Field Services Branch

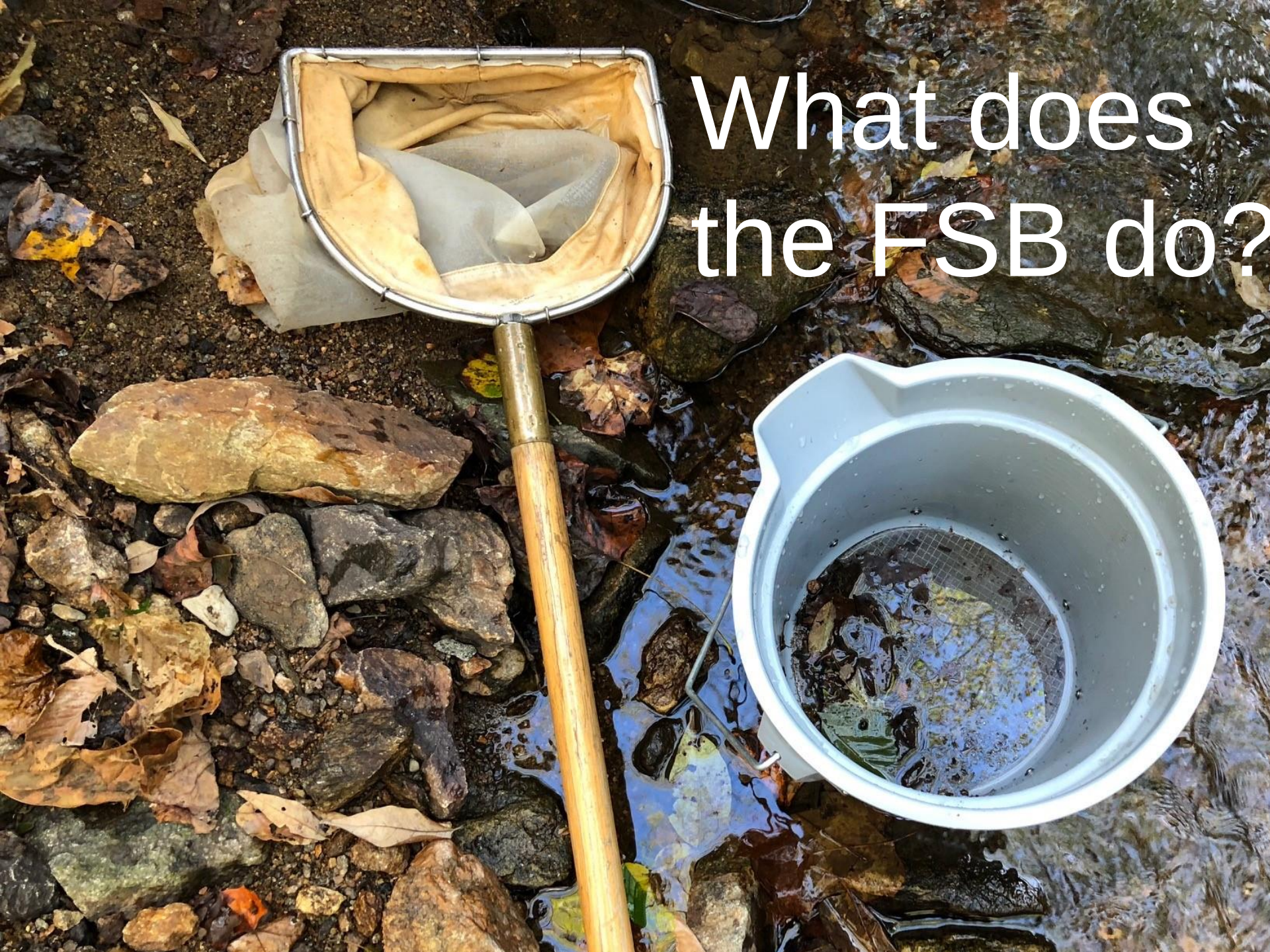
Laboratory Services & Applied Science Division

Providing science-based collaborative support to our Regional Programs and to our federal and state partners

What is the FSB?

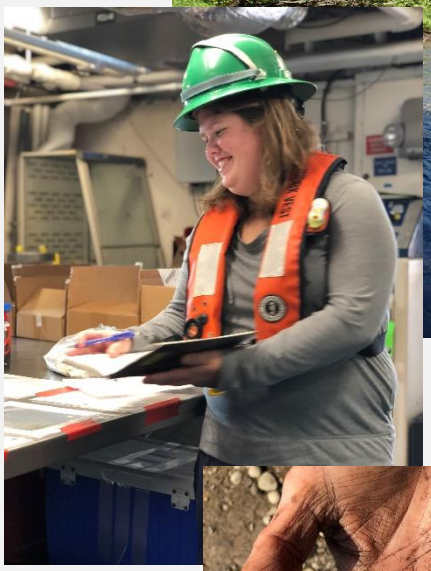
The Field Services Branch is…

- A team of multi-disciplinary scientists who specialize in stream, wetland, and coastal ecosystems
- Located in Philadelphia & Wheeling Offices
- A resource for Region 3 programs
- A partner to state & federal assessment programs
- Equipped to fulfill research & science needs


What does
the FSB do?

The FSB supports state & federal programs by:

1. Evaluating aquatic resource condition through collection & analysis of environmental data
2. Developing biological assessment tools, methods, & criteria
3. Designing & coordinating research studies & monitoring initiatives
4. Training & providing technical expertise to internal, state, & federal partners



1. Collecting & analyzing data

Data collection

- Wetlands, streams, rivers, lakes, estuaries, and coastal ecosystems

Sampling, identification, and assessment of aquatic life

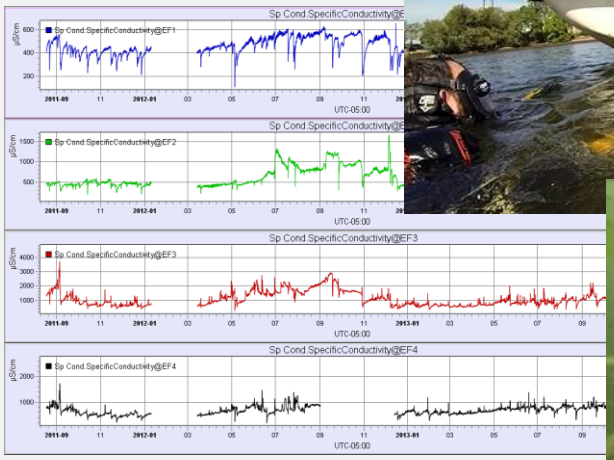
- Macroinvertebrates, fish, mussels, amphibians, plants

Physical & chemical parameters

- Habitat measurements
- Water quality
- Hydrology
- Sediment sampling

Data analyses

- Statistical analysis
- Data visualization



2. Developing assessment tools

Innovative field method development

- eDNA techniques
- Flow measurement (flowtography)

Complex environmental issues

- Causal assessments for aquatic life kills
- Conceptual models to ID data gaps

Fish health & tissue contamination

- Study design, sampling, & analysis

Development of assessment methods

- Indices of Biotic Integrity (IBIs)
- Biological Condition Gradients (BCGs)

3. Designing research studies & monitoring initiatives

Regional Monitoring Networks

- Long-term monitoring of high-quality aquatic resources

National Aquatic Resource Surveys

- Surveys to assess changes in waters

2017	**2018-2019**	2020	2021
National Lakes Assessment	**National Rivers & Streams Assessment**	National Coastal Condition Assessment	National Wetland Condition Assessment

Mine Pool Risk Management

- Coordination of complex monitoring & treatment design analysis

Continuous data collection

Headwater intermittent stream study

4. Training & technical expertise

- Internal, state, & federal training
- 1:1, classroom, & field workshops
- Specialized, regional, & national level

- Macroinvertebrate ecology and ID
- Managing, analyzing, visualizing data
- Developing assessment tools
- Causal assessments
- Whole Effluent Toxicity data interpretation
- Biological monitoring
- Wetland mapping & sampling
- Stream habitat characterization
- Continuous data collection & analysis

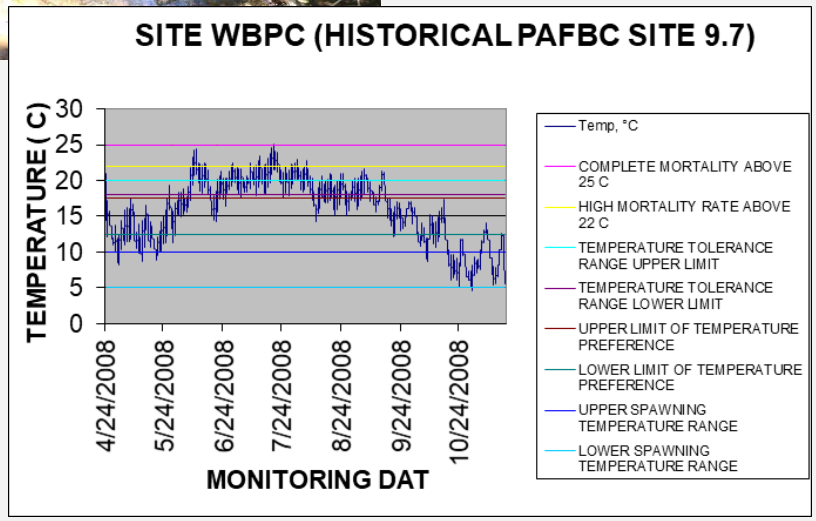

How does FSB
support R3
programs?

FSB supports Region 3 programs, such as:

- **Water Division** Wetlands monitoring, mitigation, NPDES, assessment & listing, water quality standards, fish health/ fish tissue, NEPs, drinking water protection, ocean dumping
- **Enforcement & Compliance Assurance Division** NPDES and wetlands enforcement support
- **Superfund & Emergency Management Division** Studies to support decision making and document effects
- **ORA Office of Communities, Tribes, & Environmental Assessment** Wetland identification, resource surveys, NEPA technical review
- **Chesapeake Bay Program Office** Training, sample processing, potential for support with SAV mapping, bivalves, & fisheries

Crossley Farm Biological Assessment - West Branch Perkiomen Creek, PA

- Assessed baseline condition in 2008 & 2010
- Trout fishery, benthic macroinvertebrates, water temperature & quality
- Upstream/downstream of two Superfund sites, & control
- Aquatic community not found to be limited by temperature or water quality



Tar Site Remediation Biological Assessment – Kinzua Creek, PA

Report on condition & abundance of biological assemblages to determine aquatic life use impact from waste wood tar deposits

Biological:

- *Fish* - DELTS (diseases, fin erosion, lesions, & tumors), relative abundance, & histopathology*
- *Crayfish* - tissue contaminant analysis*
- *Benthic macroinvertebrates* - assemblage

Physical: Stream habitat measurements

Chemical: Water quality parameters*

* contracted

Big John Salvage Bioassay – Monongahela River, WV

Provide data on survival and uptake of PAHs in freshwater mussels near an area of the Monongahela River impacted by coal tar deposits

Data collected over 4 sampling events

Mussel silos installed by divers upstream & downstream of impact areas

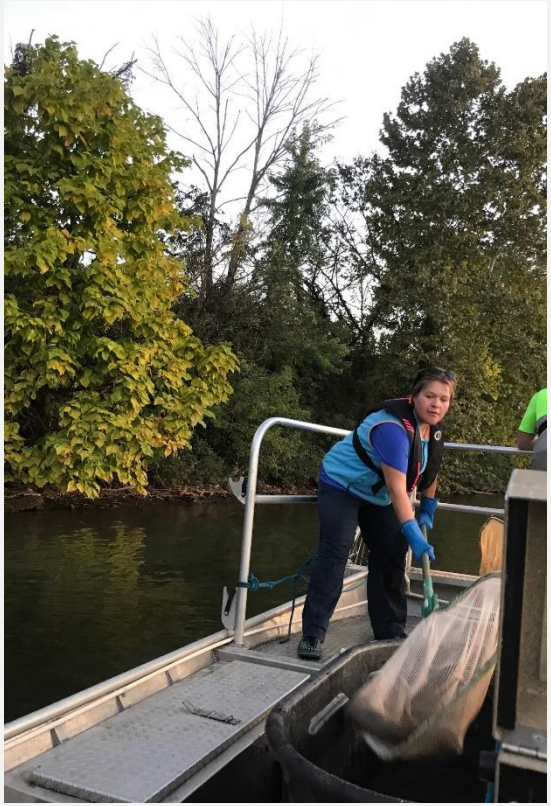
Lord-Shope landfill groundwater sampling – Erie, PA

- Landowner requested verification of contractor data quality for the parameter of concern, vinyl chloride
- Assisted with groundwater split sampling at a monitoring well

EPA United States Environmental Protection Agency

Field Assistance for Mercury RARE project – Ohio River

- Collected fish samples from the Ohio River over a series of daytime and nighttime sampling events
- Assisted with air sensor installation



EPA United States Environmental Protection Agency

Headwater Intermittent Stream Study

- Assist Region 3 WD & ECAD, as well as OW's Streamflow Duration Method (SDAM)
  - Characterize macroinvertebrate fauna at source
  - Evaluate state rapid assessment tools for classifying flow regimes (ephemeral, intermittent, perennial)
  - Recommend field indicator thresholds, indicator taxa, catchment size to assist in identifying jurisdictional waters


What specialized capabilities does FSB have?

Scientific Dive Unit provides services such as:

Equipment recovery
- Monitoring equipment, mussel silos

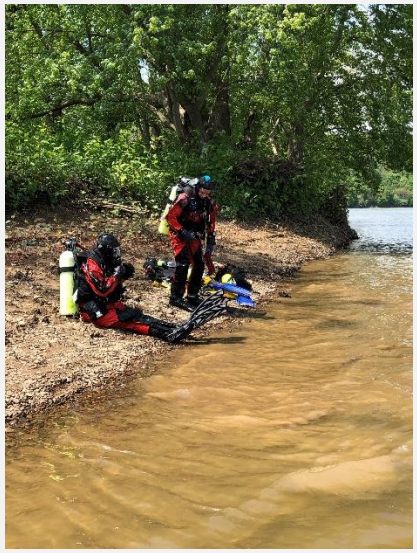
Quantitative surveys & sample collection
- Mussels, SAV, sediment

Photography
- Time lapse, video

Data Collection
- Measurements, counts

Reporting
- Data reporting, summaries

Mid-Atlantic Region 3 SDU Organization



Laboratory Services and Applied Sciences Division
Director, Dave Campbell

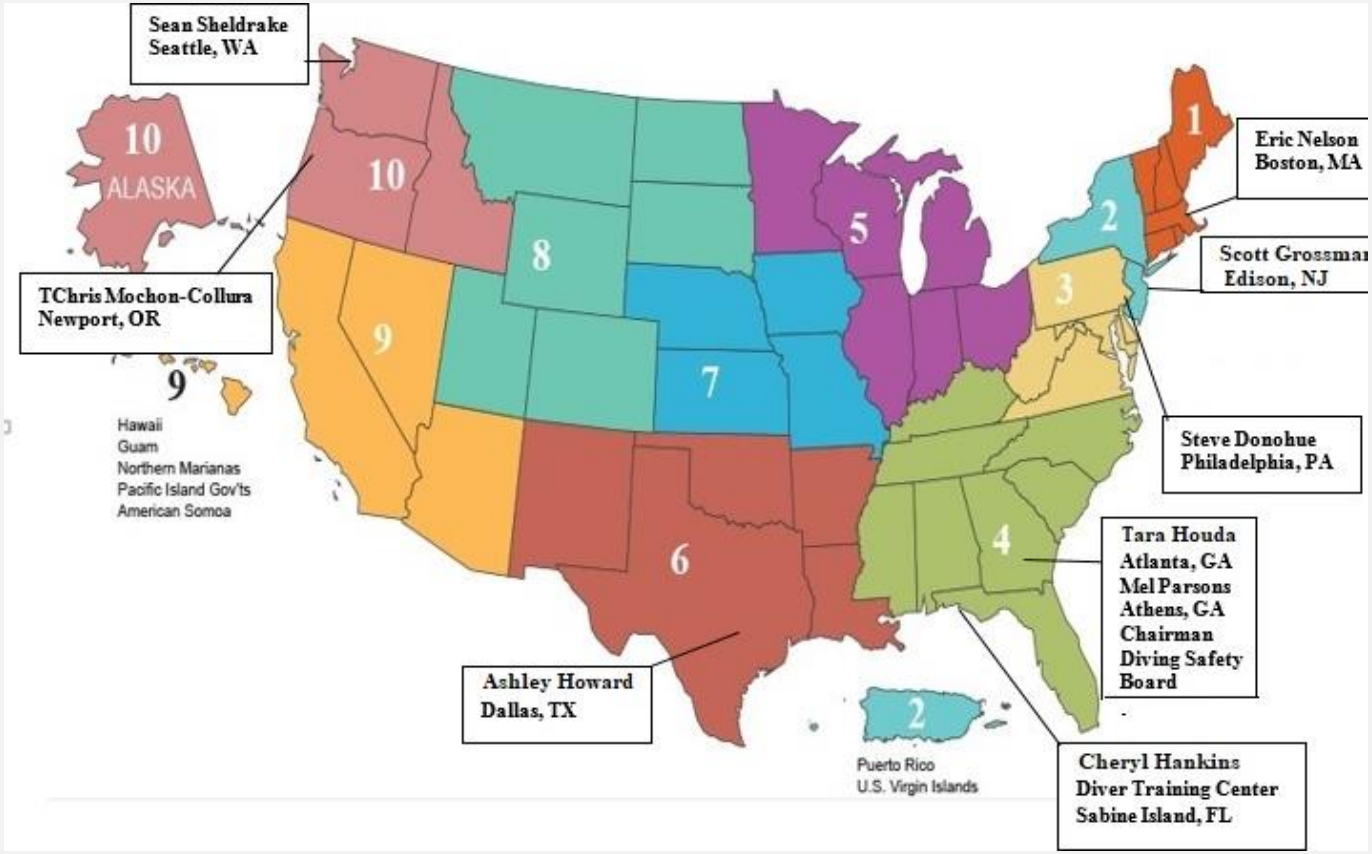
Field Services Branch
Chief, Jen Fulton

EPA Diving Safety Board
Chairman, Mel Parsons

Unit Dive Officer,
Steve Donohue

Scientific Diver	Division
John Armstead	LCRD
Frank Borsuk	LSASD
Kelley Chase	SEMD
Steve Donohue	LSASD
Nathan Doyle	SEMD
Mike Eller	ECAD
Leah Ettema	LSASD
John Forren	LSASD
Jennifer Fulton	LSASD
David Light	LSASD
Eric Newman	SEMD
Brad White	SEMD

R3 SDU is One of Nine EPA Dive Units



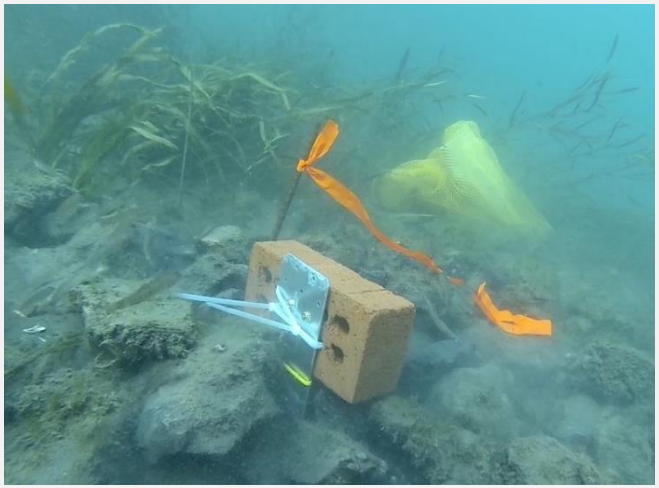
Scientific Dive Unit Operations

Superfund & Emergency Ops

- NASA Shuttle Columbia debris recovery
- Historic area post-remediation monitoring
- Big John Salvage mussel bioassay
- Racer Trust Massena passive sampler installation & retrieval
- Detroit River CID asbestos search

Research Ops

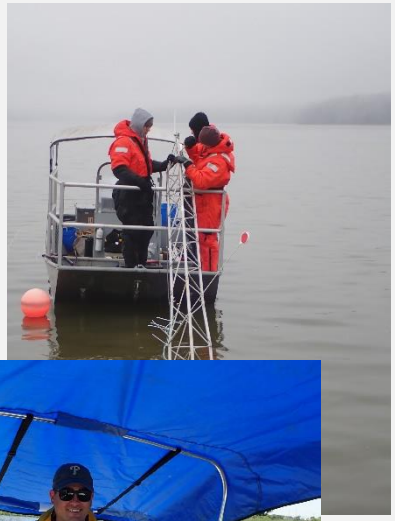
- Freshwater & tidal river mussel surveys & stocking
- Reef development
- Great Lakes algae research
- ORD methane equipment installation

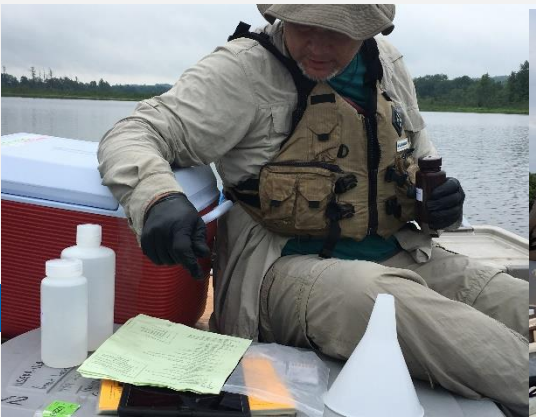


EPA United States Environmental Protection Agency

FSB has specialized equipment…

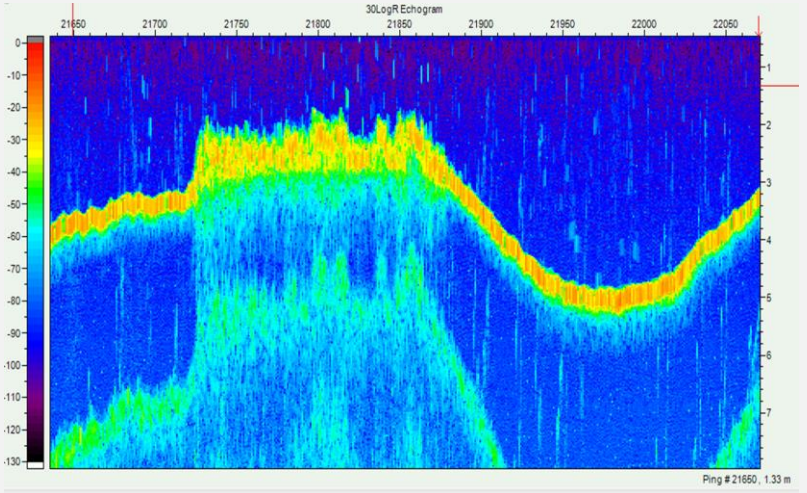
- Hazmat dry suits and masks for diving
- HD Video and GPS cameras
- Boats from 14 - 35 feet in Wheeling & Ft Mifflin
- Electrofishing boats, barge, & backpacks
- Water, biological, & sediment sampling equipment





FSB has specialized equipment…

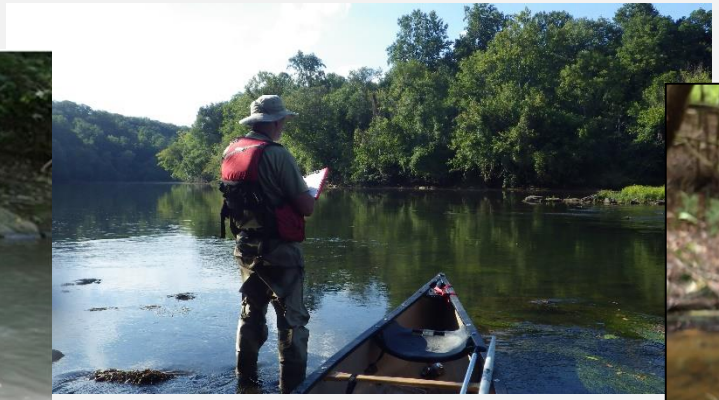
- Hydroacoustic technology for habitat monitoring and object detection
  - –Side scan sonar
  - –Single beam echosounder
- Coastal sediment & biological sampling, & water quality monitoring capability



Accessing the Field Services Branch

- Requests for assistance can be made to Field Services Branch Chief, Jennifer Fulton

No cost for FSB/SDU services




Questions?