

## SUMMARY OF EPA SCIENTIFIC COLLECTIONS

### Freshwater Fish Samples

- Great Lakes Fish Monitoring and Surveillance Program: Homogenized whole body lake trout and walleye collected annually as a composite of each of the Great Lakes from 1972 - Present  
The Great Lakes Fish Monitoring and Surveillance Program (GLFMSP) has been collecting whole fish tissue samples for chemical analysis at set locations in all five Great Lakes. The GLFMSP Archive is a collection of approximately 4000 sample jars consisting of homogenized whole body lake trout and walleye as composites. Samples are maintained at the Great Lakes Water Institute at the University of Wisconsin at Milwaukee. Collection is owned by EPA's Great Lakes National Program Office.
- 2010 Great Lakes Human Health Fish Tissue Study  
The Great Lakes Human Health Fish Tissue Study was initiated in 2010 under the Agency's National Coastal Condition Assessment (NCCA) and is the first statistically based study of fish contamination in the Great Lakes Study. Fish samples were collected from 157 randomly selected sites throughout the five Great Lakes, and fillet tissue samples were analyzed for mercury, polychlorinated biphenyls (PCBs), polybrominated diphenyl ethers (PBDEs), and perfluorinated compounds (PFCs). The fillet samples were also analyzed for omega-3 fatty acids. Results for PFCs were published in 2014. Other results are expected to be reported in 2016. The archive contains 375 jars of fish fillet tissue samples being stored at a contracted facility. Collection is owned by EPA's Office of Water.
- 2013–14 National Rivers and Streams Assessment Fish Tissue Study  
The 2013-14 National Rivers and Streams Assessment (NRSA) included a national study of contaminants in the fillet tissue of fish collected from 361 randomly selected sampling locations in the Nation's rivers. Fillet samples are being analyzed for mercury, polychlorinated biphenyls (PCBs), and perfluorinated compounds (PFCs). EPA anticipates having fish tissue results available to report during 2017. Samples are being stored at a contracted facility. The archived tissue collection is under development through the end of 2015. Collection is owned by EPA's Office of Water.

### Freshwater Biota Samples

- Great Lakes Plankton and Benthos Monitoring Program: Zooplankton, phytoplankton and benthos samples collected biannually in each of the Great Lakes from 1983 - Present  
The Great Lakes Plankton and Benthos Monitoring Program conducts biannual surveys within all of the five Great Lakes. During each survey, approximately 150 zooplankton and between 75 and 125 phytoplankton samples are taken, analyzed and archived. The samples are part of a long term trends program to determine the biological health of the Great Lakes. Samples are stored at the Great Lakes Water Institute at the University of Wisconsin at Milwaukee. Collection is owned by EPA's Great Lakes National Program Office.

- Freshwater Genetic Biodiversity Collection  
EPA's Freshwater Genetic Biodiversity Collection contains various freshwater (lakes, rivers, and streams) benthos samples from around the U.S. The bulk of this material is used in DNA barcoding and/or other genetics/genomics research (e.g., using genetic diversity as an indicator of ecosystem condition and sustainability). DNA extracts are maintained long term, however, the originating physical specimen is only maintained for several years until analysis is completed. Collection is owned by EPA's Office of Research and Development.

### **Marine Fish and Invertebrate Samples**

- Histopathology Microslides and Paraffin Blocks  
The EPA Atlantic Ecology Division (AED) histopathology microslide collection contains over four decades of fish and invertebrate tissue samples representing most groups of marine species. The slides span years 1967 through present, and paraffin tissues blocks from 1980. Slides of over 81400 animals comprise both reference and affected marine animals, including 381 cases of disease in marine animals that have been accepted into the Registry of Tumors in Lower Animals (RTLTA). These were first described in the animals within the collection dating from 1967-1997. Samples were obtained from field collection, toxicology experiments, and referred pathology and disease cases from around the world. This collection represents historical progression and records of the state of marine animal health, which aids studies that predict risk to marine populations into the future. Samples are currently maintained at AED, Narragansett, RI. Collection is owned by EPA's Office of Research and Development.

### **Air Deposition Samples**

- Integrated Atmospheric Deposition Network (binational): Residuals of processed samples collected at five sites from 2006 - Present and raw samples collected at two sites from 2003 - Present  
The Integrated Atmospheric Deposition Network (IADN) is a long-term binational air deposition monitoring network that has been in continuous operation since 1990. IADN determines the loadings of toxic contaminants to the Great Lakes, tracks the effectiveness of toxic reduction efforts, and identifies sources for additional reduction efforts. Through a cooperative agreement with Indiana University, IADN collects air and precipitation samples at five sites along the shores of the Great Lakes. Air and particle samples are collected for 24 hours every 12 days. Precipitation samples are integrated over a month. Every sample is extracted, concentrated, cleaned up and fractionated, and then analyzed for a broad suite of toxic contaminants using gas chromatography and gas chromatography mass spectrometry. There are two types of samples in the collection. The first is a residual of each processed sample. There are about four archived vials (4ml and 2ml) per sample depending on the solvent fractionation and analytical methods applied. The 4 ml vials are generally kept for a minimum of 5 years (current archive dates back to 2006) while the 2 ml vials date back to 2005. The second type of archived sample is raw subsamples from a high volume air samplers at Chicago and Cleveland sampling sites consisting of approximately 25 grams of XAD resin. Raw samples date back to about 2003. Archived samples are stored and managed by Indiana University. Collection is owned by EPA's Great Lakes National Program Office.

## **Aerial Photographs**

- Remote Sensing Archive

The EPA Environmental Photographic Interpretation Center (EPIC) provides a wide range of remote sensing and aerial photographic analyses in support of investigations under Superfund, the Resource, Conservation and Recovery Act (RCRA), or the Clean Water Act (CWA). EPIC completes approximately 150 site characterizations annually using current and historical aerial photographs. Site characterization provides detailed information about a site and its history, often going back as many as 70 years. Collection is owned by EPA's Office of Research and Development.