New Mexico Environment Department (NMED) Surface Water Quality Bureau (SWQB)

Standard Operating Procedure (SOP) for

FISH TISSUE COLLECTION

Emily Miller

Digitally signed by Emily Miller
Date: 2026.10.14 16:49:43 -06'00'

Emily Miller, Quality Assurance Officer

Lynette Guevara

Digitally signed by Lynette Guevara
Date: 2026.10.15 09:19:27 -06'00'

Lynette Guevara, Program Manager - Monitoring, Assessment and Standards Section

1.0 Purpose and Scope

The purpose of this procedure is to describe the data collection process for fish tissue sampling used to determine the presence and concentration of environmental contaminants for public fish consumption advisories (FCAs) and standards attainment based on fish tissue criteria in 20.6.4 NMAC.

2.0 Personnel Responsibilities

Personnel who perform data collection activities related to fish tissue or supervise those who do, are responsible for implementing this procedure and signing the associated acknowledgment form for Standard Operating Procedure (SOP) 11.5 Fish Tisue Collection.

The Monitoring, Assessment, and Standards Program Manager and Quality Assurance Officer (QAO) approves Sampling and Analysis Plans (SAPs) referencing this SOP to conduct sampling at various locations.

The QAO, the MASS Program Manager, and SWQB subject matter experts (e.g., the Project Manager, Monitoring Supervisor, and field staff scientists) will determine if any revisions to this SOP are needed at least every two (2) years in accordance with SOP 1.1 for the Creation and Maintenance of SOPs.

The QAO is involved in the development and revision of this SOP to ensure the SOP meets the requirements of the SWQB's Quality Assurance Project Plan. Pending the review and approval of the document, the QAO will ensure the SOP is accessible through the SWQB's website.

The Project Manager organizes the sampling team (at least one of whom must be on the sampling permit) for a fish tissue sampling event and ensures upload of fish tissue sampling event from the Fish Sampling Field Data Sheets into the SWQB Surface Water Quality Database (SQUID). The final results reported by the laboratory will be uploaded to SQUID by the QAO.

The FCA Project Manager contacts the New Mexico Department of Wildlife (NMDOW) every two years to renew the NMDOW Scientific Collection Permit and ensure updates to personnel and target species as needed. Processing time for the approval of permit applications may take up to 6 weeks, so field work should be planned accordingly. The FCA Project Manager summarizes fish collections and delivers the year-end fish collection report to NMDOW by January 31 the year after the collections occurred. A Federal Scientific permit issued by the United States Fish and Wildlife Service (USFWS) will be required if sampling involves federally protected species (contact USFWS for more information). The FCA Project Manager also coordinates data collection activities with NMDOW, should no staff be qualified to obtain a NMDOW Scientific Collection Permit or NMDOW assistance is required.

The Fisheries Biologist for the project is responsible for fish species identification during the fish sampling process. Other responsibilities include confirming sampling equipment is clean and functional, and completing the verification of all field sample sheets prior to leaving the field sampling location and ensuring the NMDOW and USFWS are contacted upon capture of protected species that is not included on the Scientific Collection Permits. The Fisheries Biologist for each sampling event also uploads all pertinent data into SQUID. The Fisheries Biologist may be the same individual as Project Manager.

Should the SWQB not have a qualified Fisheries Biologist, these tasks (other than SQUID upload) must be coordinated with NMDOW.

3.0 Background and Precautions

3.1 Background

The Surface Water Quality Bureau (SWQB) conducts annual or semiannual fish collections to analyze fish tissue contaminants for two primary purposes: to advise the public on consumption of safe amounts of fish (meals per month) (EPA 2000) and to evaluate attainment of fish-tissue-based criteria in 20.6.4 NMAC. Sampling occurs statewide to evaluate attainment of tissue-based water quality criteria and in waterbodies with significant angling pressure and reproducing populations of sport fish species for fish consumption advisories. Site locations and rationales for data collection, contaminant analyses, and additional details must be documented in the Sampling and Analysis Plan (SAP).

3.2 Procedural Precautions

Site conditions or project-specific data collection objectives may necessitate the use of alternative field data collection procedures not included in this SOP. The use of field methods other than those presented in this SOP must be approved by the MASS Program Manager in coordination with the QAO, and alternative methods must be accurately documented on field forms.

Collection and analytical methods may vary depending on the water body being sampled and the sampling goals defined in the SAP. The target taxa and maximum number of fish collected per site should be estimated in the SAP. Adult fish should be collected, as they are representative of the size-class typically consumed by the fishing public and are most appropriate for assessing water quality criteria for persistent pollutants due to their greater bioaccumulative potential relative to younger age-classes.

If tissue samples are to be analyzed by a contract laboratory, ensure the proper chain-of-custody procedures are followed. Follow proper federal regulations when shipping samples using dry ice.

Refer to SWQB SOP 8.1 Cleaning of Sampling Equipment for detailed cleaning protocols and to ensure that all equipment is cleaned appropriately. Nets should be thoroughly rinsed and dried after each use, preferably in direct sunlight, as ultraviolet radiation helps kill bacteria. To prevent the transmission of pathogens or non-native taxa, thoroughly clean sampling equipment before proceeding to another water body.

3.3 Safety Precautions

Field staff should exercise their professional judgment regarding all sampling conditions and whether to begin or continue traveling to a field site or conduct sampling. Field staff should not risk traveling to remote sites during weather events such as severe monsoon rainstorms or snowstorms and should not sample during nearby thunderstorms. Sampling should be rescheduled or delayed when conditions are not safe.

When electrofishing, participants are encouraged to wear non-conductive gloves of adequate length to reduce risk of electric shock. Leak-free waders must be worn at all times. Streamflow conditions should be evaluated to ensure safe working conditions, and sampling should be rescheduled during high-flow events such as spring runoff or monsoonal events. All boat-based activities must adhere to established boating safety protocols.

Staff should use best professional judgement to assess risks involved with data collection. Refer to SWQB's current job hazard analysis (JHA) for further safety precautions when conducting field work.

Boating Safety Precautions

These boating safety precautions apply to SWQB employees that use any type of watercraft in furtherance of fish sampling. Watercraft must always be operated with safety as the primary requirement and in accordance with recognized federal, state, and local laws and standards. All personnel operating and working aboard watercraft must have completed a U.S. Coast Guard approved boating safety course. Do not operate watercraft in hazardous weather conditions such as thunderstorms, high winds, or rough water. If weather conditions become hazardous while out on the water, sampling must cease and personnel must return to boat ramp as safely as possible. All personnel should wear US Coast Guard Type lll personal flotation devices (PFD) while on board watercraft. Work with nets from the bow of the boat, always keeping nets away from the motor, to prevent entanglement and equipment damage.

Stream/River Wading Safety Precautions

Wading across a streambed can be very dangerous depending on flow and substrate conditions. Personnel shall apply the "rule of 10," defined as the product of water depth (in ft) and velocity (in ft/s). If this value equals or exceeds 10 ft^2/s, the stream is considered unsafe to wade. For example, a stream that is 2 ft deep with velocities of 5 ft/s or more is considered unsafe to wade.

If you begin sampling and discover that conditions exceed "the rule of ten", return to the nearest bank and note "too fast/deep to measure/sample" on the field form. Do not attempt to wade a stream if you feel it is unsafe, regardless of the outcome of the "rule of ten." Some wadeable streams may be unwadeable during spring runoff but will be wadeable when base flow resumes.

Electrofishing Safety Precautions

It is highly recommended that all personnel who perform electrofishing take an electrofishing training course (or have sufficient experience operating an electrofishing unit), and be CPR and First Aid certified, as indicated in the SWQB JHA for sampling.

Procedures and responsibilities for electrofishing include the following:

- Electrofishing should never be performed alone. A crew of three is recommended: one person to operate the backpack unit, one person to net fish, and one person to carry a bucket. The person with the bucket may also net fish depending on experience and stream conditions. Each crew member must ensure that they have appropriate personal protection equipment including leak-free, non-conductive waders and wading boots. Non-conductive gloves are recommended.

- The electrofishing Fisheries Biologist(s) must instruct other crew members on the safety procedures and potential hazards in electrofishing before the electrofishing field effort is undertaken.
- The person operating the electrofishing unit must alert all electrofishing crew when the unit is turned on and active electrofishing begins. If at any time a crew member requests that electrofishing cease, the operator must immediately cease electrofishing and inform the crew as such. The operator cannot resume actively electrofishing until informed it is safe to do so and has alerted all crew that electrofishing is resuming.
- Electrofishing operations must be discontinued if a crew member feels electroshock through gloves or waders. Replace or repair gloves or waders to eliminate electroshock.
- Discontinue electrofishing if anyone outside of the electrofishing team approaches within 30 feet (for backpack operations) or 100 feet (for all other electrofishing operations).
- The electrofishing Fisheries Biologist(s) must advise their Supervisor(s) or Program Manager of the location and time the electrofishing will be performed. The Project Manager must advise his/her Supervisor or Program Manager as soon as practical after the electrofishing has been performed that the job has been completed.

4.0 Definitions

Composite – a group of several individual fish (usually three or more) from the same location and of the same species and size class from which an equal mass of tissue is taken from each, blended, and analyzed as one sample.

Electrofishing – The process of capturing fish from a stretch of water using a weak electric field, often using a backpack or boat-mounted device.

Fisheries Biologist – A person with biological training that that is qualified in fish identification and collection methods and has obtained a valid New Mexico Department of Game and Fish Scientific Collections Authorization Permit.

Program Manager – An individual within the SWQB that manages a program such as the Monitoring, Assessment and Standards Section (MASS).

Project Manager(s) – An individual responsible for a specific project who is familiar with the purpose and procedure for accomplishing a task.

Quality Assurance Officer (QAO) – An individual within the MASS responsible for overseeing the development and implementation of all quality assurance procedures and processes within the SWQB including external projects that receive support or funding from the SWQB.

Quality Assurance Project Plan (QAPP) – A formal planning document for environmental data collection activities that describes the data collection procedures and the necessary quality assurance and quality control activities that must be implemented to ensure that the results are sufficient and adequate to satisfy the stated performance criteria.

RID – A laboratory request ID. This is a unique number and barcode assigned to each sample or sample composite. RID stickers contain both the number and barcode and can be adhered to the sample container and the field datasheet. The RID is the reference number that allows each analyte result to be linked back to the original sample and entered in the database.

Sampling and Analysis Plan (SAP) – A document that provides guidance for all fieldwork by defining in detail the sampling and field data-gathering methods as well as resource requirements for the project.

Standard Operating Procedure (SOP) – A document that lists the steps that should be completed when doing a task.

Subject Matter Expert (SME) – A person who is familiar with the purpose and procedure for accomplishing a task.

Surface Water Quality Information Database (SQUID) – The SWQB database for storing, retrieving, and reporting environmental results, including biologic assemblage data and fish consumption advisory sampling events and data.

Surface Water Quality Bureau (SWQB) – A Bureau under the Water Protection Division of the New Mexico Environment Department. The SWQB's mission is to preserve, protect, and improve New Mexico's surface water quality for present and future generations.

Trammel Net – A gill net for capturing fish consisting of three layers of netting in different mesh sizes, which form pockets that entrap fish.

5.0 Equipment and Tools

Equipment and supplies needed to conduct the procedures outlined in this SOP are listed below. Supplies needed for a specific project will depend on the number of sampling sites and number of fish to be collected, an estimate of which should be indicated in the SAP. Estimates can be based on previous collections in each waterbody, analytes of concern, and amount of funding allocated.

Lentic (lakes and reservoirs) sampling equipment:

- Boat/boating safety equipment
- Rod and reel
- Trammel nets
- Weights (for trammel nets)
- Floats (for trammel nets)
- Gloves for handling spiny fish
- Wire cutters for cutting fish spines entangled in nets
- Measuring board
- Coolers
- Ice
- Valid sampling permit(s)
- Fish Sampling Field Data Sheets

Lotic (streams or rivers) sampling equipment:

- Electrofishing unit, batteries, anode and cathode etc.
- Electrofishing safety equipment (waders, gloves etc.)
- Seines
- Hoop nets
- Bait for hoop nets
- Rod and reel
- Buckets
- Measuring board
- Coolers
- Ice
- Valid sampling permit(s)
- Fish Sampling Field Data Sheets

Sample preparation and shipping equipment:

- Fillet knife(s)
- Knife sharpener
- Aluminum foil
- Scale (digital food scale works well) for measuring fillet sample wet weights
- Fish Tissue Contamination Field Data sheets
- RID stickers
- Sharpie for labeling samples and sample composites
- Plastic Ziploc bags (freezer quart or gallon)
- Blue ice packs or dry ice (as applicable)
- Dry ice shipping container/insulated shipping container
- Packing tape
- Chain-of-custody (COC) record for laboratory
- FedEx Priority Overnight shipping form

6.0 Step by Step Process Description

6.1 General Sampling Information

Collection of fish tissue is conducted in lentic and lotic waters (using appropriate sampling equipment and methodologies. Sampling in lentic waters and non-wadeable rivers may require use of a boat-mounted electrofishing unit.

Collaboration with other agencies (e.g., NMDOW, USFWS, BLM) should be considered when necessary. Tissue collection is sometimes conducted with assistance from NMDOW, especially if the sampling effort will require the use of a boat-mounted electrofishing unit.

6.2 Sampling Sites and Season

Tissue samples may be collected from various waterbodies in the state. When collecting specimens for fish tissue consumption advisories or human-health water quality criteria, it is desirable to target waters

where public fishing pressure is highest or where known or suspected contamination issues occur. Sampling is sometimes coordinated to align with NMDOW sampling efforts or to occur in conjunction with SWQB watershed surveys.

Sampling should be planned to allow at least 4-6 weeks for laboratory results, depending on hold times and analytical suite.

6.3 Equipment

SWQB typically uses trammel nets for sampling in lentic waters and backpack electrofishing units for sampling in lotic waters. NMDOW can employ a boat-mounted electrofishing system for lakes and reservoirs and may have the ability to sample non-wadeable rivers with a boat-mounted electrofishing system. The SWQB may require assistance from agencies with a boat-mounted electrofishing system to sample large-rivers. Other passive (e.g., hoop nets, traps) or active (e.g., seines) fish collection methods may be used depending on target species and habitat characteristics. For a complete list of sampling and processing equipment and tools based on water body type being sampled see section 5.0 Equipment and Tools.

6.4 Sampling and Processing

Fish tissue samples and/or whole fish may be collected and provided by external agencies (e.g., NMDOW, BLM, USFWS or any other federal or state agency authorized to collect fish). In such cases, the sampling methods described below (section 6.4.1) may not apply. All externally collected fish must be accompanied by collection information including sampling location, date and time, species identification and total length. Total length is the measurement of the fish, in mm, from forward-most point of head to tip of tail with lobes compressed. When possible, whole fish are preferred over tissue samples. Specimens must be in good condition and must be put on ice immediately following sampling to prevent tissue degradation.

Water quality data are generally unnecessary when tissues are collected for fish consumption advisories but may be warranted when assessing water quality criteria.

6.4.1 Tissue Collection for Fish Consumption Advisory – Sampling in Wadeable Streams and Lentic Waters

Sampling in Lotic Systems

Backpack electrofishing (when and where conditions permit) is usually the most efficient means of collecting a sufficient sample size of fish in wadeable streams. Block nets or natural barriers are unnecessary but may facilitate capture during electrofishing. Seines may be used when appropriate such as in streams with low visibility or sand-bottomed streams. Shock seconds and other effort metrics do not need to be recorded.

Fish tissue analytes (e.g., methylmercury, PCBs, pesticides) are typically environmentally persistent and bioaccumulative. Accordingly, sampling efforts should target adult individuals to allow sufficient time for

analyte accumulation in tissues. For fish consumption advisories, sampling should target species and size classes that are commonly consumed.

Sampling of species in "put and take" fisheries (i.e., stocked triploid Rainbow Trout) is not generally recommended as these fish do not persist in the stream for enough time to accumulate contaminants in tissues. The majority of Rainbow Trout in New Mexico are stocked, however some of these fish, especially those present in lentic systems and larger lotic systems may have persisted for several years before capture and may be appropriate for tissue analysis. Recently stocked fish are often identifiable by missing or torn fins and pale or reduced coloring.

Sampling in Lentic Systems

Trammel nets are preferred over gill nets in lentic systems because they typically catch a broader size-range of fish and result in lower mortality rates. Trammel nets are composed of two outer large-mesh panels (e.g., 300 mm or 12-inch square) with a small-mesh fine-twine inner panel (e.g., 40 mm or 1.5-inch square) that creates a pocket to entangle fish. Net depth should be at least four feet, preferably six feet. Length should be 50 to 100 meters, unless specific circumstances dictate the use of a shorter net. A trammel net is constructed with a lead line, a float line, and locations to attach anchors and float markers.

For most purposes, nets should be deployed with the lead line on the lake bottom using anchor weights. Anchor weights may be fashioned from three-pound coffee cans filled with concrete with an eyebolt embedded in the concrete (a washer fastened to the threaded end of the eyebolt will prevent it from pulling out). During deployment, nets should be stretched lengthwise and should have adequate slack in the line attached to the surface floats to prevent wave action from lifting the anchor weights and allowing the ends of the net to gradually move toward each other. Nets are typically set in the afternoon and returned to the next morning to remove the catch. Depending on the lake size and productivity, one to three 50-meter nets should be deployed and left set overnight. The SWQB designated deep station of the lake is used as the station to represent the entire lake and is stored in the SWQB database (SQUID).

Detailed Procedure for Sampling using a Trammel Net

Store trammel nets in baskets with the net fed into the basket in a circular motion around the bottom of the container. Keep both the lead line and the float line together but prevent them from twisting to ease deployment of the net. Store the net without floats or anchors attached.

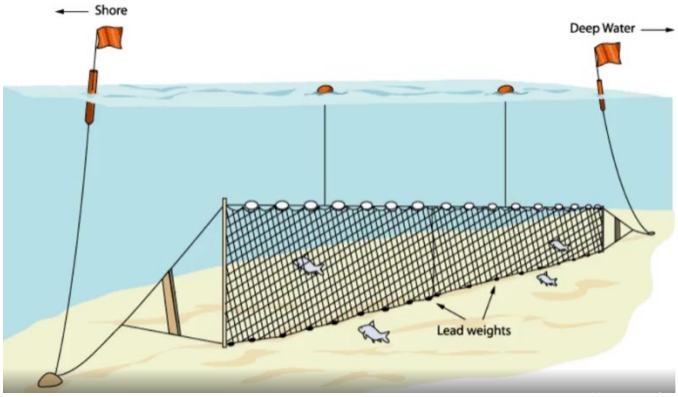
> Prior to sampling using a trammel net, ensure that nets are free of holes, loaded correctly into the storage containers and both lead links and floats are present. Determine sampling timing based on activity patterns of target species (i.e., diurnal, crepuscular, or nocturnal) and set nets to maximize capture efficiency. Nets may be set in the late afternoon and left overnight but avoid letting nets sit unattended for extended (>18 hrs.) periods of time as mortality and catch may be substantial. Determine location of sampling based on target species by setting nets either near shore or in deeper waters.

Deploying the net:

1. Approach the area where the net will be set. If deploying nets near shore, the driver of the boat

should get the nose of the boat up near shore, watch the depth finder and trim up the motor if the water gets too shallow. Crew members deploying the net will hook the anchor weight and float line to the end of the net.

2. Clip the anchor weight rope to the anchor weight and the float line to the float. Drop the anchor weight and float marker near shore and begin reversing the boat slowly. Feed out the net as it is pulled from the storage basket, ensuring that the lead line and float lines do not twist. As the end of the net nears, attach the float marker to the float line clip and the anchor weight rope to the lead line clip. Ensure that there is tension in the net and keep the lines separated while keeping tension to keep them from twisting. Drop the anchor weight and float line in separate directions to keep them from crossing over. The below figure illustrates a properly set net.
    a. **Note**: if clips/carabiners are not available, simply use knots to secure the lead line rope to the anchor. Put a loop in the float line rope and slide the anchor rope through this loop and attach the float at the end. This will allow the anchor weight to settle on the bottom of the lake and an appropriate amount of rope for the float to hold the net straight up and down from the bottom of the water to the surface without allowing slack that could allow the net to move or become tangled.



3. Let the net sit for several hours or overnight depending on target species sample size, lake productivity, net set location etc.
4. Return to the net, locate the float marker, and pull in the net. Remove the anchor weight and continue pulling in the net, feeding it into the basket in a circular motion as mentioned before so the net is ready to set again.
5. As the net is pulled in there will likely be fish caught in the net. Begin removing fish from the net, pushing them through the mesh and pushing from their tail over their head. Trammel nets have an inner and outer “pocket” that fish get caught in. Remove one layer of net from the fish at a time and untwist as necessary. Once the fish is entangled in only one layer of netting, find the opening to the “pocket” on the other side of the net and reach in to retrieve the fish. Avoid cutting the net unless necessary. Remove fish spines as needed using wire cutters. Release all fish that are not being kept as quickly and efficiently as possible in a location furthest away from the portion of the net still in the water. Store all captured fish on ice in the field and freeze as soon as possible.

Upon returning from the field, properly disinfect all field gear (waders, boots, live wells, etc.) per SOP 8.1. Nets should be dried thoroughly in direct sunlight to kill all organisms and prevent transmission between waterbodies.

6.4.2 Processing Fish for Tissue Samples and Laboratory Submittal

Keep fish to be used for analysis in a cooler on ice while in the field. Upon returning from the field, freeze fish that are not immediately filleted or composited. Freeze fish fillets (or whole fish) until analysis.

Individual fish are identified to species by a qualified fisheries biologist and total length, in mm, is measured. This information is recorded on the appropriate form (Fish Tissue Contamination Field Data form). Fillets or whole fish may be used depending on the analyte suite. Retain the belly flap fat on each fillet. For studies relating to human consumption, fish fillets should be used. Those species of fish that are typically eaten without the skin should have the skin removed. Some species (e.g., salmonids, catfish) may have the skin left on, if that is how they are typically eaten.

Fish are filleted and composites created, as appropriate, by SWQB. The contracted analytical laboratory performs subsequent reduction (e.g., homogenization) of the samples prior to analysis. Samples may be analyzed as individual fish or as composites of two or more individuals as appropriate. Creating an excel spreadsheet with the fish identifiers (e.g., Channel Catfish 1) and total lengths may be helpful for mapping out possible composite combinations based on size classes.

Filleting:

Wash hands with soap and water and wear dust-free nitrile gloves. Filleting should be performed on a clean surface that is rinsed between each individual fish to avoid cross contamination. Rinse knife between samples. Ensure fillets are of adequate size for each analysis required from the sample. Pesticides and methyl mercury require 4-5g of tissue while PCB congeners require up to 20g of tissue per individual or composite. PFAS analysis requires a dedicated tissue sample consisting of 15-20g. When unsure about fillet size, err on the side of caution and provide a larger fillet than may be necessary, keeping in mind weight increases shipping costs and decreases space for other samples. Consult with the analytical laboratory for additional fillet size requirements.

Fish tissue composites:

A fish composite sample should consist of at least two fish that meet the following criteria:

1. All fish in the composite sample are of the same species.
2. All fish in the composite sample are similar in size, so that the smallest fish in the composite sample is not less than 75% of the total length of the largest fish in the composite sample.
3. All fish in the composite sample were collected at the same time, no more than one week apart, and from the same waterbody.

Fillets designated as part of a composite sample will be homogenized at the analytical laboratory. The homogenized fillet composite samples will be divided into fillet tissue aliquots containing equal masses of adequate tissue for each type of chemical analysis.

Complete a laboratory chain-of-custody form and submit samples for contaminant analyses, as documented in the SAP. The sample chain-of-custody forms demonstrating analysis required for these methods are available in the SOP "associated forms" folder on the server.

Hold times:

Hold times vary based on method and laboratory preference. Tissues should be re-frozen immediately after filleting, wrapped in aluminum foil, and stored in a plastic bag. Frozen samples should be shipped as soon as possible. The following hold time guidelines, provided by the analytical laboratory, should not be exceeded, if possible.

Organochlorine Pesticides (DDT and DDE) – 1 year if frozen
Methylmercury – 6 months if frozen
PCB congeners – 1 year if frozen
Selenium – 6 months if frozen
PFAS – 90 days if frozen

Contact the analytical laboratory to confirm hold times for these and other analytes.

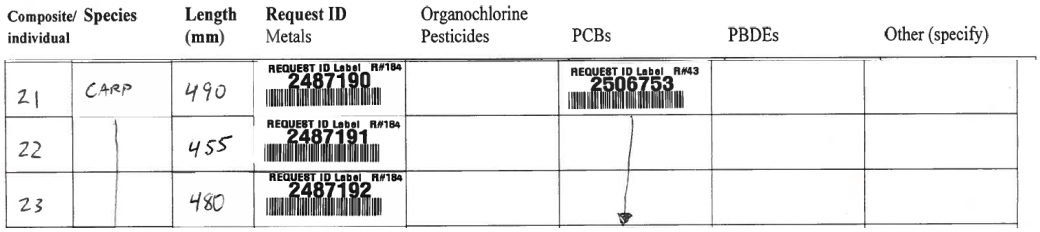
Analyte methods and considerations:

EPA-recommended methods for each analyte are provided in the table below. Some analytes also have required processes that must be confirmed with the laboratory before samples are submitted. For example, PCB results must be blank corrected. Because not all analytical laboratories can perform blank correction, this requirement should be clearly specified when requesting quotes.

Analyte	***Method***	**Required processes**
Methyl mercury	EPA Method 1630	Freeze dry preservation, metal tissue preparation
PCBs	EPA Method 1668A	Blank corrected
Organochlorine pesticides	EPA Method 8081	GPC cleanup
Selenium	EPA Method 6020	Total recoverable
PFAS	EPA Method 1633	Tissue Preparation/ homogenization

Preparing samples for Shipment:

Composite samples should all be assigned the same Request ID (RID) number on the Fish Tissue Contamination Field Data sheet. RIDs (barcode sticker or written out) should be recorded under the correct analyte column associated with the row of the composite or individual fish within that group. Below is an example of a composite sample of three carp (within a 455-490 mm size range), all assigned the same RID to make up the composite sample for PCBs. Separate RIDs are assigned for individual analytes for the same fish. In the example below, the laboratory will require enough tissue from Carp 21-23 to create a composite sample for PCBs, as well as individual analyses for metals.



Composite/ individual	Species	Length (mm)	Request ID Metals	Organochlorine Pesticides	PCBs	PBDEs	Other (specify)
21	CARP	490	REQUEST ID Label R#184 2487190		REQUEST ID Label R#43 2506753		
22		455	REQUEST ID Label R#184 2487191				
23		480	REQUEST ID Label R#184 2487192				

Wrap each individual fillet in aluminum foil (shiny side away from the fish's skin) and place composite samples together in a plastic bag labeled with the species and the RID. PFAS samples should be assigned their own RID and submitted separately from all other analytes. Place the foil-wrapped fish on ice or back in the freezer as soon as possible. Ship samples on either a Monday or Tuesday as this will ensure that they do not get held up by a courier over a weekend and risk sample degradation. When using freezer packs in shipments, 'blue ice' is always preferred to water ice. Dry ice may be necessary or appropriate in some cases. Always check with the lab prior to shipping to determine the preferred shipping method and to ensure the proper chain-of-custody procedures are followed. Cryogenic samples must be sent on dry ice or in a liquid nitrogen dry shipper. Follow proper federal regulations when shipping samples using dry ice.

7.0 Data and Records Management

After processing tissue samples, record all data on the Fish Tissue Contamination field data form. Transfer these data (date of capture, location, field staff, capture method, fish species, length, assigned identification number, analytes, composite structure if applicable, etc.) to a spreadsheet for SQUID upload. Once laboratory results are received, associate the results with individual fish or composite samples. Review and verify these data before permanently archiving the spreadsheet. Archive all raw data files received from the analytical laboratory.

Depending on the analyte suites being evaluated, composite samples submitted to a contract laboratory may be divided into aliquots and analyzed by subcontracted laboratories. In these cases, results for multiple analyte suites may be initially reported under a single RID.

Prior to uploading data in SQUID, ensure that each analyte suite is assigned a unique RID. In the example below, composites were submitted to the analytical laboratory with multiple analyte suites under a single composite RID. This original composite RID is recorded for data management purposes in the "Comp/Indv" column. The composite RID is utilized for Metals while new RIDs are assigned to Organochlorine and PCBs.

Selenium results are reported for tissue wet weight. Convert to dry weight prior to uploading data into SQUID.

Comp/Indv	Species	Length (mm)	Request ID (RID)				
			Metals	Organochlorine pesticides	PCBs	PBDEs	Other (specify)
Comp 2602345	Pike	30+	2602345	2609620	2609609		
Comp 2602337	Pike	22-26	2602337	2609625	2609614		
Comp 2602336	Pike	18-22	2602336	2609626	2609615		
Comp 2609627	Pike	14-18	2602335	2609627	2609616		

Fish tissue data are stored in SQUID using a similar process as water chemistry data.

Create a sampling event:

- Navigate to the “FISH” project under the “Projects” tab and select the folder icon under “View/ Add Monitoring Locations.”
- Navigate to the correct monitoring location. It may be necessary to add a new monitoring location. For lake sampling the designated deep station of the lake is used as the station to represent the entire lake, and the deep station for the lake is where associated fish consumption advisory data is stored in the SQUID.
- Select “Add New Sampling Event” and choose “Fish Tissue” from the drop-down menu. Enter the information from the field data form, e.g., Start Date, Collection Method, etc, into the event. Enter the total number of composites on the “General” tab. Enter fish species, analyte suite, and number of fish per composite (i.e., Count) on the Composites tab. Individual fish are considered a composite of one. Enter length information, mm total length, on the Lengths tab.
- Navigate to “Activities” and ensure that each RID is associated with its appropriate composite and analyte suite. Each RID will only be associated with a single composite and analyte suite.

To assign RIDs to their appropriate composites, after entering species, analyte suite, number of fish per composite, and length of each fish, generate a Fish Tissue Metadata report from SQUID. Use the report to ensure each RID is assigned to its appropriate composite.

Upload analytical results from the laboratory:

- Data Management
- Imports
- SLD results
    - Upload file and map Spreadsheet Columns to the data upload columns.

Processed data spreadsheets are archived on the SWQB server, organized by year and location.

8.0 Quality Control and Quality Assurance

The SWQB maintains consistency for data collection activities related to fish consumption advisories and the development of fish consumption advisories by requiring staff responsible for implementing this procedure to sign the associated acknowledgment form for SOP 11.5 Fish Consumption Advisory Data Collection and Reporting.

Quality Control procedures associated with chemical analysis are performed by the analytical laboratory as part of the tissue analysis procedure.

Data and metadata that are transferred from the field forms to the spreadsheets stored in SQUID are verified, and metadata associated with the sampling event created in SQUID are also verified. A Fish Tissue Metadata report is used to verify that appropriate RIDs were assigned correctly. Results from the analytical lab that are transferred to spreadsheet and used to develop advisories are similarly verified.

9.0 Related Forms

Fish Tissue Collection checklist
Fish Sampling Field Data Sheets
Fish Tissue Contamination Field Data

10.0 Revision History

Revision 0. July 19, 2010. Original.
Jodey Kougioulis, QAO; Gary Schiffmiller, SME; James Hogan, Program Manager MASS

Revision 1. February 16, 2022. Format change to SOP; updated format to be consistent with SOP 1.1. Major updates to Personnel Responsibilities, Background and Precautions, Definitions, Equipment and Tools, Step by Step Process Description, Data and Records Management, Quality Control and Quality Assurance, Related Forms, and References.
Miguel Montoya, QAO; Elizabeth Stuffings, SME; Kris Barrios, Program Manager MASS

Revision 2. October 14, 2026. Major updates to Personnel Responsibilities, Background and Precautions, Definitions, Equipment and Tools, Step by Step Process Description, Data and Records Management.
Emily Miller, QAO; Lynette Guevara, Program Manager MASS

11.0 References

Environmental Protection Agency (EPA). 2000. Guidance for Assessing Chemical Contaminant Data for Use in Fish Advisories, Volume 2: Risk Assessment and Fish Consumption Limits, Third Edition. EPA 823-B-00-008. Washington, DC.