

Status of Round Gobies within the French Creek Watershed and Potential Impacts to Native Fauna



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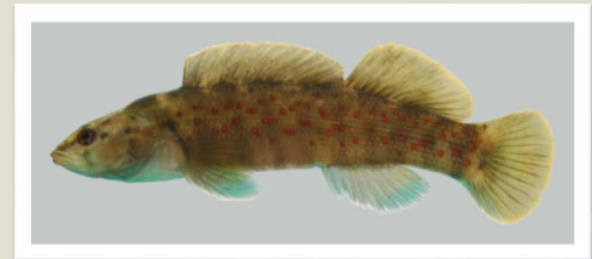
French Creek



80+ species of fish



**16 species of darters
(5 species delisted in 2016)**



25+ species of FW mussels

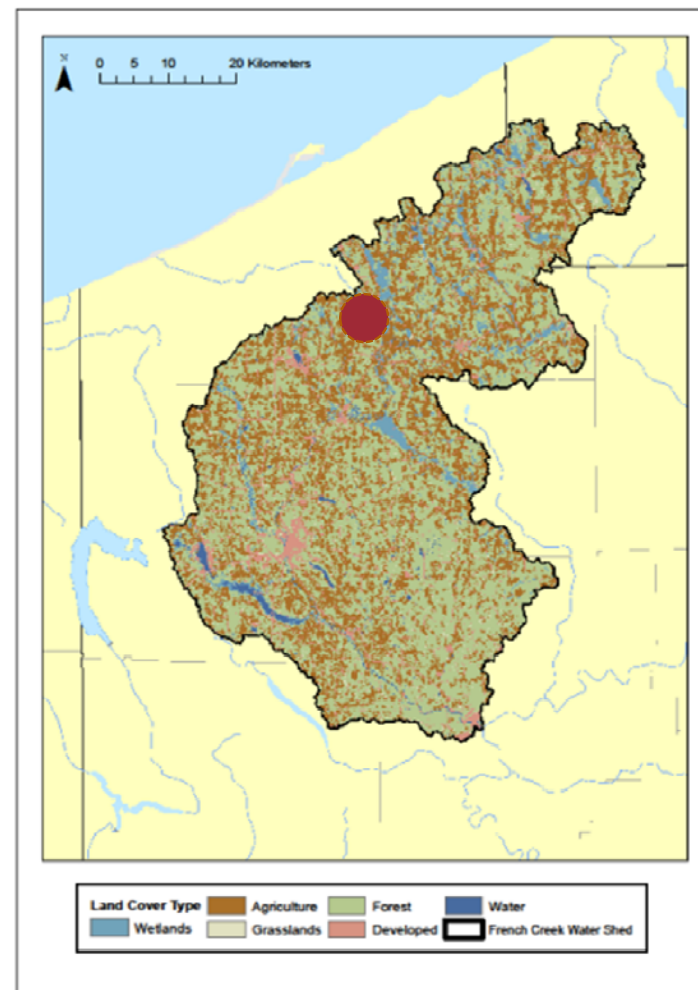
History of Introduction into FC Watershed



Lake LeBoeuf
&
LeBoeuf Creek
(Summer 2014)



Mainstem of
French Creek
(Confirmed
Summer 2016)



Historical Impact to Native Fishes in Other Streams



- Extirpation of Mottled Sculpin & Eastern Sand Darter
- Decline of Johnny and Iowa darters, some cases Log Perch
- Prey on eggs of Log Perch, Bass, etc...
- Cases of extirpation of native darters in NY tributaries to Lake Erie
- PA Tributaries have indicated presence of gobies elicits diet and habitat shifts in native darters



Potential Impacts in the French Creek Watershed



- **Spotted Darter (*Etheostoma maculatum*)**
 - Only found within the upper Allegheny watershed
- **Eastern Sand Darter (*Etheostoma pellucidum*)**
 - Rediscovered in 1991
- **Changes in benthic macroinvertebrate communities**
 - Potential for bottom up trophic cascade

Potential Impacts in the French Creek Watershed



- **Benthic species of concern (apart from darters)**
 - Brindled Madtom (*Noturus miurus*)
 - Mountain Madtom (*N. eleutherus*)
 - Northern Madtom (*N. stigmosus*)
 - Native mussels including:
 - ✦ Clubshell (*Pleurobema clava*)
 - ✦ Northern Riffleshell (*Epioblasma torulosa rangiana*)

Current



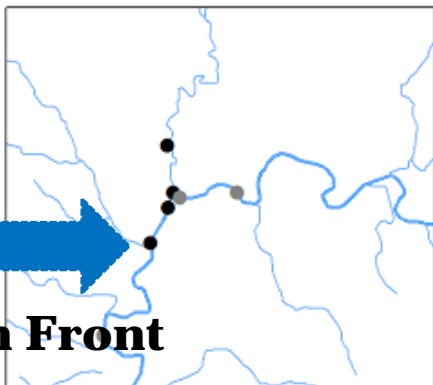
Funded Research

- Estimate the rapidity of the spread of Round Gobies in the main channel of French Creek
- Determine potential impacts to native fauna
 - ✦ By looking at microhabitat partitioning
 - ✦ By looking at diet overlap among gobies and darters



Sample locations as of November 2016

Current Invasion Front



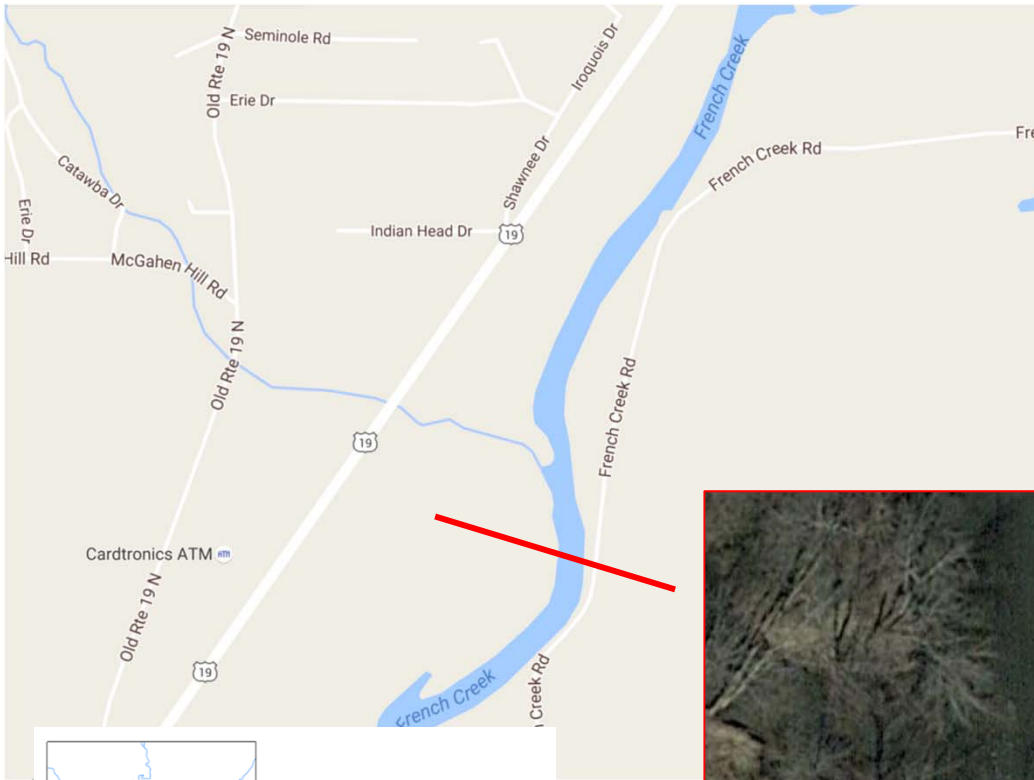
Round Goby Presence
● Y
● N
— French Creek



Current Invasion Front



Current Invasion Front (as of October 2016)



Interesting Findings Thus Far...



Round Goby Eggs
July 13th, 2016
LeBoeuf Creek
(Male was guarding nest)

Male in Breeding Colors
Collected: May 10th, 2016
LeBoeuf Creek

Spreading through Larval Drift



Mouth of LeBoeuf Creek



Impacts to Eastern Sand Darters?



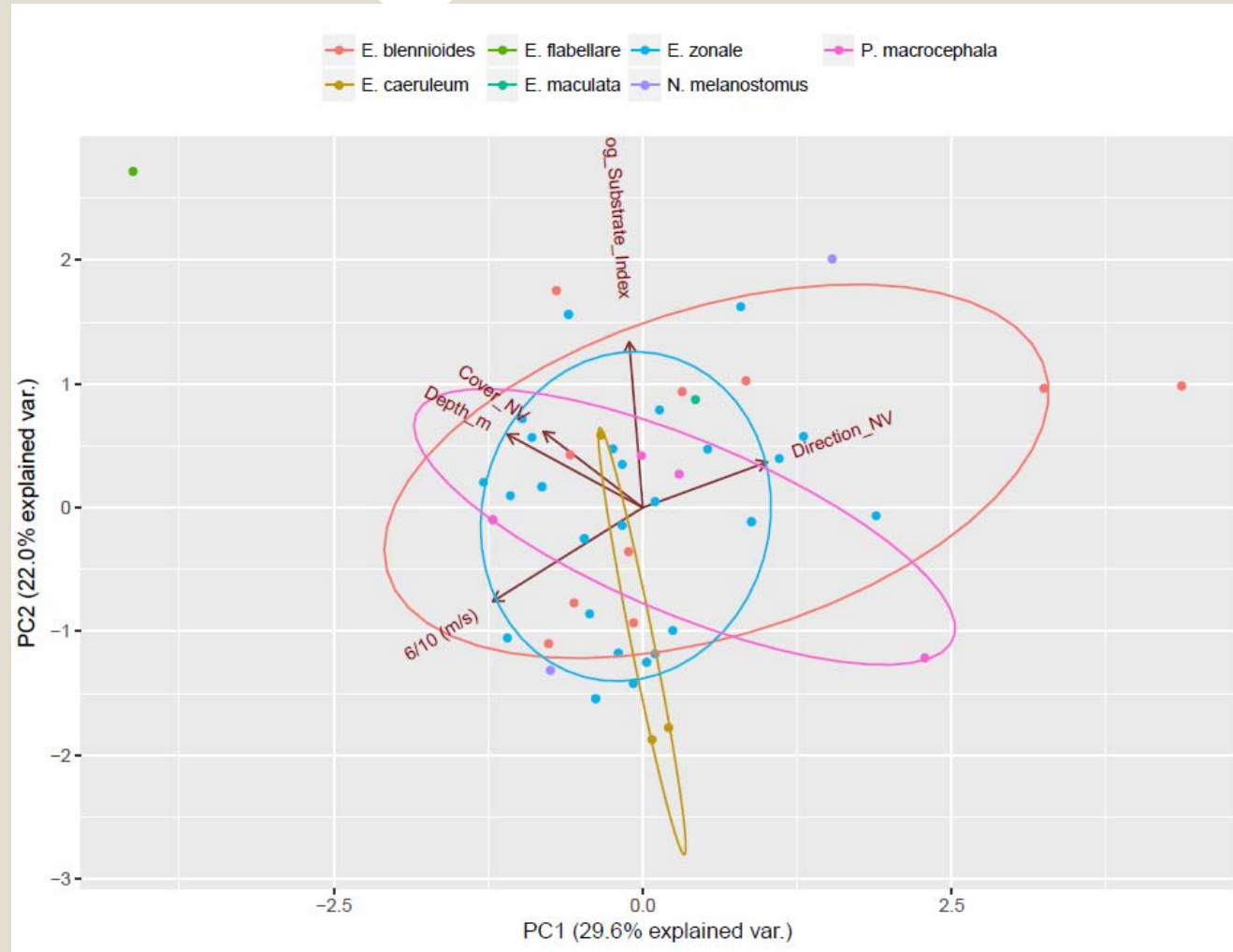
Eastern Sand Darters have been found in a small patch of habitat at the invasion front

Habitat overlap among darters and gobies is under investigation



Preliminary
example
of data

Data from PSU
(Josh Wisor thesis)



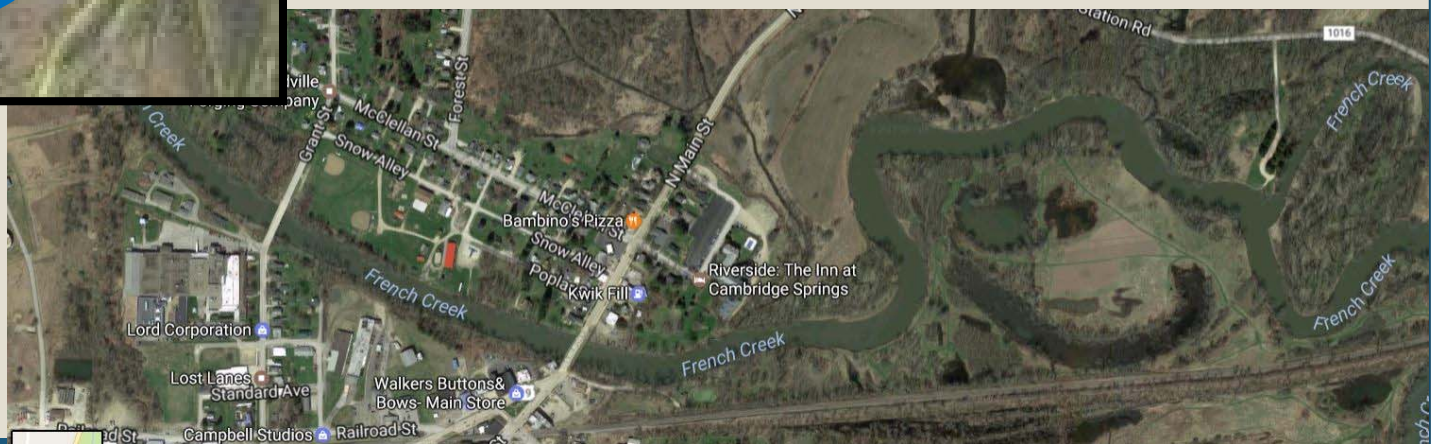
Further movement downstream



Goby sighted by Darran Crabtree Sept. 2015
(~2 miles downstream of current invasion front)

Did not find any while seining in 2016 at this
location

Cambridge Springs seems like a perfect
habitat for them



My Long Term Goals:



- Continue to monitor distribution and rate of dispersal throughout the watershed
- Continue to determine habitat shifts/diet shifts of benthic species in the presence of gobies
 - ✦ Compare to my data on darters from before introduction of gobies

Management Options



- Round Goby Task Force (PAFBC, DEP, Universities, WPC, FCVC, PA Sea Grant)
- Prevention and education are the focus right now
 - Sea Grant is amazing at this (images taken from PASG factsheets)

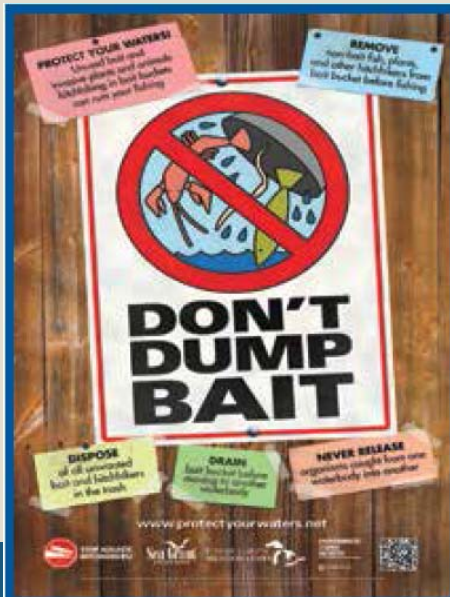


Photo courtesy of Illinois-Indiana Sea Grant.

