



USFWS eDNA Monitoring

Invasive carp

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Great Lakes ANS Panel Meeting – December 2024

Deployment History of eDNA by FWS

- 2013: Fish and Wildlife assumed responsibility of eDNA surveillance in the Chicago Area Waterway System (CAWS)
 - Began testing and adopting improved techniques that increased sensitivity, reduced contamination risk, and increased efficiency.
- 2014: Efficiencies facilitated expansion to Great Lakes, Upper Mississippi and Ohio Rivers
- 2018-present day: Surveillance; Only Silver and Bighead Carp to date through formal monitoring program

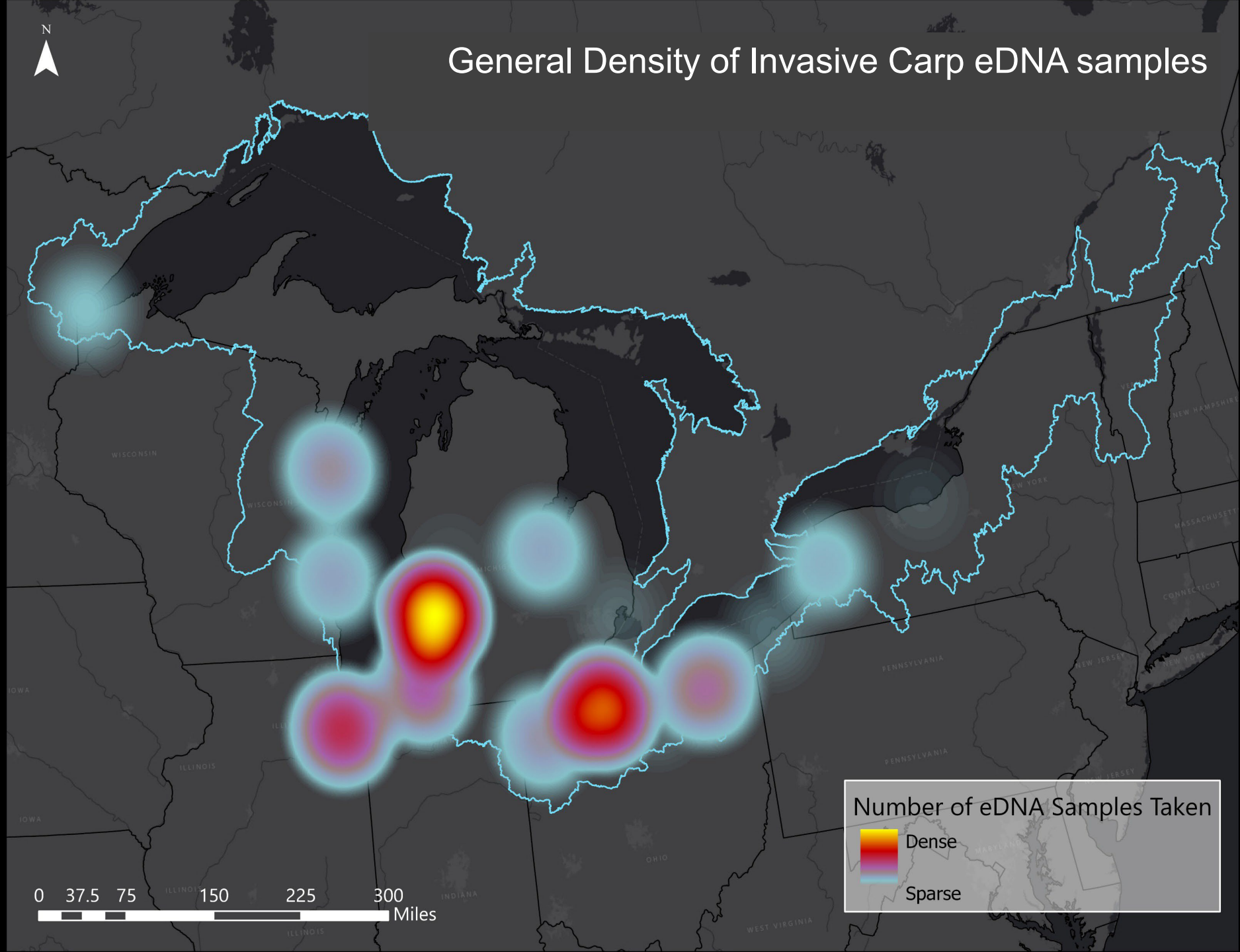


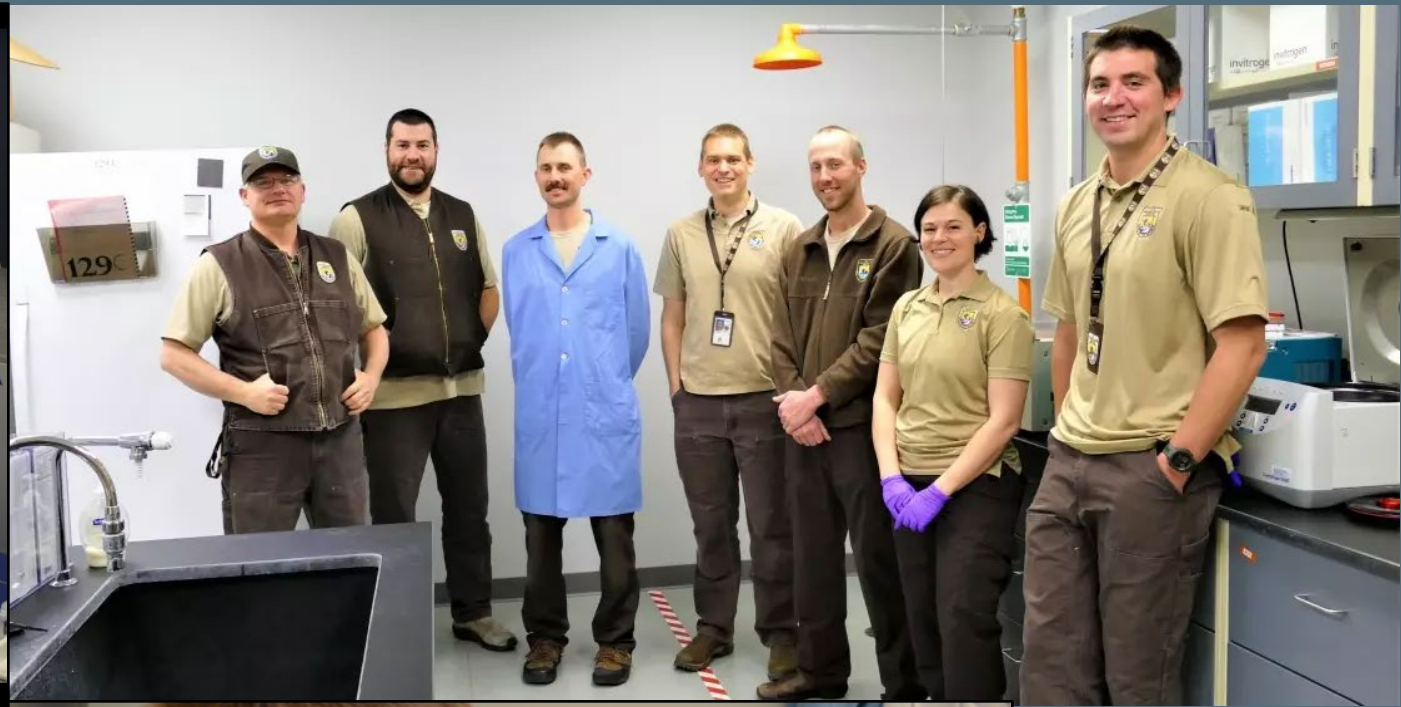
*Top: Silver Carp
Bottom: Bighead Carp*



*Top: Black Carp
Bottom: Grass Carp*

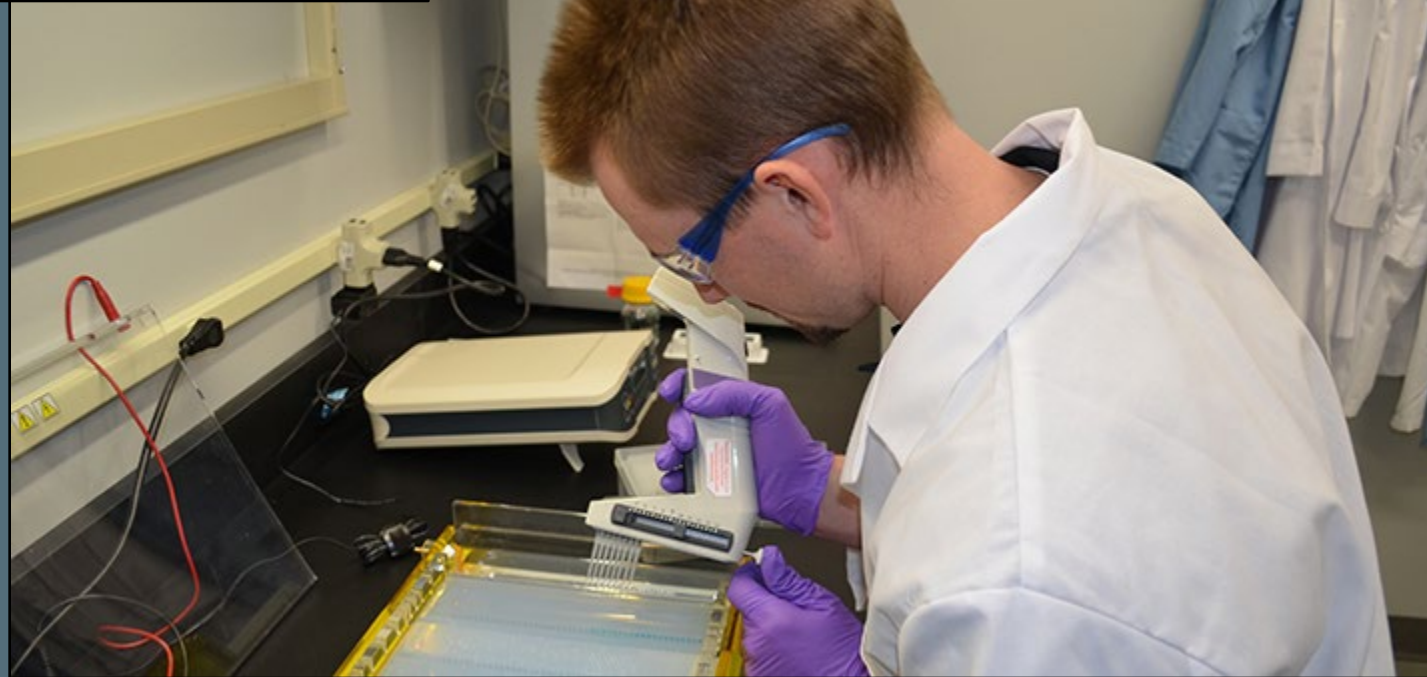
General Density of Invasive Carp eDNA samples

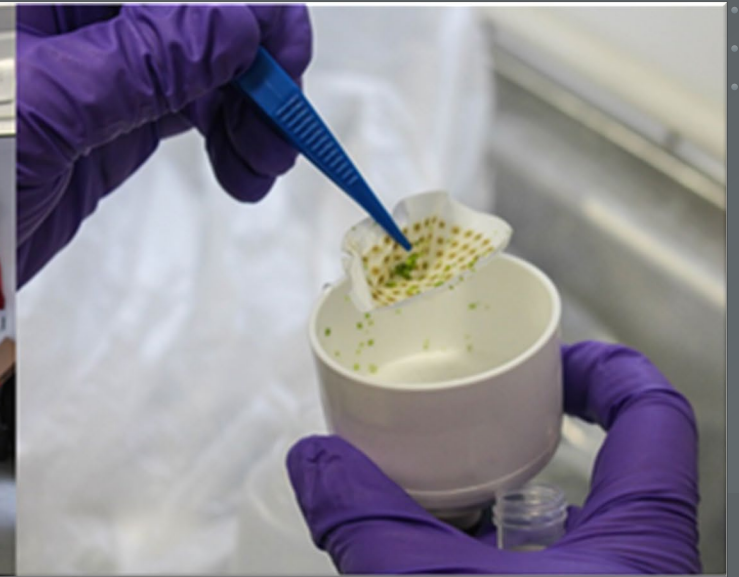




Whitney Genetics Laboratory

La Crosse, WI





Invasive Carp eDNA Monitoring Program

- Used as *early detection monitoring tool* for Bighead and Silver Carp, in cooperation with States and Tribal partners.
- Informs holistic sampling efforts, in concert with traditional monitoring gears, to help verify presence of live fish and rule out other vectors
 - **Must be used in a monitoring context: what will you do with results?**
 - **Not a single indicator of fish presence**
 - **Identifies areas of concern to increase vigilance/focused monitoring**
- **Implementation of QAPP: strict QA/QC procedures**

Important Considerations Beyond the Field and Lab:

- ✓ Interpretation of results and response plans for partners and managers

What's next after a positive result?

- ✓ **Communications Plan** with partners to handle positive results
 - Strict communication chain so no one is surprised by media or other non-official channels
 - Agreement on timeline to release results
 - Great Lakes Protocol used as a foundation for other efforts across the U.S.



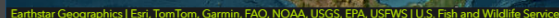
U.S. Fish and Wildlife Service Midwest Region 3

State Filter

Waterbody Filter

Date Filter

- For more information or questions, or static map books, please contact the eDNA Program Coordinator Nick Frohnauer at nicholas_frohnauer@fws.gov





What's Next?

- R&D on methods, comparison study
- Single sample result v. patterns over time
- eRNA feasibility
- Communication improvements
- Response actions
- Modified sampling location, timing, density
- Grass carp?