PFAS in New York State Fish, 2010 – 2018

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Acknowledgements

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Acids

- PFBA 4
- PFPeA 5
- PFHxA 6
- PFHpA 7
- PFOA 8
- PFNA 9
- PFDA 10
- PFUnA 11
- PFDoA 12

Sulfonates

- PFBS 4
- PFHxS 6
- PFOS 8

ONLY WHAT WE TEST FOR!
1000s of possible compounds!

Sulfonamide
- PFOSA 8

Not our (grand)parents’ pollutants...

PCBs, Pesticides, PCDD/Fs → lipids →
Mercury → muscle →
PFAS → serum, viscera, liver → ?
**Goals**

- Understand prevalence across the state.

- Develop an informed position on the risks of human fish consumption where PFAS contamination might be found.

- Provide information to the public about PFAS in fish.

- Evaluate food chain risks from the consumption of contaminated fish by fish-eating wildlife.

- Better understand the relationship between PFAS concentrations in water/sediments and in fish.
2016-2017 Fish Sampling

Hoosick Falls and Petersburg PFOA

Newburgh vicinity PFOS

Targeted Sampling

Sportfish: two to five species per location, 10 individuals per species. (n=345)

Forage fish: one species per location, 10 samples per species. (n=140)
Targeted Sampling

Sportfish: two to five species per location, 10 individuals per species. (n=345)

- Standard fillet
- Viscera
- Remainder of fish

\{ Synthesized Whole \}

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![Graph of Fillet and Carcass Concentrations]

- Fillet
- Viscera: n = 1175
- Whole

Concentration (ppm)
2016-2017 Fish Sampling

Hoosick Falls and Petersburgh
PFOA
2016-2017 Fish Sampling

Newburgh vicinity
PFOS

Newburgh vicinity
PFOS

Recreation Pond
P5609

Lockwood Basin

Lake Washington

Stream between pond
in Stewart State Forest
and Beaverdam Lake

Brown's Pond
(reference)

Beaverdam Lake

Moodna Creek
2017-2018 Statewide Fish Sampling

Provisional data. Do not distribute.
Conclusions:

• PFAS are pervasive in fish and can be at high concentrations – these contaminants are in the food chain!

• Concentrations are highest in the viscera but are also high in the edible portion (fillet).

• Low food chain species and small individuals can have high concentrations.

• Catfish and bullhead have relatively low concentrations, even in polluted sites.

• Concentrations can vary in a relatively short spatial distance.

Conclusions and Questions:

• PFOS is highly bioaccumulative while PFOA is much less so. But the 9-12 chain acids can be an important contributor to total PFAS.

• The compounds of concern for fish are likely to be different than those for water.

• The analysis suite is expanding – what else will we see? Expect surprises!

• We will be looking at the ecological implications.

• Our DEC laboratory is in method validation for the analysis of PFAS in tissues.