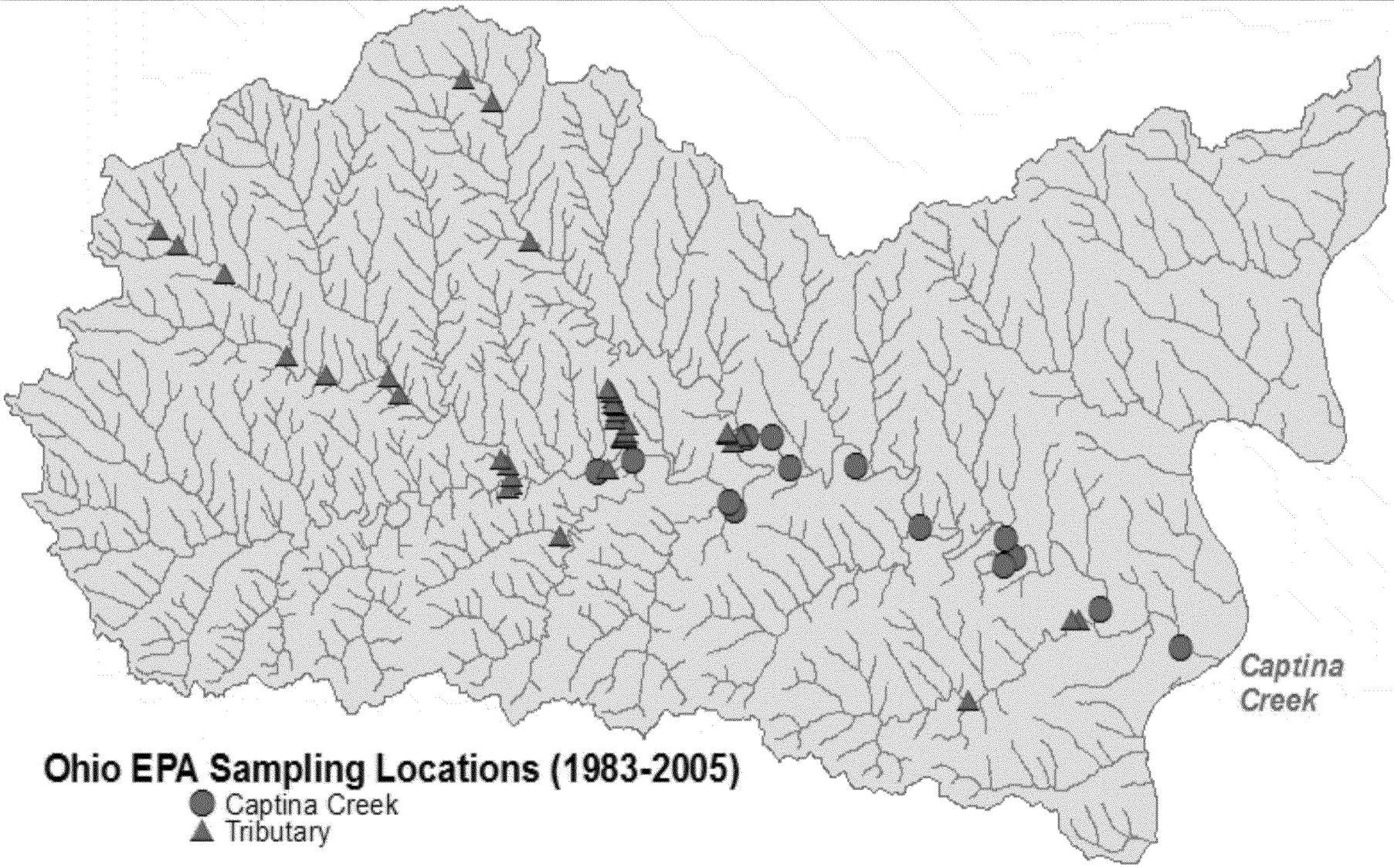
# Captina Creek

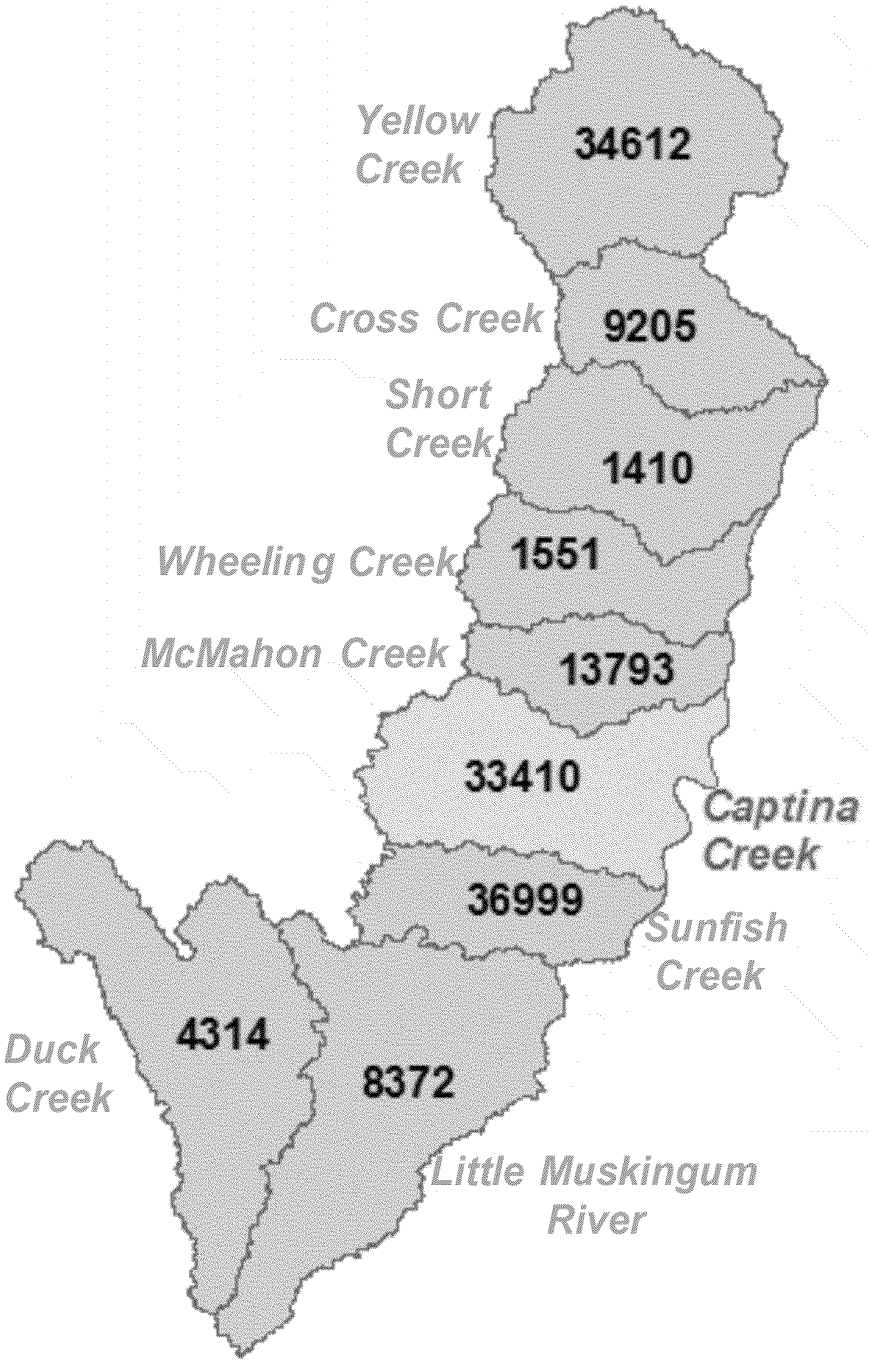
- Primarily located in Belmont County
- 180mi$^2$ drainage area
- Western Allegheny Plateau Ecoregion

# Captina Creek Watershed

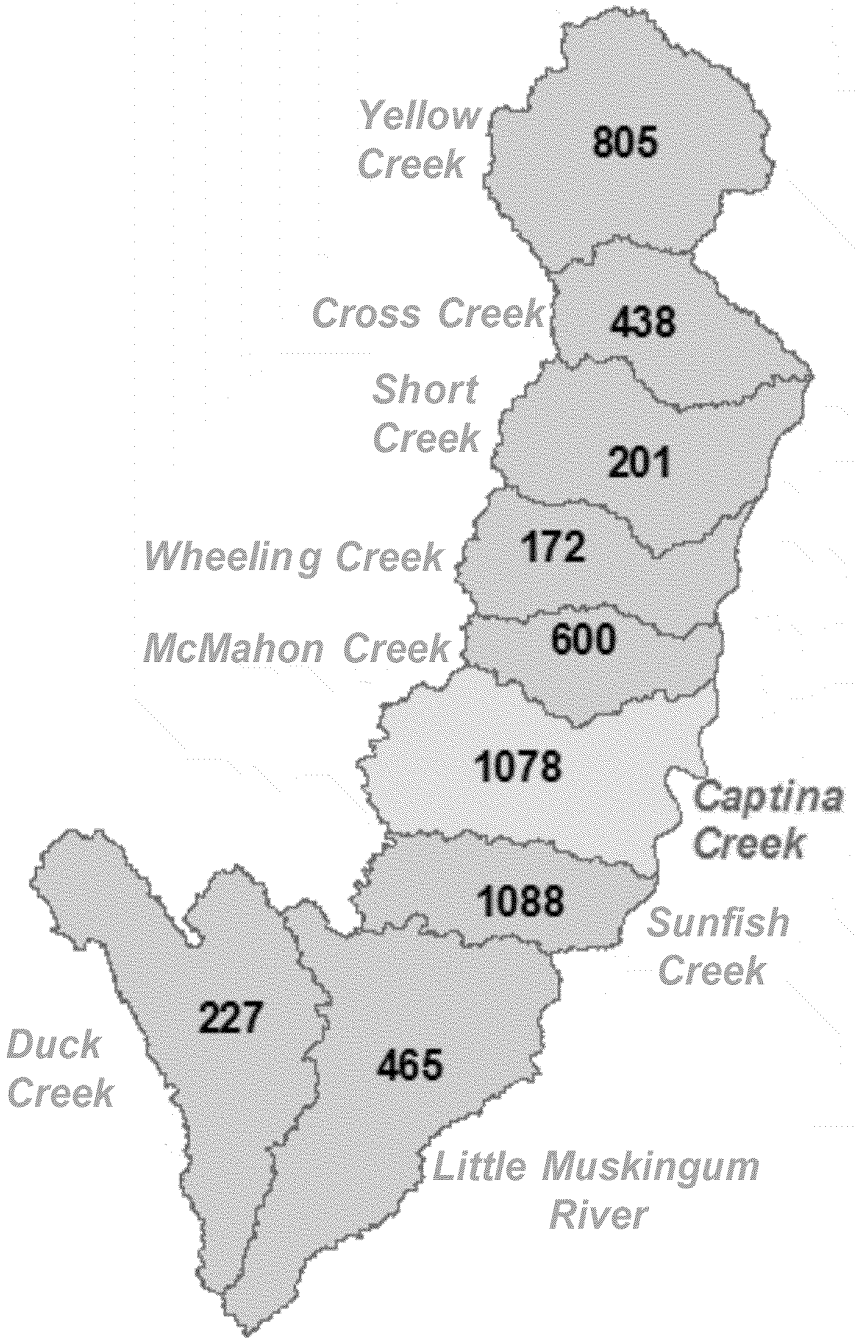


# What makes Captina Creek unique compared to other streams in the region?

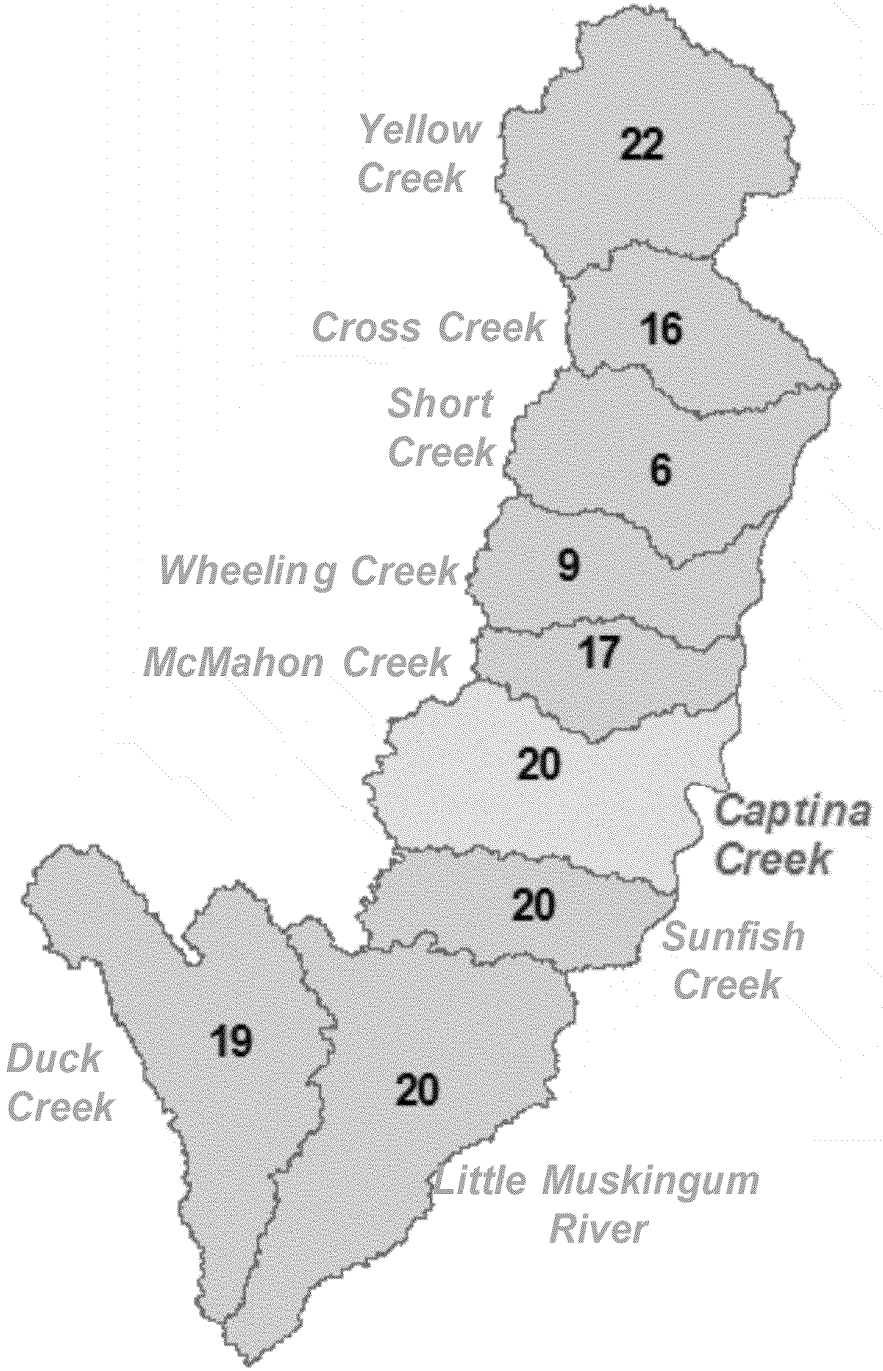
# Total number of fish collected (1983-2005)



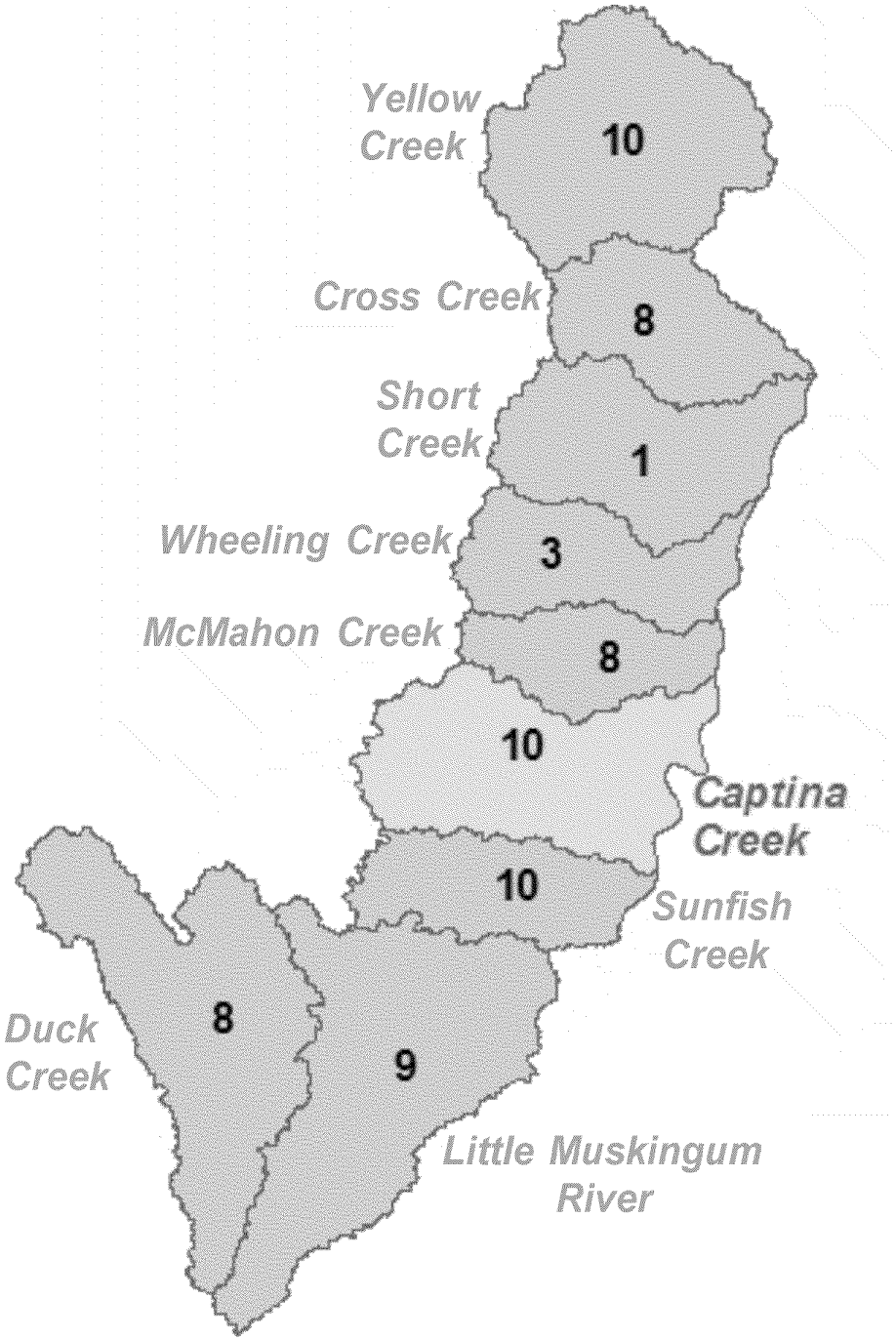
# Average number of fish collected per sample



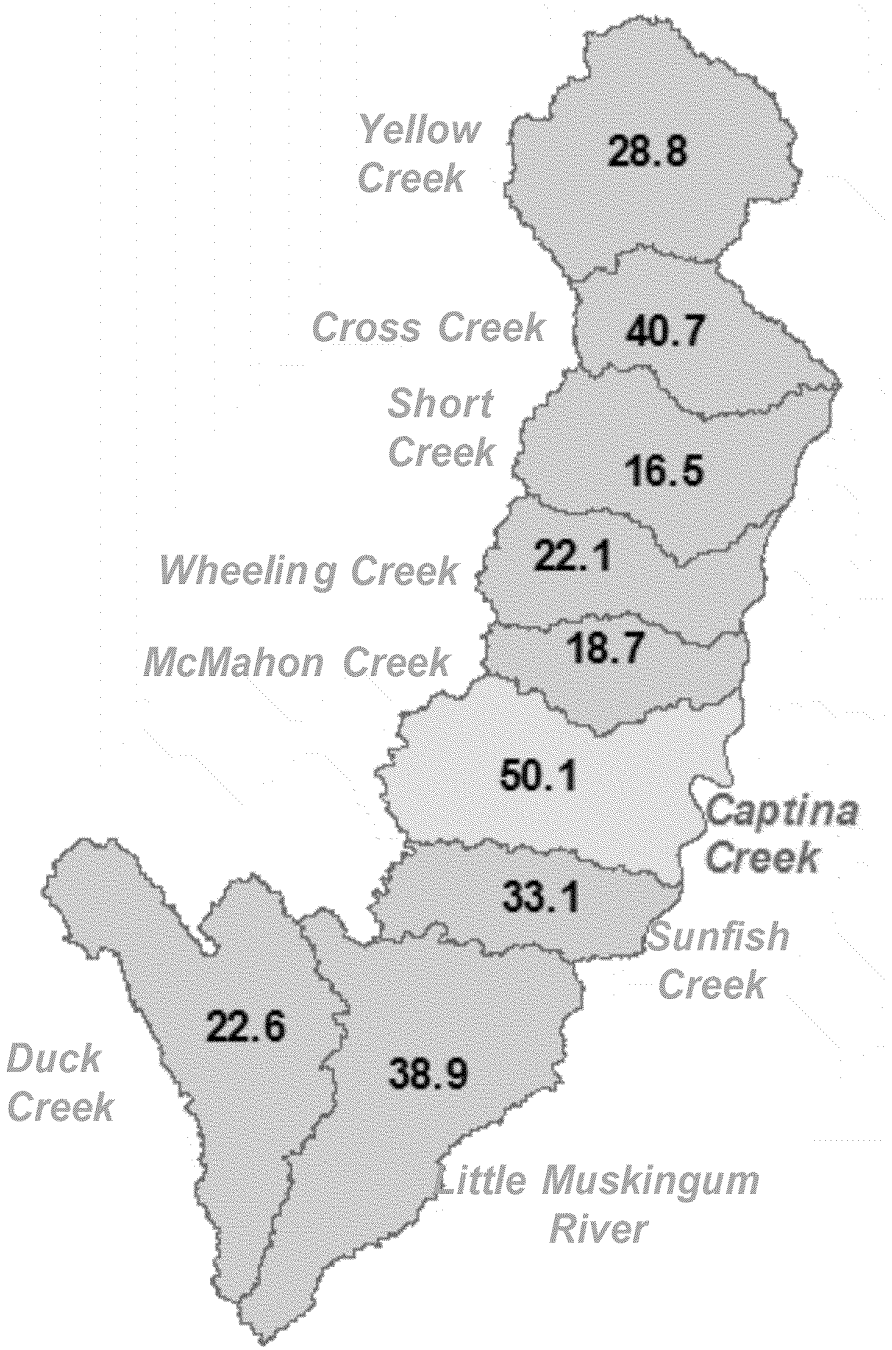
# Number of sensitive fish species within each basin



# Number of highly sensitive fish species



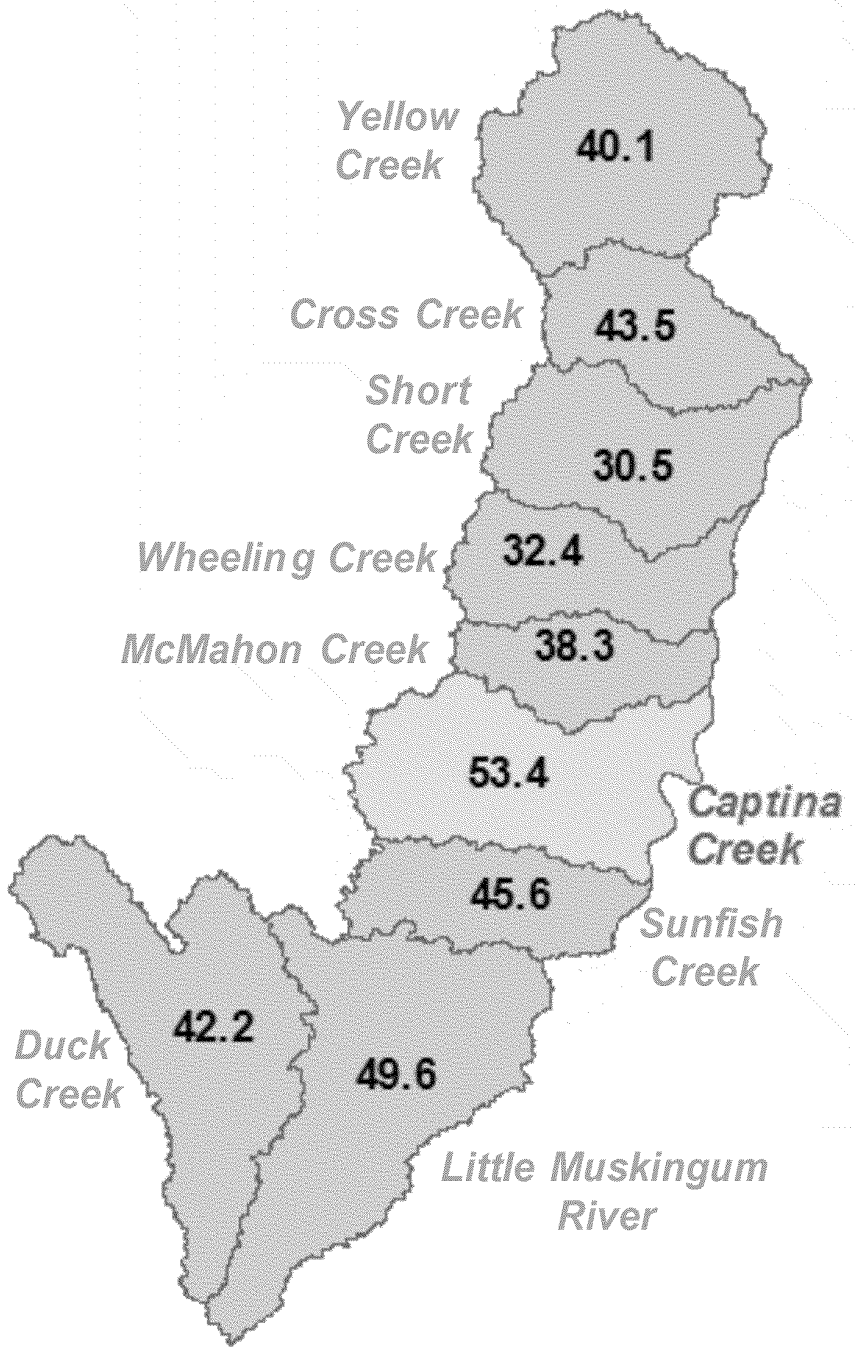
# Percent sensitive fish within each sample



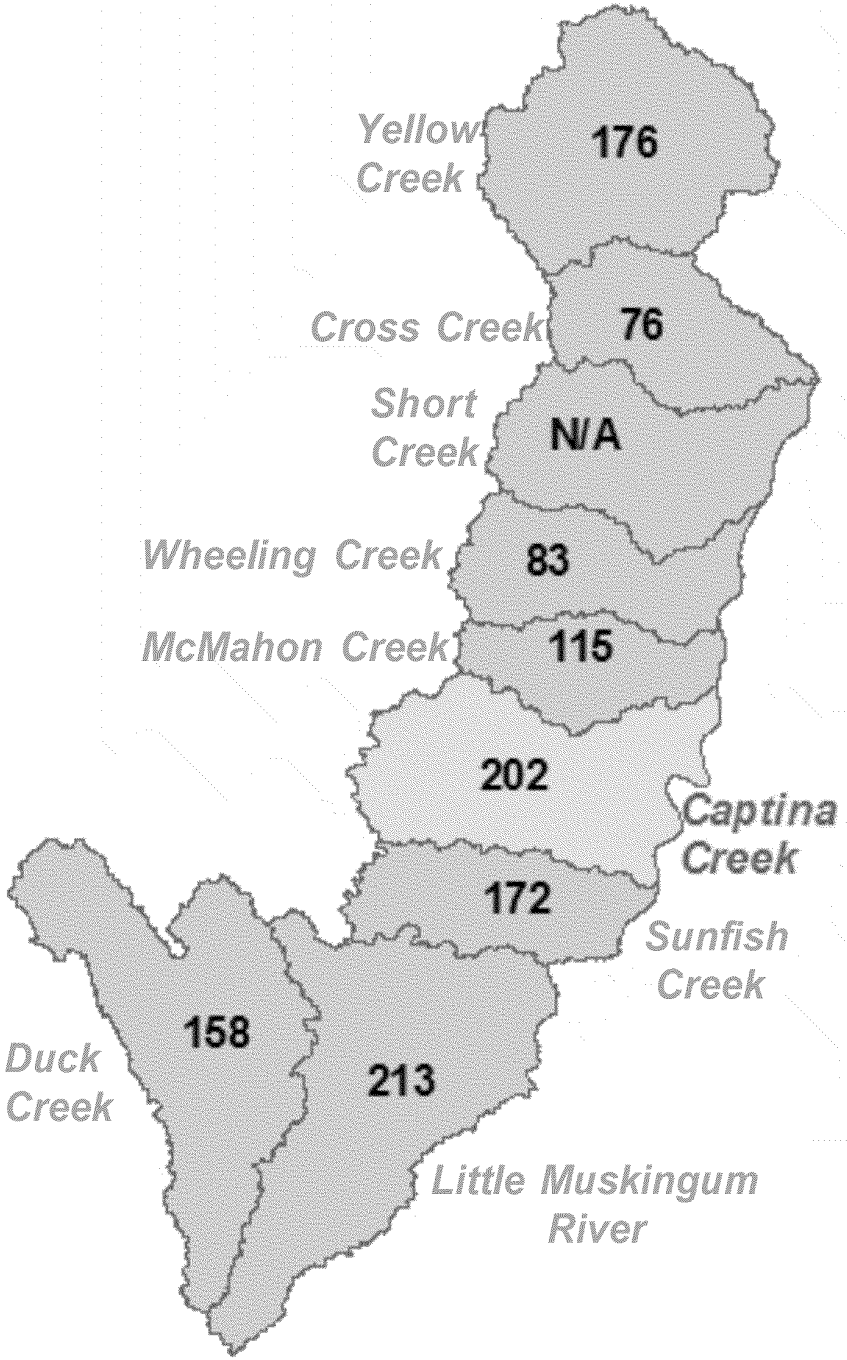
# Average Mainstem IBI Scores

WWH criteria = 44
EWH criteria = 50

Captina Creek = highest average IBI score in Ohio over the last 25 years.



# Number of macroinvertebrate taxa within each basin

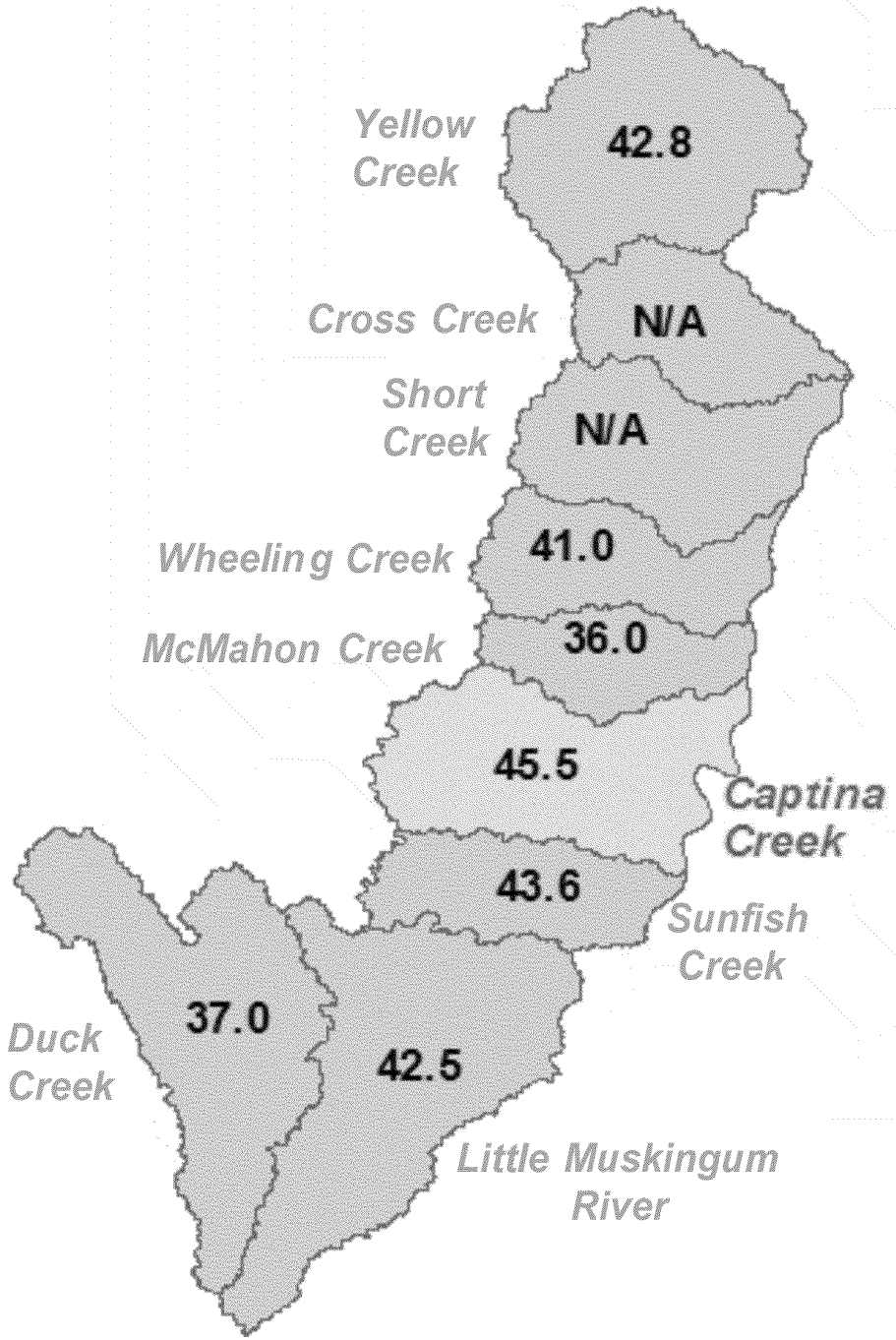


# Average mainstem ICI scores

WWH criteria = 36

EWH criteria = 46

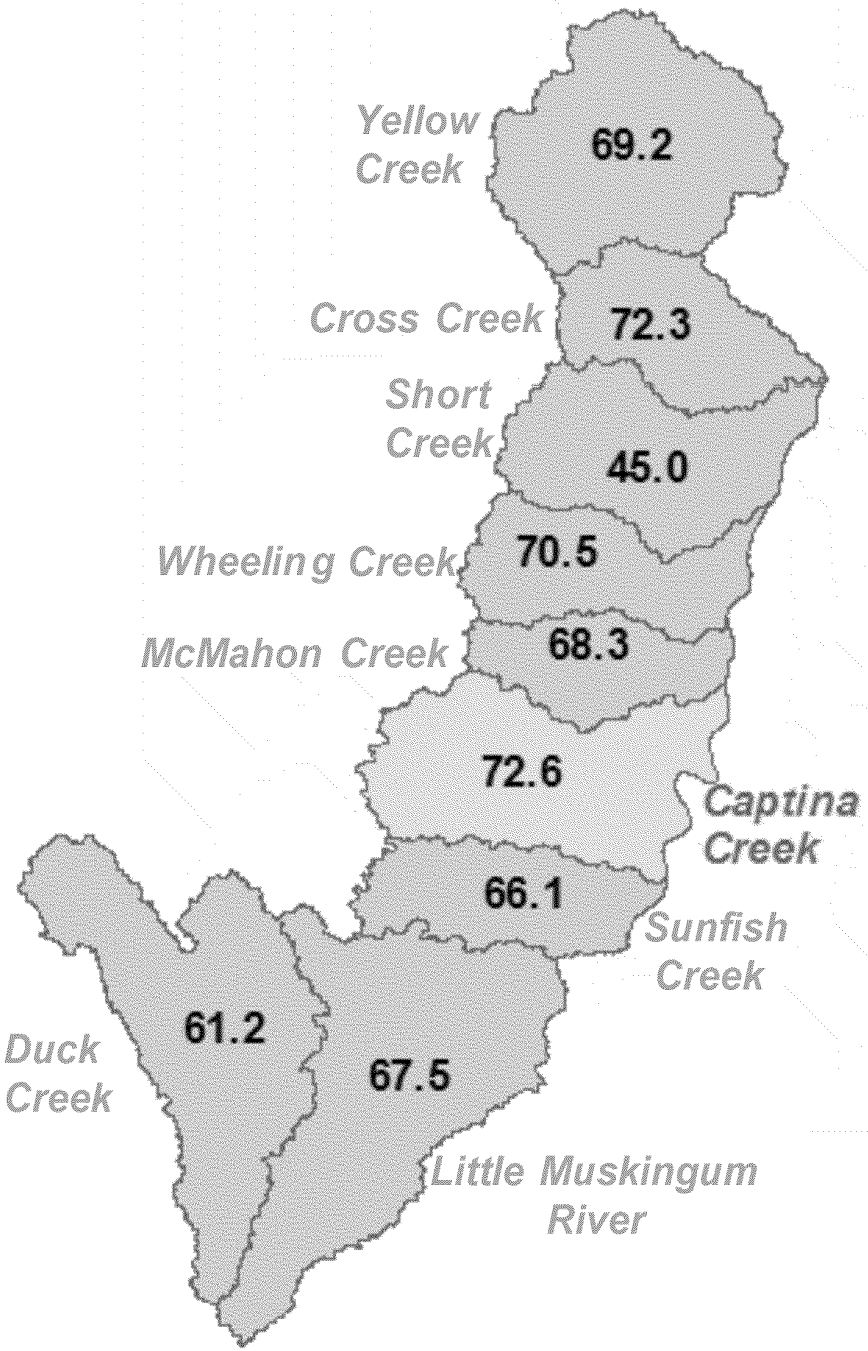
* In the top 10 of similar sized streams in Ohio



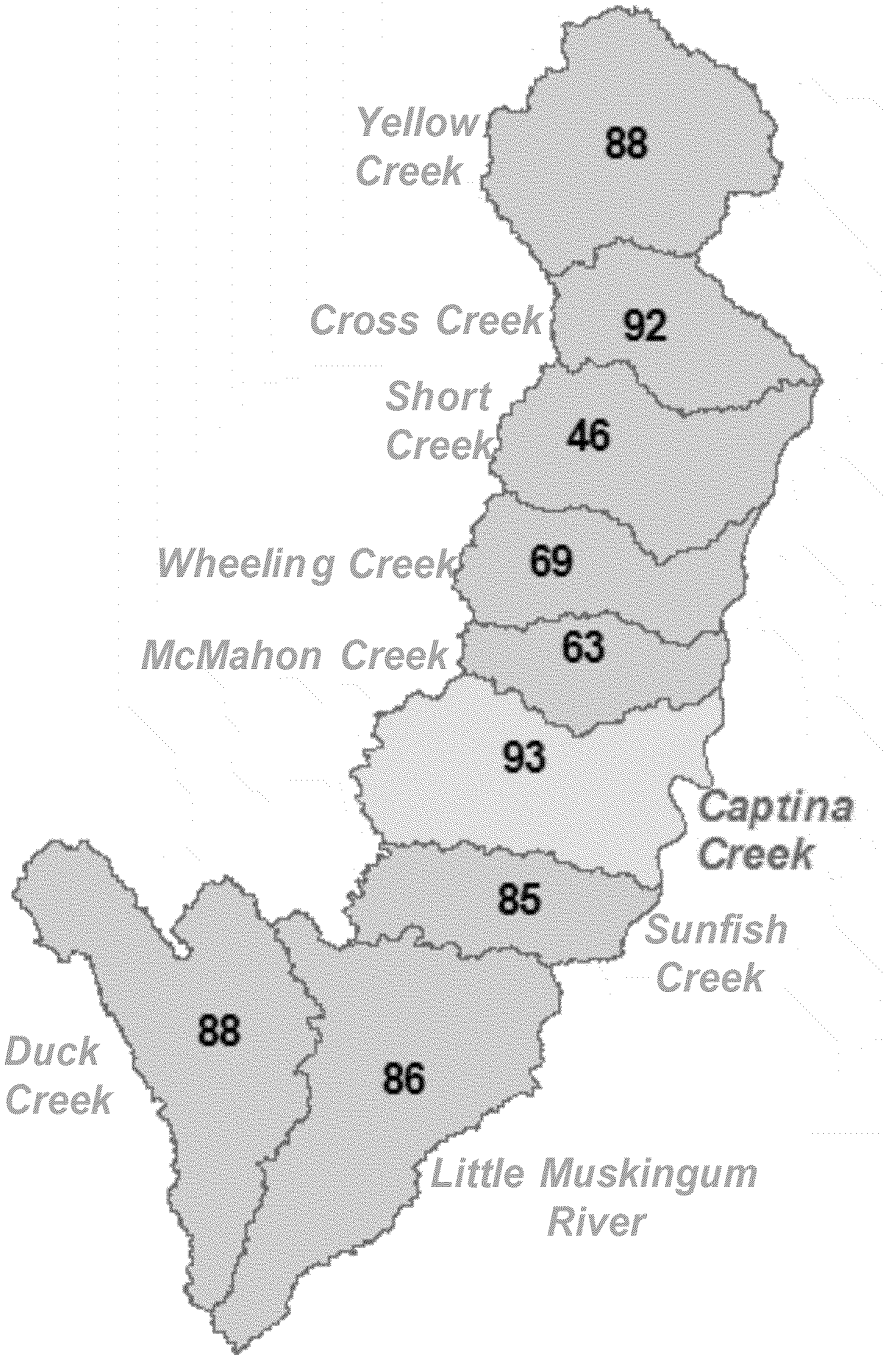
# Average mainstem QHEI (habitat) scores

Good = 60+

Excellent = 70+



# Percent of Ammonia samples below detection limit (1983-2005)



# Summary of Captina Creek

- Excellent species diversity
- High numbers of sensitive fish
- Highest average IBI (Fish) score in Ohio
- Top 10 average ICI (Bug) score in Ohio
- Excellent habitat
- Very few Ammonia detects

# Hellbenders in Captina Creek

# Hellbender Salamanders

- State Endangered
- Candidate for Federally Endangered Species List
- Long lived – at least 25 to 30 years
- Do not start breeding until they are 10 years old
- Juveniles were found only in Captina in 2007

# Slurry Releases to Captina Creek

- 7 documented slurry releases since 1999
- Local landowners claim more undocumented release
- American Energy Corp slurry spill occurred on August 23, 2005 due to a pipe line break
- Ohio Valley Coal slurry release occurred on February 28, 2008

# American Energy Corporation Slurry Spill

- August 23, 2005
- Leak caused by hole in valve flange at the emergency sump pump
- All fish within 1880 feet downstream of leak were expected to die
- 33 species collected prior to the spill, with Black Redhorse as the dominant species

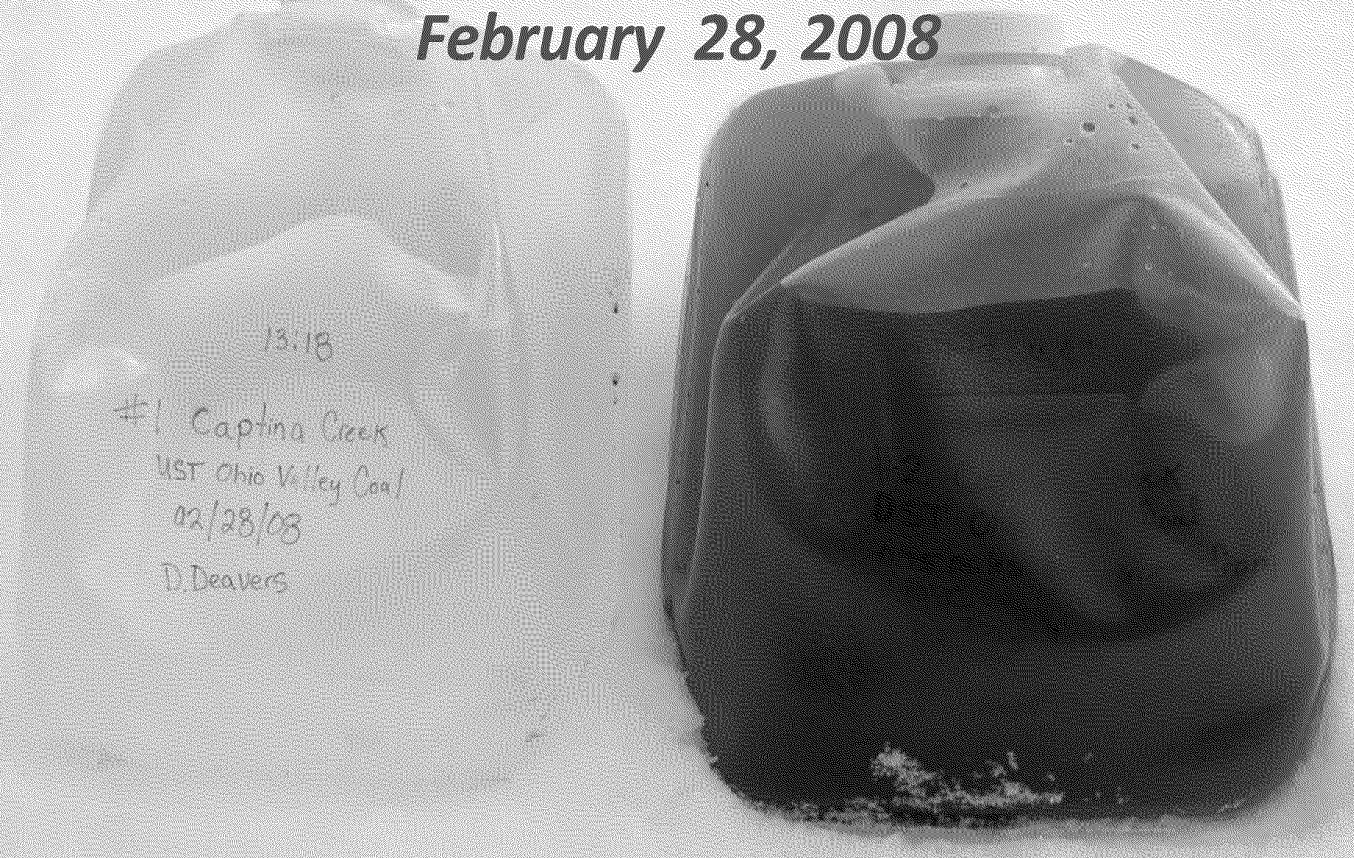
Depth of Slurry

Affect on Aquatic Organisms

# *Captina Creek*
# *Ohio Valley Coal Slurry Release*
# *February 28, 2008*

Captina Creek downstream from Ohio Valley Coal at CR 86 (RM 20.55)

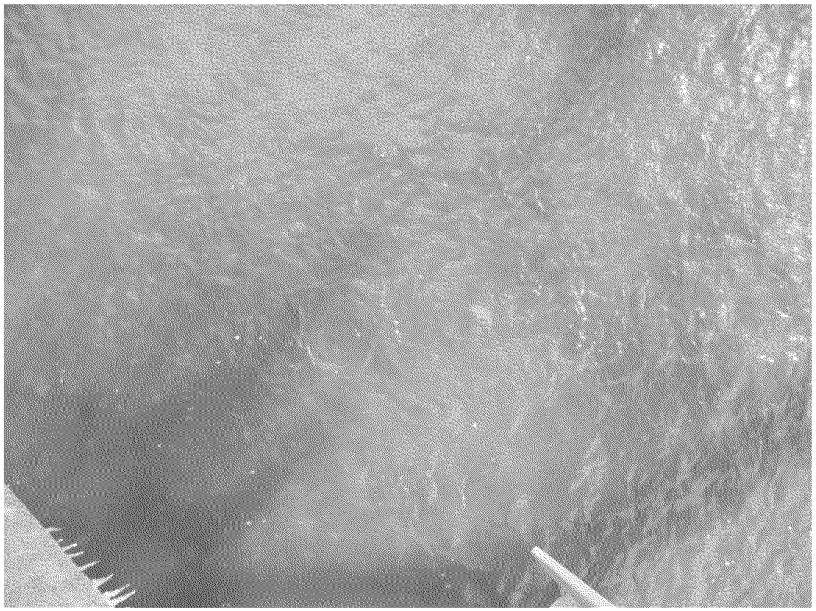
# *Captina Creek*
# *Ohio Valley Coal Slurry Release*
# *February 28, 2008*



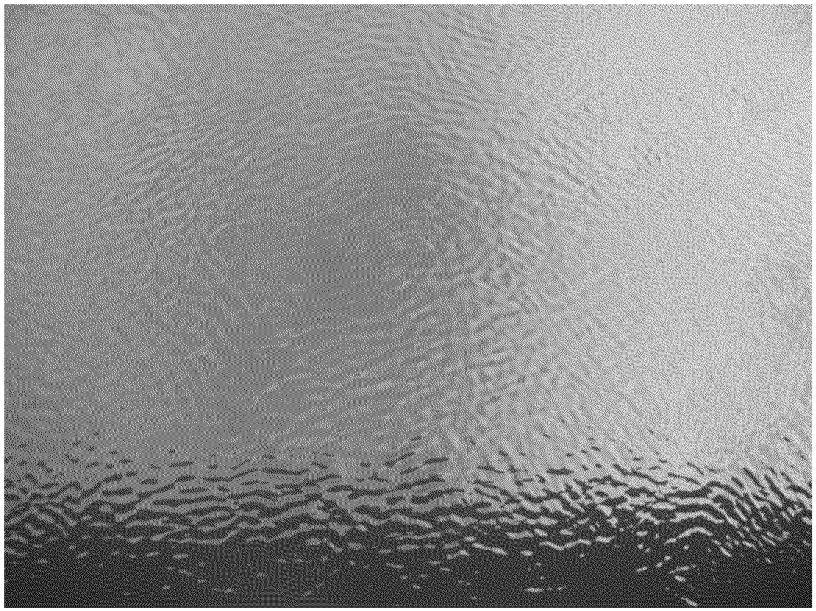

***Captina Creek water samples collected February 28, 2008 upstream from Ohio Valley Coal (@river mile 22.9) and downstream from Ohio Valley Coal (@river mile 21.3).***

# *Captina Creek*
# *Ohio Valley Coal Slurry Release*
# *February 28, 2008*

***Captina Creek at SR 148 bridge upstream from Ohio Valley Coal (River Mile 23.1)***



***Captina Creek at CR 86 bridge downstream from Ohio Valley Coal (River Mile 20.55)***



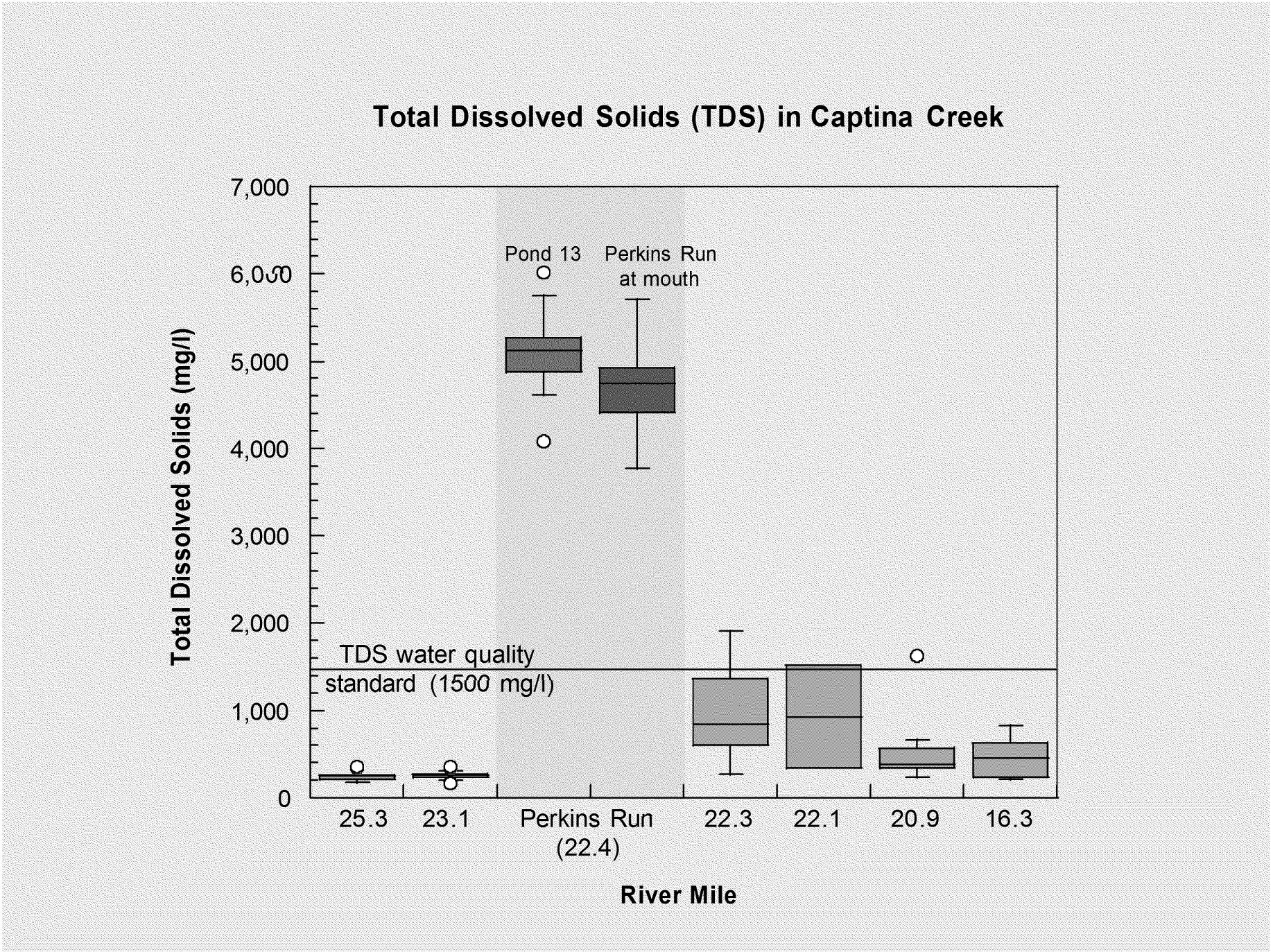
Both pictures were taken looking down from the bridge . At the upstream location, the water was clear to the bottom and the rocky substrates were visable. Downstream from the Ohio Valley Coal slurry release the water was black and the substrates could not be seen at all.

# What is in the Slurry

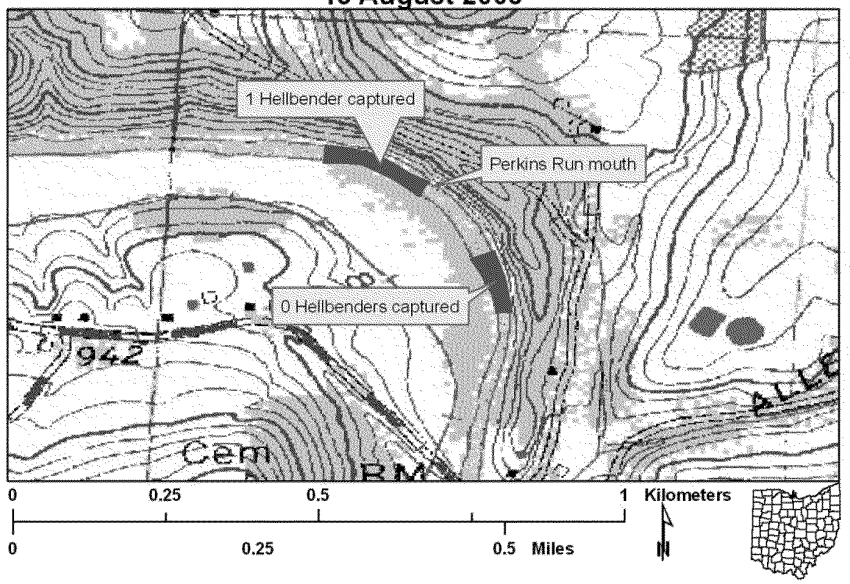
- Metals – Aluminum, arsenic, barium, cadmium, chromium, copper, iron, magnesium, manganese, nickel, selenium, copper, strontium and zinc
- Polycyclic Aromatic Hydrocarbons (PAHs) - 2,4-Dimethylphenol , 2-Methylnaphthalene, Acenaphthene, Benz[a]anthracene, Chrysene, Dibenzofuran , Ethylbenzene, Fluoranthene, Fluorene, Naphthalene, Phenanthrene, p-Xylene, Pyrene, Toluene
- Unknowns??? – Not much sampling has been done to classify what is in the slurry

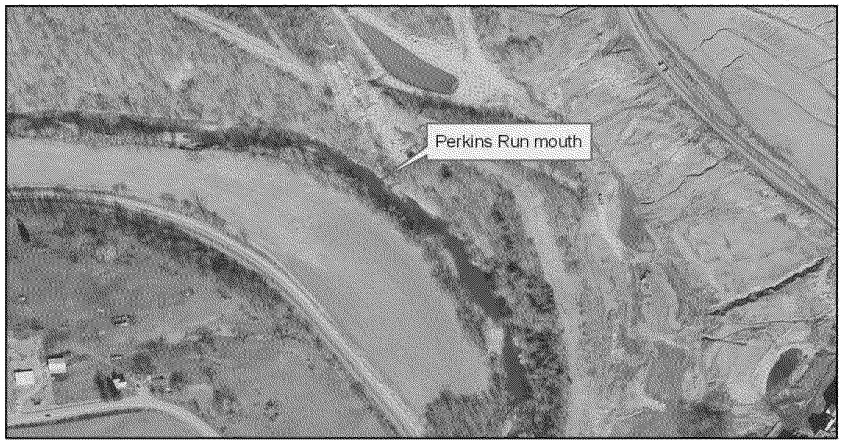
# Pond 013 discharge

# Perkins Run below Pond 013


Total Dissolved Solids (TDS) in Captina Creek
Total Dissolved Solids (mg/l)
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
Pond 13
Perkins Run
at mouth
TDS water quality
standard (1500 mg/l)
25.3
23.1
Perkins Run
(22.4)
22.3
22.1
20.9
16.3
River Mile

# Captina Creek at Mouth of Perkins Run: Washtington Township, Belmont County, Ohio. 15 August 2008




16 August 2008

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# Questions?