

From: Krueger, Sarah E - DNR
Sent: Monday, August 15, 2022 2:03 PM
To: Harvey, Christopher; Stan.gilhool@tecumseh.com
Cc: Smith, Jason; Cozzola, Angelo J - DNR; Webb, Carrie A - DNR
Subject: RE: [EXTERNAL] WDNR Fish Tissue Sampling for the Consumption Advisory
Attachments: 530 Fish Contaminant and Advisory Protocols_Sample Collection.pdf; HARP Fish Collection Plan 2022.pdf

Chris,

Attached are our collection and sample preparation methods, and a summary of the planned fish collection numbers and locations with a figure of the proposed sample locations.

I will pass along the final sample locations, numbers and results when I receive them.

Thank you,
Sarah

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Sarah Krueger, P.G.

Phone: (920) 510-8277

Sarah.Krueger@wisconsin.gov

From: Harvey, Christopher <CHarvey@trccompanies.com>
Sent: Monday, August 8, 2022 11:50 AM
To: Krueger, Sarah E - DNR <sarah.krueger@wisconsin.gov>; Stan.gilhool@tecumseh.com
Cc: Smith, Jason <jason.smith@tecumseh.com>; Cozzola, Angelo J - DNR <angelo.cozzola@wisconsin.gov>; Webb, Carrie A - DNR <CarrieA.Webb@wisconsin.gov>
Subject: RE: [EXTERNAL] WDNR Fish Tissue Sampling for the Consumption Advisory

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Sarah,

Again, thank you for the notification. Could you send me the fish sampling plan?

Please note that we would like the sample locations and results, when available.

Thank you,
Chris

From: Krueger, Sarah E - DNR <sarah.krueger@wisconsin.gov>

Sent: Monday, August 8, 2022 9:28 AM

To: Stan.gilhool@tecumseh.com

Cc: Harvey, Christopher <CHarvey@trccompanies.com>; Smith, Jason <jason.smith@tecumseh.com>;

Cozzola, Angelo J - DNR <angelo.cozzola@wisconsin.gov>; Webb, Carrie A - DNR

<CarrieA.Webb@wisconsin.gov>

Subject: [EXTERNAL] WDNR Fish Tissue Sampling for the Consumption Advisory

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Good Morning,

DNR tentatively plans to conduct the fish tissue sampling for the HARP consumption advisory August 17, 18, and 19. I apologize for the delay in notification, I was out of the office last week.

Please let me know if you have any questions.

Sarah

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Sarah Krueger, P.G.

Contaminated Sediment Specialist

Wisconsin Department of Natural Resources

2984 Shawano Avenue, Green Bay WI 54313-6727

Phone: (920) 510-8277

Sarah.Krueger@wisconsin.gov



dnr.wi.gov



Chapter Title: Surveys and Investigations

Section Title: Fish Contaminant Monitoring, Consumption Advice and Policies

PURPOSE

The Department collects and analyzes samples of fish tissue from Wisconsin's inland and outlying waters. Information on contaminants in fish is needed to protect the health of people who eat fish. Fish contaminant data is also used to evaluate clean-up and pollution control efforts designed to protect human health, fish, and wildlife that depend on water-based food chains. The fish contaminant monitoring and consumption advisory program is an important ongoing joint program with the Wisconsin Department of Health Services (DHS) that generates interest locally and globally. People are interested and concerned about the quality of the fish in Wisconsin's waters including those who eat sportfish or commercially harvested fish, rely on a tourism-based business, or are concerned about wildlife health. The objectives of the fish contaminant monitoring and advisory program include, but are not limited to, the following:

- Protect the health of people who eat fish
 - Determine levels of bioaccumulative contaminants in the edible portions of fish and compare these levels to health guidelines as determined by the WI DHS.
 - Issue fish consumption advisories for species and sizes of fish from areas where the concentrations of chemicals in fillets exceed the health advisory levels.
 - Issue commercial fishing bans where fish of a given species exceed U.S. Food and Drug Administration (FDA) tolerance levels from a particular waterbody.
 - Develop health protection values for fish contaminants and protocols for determining consumption advice jointly with the WI DHS.
 - Evaluate contaminant levels in fish and share with interested parties (FDA, angler groups, commercial anglers, people who eat fish).

- Environmental Protection: Status and Improvement
 - Determine if water quality standards are being met.
 - Identify impaired waters.
 - Identify causes and sources of water quality impairments – contaminated sediments, industrial discharges, landfills and groundwater contamination.
 - Support the evaluation of program effectiveness – fish tissue monitoring provides information to evaluate remediation of sediments, controls places on discharges and emissions.
 - Evaluate the effects of past/present use of pesticides.

- Resource Management
 - Evaluate the health impact of contaminants on piscivorous fish and wildlife by analyzing forage fish consumed by these species.

DEFINITIONS

Advisory Protocol or Protocol - The basis and methods for deciding recommendations on how much fish people should eat to prevent ingestion of chemicals above the Health Protection Value (HPV).

Basic Agreement - An agreement between the Department and the Wisconsin State Laboratory of Hygiene (WSLH) on analytical services provided to DNR using WSLH state general program revenue.

2,3,7,8-tetrachlorodibenzo-p-Dioxin (dioxin or TCDD), considered the most toxic of dioxin congeners.

Dioxins and dioxin-like chemicals - polychlorinated dibenzodioxins, polychlorinated dibenzofurans, and polychlorinated biphenyls that have a structure like 2,3,7,8-TCDD.

Fish Contaminant System (FCS) that is used to access, manage, and store fish contaminant sample and contaminant results records and fish contaminant advisory information.

Health Protection Value (HPV) are the values that the Great Lakes Fish Advisory Consortium recommends as a daily intake of contaminants from fish that should not be exceeded in order to protect health.

TEF - toxicity equivalency factor used to apply to concentrations of dioxin-like chemicals and calculate additive toxicity from exposure to dioxin-like chemicals.

PCBs - polychlorinated biphenyls measured as total matched to aroclor mixtures or as individual congeners.

Reference dose (RfD, in units of micrograms of chemical per kg-bodyweight per day) - an estimate of a daily oral exposure of a chemical that is likely to be without an appreciable risk of deleterious effects during a lifetime of exposure to non-cancer type chemicals.

POLICY

Under Chapters 281 and 283, Wisconsin Statutes, discharge of toxic pollutants in toxic amounts is prohibited and the Department is charged with managing the quality of the waters of the state for "human life and health, fish and aquatic life, scenic and ecological values and domestic, municipal, recreational, industrial, agricultural and other uses of water." Under Ch. 254, Wisconsin Statutes, state agencies are to report to DHS known incidents of environmental contamination and DHS is to assess the associated human health hazards.

While Fisheries Management is responsible for collection, processing and analysis of fish, and working with DHS in determining appropriate fish consumption advice, coordination with other Department programs and other state and federal agencies is also necessary. For further information on responsibilities of procedures for the fish contaminant and advisory program, see [Manual Code 3611.1](#). Additional protocols for unique situations are available from the U.S. Environmental Protection Agency (EPA) in their [Fish Contaminant Monitoring Guidance](#).

PROCEDURES

A. FISH CONTAMINANT MONITORING – The monitoring program consists of different components depending on the purpose of the monitoring (advisory, Great Lakes, or trend), the area of the state or the waterbody type (inland lakes, rivers, Great Lakes), and also varies depending on the contaminant (mercury, PCBs, pesticides, dioxin/furans, and emerging chemicals). Samples collected at new sites are primarily analyzed for mercury content but some samples are also analyzed for PCBs and other contaminants, especially those from flowing waters or impoundments located in industrial or urban areas. Samples

collected at PCB advisory sites are primarily analyzed for PCBs and mercury content but a subset of samples are analyzed for dioxin/furan congeners, banned pesticides, and emerging chemicals. The fish contaminant specialist needs to be informed of regional trends in contaminants, chemicals in fish that pose human health and other risks, and other research on contaminants, fish advisory programs, and monitoring studies.

Annual reports are provided of the number of sites tested for contaminants each year and the number of each analyte. Fish for contaminant analysis are collected through fieldwork conducted for fisheries management surveys to allow savings in field costs.

Fish mercury monitoring focuses on lakes that have not been sampled, sites where existing mercury data are old (more than 15 years old) or limited, or where existing data show that concentrations may be high and additional data would be beneficial to determine advisory needs. In general, samples of a top-level predator species and a panfish species are collected. Additional species may be collected depending on the site characteristics and availability of past contaminant data and existing advisories for the specific waterbody. Most samples are analyzed as edible portions (e.g., fillets) unless trend data need to be maintained. The goal is to return to sites with suspected high mercury concentrations every 10 to 15 years or when fisheries management schedules allow more frequent monitoring. Samples may be taken to fill in data gaps as opportunities arise.

Testing of fish from inland sites with PCB based fish consumption advice generally occurs on a five to ten year rotating basis (five year where remediation efforts have occurred or are underway). Species are chosen based on data gaps and advisories for the site, angler survey data, availability of species, desire to maintain consistency with past collections, and regulations for a specific waterbody.

Great Lakes and Mississippi River fish contaminant monitoring is conducted on a biennial basis. The collection schedule includes both gamefish and forage fish from Lakes Superior and Michigan and the Mississippi River; salmonid species biennially from Lake Michigan and Green Bay; and alewife and bloater chubs from these same areas. The collection schedule includes lake trout, siscowett, sculpins, and herring from the open waters of Lake Superior and walleyes from tributary areas along Lake Superior.

In addition, the Department has cooperated with the EPA Great Lakes National Program Office since the late 1980s to determine trends and patterns of contaminant levels in key salmon species. The Department participates in some components of this monitoring by collecting fish, processing of samples, and/or shipping samples. This included collection of coho or chinook salmon fillets from three Great Lakes tributaries (until 2009), and whole lake trout from Lake Superior every other year (ongoing).

1. SAMPLE COLLECTION, STORAGE AND PROCESSING

- a. Sampling Schedule - Following a review of the data generated from previous years, the Fish Contaminant Specialist, Bureau of Fisheries Management, formulates a collection

schedule that identifies the locations, species, numbers, and sizes of fish that field staff should collect. The collection schedule should also denote whether the fish will be analyzed individually or composited with other fish, and the tissues that will be analyzed. The size ranges are defined but field staff may need to use local knowledge to obtain sizes that are representative of the angler's creel unless directed otherwise by the collection schedule.

For each fiscal year, the fish contaminant specialist works with the DNR's laboratory services coordinator (Bureau of Science Services) and fiscal agents (Bureau of Finance) to schedule analytical services supported by the Basic Agreement or a special contract that will be requested of the WSLH or other laboratories.

- b. Sample Collection and Field Handling- Fisheries Management field staff should consult the fish contaminant collection schedule to mesh fisheries and other field work with fish contaminant collection needs (see a., above). Fish may be collected using a variety of sampling gears. Fish should be kept in a clean area of the boat and cooled as quickly as possible. Avoid exposure to gas, oil, or other potential sources of contaminants.
- c. Wrapping, Labeling, and Shipping Fish - All fish must remain WHOLE and UNGUTTED (except for edible portion forms). The exception is edible portions (EP) for Lake Sturgeon or other difficult to store and transport specimens. For those, a 3 inch wide, full cross-section of the fish taken from the area 9-12 inches anterior to the dorsal fin may be taken, wrapped in foil, taking care to do this in a clean location. Place foil-wrapped steaks in a plastic ziplock to reduce moisture loss. Enclose completed fish collection card in ziplock or attach on outside.
 - i. After collection but before wrapping and labeling, the length of each fish should be recorded on the fish collection card (see below). The weight of the fish is measured later at the fish processing facility. A package may contain one species from one collection site (don't mix species or sites). Large fish should be wrapped individually but smaller fish grouped by consecutive sizes from the same location may be bundled together. Small fish, forage size fish (smelt, alewife, bloaters, sculpins, etc.) and composite samples may be combined into one foil package.
 - ii. After measuring the length of each fish and wrapping each fish or group of fish in foil, then overwrap with freezer paper or brown paper. The paper overwrap protects the foil from tears during shipment. Secure the completed fish collection card to the package with clear packing tape so the label can be read and remains secure with freezing and transport by encircling the tape around the package and taping the ends of the card keeping the recorded information visible. Placing the wrapped and labeled fish inside a plastic bag protects the freezer in case of thawing or freezer failure.

- iii. A collection card (see diagram below) should be completed for each package of fish by the person that collected the samples. Pre-printed field-sturdy collection cards are available from the Fish Contaminant Specialist. Label each individual package with the following information: County, Date of collection, Waterbody, Specific location description, Legal description (Town Range Section) or WBIC, Collector, Method of collection, Number of fish contained in package, Species, and Lengths of each individual fish.

FISH CONTAMINANT SAMPLE	# Individuals in Package _____
County _____ Date ___ / ___ / ___	Species _____
Waterbody _____	Lengths (inches)
Collection Location _____	_____
T ___ R ___ S ___ or WBIC _____	_____
Collector _____	_____
Collection Method _____	_____

Additional cards may be obtained by calling the fish contaminant specialist (608•220•4769).

- iv. Samples that will be composited together when processed need to be within a specific size range and the same species of fish (e.g., 5 or 10 individuals). The standard is to keep the length of the smallest fish in a composite sample within 90% of the largest (e.g., 9 to 10", 18 to 20", or 27 to 30"). Under no circumstances should fish be composited together if the smallest is smaller than 75% of the largest fish in the composite. For example: 14", 15", and 20" fish should NOT be included in one composite.
- v. Field staff should ensure that collected samples are frozen as soon as possible after wrapping and labelling. Field staff should arrange for transport of collected samples to the fish contaminant specialist during normal business hours. When you are ready to deliver samples to the Wisconsin State Lab of Hygiene (WSLH) in Madison, make arrangements with the Fish Contaminant Specialist (608•267•7614) to receive them. Samples should be delivered to Madison by the end of the collection season (within 6 months after collection).

Fish Collection Hayton Area Remediation Project (HARP) in 2022

February 2022

The HARP site has some of the highest fish tissue PCB concentration in the state. The site has been under remediation since 2000. Contractors for the responsible party (RP) are completing long term monitoring and additional site investigation following completion of targeted removal of PCB impacted sediment and over-bank soil in Operable Units 1 through 4. The site is subject to a 2018 signed Negotiated Agreement (NA).

The Department of Natural Resources (DNR) has been collecting fish tissue over time to assess the PCBs in fish and to inform both the fish consumption advisory and the success of the remediation work. As part of the NA, DNR will continue fish tissue sampling every 5 years to evaluate the consumption advisory. The last fish tissue sampling conducted by the DNR was completed in 2017.

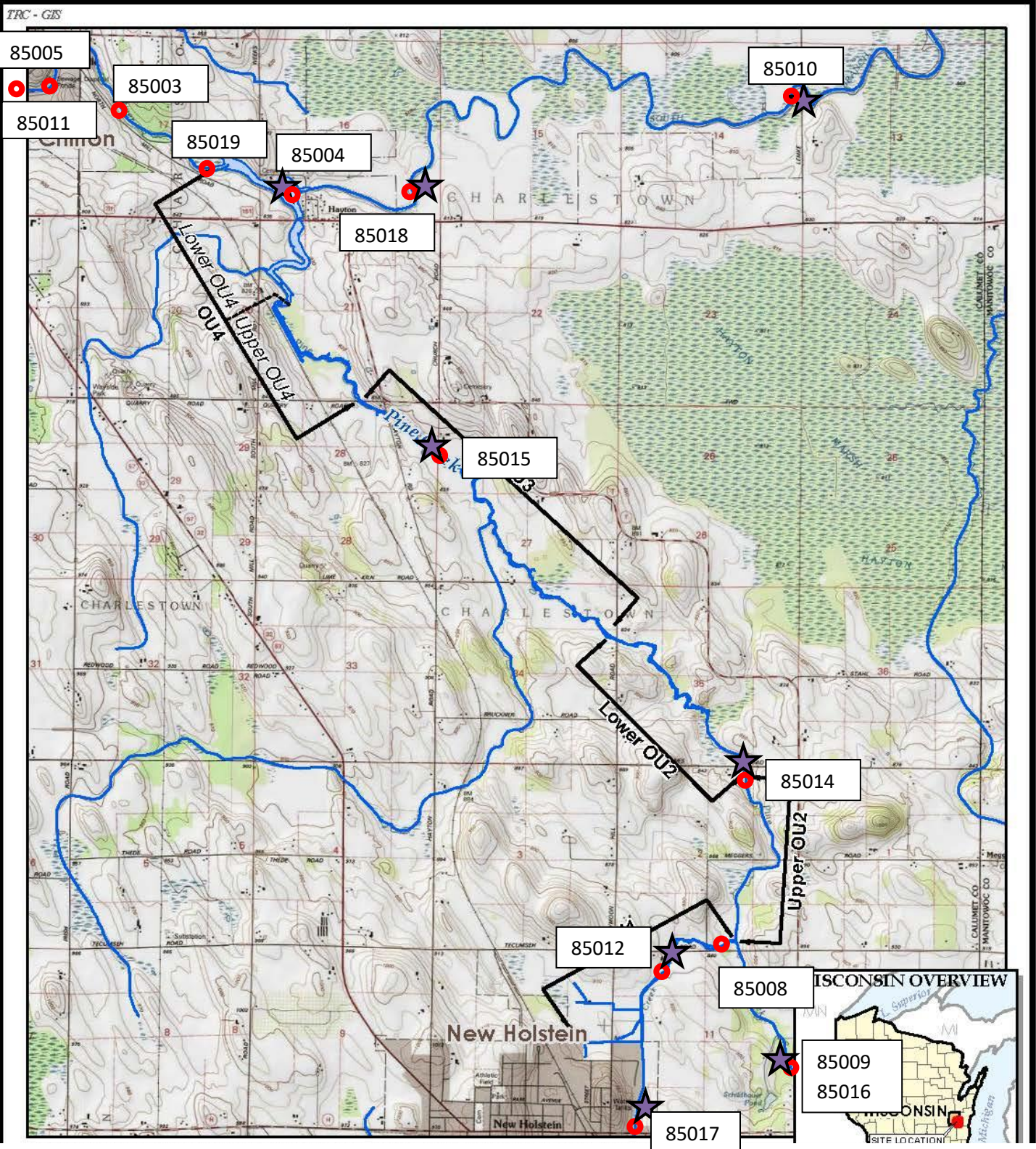
The 2022 field season will include fish collection per the NA to provide data on the magnitude and trend in fish tissue PCB concentrations over time for the purpose of evaluating the fish consumption advisory. Fish collection is proposed in both the remediated portions of the site and the un-remediated millpond at the downstream portion of the site. Fish species collected should be the same species and similar sizes as collected in 2017 for trend evaluation.

The proposed collection locations are shown in Figure 1. Dependent on species availability it is preferred to have fewer species with more samples. Generally, targeting 5-10 individuals per species if possible.

- Pine Creek at HWY T, New Holstein (sta. 85009, 85016) 4 species
- HARP Fish PCBs Jordan Creek OU1 (sta. 85012, 85008) 4 species
- Pine Creek OU3 above Hayton Rd. (sta. 85015) 4 species
- Pine Creek OU2 above Danes Rd. (sta. 85014) 4 species
- Hayton Millpond (sta. 85019, 85004) 6 species
- Jordan Creek (sta. 85017) 3 species
- South Branch Manitowoc River (sta. 85018, 85010) 4 species

HARP 2022 Fish Tissue collection overview

- Proposed to assess the recovery of the site & build on the time trend data
- The time of collection is flexible, past collections have been June-September
- Collect 110 +/- fish samples (similar numbers as 2017 sampling) from 7 locations in South Branch Manitowoc River, Pine Creek and tributaries.



● = previous collection stations
★ = proposed 2022 collection stations

Figure 1. HARP Proposed Fish Sampling Locations - 2022