCN? _Yes_

MASSACHUSETTS Not Present ______ No data ______

<table>
<thead>
<tr>
<th>i. Abundance</th>
<th>___ declining ___increasing ___stable ___unknown</th>
</tr>
</thead>
<tbody>
<tr>
<td>ii. Distribution</td>
<td>___ declining ___increasing ___stable ___unknown</td>
</tr>
</tbody>
</table>

Time frame considered: __________________________________________________________
Listing Status: __________ Not Listed __________ SGCN? _Yes_

NEW JERSEY Not Present ______ No data ______

<table>
<thead>
<tr>
<th>i. Abundance</th>
<th>___ declining ___increasing ___stable X unknown</th>
</tr>
</thead>
<tbody>
<tr>
<td>ii. Distribution</td>
<td>___ declining ___increasing ___stable X unknown</td>
</tr>
</tbody>
</table>

Time frame considered: __________________________________________________________
Listing Status: __________ Not Listed __________ SGCN? _No_
d. NEW YORK

i. Abundance

___ declining ___ increasing ___ stable ___ unknown

ii. Distribution:

___ declining ___ increasing ___ stable ___ unknown

Time frame considered: ____________________________

Listing Status: __________ Extirpated since 1920s (SX) ___ SGCN? ____ No

Monitoring in New York.

Monitoring programs are carried out by the NYSDEC Rare Fish Unit, 1998-2012.

Trends Discussion:

In New York, swamp darter has historically been found in 16 (still in 9) waters and is not declining (or gone or dangerously sparse) in the single watershed. The population appears to be stable.

More subtle indications came from comparisons for the sample periods of 1930s and 1970s, and there were more catches in the 70s, in Long Island watershed (0.9% to 11% frequency occurrence). The distribution of this species among sub-basins (HUC 10) within the watershed has not changed substantially, with records from three units in the recent as well as historic periods. Statewide, the number of individual site records for this species has been 53 for all time periods, 31 in the last 30 years, and 23 since 1993.
Figure 1. U.S. Distribution of swamp darter by watershed (NatureServe 2012).

Figure 2. Swamp darter distribution in NY, depicting fish sampled before 1977 and from 1977 to current time, shown with the corresponding HUC-10 units where they were found and the number of records.

<table>
<thead>
<tr>
<th>Watershed name</th>
<th>Total # HUC10</th>
<th>Early only</th>
<th>Recent only</th>
<th>Both</th>
</tr>
</thead>
<tbody>
<tr>
<td>Long Island</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>3</td>
</tr>
</tbody>
</table>

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:

<table>
<thead>
<tr>
<th>Historic</th>
<th># of Animals</th>
<th># of Locations</th>
<th>% of State</th>
</tr>
</thead>
<tbody>
<tr>
<td>prior to 1977</td>
<td>_____________</td>
<td><strong>22</strong></td>
<td>1 of 18 watersheds</td>
</tr>
<tr>
<td>prior to 1980</td>
<td>_____________</td>
<td>______</td>
<td>______</td>
</tr>
<tr>
<td>prior to 1990</td>
<td>_____________</td>
<td>______</td>
<td>______</td>
</tr>
</tbody>
</table>

Details of historic occurrence:

Swamp darter has historically been found in 16 waters in the Long Island watershed.

<table>
<thead>
<tr>
<th>Current</th>
<th># of Animals</th>
<th># of Locations</th>
<th>% of State</th>
</tr>
</thead>
<tbody>
<tr>
<td>Since 1977</td>
<td>_____________</td>
<td><em><strong>31</strong></em></td>
<td>1 of 18 watersheds</td>
</tr>
</tbody>
</table>

Details of current occurrence:

No new locations have been documented as having the swamp darter present. Historically, the swamp darter has only been reported from the drainages of Lake Ronkonkoma, the Carmans River and the Peconic River, all on Long Island. Swamp darters were not found in the Carmans River or Lake Ronkonkoma drainages and may be extirpated from these drainages, decreasing their range in the Long Island watershed (H. O'Riordan, pers. comm.).

New York’s Contribution to Species North American Range:

<table>
<thead>
<tr>
<th>% of NA Range in New York</th>
<th>Classification of New York Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>___ 100 (endemic)</td>
<td>___ Core</td>
</tr>
<tr>
<td>___ 76-99</td>
<td><em>X</em> Peripheral</td>
</tr>
<tr>
<td>___ 51-75</td>
<td>___ Disjunct</td>
</tr>
<tr>
<td>___ 26-50</td>
<td>Distance to core population:</td>
</tr>
<tr>
<td><em>X</em> 1-25</td>
<td>___ 400 miles</td>
</tr>
</tbody>
</table>
IV. Primary Habitat or Community Type:

1. Headwater/Creek
2. Coastal Plain Stream
3. Coastal Plain Pond

Habitat or Community Type Trend in New York:

___ Declining ___ Stable ___ Increasing ___X__ Unknown

Time frame of decline/increase: ________________________________

Habitat Specialist?   _____ Yes    _____ No

Indicator Species?   _____ Yes    ___X__ No

Habitat Discussion:

The swamp darter is found in quiet water areas and/or slow-moving water of swamps, ponds, lakes, and streams with detritus bottoms and aquatic vegetation, sometimes over sand or gravel. They tolerate a wide range of pH values (5.7-7.2), water temperatures, murky water and low oxygen levels (down to 2.1 mg/l) (Jenkins and Burkhead 1994). Spawning occurs among aquatic plants; eggs are deposited on leaves (NatureServe 2012).
V. New York Species Demographics and Life History

___X___ Breeder in New York

___X___ Summer Resident

___X___ Winter Resident

___ Anadromous

___ Non-breeder in New York

___ Summer Resident

___ Winter Resident

___ Catadromous

___ Migratory only

___ Unknown

Species Demographics and Life History Discussion:

Swamp darter has a relatively short life span, dying not long after spawning at the end of their first year. In the northeast, spawning takes place in April or May (Werner 2004).

VI. Threats:

Populations of swamp darter are not well studied. The range is restricted to only a few ponds in this river system of Long Island and they may be vulnerable to various threats. Pollution or other alterations to its habitats appear to be the major potential threats to this species. Their protection is mostly a function of protecting the wetlands in eastern Long Island. Low water levels in Zeeks Pond (on Brookhaven Nat. Lab) in 2002 were thought to have causes the swamp darters to become extirpated.

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

_____ No  _____ Unknown

___X___ Yes

The swamp darter 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:**

Continue monitoring populations and monitor water levels or depths on dry years to ensure suitable habitat is available.

Conservation actions following IUCN taxonomy are categorized in the table.

<table>
<thead>
<tr>
<th>Conservation Actions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Action Category</strong></td>
</tr>
<tr>
<td>Land/Water Protection</td>
</tr>
<tr>
<td>Land/Water Protection</td>
</tr>
<tr>
<td>Land/Water Management</td>
</tr>
<tr>
<td>Land/Water Management</td>
</tr>
<tr>
<td>Species Management</td>
</tr>
<tr>
<td>Law/Policy</td>
</tr>
</tbody>
</table>

The Comprehensive Wildlife Conservation Strategy (NYSDEC 2005) includes recommendations for the following actions for the swamp darter.

**Habitat Monitoring:**

---- Complete surveys on submerged aquatic vegetation and floating woody mats in areas still inhabited by this species and monitor water levels or depths on dry years.

**Habitat Research:**

---- Define preferred habitat in order to guide future restoration efforts and focus on habitat protection efforts.
Population Monitoring:

---- Continued monitoring of the Long Island populations.

Relocation/Reintroduction:

---- Establish populations after dewatering of streams and lakes due to groundwater withdrawals. Zeeks Pond suffered this in 2002 and restorative measures are needed.

VII. References


Carlson, D.M. 2012 (draft). Species accounts of inland fishes of NYS considered as imperiled, 2012. NYDEC Watertown, NY


Date last revised: July 16th, 2013