SURFACE WATER QUALITY

MONITORING PLAN

(SWQMP)

CY2024 Plan of Study

2024 May 2

Rev. 1.0

Field Operations Division

Alabama Department of Environmental Management

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2024 SURFACE WATER QUALITY MONITORING PLAN

The annual Surface Water Quality Monitoring Plan is developed cooperatively and signed by supervisors and managers representing the Water Quality Branch (WQB), the Nonpoint Source Unit (NPS), the Field Operations Division, including all four field offices and laboratories, and the Office of Environmental Quality (EQU). The planning is an iterative process lasting several months, generally with sampling requests beginning in May, and ending with crew leader audits and trip recons in February.

BACKGROUND

Three hundred and twenty locations will be monitored statewide in 2024 (Figure 1). To the extent possible, stations were concentrated within the target basins. This approach enables ADEM to provide intensive monitoring to stakeholders within each basin every three years (Figure 2). ADEM's monitoring data can be used to accurately measure trends in water quality over time, while maintaining level loading for ADEM's labs and field offices, making better use of ADEM's available resources.

Three hundred and twenty monitoring locations is an increase of 48 and 64 stations from 2022 and 2023, respectively. In addition, intensive geomean surveys and monthly sampling were requested at 28 locations statewide in 2023, and at 42 locations statewide in 2024. With pathogens comprising 82% of causes of impairment listed since 2016, the need for geomean survey data will continue well into the future. Montgomery Field Operations (MGY FO) made two important changes to enable MGY FO to meet the increased demand for water quality sampling and intensive geomean surveys.

Changes to the Rivers and Reservoirs Monitoring Program (RRMP): In 2024, RRMP stations will be sampled by five crews over the last three weeks of each month, April-October. Historically, the MGY FO has completed all nonwadeable boat sampling the last two weeks of each month, with significant assistance from the Environmental Indicators Section (EIS). Spreading the RRMP sampling over three weeks enables EIS staff to conduct more sampling at requested wadeable rivers and streams reaches. This is a temporary

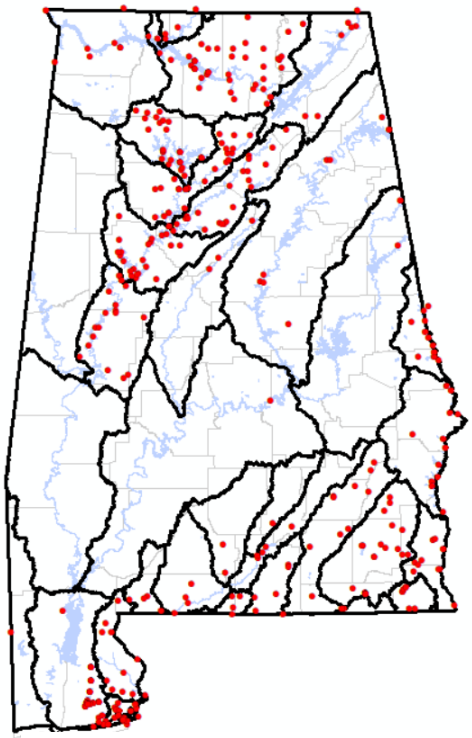
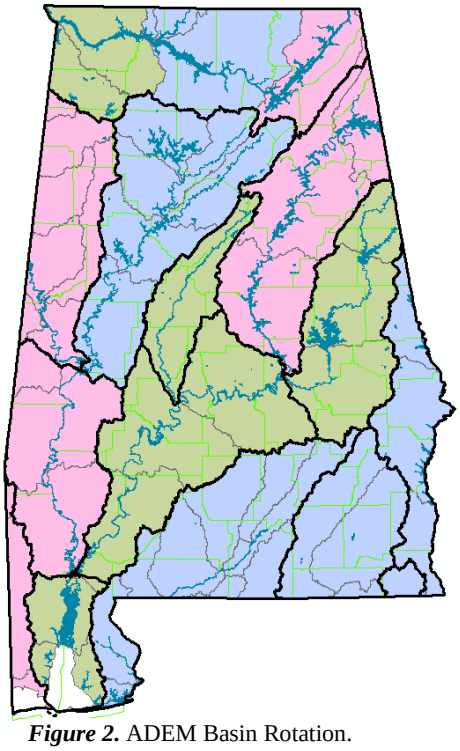


Figure 1. 2024 Monitoring locations.



Sampling Year	Basin Color		
	Green	Blue	Violet
	2017	2018	2019
	2020	2021	2022
	2023	2024	2025
	2026	2027	2028
	2029	2030	2031

Figure 2. ADEM Basin Rotation.

solution to the high number of requested sampling stations and geomean surveys during 2024, when there are a small number of stations in each of the three target basins. During 2025 and 2026, RRMP sampling must be completed within two weeks to sample all stations within each river basin during the same week.

Geomean surveys completed by the EIS and The Compliance Unit (TCU): The TCU will assist with completion of geomean surveys assigned to MGY FO each year. In 2023, twenty-eight geomean surveys were requested. The EIS was assigned 17 of these surveys, requiring two dedicated staff the entire summer to complete. In 2024, forty-two geomean surveys were requested statewide, with 21 assigned to MGY FO. The assistance from TCU will enable MGY FO to complete the geomean surveys and monthly sampling (Mar-Oct) requested at each of these 21 stations.

Basin Plans: A draft Basin Plan was developed and discussed with field offices, laboratories, and program managers in December 2023-January 2024. Sample loading was planned by EIS for all field offices to ensure a consistent and sustainable field work and lab loading. Weekly lab load for the Central Lab was coordinated by the EIS, RRMP, and the Central Laboratory to not exceed 65 samples per week, and to spread sample check in as evenly as possible, Tuesday through Thursday. Lisa Huff (X2752; esh@adem.alabama.gov), Ashley Lockwood (X2766; alockwood@adem.alabama.gov), Christina Stram (X2759; christina.stram@adem.alabama.gov), and the appropriate lab coordinators (BHM: Carla Snow; MGY: Lorraine Porath; MOB: Samantha Connole) must be notified immediately of any necessary changes to the sampling schedule.

CONTACTS FOR QUESTIONS, MONITORING UPDATES, AND DATA REQUESTS

BASIN TEAMS

Basin Teams were developed to improve communication among project managers, field staff, and ADEM management within Field Operations (FO), the Water Quality Branch (WQB), and the Nonpoint Source Unit (NPS). Basin Teams are comprised of Basin Coordinators and project managers within FO, WQB, and the NPS, and field and laboratory staff from each field office conducting monitoring within that basin.

Participation in the Basin Teams provides opportunities for team members to become familiar with the data needs and issues within their basin. Responsibilities of the Basin Team include development of the annual basin plan for their respective basin group, tracking and documenting SWQMP decisions and revisions, basin team status summaries, data requests and reviews, reports and report reviews.

Appendix A lists the **members and contact information for each basin team**, as well as statewide facilitators of the Surface Water Planning process.

Appendix B lists **projects and project manager(s)** for which each station is being sampled.

- Requests for data and general questions can be directed to the statewide monitoring facilitators or crew leaders within the basin team.

Appendix C lists the **crew leaders monitoring each sampling location**. The crew leaders collecting data within each basin are not necessarily members of that basin team. It is very important that they be kept updated on any revisions to the annual monitoring plan for their stations.

Likewise, crew leaders need to notify project managers and SWQMP facilitators (Lisa Huff, Ashley Lockwood, Christina Stram) of any changes to or issues with monitoring planned at a site.

SWQMP PREPARATION

The following activities are completed as part of the SWQMP development process:

- Sampling requested by project managers is assigned to each field office and lab, based on location and type of sampling.

- Assigned lists are reviewed by field offices and labs. If the assigned activities can be completed, the list is approved. If not, the list is reviewed by the program and project managers to determine what sampling activities or sampling should be dropped or postponed.
- Sampling requested by EIS is finalized and completed last. This is because these projects are statewide, and requirements are flexible enough to be used to keep field and lab loading consistent year-to-year, while still maximizing the monitoring requested by the WQB, NPS, and other stakeholders.

The following activities are completed prior to any monitoring to ensure the integrity of all data collected.

- *Training:*
  - In Montgomery Field Operations, data sonde and flow training and macroinvertebrate and fish survey training are conducted to ensure that new crew members are prepared to assist crew leaders collect these data accurately and efficiently.
- *Equipment QAs:*
  - In Montgomery Field Operations, each crew leader and crew member scheduled to conduct field work must demonstrate ability to measure flow, operate data sondes and turbidimeters
- *Wadeable and non-wadeable field audits:*
  - Crew leaders will be audited every year until they have three successful consecutive audits. Once a crew leader has three successful consecutive audits, audits will only be conducted biennially. After three successful biennial audits, the audit frequency is once every third year. If there is a major equipment change, a crew leader could be audited sooner if needed.
  - The same auditors conduct all wadeable and non-wadeable field audits and use audit type-specific checklists for consistency.
  - Wadeable audits are completed at the same location near the Montgomery FO.
  - Non-wadeable audits are completed at locations near each of the four field offices to allow crew leaders to use their own boats and equipment.

SUMMARY OF 2024 MONITORING

Statewide, a total of 320 stations will be monitored as part of the CY2024 Surface Water Quality Sampling Plan (SWQMP). All requested stations and sampling were incorporated into the final SWQMP. The trip activities and sampling frequency that will be conducted at each station are provided in Appendix C.

Wherever possible, sampling requests and locations were combined into one sampling routine that met the objectives of 70 individual requested projects (Appendix B). This coordination ensures that we meet the monitoring objectives of ADEM's Monitoring Strategy, Alabama's Water Quality Listing and Assessment Methodology, the Alabama Nonpoint Source Management Program, the Total Maximum Daily Load Program, and the Standards and Criteria Programs as efficiently as possible. There may be stations on the same waterbody requesting different parameters and different frequencies, so it is important for samplers to follow the monthly sampling list for each station.

The coordination among WQB, NPS, the field offices, and labs has increased the number of monitoring objectives ADEM has been able to meet with existing resources. This coordination allows for cost sharing among multiple programs.

The following table summarizes the sampling to be conducted during 2024 by each field office.

Field Office	Trip Activities											Total Number of Stations
	Water Quality Sampling	Macroinvertebrate Surveys	Fish Surveys	72-hr DOs	TOT/ Int Survey	Organics Sampling	Low Level Hg	Geomean Surveys	Rain Event Sampling	Periphyton Survey	Siltation Survey	
BHM	29							12				35
DEC	36							5				39
MOB	40				10			4				42
MGY	189	53	36			10	20	21		TBD	TBD	209
WQ				26					5			31
TOTAL	295	53	36	26	10	10	20	42	5			320

CY2024 COC-LABEL-NOTIFICATION DATABASE

All of the information contained in this document is summarized in the CY2024 COC-Label-Notification Database. There are five important tables:

- *StationListByFieldOffice*: provides a complete list of stations, station descriptions, county, and latitude/longitude, as well as sampling purpose, sampling frequency, responsible field office/crew leader, and sampling protocol.
- *StationPlanningList (MASTER)*: a summary of the annual SWQMP since 2007.
- *STATION_PARAMETER_TABLE (MASTER)*: the parameters and frequencies requested for monitoring for each project since 2007.
- *AASampleListforCrewLeaders*: the 2024 SWQMP stations and parameters by month; it is used to generate the COCs, lab notifications, and labels.
- *EA_FinalLabAssignmentsforSWQMP*: lab assignments for each SWQMP parameter by month.

The "Using the COC_Label_Lab Notification Database" How to Document will be available for download at:

https://aldem.sharepoint.com/sites/OEQ/Useful%20Information/Forms/AllItems.aspx

If you have any questions, please contact Lisa Huff (X2752, esh@adem.alabama.gov) or Ashley Lockwood (X2766, alockwood@adem.alabama.gov), Christina Stram (X2759; christina.stram@adem.alabama.gov), or the database coordinator for your basin team (see Appendix A).

STATION LIST

The station list for each field office is provided in Appendix C of this document. The same information can be found in a table named "StationListByFieldOffice" in the 2024 COC_Label_LabNotification ACCESS database. The table includes a complete list of stations, station descriptions, county, and latitude/longitude, as well as sampling purpose, sampling frequency, responsible field office/crew leader, and sampling protocol. The table reflects the 2024 SWQMP as of 2024 April 24.

RECONNAISSANCE

Project Leader and Field Office Reconnaissance: Potential stations for each project were reconned by the NPS, WQB, and FO project managers, and/or the assigned field office to ensure that selected stations provided the highest quality data for the project(s). Questions and changes were discussed with the project and program managers, and the SWQMP facilitators, Lisa Huff, Ashley Lockwood, or Christina Stram, to ensure that the final station was approved, and that all revisions were incorporated into the SWQMP.

Crew Leader Reconnaissance: Crew leaders reconned new stations prior to their first sampling trip using data and information from ALAWADR and the recon database. All questions and issues were discussed with the Project and Program Managers and SWQMP facilitators.

VERIFYING COMPLETION AND ACCURACY OF STATION INFORMATION

SWQMP Process: Station information, including drainage area, ecoregion, and sampling protocol, are necessary for the SWQMP process to correctly assign conventional parameters. Updates to station information were made during the SWQMP planning process.

Crew Leaders: Check the completeness and accuracy of station information for stations included in each of your trips. Incomplete or incorrect station information should be reported to the state SWQMP facilitators (Appendix A).

- Make sure that the **LATITUDE** and **LONGITUDE** are carried out to 5 decimal places.
- Make sure that **ASSESSMENT UNIT** is complete.
    - Each station must be assigned to the correct assessment unit. This information is necessary for Table 5 and other evaluation tools to work correctly.
    - The assessment unit layer has also been added as a layer in the ALAWADR ArcIMS function.
    - For the 2024 SWQMP, please report any missing assessment units to Trevor Bates (X7842, trevor.bates@adem.alabama.gov) & David Thompson (X7958, dwt@adem.alabama.gov).
- Make sure that the **STATION DESCRIPTION** is an actual description that reflects current conditions, and the latitude/longitude listed for that station is as close to the sampling location as possible.
    - The station description should be written such that it can be downloaded with no edits needed. It should start with "[Locale name] at".
    - Do not use any # of symbols @ any place in the description!
    - And for all you grammar nerds out there: Please, I do not care what your 5th grade grammar teacher told you, do not use any punctuation in the description: no commas, no semi-colons, no exclamation points, etc., etc., etc.!
    - Abbreviations to use for consistency: AL: Alabama; Br: Branch; Ck: Creek; Cr Rd: County Road; Fk: Fork; Hwy: Highway; R: River
    - Do not use "." at the end of any abbreviation.
    - Please contact Christina Stram (X2759; christina.stram@adem.alabama.gov) or Lisa Huff (X2752; esh@adem.alabama.gov) if corrections are needed.
- Make sure that **SAMPLING PROTOCOL** is correct. The sampling protocol currently listed in ALAWADR is provided in Appendix D. It is essential that sampling protocol is correct because it is used to determine the appropriate sampling methods and assessment guidelines to use at the location. Recon the station and review the sampling protocol definitions listed below to ensure that the correct protocol is listed in ALAWADR.
- Send any comments concerning access, contact, and other helpful information to Christina Stram (X2759; christina.stram@adem.alabama.gov) or Lisa Huff (X2752; esh@adem.alabama.gov).

SAMPLING PROTOCOL

One of the key aspects of Alabama's Assessment and Listing Methodology is to define a given waterbody (as represented by the individual sampling station) as being either wadeable or nonwadeable. This is important because it helps ensure that the reach is typical/representative of the watershed. It is also important because monitoring, assessment, and listing protocols will vary accordingly.

The sampling conducted at each station is determined by its wadeability, tidal influence, and use classification. A summary of the minimum data requirements required to assess each waterbody type is listed in Appendix E. Minimum data requirements for each waterbody type and use classification are described in more detail in Alabama's Consolidated Assessment and Listing Methodology (ACALM; Appendix A of http://www.adem.alabama.gov/programs/water/waterforms/2024 AL-IWQMAR.pdf).

A summary of the general SWQMP parameters collected, measured, and analyzed to meet these requirements is listed by sampling protocol in Appendix F. The AWQAM lists the specific parameters collected and analyzed to assess waterbodies (Section 4. The Water Quality Assessment Process), as well as the standard operating procedures that describe how these parameters are collected, processed, and analyzed (Table 1, ADEM SOPs). Appendix G of this document lists the specific parameters collected, measured and analyzed for assessment of each waterbody type, as well as parameters used to develop TMDLs, evaluate trends in water quality, and parameters in development.

The sampling protocol currently listed in ALAWADR for each station is provided in Appendix D. Each crew leader should review the sampling protocol to determine if the listed protocol is correct.

Certain rivers and streams can be wadeable or nonwadeable depending on the time of year and hydrologic conditions encountered at a station. A decision needs to be made using site reconnaissance and best professional judgment (BPJ) for each individual station. Once it has been defined as wadeable or nonwadeable it must be sampled using the same protocol every time.

If there is any question concerning the protocol, it should be discussed with the project manager(s) requesting data from that station (Appendices B and C), crew leaders sampling that station (Appendix C), the ACCESS DB coordinator for that basin group and the statewide SWQMP facilitators (Appendix A).

There are four types of wadeable stations:

- **Wadeable-BIO (W-BIO)**: A station is classified as wadeable-bio if the 300 ft. sampling reach is completely wadeable (~≤3 ft) ***AND*** the 300 ft reach upstream and downstream of the sampling location are also completely wadeable (~≤3 ft). Based on historical data, this protocol is generally appropriate to use in watersheds ranging between 5-100 sq miles.
- **Wadeable-BIO-Coastal (W-BIO-Coastal)**: A Wadeable-Bio station that is tidally influenced. ADEM defines tidally influenced as any waterbody within the 10 ft. contour line.
- **Wadeable-Water (H20-W)**: A station is classified as wadeable-H20 if water samples can be collected within the sampling reach, but the sampling reach is not completely wadeable; and/or, the 300 ft reach upstream and downstream of the sampling location are not wadeable. Based on historical data, this protocol is generally appropriate to use in watersheds ranging between 100-800 sq miles, and ≥200 feet wide.
- **Wadeable-Water-Coastal (W-H20-Coastal)**: A Wadeable-Water station that is tidally influenced. ADEM defines tidally influenced as any waterbody within the 10 ft. contour line.

There are six types of nonwadeable stations, depending on accessibility and tidal influence:

- **Nonwadeable (reservoir, embayment) Boat Stations (NWB)**: Samples should be collected as photic zone composites. Full vertical profiles should be measured. Bacteriological samples for all nonwadeable stations are to be collected as sub-surface grabs. ***At NWB stations that are <10 ft in depth, full vertical profiles and a mid-depth reading should be taken. This is very important, as data from these shallow stations are assessed at mid-depth.***

- **Nonwadeable (reservoir, embayment) Boat-Coastal (NWB-Coastal)**: A NWB station that is tidally influenced. ADEM defines tidally influenced as any waterbody within the 10 ft. contour line. Nonwadeable stations located in the coastal waters of Alabama (i.e., Mobile Bay, Intracoastal Waterway, Wolf Bay, etc.) should be sampled the same as non-coastal stations except they will also include salinity as a parameter to be collected with the vertical profile.
- **Nonwadeable Bridge Stations (NWG)**: Sub-surface grab samples will be collected from a bridge if a nonwadeable station is not accessible by boat. A vertical profile of field parameters (temp., pH, cond., D.O.) will also be collected. This information will be used to document that the stream is well mixed and collection of a grab sample is appropriate.
- **NWG-Deep (NWG-D)**: These stations are ≥ 10 ft. in depth. If possible, full vertical profiles should be measured at these stations.
- **NWG-Deep-Coastal (NWG-D-Coastal)**: A NWG-Deep station that is tidally influenced. ADEM defines tidally influenced as any waterbody within the 10 ft. contour line.
- **NWG-Shallow (NWG-S)**: These stations are < 10 ft. in depth. A minimum of 3 measurements should be collected at the surface (0.2 m), mid-depth, and the bottom. More measurements should be taken if flow conditions allow.
- **NWG-Shallow-Coastal (NWG-S-Coastal)**: A NWG-S station that is tidally influenced. ADEM defines tidally influenced as any waterbody within the 10 ft. contour line.

Stations that are nonwadeable in March and April may be wadeable later in the sampling season. Samples should be collected in-stream if they can be safely waded. However, for consistency, a vertical profile (at least 3 measurements) must be collected during each sampling event.

Coastal Waters: Existing coastal stations are identified in ALAWADR as those within the 10 ft. contour line. If you are unsure whether a new station should be classified as coastal, contact Trevor Bates or David Thompson.

LABORATORY NOTIFICATION

Laboratory notification must be used. The Laboratory Notification Workbook for the laboratory and month is located on the Intranet at \\ADEM-PS\P&Setc\Laboratory Notification.

Instructions on how to use the Laboratory Notification Workbook is in Guidance Document #500 on the ADEM intranet at:

https://aldem.sharepoint.com/sites/OEQ/Guidance%20Documents/Forms/AllItems.aspx.

The 2024 COC_Label_LabNotification ACCESS database will generate the total number of samples to be brought into each lab during each trip.

Laboratory notification is very important for the 2024 sampling season.

Crew leaders must enter their draft trip dates, March-October by Apr 15th.
Once trip plans are finalized, update the dates in lab loading at least 2-4 weeks before collecting.

Enter collector name, cell phone number, and planned collection date.

FUND CODES

Four fund codes will be used during 2024. They are listed in Appendix D of this document and the 'StationListbyFieldOffice' table in the COC_Label_LabNotification ACCESS database.

SAMPLING FREQUENCY

Appendix C of this document provides the number of each sample type to be collected each month or sampling period. This information is also contained in the 2024 COC_Label_LabNotification ACCESS database.

2024 Sampling Frequency: Water quality sampling is standardized by waterbody type and program: Mar-Oct (RSMP, CWMP, WMP) or Apr-Oct (RRMP).

The Sampling Period for Intensive E. coli/Enterococci Studies, 72-hour DOs, Intensive Surveys, and or biological surveys, is listed as "SWQMP Sampling Period". This means that sampling is conducted within the sampling period listed in the appropriate ADEM SOP.

STANDARD OPERATING PROCEDURES

All sampling conducted as part of this monitoring plan should be in accordance with ADEM's approved Quality Assurance Program Plan (QAPP) and appropriate standard operating procedure documents (SOPs), based on the type of sample being collected and the appropriate sampling protocol for use at that station.

It is the crew leader's responsibility to ensure that the appropriate SOP is being used. They are all available at: https://aldem.sharepoint.com/sites/OEQ/SOPs/Forms/AllItems.aspx

CALIBRATION DATABASE

All calibrations must be recorded in the Calibration Database or on the printed datasheets from the database if a computer is unavailable. Using the database will ensure all required information is recorded. Calibration instructions and guidelines can be found in SOP #2047.

SAMPLE CHAIN-OF-CUSTODY

Appropriate chain-of-custody forms must be completed for each station using the Single Location-Multiple Sample COC (General COC Form FOD-I 1). This form can be downloaded from: https://aldem.sharepoint.com/sites/OEQ/Internal%20Forms/Forms/AllItems.aspx. The 2024 COC_Label_LabNotification ACCESS database will also automatically generate them for each trip.

SAMPLE LABELS

Appropriate labels must be attached to each sample. The 2024 COC_Label_LabNotification ACCESS database will also automatically generate them for each trip.

DATA ENTRY

ALAWADR: All data, information, comments, and photos are entered into ALAWADR.

It is the crew leader's responsibility to create the station visit and field activity(ies) scheduled to be conducted at each station.

- *Within two weeks of the station visit, the station visit (SV) should be created in ALAWADR and all SV parameters completed: Geo-mean? Good reference reach? Evidence of nutrient enrichment? Evidence of sedimentation?*
- *Within two weeks of the station visit, each scheduled field activity should be created on the field activity page. Collectors and conducted/not conducted should be completed for each activity.*
- ***It is very important to enter this information within one week of collection because the information will be used to prioritize periphyton and siltation surveys at stations where nutrient and sedimentation impacts are most likely.***

Entry of all laboratory results into ALAWADR should be completed four weeks after all LIMS reports are received for QC from the laboratory. The station visit should be completed in ALAWADR within 30 days of receipt of the final laboratory data.

TRIP TYPES (PURPOSE)

The sampling to be conducted as part of the CY2024 SWQMP has been organized by **TRIP TYPE**. **TRIP TYPE** is listed in the "StationListbyFieldOffice" table in the CY2024 COC_Label_Notification database.

The following table summarizes how ALAWADR Field Activities are related to each **TRIP TYPE**.

Trip Type (Purpose)	ALAWADR Activities				Comments
	Data Logger	Sample Collection	Field Form	Biosurvey	
Water Quality Sampling	Discrete	X	X		Monthly water quality sampling, in situ field parameters, flow, water samples.
Organics (Pesticides, Semi-volatiles, Atrazine, Glysophate)	Discrete	X	X		Three sets of samples: water samples collected for analysis in April and June. Sediment samples collected for analysis in September or October. In situ field parameters and flow are also measured.
Intensive E. coli Geomean Study (Geomean Study)	Discrete	X	X		Two 5-sample collections, each within a 30-day period (May-Jul and Aug-Oct), at intervals not less than 24 hours, each set may include monthly and geomean pathogen samples; in situ field parameters and flow.
72-hour DOs	Continuous				Sonde is deployed for 4-5 days to measure dissolved oxygen concentrations over three diurnal cycles. Temperature, pH, conductivity, and turbidity are also measured. Results at the site are compared to a similar reference reach.
Macroinvertebrate Survey	Discrete		X	Macroinvertebrate	Habitat and macroinvertebrate surveys, in situ field parameters, and flow; intensive macroinvertebrate surveys collected and preserved in the field for laboratory processing and genus-level identifications; screening-level EPT family surveys are processed and identified in the field to family (EPT only).
Fish IBI Survey	Discrete		X	Fish	Habitat and fish community surveys, in situ field parameters, and flow
Periphyton Survey	Discrete		X	Periphyton	Rapid periphyton survey, habitat and diatom community surveys, in situ field parameters, and flow. Results at the site are compared to a similar reference reach.
Rain Event Sampling	Continuous	X	X		Collect continuous samples through a storm event to determine sediment loads. Results at the site are compared to a similar reference reach.
Siltation Survey	Continuous	X	X		Sonde with turbidity probe is deployed 4-6 weeks to measure turbidity at baseflow and during a rain event. DO, pH, conductivity, and temperature are also measured. Results at the site are compared to a similar reference reach.

Appendix C lists the trip types to be conducted at each station, the individual sampling frequency, and the assigned field office.

LIST OF SWQMP PARAMETERS

Appendix C lists the SWQMP parameters to be collected at each station during each station visit. A list of the individual parameters included in each SWQMP parameter is provided in Appendix G. Additional comments are provided below.

STREAM FLOW MEASUREMENTS

Stream flows should be conducted as requested AND as part of all wadeable biological, habitat, and siltation assessment site visits.

There are three ways in which a flow can be measured and reported:

- Flow-Wadeable;
- Flow-USGS Gage; and,
- ADCP Flow

Flow-Wadeable (SOP #2040)

- Stream flow should be measured by Acoustic Doppler Velocimeter (ADV). The Montgomery FO is also using an MF Pro meter when an ADV meter is not available. Use of both to conduct the "Abbreviated Stream Velocity Measurement" method is described in SOP#2040.
- For streams >200 ft wide, velocity and depth should be measured every 10-15 ft, particularly if the stream bottom and depth are variable.
- Download data immediately upon return to prevent data loss.

USGS Gage

- Stream flow should be recorded from the corresponding USGS Gage website. Stream gage numbers can be obtained from the USGS website. Flow records are maintained on the USGS Website and may be viewed/saved in table format. On the webpage select "00060 Discharge (DD01)" in the Available Parameters Box, "Table" in the Output Format Box, and as many Days as it takes to get back to the date of sampling. Click the "get data" button and record the flow for the same date and closest time to the time the sample was taken. If station Hyperlink has "**" in front of USGS # or more than 31 days have passed since sampling, then you must call/email the USGS office to get flow reading. If problems are encountered, contact David Thompson (X7958, dwt@adem.alabama.gov) of the Water Quality Branch.

Flow-ADCP (SOP #2050)

- Stream flow should be measured by using one of the Acoustic Doppler Current Profilers (ADCPs) when available. Stream flow measurements using the ADCP will follow the current USGS discharge measurement procedures.

FIELD PARAMETERS

Each month, field parameters should be collected as requested for each station. **Vertical profiles should be collected at NWB and NWG-Deep stations. Field parameters should be measured at the surface, mid-depth, and bottom at NWG-Shallow stations.**

The field parameters that should be collected are listed below.

Station visit information recorded on a field sheet:

- Station
- Date (Month, Day, Year)

- Time (24 hr)
- Collector - use Last Name, First Initial (or Logon Initials)
- Crew member – use Last Name, First Initial (or Logon Initials)
- **Geomean**: Yes/No/Both (E. coli/Enterococcus sample is/is not part of geo-mean or is part of geomean AND monthly sampling.
- **Reference Site Visit**: Conditions during site visit are high quality, and should be considered for reference status. Additional photos very helpful!
- **Evidence of nutrient impacts**: None/Slight/Moderate/High. Used to determine best locations for periphyton surveys. Look for dominance of undesireable filamentous algae and invasive aquatic plants. Additional photos very helpful!
- **Evidence of sedimentation**: None/Slight/Moderate/High. Used to determine best locations for siltation surveys. Additional photos very helpful!

Field parameters recorded on a field sheet include the following
- Air Temperature, °C
- Sample Collection Depth, feet/meters
- Turbidity, NTU (with Nephelometer, not multiprobe) (SOP #2042)
- Weather Conditions
- Flow cfs (SOP #2040 or SOP #2050)
- Salinity is measured at coastal stations
- Visual observations and notes

The appropriate field form to use at each station is listed in the Field Form Section of this document.

The field parameters measured using a data logger include:
- Water Temperature, °C (SOP #2041)
- Total Stream Depth at Sampling Point, feet/meters
- Field Measurement Depth, feet/meters
- Dissolved Oxygen (DO), mg/l (SOP #2047)
- Conductivity, µmhos/cm @ 25C (SOP #2047)
- pH, s.u. (SOP #2047)
- Salinity

- ***Photographs! Seriously, people! Take good photos!***
    - An upstream and downstream photo should be taken at each site during **each** station visit. Photos are currently uploaded to ALAWADR on the Stations page. Comments for each photograph must, at a minimum, include date and orientation of the photo (i.e., US, DS)
    - Take photos at sites/in conditions that are good examples of flow measurements, sonde measurements, water sampling, biological or siltation surveys
    - Take photos of sites that you think are high quality reference condition sites.
    - Take photos that are good documentation or examples of poor conditions at the site (e.g. eroded banks, trash, filamentous algae, etc).

FIELD FORMS

The appropriate form to use depends on the trip type (activity being conducted) and sampling protocol.

Protocol	Hard copy form name (http://web-server/intranet/QA/internalforms/SurfaceWater)	ALAWADR Form Name
TRIP TYPE: WATER QUALITY SAMPLING		
W-BIO	Water Quality Field Data Sheet w/ Datalogger import (FOD I Form 8-DL)	CY24 WADEABLE 1-PG W/DOWNLOAD
		CY24 WADEABLE 1-PG W/DOWNLOAD REP FM
		CY24 FIELD BLANK
W-H20	Water Quality Field Data Sheet w/ Datalogger import (FOD I Form 8-DL)	CY24 WADEABLE 1-PG W/DOWNLOAD
		CY24 WADEABLE 1-PG W/DOWNLOAD REP FM
		CY24 FIELD BLANK
NWG-Shallow (sampling in feet)	Water Quality Field Data Sheet w/ Datalogger import (FOD I Form 8-DL)	CY24 WADEABLE 1-PG W/DOWNLOAD
		CY24 WADEABLE 1-PG W/DOWNLOAD REP FM
		CY24 FIELD BLANK
NWG-Deep (sampling in feet)	Water Quality Field Data Sheet w/ Datalogger import (FOD I Form 8-DL)	CY24 WADEABLE 1-PG W/DOWNLOAD
		CY24 WADEABLE 1-PG W/DOWNLOAD REP FM
		CY24 FIELD BLANK
NWG-Shallow (sampling in meters)	Non-Wadeable Field Data Sheet (FOD I-Form 10)	CY24 NON-WADEABLE
		CY24 NON-WADEABLE REP FM
		CY24 FIELD BLANK
NWG-Deep (sampling in meters)	Non-Wadeable Field Data Sheet (FOD I-Form 10)	CY24 NON-WADEABLE
		CY24 NON-WADEABLE REP FM
		CY24 FIELD BLANK
NWB	Non-Wadeable Field Data Sheet (FOD I-Form 10)	CY24 NON-WADEABLE
		CY24 NON-WADEABLE REP FM
		CY24 FIELD BLANK
	Coastal Non-Wadeable Field Data Sheet (FOD I-Form 12)	CY24 COASTAL-NW
		CY24 COASTAL-NW REP FM
		CY24 FIELD BLANK
TRIP TYPE: BIOLOGICALS		
W-BIO	Phys Char, Substrate, WQ & HA Field Data Sheet w/ Datalogger Import (FOD I-Form 13)	CY24 HABITAT ASSESSMENT FORM UPDATED
		CY24 PHYSICAL CHARACTERIZATION FIELD DATA W/IMPORT

CONVENTIONAL LABORATORY PARAMETERS

The parameters that should be collected are listed on the Chain-of-Custody sheets generated from the COC-Label-Lab Notification Database.

MONTHLY BACTERIOLOGICAL SAMPLES

Conventional parameters now include monthly **E. coli bacteria (mpn/100 mL)** or **Enterococci Bacteria (mpn/100 mL)** samples at non-coastal and coastal stations, respectively. E. coli are collected 4X Monthly at non-coastal NWB stations, and during each monthly station visit at all other station types.

HARDNESS

In addition to E. coli, conventional parameters-NWB includes 4X monthly **hardness** samples. If metals are not collected in conjunction with hardness, a separate 60 mL sample should be collected and preserved with HNO3.

BLACKWATER PARAMETERS

Blackwater parameters include only DOC and color. Other parameters that may be indicators of blackwater conditions (e.g., pH) are already collected as conventional parameters at every monitoring location. The primary purpose of these parameters is to identify blackwater systems in southern Alabama as a unique waterbody type within ecoregion 65. DOC and color samples should be collected as requested each month. THEY ARE NO LONGER COLLECTED AT STATIONS LOCATED IN ECOREGION 75 (For appropriate sample container and preservative, please see https://aldem.sharepoint.com/sites/OEQ/Useful%20Information/Forms/AllItems.aspx).

METALS AND HARDNESS

Metals should be collected as requested in the final sampling list. Hardness should always be collected when metals are collected. Photic zone composite samples may be required at nonwadeable stations (See Sampling Protocol).

PESTICIDES, SEMI-VOLATILES, ATRAZINE, AND GLYPHOSATE

Pesticides, semi-volatiles, atrazine, and glyphosate will be collected by one dedicated crew out of the MGY office due the laboratory QC requirements. Sampling should be conducted in accordance with SOP #2067.

Ten stations will be selected for analysis of pesticides, semi-volatiles, atrazine, and glyphosate. Station selection will be based on high potential for impairment from these parameters, based on landuse and other factors. At each of these stations, water samples will be collected in May and July to analyze for these parameters.

In September, a sediment sample will be collected at each of these stations, and analyzed for total metals, pesticides, semi-volatiles, atrazine, and glyphosate.

Laboratory QC Requirements: Additional samples must be collected during each trip where pesticides, semi-volatiles, atrazine, and glyphosate are collected to meet Laboratory QC requirements.

Replicate Samples: Field replicates are collected at 5% of stations where pesticides, semi-volatiles, atrazine, and glyphosate are collected. Collection of replicates is coordinated by the MGY crew and the Montgomery Central laboratory. Replicate samples are collected in accordance with SOP #2067.

ATRAZINE*: ****Atrazine should be collected in a 60 mL plastic container**

ALGAL GROWTH POTENTIAL TESTING (AGPT)

Collection of AGPT samples is coordinated with James Worley of the Montgomery Field Operations Compliance Unit (jworley@adem.alabama.gov; X4319).

Sampling Containers
Samples are collected in a sterilized, acid-washed, 1L plastic jug. Prepared sampling jugs are sent to field offices via departmental shuttle.

Sample Collection
Wadeable and Non-Wadeable Grab: Samples are collected as grab samples at mid depth or using a sampler. Do not rinse jugs. Preserve on ice and transport to MGY.

Non-Wadeable Boat: Samples are collected as composite samples out of the photic zone composite bucket. Do not rinse jug. Preserve on ice and transport to MGY.

Attach a toe-tag label to bottle neck with a rubber band. Make sure the tag has the station and date information.

GEOMEAN SURVEYS

The sampling period for Geomean Surveys is listed as SWQMP Sampling Period. One Intensive Bacteriological Survey = 2 geomeans conducted as described below. ***Field parameters, Water Quality Field Data Sheet, and flows are conducted during each site visit.***

During 2024, forty-two E. coli geomean surveys and two enterococcus geomean survey will be completed. All 42 surveys were requested to complete pathogen Total Maximum Daily Load (TMDL) models for waters currently listed as impaired by pathogens from various sources. All four field offices, including the EIS and TCU, will conduct geomean surveys.

Each E. coli or Enterococcus geomean survey will include:

Two separate E. coli or Enterococcus geomeans performed for each marked station. Any deviations from this must be coordinated with the Project Manager that requested the sampling.

Geomean Survey #1: conducted within a 30-day period between May 1 - Jul 31.

Geomean Survey #2: conducted within a 30-day period between Aug 1 - Oct 31.

Geomean Survey #1 AND Geomean Survey #2 include:

- At least 5 E. coli bacteria samples
- All samples collected at each station within a 30-day period
- Samples collected with at least 24 hours between each sample.
- Samples must, if at all possible, be analyzed within holding time.
- Stream flows, and field parameter measurements must be taken **during each site visit**. (COMPLETE THE WATER QUALITY FIELD DATA SHEET DURING EACH SAMPLING SITE VISIT)

MACROINVERTEBRATE AND FISH SURVEYS

Biological Survey Site Selection: One-hundred and forty-seven wadeable stations will be sampled in 2024. At current resource levels, the EIS can conduct a maximum of 53 macroinvertebrate surveys and 36 fish

community surveys. In total, biological surveys were conducted at 74 stations. Several factors were used to determine the best locations to conduct these surveys:

1. Biological surveys will not be conducted at the ten stations located outside of the target basins.
2. Surveys will only be conducted at fully wadeable stations.
3. Macroinvertebrate and fish surveys will be conducted at 16 ecoregional reference reaches but are otherwise spread out to collect biological data at as many sites as possible.
4. The remaining 37 stations were then prioritized by project type:
    1. Use Support Assessments to fully assess category 2 and 3 waters;
    2. Nutrient, siltation, and TDS TMDLs requiring biological surveys to assess conditions.
    3. Ecoregional reference reaches needed as baseline comparison for specific 2024 projects.
    4. Ecoregional reference reaches that have not been sampled within the last 10 years.
    5. Stakeholder requests from Black Warrior River Keepers, The Nature Conservancy, the Mobile Bay NEP, and the Poarch Band of Creek Indians.

Macroinvertebrate Surveys: Intensive macroinvertebrate surveys will be conducted at 53 monitoring locations. All surveys will be conducted between late-April and late-May.

All macroinvertebrate surveys will be completed in accordance with SOP #6301 and SOP #6000. During each survey, field parameters, flow, the updated 2-pg Physical Characterization/Habitat Survey Form (SOP#6300 and SOP#6301), and photographs will also be completed.

Fish IBI Surveys: Fish surveys will be conducted at 36 monitoring locations in accordance with SOP #6301 and SOP #6100. The surveys will be conducted April through July. Field parameters, flows, photos, and the updated 2-pg wadeable or non-wadeable Physical Characterization/Habitat Survey Form (SOP #6300 and SOP#6301) will also be completed during these site visits.

PERIPHYTON AND SILTATION SURVEYS

Periphyton and siltation surveys are conducted at sites identified as potentially impaired by nutrient enrichment (Periphyton Surveys) and/or sedimentation (Siltation Surveys), based on visual observations and feedback from the macroinvertebrate and/or fish survey teams.

Feedback is provided by the macroinvertebrate and fish survey crews when they create the station visit in ALAWADR, which must be completed as part of the post-calibration process.

Periphyton Surveys: Periphyton surveys will be conducted at three requested stations in mid-April. Additional periphyton survey stations with a high potential for impairment from nutrient issues will be selected, based on feedback from biological crew leaders. Appropriate ecoregional reference reaches will be selected for comparison, and determination of final condition rating.

All periphyton surveys will be completed as outlined in SOP #6200, April through October. During each survey, field parameters, flow, the updated 2-pg Physical Characterization/Habitat Survey Form (SOP#6300 and SOP#6301), and photographs will also be completed.

Diatom samples will be processed, identified, and QA'ed by ADEM staff during training with Georgia State College and University.

Siltation Screening Surveys: Siltation surveys may be conducted at stations listed in the 2024 SWQMP, where feedback from the biological crew leaders indicates a high potential for sedimentation.

A data sonde will be deployed at the potentially impaired site and an appropriate ecoregional reference reach to monitor turbidity through a rain event. The purpose of these surveys is to provide additional information with which to help verify sedimentation as a likely stressor affecting biological communities within the reach. Appropriate ecoregional reference reaches will be selected for comparison.

LL HG SAMPLING

The ADEM began sampling Low-Level Mercury (LL Hg) in 2013 to determine background mercury concentrations for the development of a statewide TMDL to address mercury content in fish, and for NPDES permit development. In 2019, forty LL Hg sampling sites were established near coal-fired power plants to evaluate trends in mercury content after elimination of coal from production of electricity.

The sites are monitored on a 2-yr rotation by staff of the Rivers and Reservoirs Unit (RRU). During 2024, LL Hg sampling will be conducted at 20 stations located in north Alabama. One sample will be collected at each site during the first week in April, before RRU staff start monthly sampling, Apr-Oct, and Fish Tissue Sampling, August-December, and to allow the lab to analyze all samples at one time. A data sonde reading, and Water Quality Field Data Sheet are completed during each site visit.

Samples will be collected in two overnight trips during the first week of April. In total, the four-days of LL Hg sampling will include:

- One cooler of ice per day of sampling.
- One certified pre-cleaned sample bottle per station (20), four certified pre-cleaned bottle to collect one replicate sample each date (4), and four certified pre-cleaned bottle to collect one trip blank per day.
  - Each cooler will contain a trip blank to be prepared prior to leaving on the sampling trip. Trip blanks are used to validate the integrity of the samples.
- Both crew members must wear new, clean gloves to collect each sample, including reps and blanks.
- Samples are collected as surface grab samples. Sample bottles are certified pre-cleaned and are **NOT** rinsed prior to collection.
- The sample collector places the unopened bottle underwater prior to removing the cap. Once underwater, the cap is removed, and the bottle is filled. No headspace is left in the sample. The cap is replaced prior to removing the bottle from the stream.
- After sample collection, the sample collector places the sample in double plastic bags.
- To prevent cross contamination of samples, the sample bag is held open and sealed shut by the sample handler. The sample handler carries the bagged sample back to the truck.
- The sample collector removes their gloves and places the bagged sample in the cooler for transport back to the lab.

For questions concerning the LL Hg sampling, contact the RRU (Ashley Lockwood X2766; alockwood@adem.alabama.gov). For questions concerning sampling sites or sample rotation, contact the WQB (Jennifer Haslbauer X4250; jhaslbauer@adem.alabama.gov).

INTENSIVE SURVEYS

Weeks Bay/Magnolia River/Fish River Intensive Survey: An intensive survey of ten stations on the Fish River, Magnolia River, and Weeks Bay will be conducted by the Mobile Field Office and the WQB, Monday, July 29-August 1, 2024. A copy of the study plan is provided in Appendix H. Data collected during this study will be used to develop and calibrate a water quality model to calculate appropriate waste load allocations (WLAs) for point sources within the Weeks Bay watershed.

This intensive survey will include measurement of stream flows and in situ parameters and collection of conventional laboratory samples. In addition, data sondes will be deployed for in situ continuous field parameters (SOP #2048), a time-of-travel study (SOP #2049), and 24-hr composite sampling of three point-source outfalls (SOP #3400).

One set of Ultimate BOD (UBOD) samples will be collected on the morning of July 31st. These samples will be analyzed by the Montgomery lab. All other samples will be analyzed by the Mobile lab. Questions concerning the study plan should be directed to Nic Caroway or Kim Minton in the WQB. Questions

concerning the Ult-BODs should be sent to Tangila Bennett in the Montgomery lab. Samples concerning sample collection and all other lab analyses should be sent to Samantha Connole.

The Montgomery lab generates the raw UBOD results, which are sent as an excel workbook directly to the Project Manager and Kim Minton in WQB. It is up to the project manager to communicate with the lab to obtain an excel workbook of the raw ultimate results. Please contact Tangila Bennett.

The UBOD samples are used to calculate the f-ratio and reaeration rates used in Waste Load Allocation (WLA) studies. Georgia EPD's BOD Master program (https://epd.georgia.gov/watershed-protection-branch/water-quality-modeling is used to calculate the f/ratio and reaeration rates from these data.

Entering UBOD data into ALAWADR: Only the final calculated UBOD result is entered by the project manager. The station visit is created in the "Ultimate Trip", and a form activity is attached.

The CBOD-U-CALC form is used to hand-enter the final (calculated) UBOD result. The only field on the form I "BOD, ULTIMATE CARBONACEOUS (CALCULATED).

RESEARCH AND DEVELOPMENT PROJECTS

Diurnal Studies: Diurnal studies will be conducted at sixteen stations for TMDL development, post-TMDL restoration, or to investigate diurnal swings as an indicator of nutrient conditions. Additional stations may be added by Kim Minton as needed.

Diurnal studies use continuous data loggers to capture in situ measurements for at least three diurnal cycles (72 hrs). While these studies have traditionally focused on dissolved oxygen concentrations, total depth, water temperature, conductivity and pH are also measured. Diurnal studies are conducted one time between Jun 1- Oct 31. *In situ* dissolved oxygen may be verified using another data sonde at deployment and retrieval. Additional dissolved oxygen checks may be made once per day if possible.

All diurnal studies will be completed by the Water Quality Branch (Kim Minton X7826; kminton@adem.alabama.gov). If additional resources are needed, please contact the nearest field office to the study at least one month before scheduling the sampling event.

Rain Event Sampling: Rain-event sampling will be conducted at five stations as part of the 2024 SWQMP. The sampling period will consist of studies that are storm dependent, which will be performed between the months of March 2024 and February 2025. Four sampling events will be conducted at each station. The intensive survey scope-of-study includes field parameters, flow measurements, rain gauges, ISCO automatic water samplers and datasonde deployment. ISCO samplers will collect 24 TSS samples. ADEM's Water Quality Branch will coordinate deployment of all instruments with assistance from FOD as needed.

Comparison of turbidity measurements obtained using Hach 2100Q and 2100P Turbidimeters (meters) and In situ Aqua TROLL Turbidity Sensors (sensors): There are several benefits to adopting the use of a turbidity sensor that is integrated into the sondes used by the EIS field staff: 1) they are significantly cheaper; 2) they can be used for both monthly and longer term deployments; 3) it would decrease the amount of field equipment needed; and, 4) it would decrease the types of calibration standards needed. However, a comparison survey is needed to ensure that the data obtained using the turbidity sensor is comparable to turbidity data measured using the Hach meters.

While both the sensor and meter measure turbidity using the same general method, they use different light sources, and the sensor has not been certified as equivalent to results from EPA Method 180.1. There have been three challenges that have limited the use of instream turbidity sensors. An instream sensor must control ambient sunlight and temperature, both of which affect turbidity measurements. The TROLL turbidity sensor uses filters and the position of its light sources to prevent sunlight from hitting the sensor.

It uses internal temperature compensation to control the effect of temperature on turbidity. Lastly, the expense of calibration standards has also been prohibitive for routine use. The TROLL sensor has addressed this issue by decreasing the amount of standard needed to calibrate the sensor.

Comparison of methods, accuracy and precision obtains using HACH 2100Q turbidimeter and the In situ TROLL turbidity sensor.

Technical Attributes	HACH 2100Q	TROLL Turbidity Sensor
Accuracy	± 2 % of reading plus stray light	± 2 % of reading or ±0.5 NTU, whichever is greater
Light Source	Tungsten Filament Lamp (white light)	LED (monochromatic light)
Measurement Method	Ratio turbidimetric determination using a primary nephelometric light scatter signal (90°) and transmitted light scatter signal.	Ratio turbidimetric determination using a primary nephelometric light scatter signal (90°) and transmitted light scatter signal.
Operating Temperature Range	0 - 50 °C	0 - 50 °C
Regulatory	EPA Method 180.1	ISO 7027
Repeatability	± 1 % of reading or 0.01 NTU , whichever is greater	0.01 NTU (0-1,000); 0.1 NTU (1,000-4,000)
Units	NTU	NTU

The EIS crew leaders are sampling 118 wadeable stream reaches located primarily within the Black Warrior and Southeast Alabama River Basins, and tributaries of the Tennessee River that flow into Wheeler Reservoir and Elk River. The reaches being monitored encompass portions of the Piedmont (45A and 45B), the Southeastern Plains (65A, 65B, 65D, 65F, 65G, 65I, and 65P), the Ridge and Valley (67F), the Southwestern Appalachians (68B, 68C, 68D, 68E, and 68F), the Interior Plateau (71F and 71G), and the Southern Coastal Plain (75A) Ecoregions. Drainage area ranges from 0.12 sq mi at 3-C to 1,281 sq mi at CHO-9, with an average of 89 sq mi. Samples at all locations are collected monthly through October.

The EIS currently has eight Hach turbidimeters (two 2100P and six 2100Q) and six *In situ* sondes able to measure turbidity using the Aqua TROLL turbidity sensor. This provides an opportunity to capture a sizable dataset of turbidity measured side-by-side using the Hach meters and the *In situ* sensors under a variety of conditions and stream types. The sondes and meters were used to measure turbidity at 25 stations during March and April. The EIS expects to have the calibration standards and sondes prepared to start the comparisons at all stations in June, which will provide 300-500 total comparisons by the end of September.

The in situ sonde readings will be measured at mid-depth in accordance with ADEM SOPs #2407, #2044 and #2601. To measure turbidity using the meter at the same time and same location, a small jug will be held adjacent to the sonde to collect the sample. The jug with the sample will be returned to the vehicle and measured using the Hach meter in accordance with ADEM's SOP #2044.

FIELD REPLICATES AND BLANKS

Field replicates and blanks are collected for 5% of the samples and should be collected in accordance with ADEM SOP #9021 (General Surface Water Sample Collection). Field replicates and laboratory QC samples for pesticide and semi-volatiles should be collected and labeled as described under the "*Pesticides, Semi-volatiles, Atrazine, and Glyphosate*" section of this document.

LASERFICHE

All data should be scanned and filed in accordance with SOP #8021, 8023, and 8024.

Crew Leaders are responsible for preparing their stations for inclusion into Laserfiche. Instruction documents for accomplishing this are provided on the server at Field-2 on 'Field-mgy':\ECOLSTD\CATEGORY\Laserfiche\Laserfiche For Electronic Files

Files set up for scanning into Laserfiche are organized by **Station ID** and **year.** Multiple sampling events at a given location during the sampling year are placed in the same file **in chronological order**.

The scanned file should include:

- Paper Datasheets
- Flowbooks/Excel Calc Worksheets/ADV Print-out/USGS Gage data
- Handwritten field notes
- Lab Reports
- COCs
- Calibration Records

- ☐ Use naming schema found in SOP
- ☐ All documents (electronic format and other) are to be printed directly to .pdf file. See instructions provided at above link.

  A printed station visit report from ALAWADR does not need to be included.

CHANGE TRACKING

Date m/d/yyyy	Approved By: (Initials)	Summary of Modifications
3/28/2024	LH	Original Version
5/2/2024	LH	1st paragraph added; Background and Summary of 2024 Monitoring: number of stations updated; training and equipment QAs are only conducted in MGY FO; Macroinvertebrate and Fish Surveys: added site selection methods; added Intensive Surveys section; Research and Development Projects: added turbidity comparison sampling; Appendix A: added MGY Central supervisors; Appendix B: reformatted row spacing; Appendix C: added new stations and field activities and reformatted row spacing; Appendix D: added new stations and reformatted row spacing. Appendix H added.

APPENDICES

***Current, as of 2024 May 2.

Appendix A. SWQMP personnel by division and branch, basin team, and function in ADEM's assessment, listing, restoration and monitoring process.

First Name	Last Name	Div	Br/Sxn/ Unit	Phone Number	E mail	Alabama	Black Warrior	Blackwater	Cahaba	Chattahoochee	Chipola	Choctawhatchee	Coosa	Escambia	Escatawpa	Mobile	Perdido	Tallapoosa	Tennessee	Tombigbee	Yellow	SWQMP Facilitator	Lab Notification	TMDLs/WLAs	Intensive Surveys	Assessment and 303d listing	Water Quality Standards	Trends	NPS Projects, BMPs	Rivers and streams monitoring	Rivers and reservoirs monitori	Fish Tissue	Coastal Program-Wadeable	Coastal Program-Nonwadeable	Geomeans/E. coli	Macroinvertebrates	Fish Community	Periphyton	Siltation	Rain Event	Ecoref GLs	QA/QC	ALAWADR
Scott	Hughes	Field Ops[b]		334-394-4304	ASH	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X						X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Paul	Rogers	Field Ops	BHM[c]	205-942-6168	pr1	X	X		X				X					X	X				X						X	X				X	X								
Carla	Snow	Field Ops	BHM[d]	205-942-6168	csnow	X	X		X				X					X	X				X						X	X				X	X								
Brittany	Richardson	Field Ops	BHM	205-942-2471	brittany.richardson		X		X																				X	X												
Holly	Spiegner	Field Ops	BHM	205-917-2466	holly.speigner	X							X					X											X	X												
Tim	Wynn	Field Ops	BHM	205-917-2497	timothy.wynn		X		X																								X	X								
Whit	Slagle	Field Ops	DEC[c]	334-432-2073	cws		X						X						X										X	X			X									
Shawn	Lagrone	Field Ops	DEC[d]	256-353-1713	slagrone		X						X						X										X	X			X									
Ariel	Holway-Jones	Field Ops	DEC	256-432-2156	ariel.holway-jones		X						X						X										X	X			X									
Tommy	Milford	Field Ops	DEC	256-353-1713	tmilford		X						X						X										X	X			X									
Fred	Leslie	Field Ops[e]	MGY[c]	334-260-2748	fal	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X							X	X	X	X	X	X	X	X	X	X				
Lisa	Huff	MGY	RSMP[f]	334-260-2752	esh	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X							X					X	X	X	X		X		X
Alicia	Phillips	MGY	RSMP	334-260-2797	akphillips	X							X																X					X								
Justin	Bagley	MGY	RSMP	334-271-7783	justin.bagley	X			X																				X						X							
Conner	Crosby	MGY	RSMP	334-260-2782	conner.crosby			X		X	X	X		X							X								X						X							
Anna	Eastis	MGY	RSMP	334-274-4193	anna.eastis		X																						X						X		X					
Ruthie	Perez	MGY	RSMP	334-260-2762	ryperez														X										X						X							
Anthony	Roberts	MGY	RSMP	334-260-2749	anthony.roberts										X	X	X			X									X						X		X					
Ron	Sparks	MGY	RSMP	334-394-4303	rsparks								X																X						X							
Christina	Stram	MGY	RSMP[d]	334-260-2759	christina.stram	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X							X													
Brien	Diggs	MGY	RSMP	334-260-2750	lod										X	X	X			X									X							X						
Liberty	Dobbs	MGY	RSMP	334-260-2727	liberty.dobbs				X									X											X							X		X				
Jacob	Shirley	MGY	RSMP	334-260-2737	jacob.shirley			X		X	X	X		X							X								X							X		X				
Moshe	Piltz	MGY	RSMP	334-260-2753	moshe.piltz														X										X							X						
Sarah	Buchanon	MGY	RSMP	334-260-2744	sarah.buchanon		X											X											X					X							
Ashley	Lockwood	MGY	RRMP[d]	334-260-2766	alockwood	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X								X	X											
Ranse	Williams	MGY	RRMP	334-260-2715	rw								X						X											X	X											
Seth	Wood	MGY	RRMP	334-260-2703	seth.wood			X		X	X	X		X							X									X	X											
Ben	Darby	MGY	RRMP	334-260-2708	bedarby			X		X	X	X		X							X									X	X											
Scott	Hicks	MGY	RRMP	334-260-2786	shicks	X	X		X																					X	X											
Michael	Len	MGY	RRMP	334-260-2787	mlen										X	X	X	X		X										X	X											
James	Worley	MGY	TCU[d]	334-394-4343	jworley	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X								X					X								
Jake	Harris	MGY	TCU	334-260-2784	jake.harris																								X					X								
Eric	Rudolph	MGY	TCU	334-260-2710	eric.rudolph																								X					X								
Ron	Hamilton	Field Ops	CEN[c]	334-260-2743	rlh																		X																			
Pam	Birks	CEN	ORG[f]	334-260-2742	pamela.birks																		X																			
Mishka	Cornaro	ORG	EST[d]	334-260-2729	mishka.cornaro																		X																			
Rip	Starr	CEN	INORG[f]	334-260-2724	trs																		X																			
Tangila	Bennett	INORG	INORG[d]	334-260-2724	tbennett																		X																			
Lorraine	Porath	MGY	CEN	334-260-2736	lorraine.porath																		X																			
Scott	Brown	Field Ops	MOB[c]	251-432-6533	jsb																																					
Samantha	Connole	Field Ops	MOB[f]	251-450-3431	svj	X									X	X	X						X										X	X	X						
Christopher	Harris	Field Ops	MOB[d]	251-450-3419	hdc	X									X	X	X																X	X	X						
Clark	Gerken	Field Ops	MOB	251-450-3414	clark.gerken										X	X	X																	X							
Joie	Horn	Field Ops	MOB	251-450-3418	mjhorn										X	X	X																	X							
Gerald	Ramons	Filed Ops	MOB	251-450-3409	gerald.ramos										X	X	X																X		X						
Nancy	Shaneyfelt	Field Ops	MOB	251-450-3417	nlv	X									X	X	X																X		X		X				
Steve	Summersell	Field Ops	MOB	251-450-3412	ssummersell										X	X	X																X		X		X				

Appendix A. SWQMP personnel by division and branch, basin team, and function in ADEM's assessment, listing, restoration and monitoring process.

First Name	Last Name	Div	Br/Sxn/ Unit	Phone Number	E mail	Alabama	Black Warrior	Blackwater	Cahaba	Chattahoochee	Chipola	Choctawhatchee	Coosa	Escambia	Escatawpa	Mobile	Perdido	Tallapoosa	Tennessee	Tombigbee	Yellow	SWQMP Facilitator	Lab Notification	TMDLs/WLAs	Intensive Surveys	Assessment and 303d listing	Water Quality Standards	Trends	NPS Projects, BMPs	Rivers and streams monitoring	Rivers and reservoirs monitori	Fish Tissue	Coastal Program-Wadeable	Coastal Program-Nonwadeable	Geomeans/E. coli	Macroinvertebrates	Fish Community	Periphyton	Siltation	Rain Event	Ecoref GLs	QA/QC	ALAWADR
Chris	Johnson	Water	WQB[c]	334-271-7827	cljohnson																			X		X	X	X															
Jennifer	Haslbauer	WQB	SPS[f]	334-274-4250	jhaslbauer																					X	X	X														X		
Trevor	Bates	WQB	SPS	334-271-7842	trevor.bates		X		X																	X	X														X		
David	Moore	WQB	SPS	334-274-4165	djmoore			X		X	X	X		X							X					X	X	X															
Joseph	Roy	WQB	SPS	334-270-5635	jtr	X	X		X				X					X	X							X	X																
David	Thompson	WQB	SPS	334-271-7958	dwt														X							X	X	X													X		
Caitlin	Washington	WQB	SPS	334-274-4207	caitlin.washington	X							X					X								X	X																
Carla	Crews	WQB	SPS	334-271-7804	ccrews			X		X	X	X		X	X	X	X			X	X					X	X																
Kimberly	Minton	WQB	MAS[f]	334-271-7826	kminton																			X																			
Nicholas	Caraway	WQB	MAS	334-274-4220	ncaraway										X	X	X							X																			
Brian	Haigler	WQB	MAS	334-394-4389	bch			X		X	X	X		X							X			X																			
Shae	Holley	WQB	MAS	334-279-3068	shae.holley								X											X																			
James	Mooney	WQB	MAS	334-394-4352	jjmooney														X					X																			
Keosha	Powell	WQB	MAS	334-274-4194	Keosha.Powell	X														X				X																			
Jonathan	Straiton	WQB	MAS	334-270-5611	jonathan.straiton		X																	X																			
Hayden	Willis	WQB	MAS	334-274-4160	hayden.willis				X									X						X																			
Heather	Griffin	P&S	NPS[c]	334-274-4197	hmgriffin	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X								X														
Jennifer	Barker	P&S	NPS	334-394-4397	jennifer.barker	X			X					X															X														
Shannon	McGlynn	P&S	NPS	334-274-4196	smcglynn		X								X	X	X	X											X														
Rebecca	Stuart	P&S	NPS	334-392-4350	rebecca.stuart					X	X									X									X														
Cody	Watson	P&S	NPS	334-274-4197	thomas.watson			X				X	X						X		X								X														
Sharon	Moses		OEQ[c]	334-394-4355	smoses																																					X	
Don	Prepramot		OEQ[d]	334-394-4319	dp																																					X	
Autumn	Baughn		OEQ	334-274-4162	autumn.baughn																								X													X	
Meg	Sullivan		OEQ	334-260-2718	msullivan																																					X	
Cleckler	Eric	P&S	IS[c]	334-274-4345	ecleckler																																						X
James	French	P&S	Isf	334-394-4345	jfrench																																						X
Kayren	Pittman	P&S	IS	334-274-4243	kpittman																																						X
Destine	Jordan	P&S	IS	334-274-4181	destine.jordan																																						X

a. adem email: @adem.alabama.gov; b. Division Chief; c. Branch Chief; d. Unit Chief; e. Monitoring Coordinator; f. Section Chief

Appendix B. List of 2024 SWQMP projects by primary monitoring objective.

Project	Purpose	Manager
CY2024 SURFACE WATER QUALITY SAMPLING PLAN	Comprehensive plan of all surface water quality monitoring conducted during 2024.	Lisa Huff
Development of reference conditions and ecoregional guidelines		
CY2024_REFERENCE_REACH_MONITORING	To identify reference reaches, to collect data for development of reference conditions, and to provide data for specific waterbodies where reference conditions have not yet been established.	Lisa Huff
Use Support Assessments		
CY2024_BWC_USA	Collect data to fully assess Category 2 and 3 waterbodies. Collect data to review if water quality standards are being met for Category 4 waterbodies. Collect data to review if waterbodies are eligible for Use Classification Upgrades.	Trevor Bates
CY2024_EMPT_USA	To monitor and assess waters of Escatawpa, Mobile, Perdido, and Tombigbee basins. 2024 will focus on Perdido due to the basin rotation system	Tel Schieler
CY2024_SEAL_USA	To fully assess Category 2 and Category 3 waters.	David Moore
CY2024_TN_USA	To fully assess Category 2 and Category 3 waters or to check for Post TMDL WQ attainments	David Thompson
CY2024_BWC_NPS	Monitoring Streams for NPS Impacts.	Shannon McGlynn
CY2024_EMPT_NPS	Potential Monitoring Station to Evaluate NPS Impacts.	Shannon McGlynn
CY2024_SEAL_NPS	This project contains the stations requested by NPS Unit for the CY2024 in the SE AL River Basins.	Shannon McGlynn
CY2024_TN_NPS	Monitoring to Determine NPS Impacts.	Shannon McGlynn
Development/calibration of restoration efforts		
CY2024_EMPT_WEEKS_BAY_INT_SURVEY	Intensive survey and TOT study to collect water quality data in Weeks Bay and it's 2 tributaries, Fish River and Magnolia River to aid in the development of a calibrated model.	Nicholas Caraway
CY2024_ALABAMA COASTAL NONPOINT POLLUTION CONTROL PROGRAM	This project provides data to assist with attainment of NOAA approval of the ACNPCP, identification of NPS stressors, and development of current and accurate watershed management plans. Sampling locations identified by the Coastal Basin Team.	Lisa Huff
CY2024_SEAL_PETERMAN_CREEK_TMDL	For Peterman Creek Pathogens TMDL development.	Brian Haigler
CY2024_SEAL_BEAR_CREEK_TMDL	For multiple Bear Creek segments Pathogens TMDL development.	Brian Haigler
CY2024_SEAL_CYPRESSCK_TMDL_NUTRIENTS	To investigate 72 hr DO as an indicator of nutrient enrichment.	Kim Minton
CY2024_SEAL_LINDSEY_CREEK_TMDL	For Lindsey Creek Pathogens TMDL development.	Brian Haigler
CY2024_TN_PAINTROCKRIVER_TMDL_PATHOGENS	Assessment of Paint Rock River (AL06030002-0203-100), originally added to the 2020 303(d) list impaired for Pathogens	James Mooney
CY2024_SEAL_MOORES_CREEK_TMDL	For Moores Creek Siltation and Pathogens TMDL development.	Brian Haigler
CY2024_TN_ANDERSON_CK_TMDL	Collect data to assess the siltation inpairment on Anderson Creek (AL 06030004-0404-102). Last sampled in 2013, TSS and Turb was fine; however, bugs were poor at station ANDL-9.	James Mooney
CY2024_BW_MILLCK_TMDL_PATHOGENS	To collect data for pathogens impairment on Mill Creek, geomean data needed.	Jonathan Straiton
CY2024_BW_CARTHAGEBR_TMDL_PATHOGENS	To collect more data for pathogens impairment on Carthage Branch, geomean data needed.	Jonathan Straiton
CY2024_BW_NEEDHAMCK_TMDL_TDS	To collect more data for total dissolved solids impairment on Needham Creek.	Jonathan Straiton
CY2024_SEAL_BUCKHORN_CREEK_TMDL	For Buckhorn Creek Pathogens TMDL development.	Brian Haigler
CY2024_SEAL_HALAWAKEE_CREEK_TMDL	For Halawakee Creek Siltation TMDL development	Brian Haigler
CY2024_SEAL_HUCKLEBERRY_CREEK_TMDL	For Huckleberry Creek Pathogens TMDL development.	Brian Haigler
CY2024_BW_DANIELCK_TMDL_PATHOGENS_SILTATION_TDS	To collect more data for siltation, total dissolved solids, and pathogens impairment. Geomean data needed also.	Jonathan Straiton
CY2024_SEAL_UT_TO_LAKE_FRANK_JACKSON_3-C_TMDL	For UT to Lake Frank Jackson 3-C Organic Enrichment (BOD) TMDL development. (Winter Sampling)	Brian Haigler
CY2024_SEAL_PATRICK_CREEK_TMDL	For Patrick Creek Pathogens TMDL development.	Brian Haigler
CY2024_TN_NEELYBRANCH_TMDL_PATHOGENS	Assessment of Neely Branch (AL06030002-1202-200), added to the 2018 303(d) list impaired for Pathogens	James Mooney
CY2024_BW_LOCUSTFK_TMDL_POST_NUTRIENTS	To follow-up with status of Locust Fork post TMDL.	Jonathan Straiton
CY2024_EMPT_SANDY_CREEK_TMDL_PATHOGENS_ENTEROCOCCUS	Listed in 2020 for Pathogens (Enterococcus) and Mercury. Pathogens source was collection system failure and pasture grazing. Station SDYB-2 for pathogens and SNDB-1 for mercury.	Nicholas Caraway
CY2024_SEAL_SIKES_CREEK_TMDL	For Sikes Creek Pathogens TMDL development.	Brian Haigler

Appendix B. List of 2024 SWQMP projects by primary monitoring objective.

Project	Purpose	Manager
CY2024_SEAL_ABBIE_CREEK_TMDL	For Abbie Creek Pathogens TMDL development.	Brian Haigler
CY2024_SEAL_DOWLING_BRANCH_TMDL	For Dowling Branch Organic Enrichment (BOD) TMDL development.	Brian Haigler
CY2024_EMPT_BON_SECOUR_RIVER_TMDL	BON SECOUR RIVER PATHOGENS TMDL	Justin Rigdon
CY2024_BW_ELLIOTSCK_TMDL_PATHOGENS	To collect more pathogen data for pathogen impairment on Elliots Creek, geomean data needed.	Jonathan Straiton
CY2024_EMPT_MIFLIN_CREEK_TMDL_PATHOGENS_ENTEROCOCCUS	Listed in 2020 for Pathogens (Enterococcus) and mercury. Pathogens source was collection system failure and pasture grazing. Station MIFB-1 was used to list both segments.	Nicholas Caraway
CY2024_SEAL_SPRING_CREEK_TMDL	For Spring Creek Pathogens TMDL development.	Brian Haigler
CY2024_SEAL_WALNUT_CREEK_TMDL	For Walnut Creek Metals (Thallium) TMDL development.	Brian Haigler
CY2024_SEAL_PANTHER_CREEK_TMDL	For Panther Creek Pathogens TMDL development.	Brian Haigler
CY2024_BW_CANECK_TMDL_PATHOGENS	Follow-up sampling event at CANW-3 for current E. coli impairment. Geomean data is needed.	Jonathan Straiton
CY2024_SEAL_PAULS_CREEK_TMDL	For Pauls Creek Pathogens TMDL development.	Brian Haigler
CY2024_BW_BAKERCK_TMDL_SILTATION	Follow-up sampling event at BAKW-10 for siltation impairment.	Jonathan Straiton
CY2024_BW_BIGPRAIRIECK_TMDL_PATHOGENS	To collect more data for pathogens impairment on Big Prairie Creek, geomean data needed.	Jonathan Straiton
CY2024_EMPT_DYAS_CREEK_TMDL_PATHOGENS	Listed in 2018 using 2016 data for Pathogens (E.coli) with a pasture grazing source. Further data is needed to determine if a TMDL or Delisting is needed. DYSB-2 station data was what listed the stream. DYSB-1 was also sampled.	Nicholas Caraway
CY2024_SEAL_PATSALIGE_CREEK_TMDL	For Patsalige Creek Pathogens TMDL development.	Brian Haigler
CY2024_SEAL_BIG_CREEK_TMDL	For Big Creek Pathogens TMDL development.	Brian Haigler
CY2024_BW_MULBERRYFK_TMDL_NUTRIENTS	To collect more data for nutrients impairment on Mulberry Fork.	Jonathan Straiton
CY2024_BW_FIVEMILECK_TMDL_PATHOGENS	Collect more data for pathogen impairment, geomean needed.	Jonathan Straiton
CY2024_BW_MULBERRYFK_TMDL_PATHOGENS	To collect more data for pathogens impairment on Mulberry Fork, geomean data needed.	Jonathan Straiton
CY2024_SEAL_JUDY_CREEK_TMDL	For Judy Creek Pathogens TMDL development.	Brian Haigler
CY2024_SEAL_CLAYBANK_CREEK_TMDL	For Claybank Creek Pathogens TMDL development.	Brian Haigler
CY2024_SEAL_BIG_SANDY_CREEK_TMDL	For Big Sandy Creek Pathogens TMDL development.	Brian Haigler
CY2024_SEAL_HALLS_CREEK_TMDL	For Halls Creek Pathogens TMDL development.	Brian Haigler
CY2024_TN_COLESPRINGBRANCH_TMDL_PATHOGENS	Assessment of Cole Spring Branch (AL06030002-0203-403), originally added to the 2020 303(d) list impaired for pathogens.	James Mooney
CY2024_TN_HURRICANECREEK_TMDL_PATHOGENS	Assessment of Hurricane Creek (AL06030002-0101-100), originally added to the 2022 303(d) list impaired for Pathogens	James Mooney
CY2024_BW_INMANCK_TMDL_PATHOGENS	Follow-up sampling event at INMW-1 for pathogens (e.coli) impairment, geomean needed.	Jonathan Straiton
CY2024_BW_MUDCK_TMDL_PATHOGENS	To collect more data for pathogen impairment on Mud Creek, geomean needed.	Jonathan Straiton
CY2024_BW_TOWNCK_TMDL_PATHOGENS	Follow-up sampling for pathogens impairment at TCJ-1, geomean data needed.	Jonathan Straiton
CY2024_BW_SLABCK_TMDL_PATHOGENS	To collect more data at Slab Creek for pathogens impairment, geomean data needed.	Jonathan Straiton
Evaluation of effectiveness of restoration efforts		
CY2024_NWQI_PRIORITY_WATERSHEDS	National Water Quality Initiative between the USEPA and the USDA. NWQI priority watersheds were identified by NRCS to monitor longterm trends in water quality in areas impacted by agricultural landuses, and BMP restoration is planned.	Shannon McGlynn
Estimate trends in water quality		
CY2024_TREND_MONITORING	Ambient trend sites are sampled to identify long term trends in water quality and to provide data to develop TMDLs and water quality criteria.	David Thompson
Baseline Monitoring		
CY2024_RIVERS_AND_STREAMS_MONITORING	To provide data to assess each monitoring location, to estimate overall water quality of wadeable rivers and streams within the state, to identify impaired and reference reaches, and to collect data for metric and index development.	Lisa Huff
CY2024_RIVERS_RESERVOIRS_EMBAYMENT	3-YEAR ROTATION OF RRMP SAMPLING	Ashley Lockwood

Appendix B. List of 2024 SWQMP projects by primary monitoring objective.

Project	Purpose	Manager
CY2024_RIVERS_RESERVOIRS_MAINSTEM	3-YEAR ROTATION OF RRMP STATIONS	Ashley Lockwood
CY2024_RIVERS_RESERVOIRS_PUBLIC WATER SUPPLY	Stations sampled on 3-year rotation. These stations may be sampled on a different rotation than the main RRMP stations, if necessary. Data collected from these stations will be used to fully assess each PWS waterbody and to develop nutrient criteria.	David Thompson
CY2024_LOW LEVEL HG SAMPLING_ROTATIONA	To collect background trend LLHg data for use in models and compliance determination. Stations are sampled on a 2-yr rotation. This is rotation A	David Thompson
CY2024_COASTAL_WATERS_MONITORING_PROGRAM_EAS	3-YEAR ROTATION OF CWMP STATIONS	David Thompson
Research and Method Development		
CY2024_RAIN_EVENT_TSS_TURBIDITY_RELATIONSHIPS	To provide data to evaluate the relationship between TSS and turbidity through rain events.	David Thompson
CY2024_RIVERS_AND_STREAMS_MONITORING_MI	To provide data to evaluate the relationships between biological communities and nutrient and siltation conditions; and, to estimate overall water quality of wadeable flowing streams statewide.	Lisa Huff
CY2024_RESERVOIR_EMBAYMENT_DIURNAL_STUDY	To investigate diurnal DO as an indicator of nutrient enrichment in reservoir embayments.	Kim Minton

Appendix C. Monitoring activities to be conducted at each sampling location, along with sampling frequency, field office, crew leader, and sampling trip. Associated comments are listed in Appendix B.

Station	Trip Activity	Fund Code	Sampling Summary	Field Office	Crew Leader	TRIP
3-C	Water Quality Sampling	210	8X Monthly (Jan-Apr)	Montgomery	Jacob Shirley	MGY 3-C
ABIH-2	Geomean E. coli Study	210	SWQMP Sampling Period	Montgomery	James Worley	GEO 2
ABIH-2	Water Quality Sampling	210	8X Monthly (Mar-Oct)	Montgomery	Alicia Phillips	MGY 4
ANDL-1	Water Quality Sampling	210	7X Monthly (Apr-Oct)	Decatur	Tommy Milford	TMILFORD 4
ANDL-8	Macroinvertebrate Survey	239	SWQMP Sampling Period	Montgomery	Bug Crew	Bugs
ANDL-8	Water Quality Sampling	210	8X Monthly (Mar-Oct)	Decatur	Tommy Milford	TMILFORD 4
BAKW-10	Macroinvertebrate Survey	210	SWQMP Sampling Period	Montgomery	Bug Crew	Bugs
BAKW-10	Water Quality Sampling	210	8X Monthly (Mar-Oct)	Birmingham	Holly Speigner	Trip 5
BAKW-9	Low level Hg	210	SWQMP Sampling Period	Montgomery	WQ	LLHG
BANT-1	Water Quality Sampling	252	7X Monthly (Apr-Oct)	Montgomery	Scott Hicks	RRMP 22
BANT-2	Water Quality Sampling	252	7X Monthly (Apr-Oct)	Montgomery	Scott Hicks	RRMP 22
BANT-3	Water Quality Sampling	252	12X Monthly (Jan-Dec)	Montgomery	Scott Hicks	RRMP 22
BANT-4	72-hour DO	210	SWQMP Sampling Period	Water	WQB	WQB
BANT-4	Water Quality Sampling	252	7X Monthly (Apr-Oct)	Montgomery	Scott Hicks	RRMP 22
BANT-5	Water Quality Sampling	210	7X Monthly (Apr-Oct)	Montgomery	Scott Hicks	RRMP 22
BANT-6	Water Quality Sampling	210	7X Monthly (Apr-Oct)	Montgomery	Scott Hicks	RRMP 22
BANT-7	Water Quality Sampling	210	7X Monthly (Apr-Oct)	Montgomery	Scott Hicks	RRMP 22
BANT-8	Water Quality Sampling	210	7X Monthly (Apr-Oct)	Birmingham	Brittany Richardson	7
BCCW-1	Low level Hg	210	SWQMP Sampling Period	Montgomery	WQ	LLHG
BEC-1	Water Quality Sampling	605***	12X Monthly (Jan-Dec)	Montgomery	Liberty Dobbs	MGY 1
BECE-5	Fish IBI Survey	252	SWQMP Sampling Period	Montgomery	Fish Crew	IBI
BECE-5	Water Quality Sampling	252	8X Monthly (Mar-Oct)	Montgomery	Liberty Dobbs	MGY 1
BEEW-1	Macroinvertebrate Survey	239	SWQMP Sampling Period	Montgomery	Bug Crew	Bugs
BEEW-1	Water Quality Sampling	252	8X Monthly (Mar-Oct)	Montgomery	Anna Eastis	MGY 10
BEHE-1	Fish IBI Survey	252	SWQMP Sampling Period	Montgomery	Fish Crew	IBI
BEHE-1	Macroinvertebrate Survey	252	SWQMP Sampling Period	Montgomery	Bug Crew	Bugs
BEHE-1	Water Quality Sampling	252	8X Monthly (Mar-Oct)	Montgomery	Ruthie Perez	MGY 2
BERD-1	Geomean E. coli Study	210	SWQMP Sampling Period	Montgomery	James Worley	GEO 1
BERD-1	Water Quality Sampling	210	8X Monthly (Mar-Oct)	Montgomery	Ron Sparks	MGY 5
BERD-2	Geomean E. coli Study	210	SWQMP Sampling Period	Montgomery	James Worley	GEO 2
BERD-2	Water Quality Sampling	210	8X Monthly (Mar-Oct)	Montgomery	Ron Sparks	MGY 5
BERF-6	Water Quality Sampling	605***	12X Monthly (Jan-Dec)	Decatur	Ariel Holway-Jones	AHJ 1
BGCD-1	Geomean E. coli Study	210	SWQMP Sampling Period	Montgomery	James Worley	GEO 1
BGCD-1	Water Quality Sampling	210	8X Monthly (Mar-Oct)	Montgomery	Ron Sparks	MGY 5
BGCH-1	Water Quality Sampling	210	8X Monthly (Mar-Oct)	Montgomery	Alicia Phillips	MGY 4
BGEH-46A	Macroinvertebrate Survey	239	SWQMP Sampling Period	Montgomery	Bug Crew	Bugs
BGEH-46A	Water Quality Sampling	252	8X Monthly (Mar-Oct)	Montgomery	Sarah Buchanon	MGY 7
BKHP-2	Geomean E. coli Study	210	SWQMP Sampling Period	Montgomery	Sarah Buchanon	GEO 5
BKHP-2	Water Quality Sampling	210	8X Monthly (Mar-Oct)	Montgomery	Anthony Roberts	MGY 13
BKRE-1A	Water Quality Sampling	210	12X Monthly (Jan-Dec)	Montgomery	Ruthie Perez	MGY 2
BLAW-2	Water Quality Sampling	210	8X Monthly (Mar-Oct)	Birmingham	Holly Speigner	Trip 5
BLFB-2	Water Quality Sampling	252	8X Monthly (Mar-Oct)	Montgomery	Ron Sparks	MGY 11
BLWH-1	Macroinvertebrate Survey	252	SWQMP Sampling Period	Montgomery	Bug Crew	Bugs
BLWH-1	Water Quality Sampling	252	8X Monthly (Mar-Oct)	Montgomery	Alicia Phillips	MGY 4
BLWH-2	Water Quality Sampling	252	8X Monthly (Mar-Oct)	Montgomery	Alicia Phillips	MGY 4
BOTC-1	Macroinvertebrate Survey	210	SWQMP Sampling Period	Montgomery	Bug Crew	Bugs
BOTC-1	Water Quality Sampling	210	8X Monthly (Mar-Oct)	Montgomery	Ruthie Perez	MGY 2
BOTC-1A	Fish IBI Survey	252	SWQMP Sampling Period	Montgomery	Fish Crew	IBI
BOTC-1A	Macroinvertebrate Survey	252	SWQMP Sampling Period	Montgomery	Bug Crew	Bugs
BOTC-1A	Water Quality Sampling	252	8X Monthly (Mar-Oct)	Montgomery	Ruthie Perez	MGY 2

Appendix C. Monitoring activities to be conducted at each sampling location, along with sampling frequency, field office, crew leader, and sampling trip. Associated comments are listed in Appendix B.

Station	Trip Activity	Fund Code	Sampling Summary	Field Office	Crew Leader	TRIP
BPRH-44B	Geomean E. coli Study	210	SWQMP Sampling Period	Montgomery	Sarah Buchanon	GEO 4
BPRH-44B	Water Quality Sampling	210	8X Monthly (Mar-Oct)	Montgomery	Sarah Buchanon	MGY 7
BPRH-44C	Geomean E. coli Study	210	SWQMP Sampling Period	Montgomery	Sarah Buchanon	GEO 4
BPRH-44C	Water Quality Sampling	210	8X Monthly (Mar-Oct)	Montgomery	Sarah Buchanon	MGY 7
BRE-1	Water Quality Sampling	252	8X Monthly (Mar-Oct)	Montgomery	Ruthie Perez	MGY 2
BRNL-2	Fish IBI Survey	252	SWQMP Sampling Period	Montgomery	Fish Crew	IBI
BRNL-2	Macroinvertebrate Survey	252	SWQMP Sampling Period	Montgomery	Bug Crew	Bugs
BRNL-2	Water Quality Sampling	252	8X Monthly (Mar-Oct)	Montgomery	Anna Eastis	MGY 10
BRSL-3	Fish IBI Survey	239	SWQMP Sampling Period	Montgomery	Fish Crew	IBI
BRSL-3	Macroinvertebrate Survey	239	SWQMP Sampling Period	Montgomery	Bug Crew	Bugs
BRSL-3	Water Quality Sampling	252	8X Monthly (Mar-Oct)	Montgomery	Anna Eastis	MGY 10
BS-1	Water Quality Sampling	591	8X Monthly (Mar-Oct)	Mobile	Clark Gerken	1
BSBB-5	Water Quality Sampling	591	8X Monthly (Mar-Oct)	Mobile	Clark Gerken	1
BSCB-1	Geomean E. coli Study	210	SWQMP Sampling Period	Montgomery	Sarah Buchanon	GEO 5
BSCB-1	Water Quality Sampling	210	8X Monthly (Mar-Oct)	Montgomery	Anthony Roberts	MGY 13
C-1	Water Quality Sampling	605***	12X Monthly (Jan-Dec)	Birmingham	Holly Speigner	Trip 2
C-3	Water Quality Sampling	605***	12X Monthly (Jan-Dec)	Birmingham	Holly Speigner	Trip 2
CAHS-1	Water Quality Sampling	605***	12X Monthly (Jan-Dec)	Birmingham	Holly Speigner	Trip 2
CANM-220	Fish IBI Survey	239	SWQMP Sampling Period	Montgomery	Fish Crew	IBI
CANM-220	Water Quality Sampling	210	8X Monthly (Mar-Oct)	Decatur	Ariel Holway-Jones	AHJ 5
CANW-3	Geomean E. coli Study	210	SWQMP Sampling Period	Birmingham	Holly Speigner	Trip 11
CANW-3	Water Quality Sampling	210	8X Monthly (Mar-Oct)	Birmingham	Holly Speigner	Trip 5
CEDT-62B	Fish IBI Survey	239	SWQMP Sampling Period	Montgomery	Fish Crew	IBI
CEDT-62B	Organics Sampling	252	3X Monthly (MayJulSep)	Montgomery	Anthony Roberts	Organics
CEDT-62B	Water Quality Sampling	210	8X Monthly (Mar-Oct)	Montgomery	Jacob Shirley	MGY 8
CH-103	Fish IBI Survey	210	SWQMP Sampling Period	Montgomery	Fish Crew	IBI
CH-103	Water Quality Sampling	210	8X Monthly (Mar-Oct)	Montgomery	Alicia Phillips	MGY 4
CHAC-1	Water Quality Sampling	210	12X Monthly (Jan-Dec)	Decatur	Tommy Milford	TMILFORD 1
CHCB-1	Macroinvertebrate Survey	252	SWQMP Sampling Period	Montgomery	Bug Crew	Bugs
CHCB-1	Water Quality Sampling	252	8X Monthly (Mar-Oct)	Montgomery	Ron Sparks	MGY 11
CHO-9	Water Quality Sampling	605***	12X Monthly (Jan-Dec)	Montgomery	Ron Sparks	MGY 5
CHTH-1	Water Quality Sampling	210	12X Monthly (Jan-Dec)	Montgomery	Ranse Williams	RRMP 25
CHTH-2	Water Quality Sampling	210	7X Monthly (Apr-Oct)	Montgomery	Ranse Williams	RRMP 25
CHTH-3	Water Quality Sampling	210	7X Monthly (Apr-Oct)	Montgomery	Ranse Williams	RRMP 25
CHTH-4	Water Quality Sampling	210	7X Monthly (Apr-Oct)	Montgomery	Ranse Williams	RRMP 25
CLBD-2	Geomean E. coli Study	210	SWQMP Sampling Period	Montgomery	James Worley	GEO 1
CLBD-2	Water Quality Sampling	210	8X Monthly (Mar-Oct)	Montgomery	Ron Sparks	MGY 5
CLC-1	Fish IBI Survey	252	SWQMP Sampling Period	Montgomery	Fish Crew	IBI
CLC-1	Macroinvertebrate Survey	252	SWQMP Sampling Period	Montgomery	Bug Crew	Bugs
CLC-1	Water Quality Sampling	252	8X Monthly (Mar-Oct)	Montgomery	Anthony Roberts	MGY 13
CLCJ-2	Low level Hg	210	SWQMP Sampling Period	Montgomery	WQ	LLHG
CLPB-1	Fish IBI Survey	252	SWQMP Sampling Period	Montgomery	Fish Crew	IBI
CLPB-1	Water Quality Sampling	252	8X Monthly (Mar-Oct)	Montgomery	Ron Sparks	MGY 11
CMCT-2	Macroinvertebrate Survey	252	SWQMP Sampling Period	Montgomery	Bug Crew	Bugs
CMCT-2	Water Quality Sampling	252	8X Monthly (Mar-Oct)	Montgomery	Jacob Shirley	MGY 8
CNEC-1	Low level Hg	210	SWQMP Sampling Period	Montgomery	WQ	LLHG
COLW-1	Fish IBI Survey	239	SWQMP Sampling Period	Montgomery	Fish Crew	IBI
COLW-1	Macroinvertebrate Survey	252	SWQMP Sampling Period	Montgomery	Bug Crew	Bugs
COLW-1	Water Quality Sampling	252	8X Monthly (Mar-Oct)	Montgomery	Anna Eastis	MGY 10
CONC-3	Water Quality Sampling	210	8X Monthly (Mar-Oct)	Montgomery	Christina Stram	MGY 3

Appendix C. Monitoring activities to be conducted at each sampling location, along with sampling frequency, field office, crew leader, and sampling trip. Associated comments are listed in Appendix B.

Station	Trip Activity	Fund Code	Sampling Summary	Field Office	Crew Leader	TRIP
CONE-1	Water Quality Sampling	210	12X Monthly (Jan-Dec)	Montgomery	Ben Darby	RRMP 26
CONE-2	Water Quality Sampling	210	7X Monthly (Apr-Oct)	Montgomery	Ben Darby	RRMP 26
CPSY-1	Fish IBI Survey	239	SWQMP Sampling Period	Montgomery	Fish Crew	IBI
CPSY-1	Water Quality Sampling	252	8X Monthly (Mar-Oct)	Montgomery	Anna Eastis	MGY 10
CRTT-1	Geomean E. coli Study	210	SWQMP Sampling Period	Birmingham	Brittany Richardson	Trip 10
CRTT-1	Macroinvertebrate Survey	210	SWQMP Sampling Period	Montgomery	Bug Crew	Bugs
CRTT-1	Water Quality Sampling	210	8X Monthly (Mar-Oct)	Montgomery	Jacob Shirley	MGY 8
CSPJ-69	Geomean E. coli Study	210	SWQMP Sampling Period	Decatur	Tommy Milford	Decatur-IE-1
CSPJ-69	Water Quality Sampling	210	8X Monthly (Mar-Oct)	Montgomery	Christina Stram	MGY 12
CSPJ-70	Geomean E. coli Study	210	SWQMP Sampling Period	Decatur	Tommy Milford	Decatur-IE-1
CSPJ-70	Water Quality Sampling	210	8X Monthly (Mar-Oct)	Montgomery	Christina Stram	MGY 12
CTCM-1	Water Quality Sampling	210	8X Monthly (Mar-Oct)	Decatur	Ariel Holway-Jones	AHJ 5
CTCM-37	Water Quality Sampling	210	8X Monthly (Mar-Oct)	Decatur	Ariel Holway-Jones	AHJ 5
CTMC-1	Water Quality Sampling	210	7X Monthly (Apr-Oct)	Birmingham	Holly Speigner	8
CTWG-1	Water Quality Sampling	210	7X Monthly (Apr-Oct)	Montgomery	Ben Darby	RRMP 26
CYC-1	72-hour DO	210	SWQMP Sampling Period	Water	WQB	WQB
CYC-2	72-hour DO	210	SWQMP Sampling Period	Water	WQB	WQB
CYC-4	72-hour DO	210	SWQMP Sampling Period	Water	WQB	WQB
DNCT-2	Geomean E. coli Study	210	SWQMP Sampling Period	Birmingham	Brittany Richardson	Trip 10
DNCT-2	Macroinvertebrate Survey	210	SWQMP Sampling Period	Montgomery	Bug Crew	Bugs
DNCT-2	Water Quality Sampling	210	8X Monthly (Mar-Oct)	Montgomery	Jacob Shirley	MGY 8
DOWG-1	72-hour DO	210	SWQMP Sampling Period	Water	WQB	WQB
DOWG-1	Water Quality Sampling	210	8X Monthly (Mar-Oct)	Montgomery	Ron Sparks	MGY 5
DOWG-2	72-hour DO	210	SWQMP Sampling Period	Water	WQB	WQB
DOWG-2	Water Quality Sampling	210	8X Monthly (Mar-Oct)	Montgomery	Ron Sparks	MGY 5
DUCC-6	Water Quality Sampling	210	7X Monthly (Apr-Oct)	Birmingham	Holly Speigner	8
DYCM-2	Macroinvertebrate Survey	252	SWQMP Sampling Period	Montgomery	Bug Crew	Bugs
DYCM-2	Water Quality Sampling	252	8X Monthly (Mar-Oct)	Decatur	Ariel Holway-Jones	AHJ 3
DYSB-1	Geomean E. coli Study	210	SWQMP Sampling Period	Mobile	Nancy Shaneyfelt	G 8
DYSB-1	Water Quality Sampling	210	8X Monthly (Mar-Oct)	Montgomery	Liberty Dobbs	MGY 1
DYSB-2	Geomean E. coli Study	210	SWQMP Sampling Period	Mobile	Nancy Shaneyfelt	G 8
DYSB-2	Water Quality Sampling	210	8X Monthly (Mar-Oct)	Montgomery	Liberty Dobbs	MGY 1
E-1	Water Quality Sampling	605***	12X Monthly (Jan-Dec)	Mobile	Steve Summersell	12
ELLH-1	Geomean E. coli Study	210	SWQMP Sampling Period	Birmingham	Brittany Richardson	Trip 10
ELLH-1	Water Quality Sampling	210	8X Monthly (Mar-Oct)	Montgomery	Jacob Shirley	MGY 8
FI-1	72-hour DO	210	SWQMP Sampling Period	Water	WQB	WQB
FI-1	Water Quality Sampling	210	12X Monthly (Jan-Dec)	Mobile	Gerald Ramos	13
FJAC-1	Water Quality Sampling	252	7X Monthly (Apr-Oct)	Montgomery	Ben Darby	RRMP 26
FLCE-1	Macroinvertebrate Survey	252	SWQMP Sampling Period	Montgomery	Bug Crew	Bugs
FLCE-1	Water Quality Sampling	252	8X Monthly (Mar-Oct)	Montgomery	Liberty Dobbs	MGY 1
FLIM-2A	Water Quality Sampling	605***	8X Monthly (Mar-Oct)	Montgomery	Christina Stram	MGY 12
FM-1	Water Quality Sampling	210	8X Monthly (Mar-Oct)	Birmingham	Holly Speigner	Trip 4
FMCJ-1A	Water Quality Sampling	210	8X Monthly (Mar-Oct)	Birmingham	Holly Speigner	Trip 4
FMCJ-1B	Geomean E. coli Study	210	SWQMP Sampling Period	Birmingham	Holly Speigner	Trip 11
FMCJ-1B	Water Quality Sampling	210	8X Monthly (Mar-Oct)	Birmingham	Holly Speigner	Trip 4
FMCJ-2	Water Quality Sampling	210	8X Monthly (Mar-Oct)	Montgomery	Justin Bagley	MGY 9
FMCJ-6	Geomean E. coli Study	210	SWQMP Sampling Period	Birmingham	Holly Speigner	Trip 11
FMCJ-6	Water Quality Sampling	210	8X Monthly (Mar-Oct)	Birmingham	Holly Speigner	Trip 4
FMCL-1	Fish IBI Survey	210	SWQMP Sampling Period	Montgomery	Fish Crew	IBI
FMCL-1	Organics Sampling	252	3X Monthly (MayJulSep)	Montgomery	Anthony Roberts	Organics

Appendix C. Monitoring activities to be conducted at each sampling location, along with sampling frequency, field office, crew leader, and sampling trip. Associated comments are listed in Appendix B.

Station	Trip Activity	Fund Code	Sampling Summary	Field Office	Crew Leader	TRIP
FMCL-1	Water Quality Sampling	210	8X Monthly (Mar-Oct)	Decatur	Ariel Holway-Jones	AHJ 3
FSHB-7	72-hour DO	210	SWQMP Sampling Period	Water	WQB	WQB
FSHB-7	Water Quality Sampling	210	8X Monthly (Mar-Oct)	Mobile	Joie Horn	4
FSHB-97	72-hour DO	210	SWQMP Sampling Period	Water	WQB	WQB
FSHB-97	Water Quality Sampling	210	8X Monthly (Mar-Oct)	Mobile	Steve Summersell	12
FTCM-6	Water Quality Sampling	605***	7X Monthly (Apr-Oct)	Decatur	Tommy Milford	TMILFORD 2
GEOH-1	Water Quality Sampling	252	7X Monthly (Apr-Oct)	Montgomery	Ranse Williams	RRMP 25
GEOH-10	Water Quality Sampling	210	7X Monthly (Apr-Oct)	Montgomery	Ranse Williams	RRMP 25
GEOH-12	Water Quality Sampling	210	7X Monthly (Apr-Oct)	Montgomery	Ranse Williams	RRMP 25
GEOH-13	Water Quality Sampling	210	7X Monthly (Apr-Oct)	Montgomery	Ranse Williams	RRMP 25
GEOH-16	Water Quality Sampling	210	7X Monthly (Apr-Oct)	Montgomery	Michael Len	RRMP 24
GEOH-4	Water Quality Sampling	252	7X Monthly (Apr-Oct)	Montgomery	Ranse Williams	RRMP 25
GEOH-6	Water Quality Sampling	252	7X Monthly (Apr-Oct)	Montgomery	Michael Len	RRMP 24
GEOH-9	Water Quality Sampling	210	7X Monthly (Apr-Oct)	Montgomery	Michael Len	RRMP 24
GMEX-8	Water Quality Sampling	591	8X Monthly (Mar-Oct)	Mobile	Clark Gerken	2
GNTC-1	Water Quality Sampling	252	7X Monthly (Apr-Oct)	Montgomery	Ben Darby	RRMP 26
GNTC-2	Water Quality Sampling	210	7X Monthly (Apr-Oct)	Montgomery	Ben Darby	RRMP 26
GOOM-1	Organics Sampling	252	3X Monthly (MayJulSep)	Montgomery	Anthony Roberts	Organics
GOOM-1	Water Quality Sampling	210	8X Monthly (Mar-Oct)	Montgomery	Christina Stram	MGY 12
GRVB-4	Macroinvertebrate Survey	252	SWQMP Sampling Period	Montgomery	Bug Crew	Bugs
GRVB-4	Water Quality Sampling	252	8X Monthly (Mar-Oct)	Montgomery	Ron Sparks	MGY 11
GUNM-1	Low level Hg	210	SWQMP Sampling Period	Montgomery	WQ	LLHG
GUNM-11	Low level Hg	210	SWQMP Sampling Period	Montgomery	WQ	LLHG
H-1	Fish IBI Survey	239	SWQMP Sampling Period	Montgomery	Fish Crew	IBI
H-1	Water Quality Sampling	605***	8X Monthly (Mar-Oct)	Montgomery	Jacob Shirley	MGY 8
HACL-1	Macroinvertebrate Survey	210	SWQMP Sampling Period	Montgomery	Bug Crew	Bugs
HACL-1	Water Quality Sampling	210	8X Monthly (Mar-Oct)	Montgomery	Sarah Buchanon	MGY 6
HALC-1	Geomean E. coli Study	210	SWQMP Sampling Period	Montgomery	James Worley	GEO 1
HALC-1	Water Quality Sampling	210	8X Monthly (Mar-Oct)	Montgomery	Anthony Roberts	MGY 13
HARL-1	Water Quality Sampling	252	7X Monthly (Apr-Oct)	Montgomery	Michael Len	RRMP 24
HARL-2	Water Quality Sampling	210	7X Monthly (Apr-Oct)	Montgomery	Michael Len	RRMP 24
HARL-3	Water Quality Sampling	210	7X Monthly (Apr-Oct)	Montgomery	Michael Len	RRMP 24
HARL-4	Water Quality Sampling	252	7X Monthly (Apr-Oct)	Montgomery	Michael Len	RRMP 24
HATC-1	Water Quality Sampling	605***	12X Monthly (Jan-Dec)	Montgomery	Ron Sparks	MGY 11A
HNMB-4	Fish IBI Survey	252	SWQMP Sampling Period	Montgomery	Fish Crew	IBI
HNMB-4	Macroinvertebrate Survey	252	SWQMP Sampling Period	Montgomery	Bug Crew	Bugs
HNMB-4	Water Quality Sampling	252	8X Monthly (Mar-Oct)	Montgomery	Ron Sparks	MGY 11
HO-1	Macroinvertebrate Survey	252	SWQMP Sampling Period	Montgomery	Bug Crew	Bugs
HO-1	Water Quality Sampling	252	8X Monthly (Mar-Oct)	Montgomery	Liberty Dobbs	MGY 1
HOLR-1	Fish IBI Survey	252	SWQMP Sampling Period	Montgomery	Fish Crew	IBI
HOLR-1	Water Quality Sampling	252	8X Monthly (Mar-Oct)	Montgomery	Sarah Buchanon	MGY 6
HOLT-1	Water Quality Sampling	252	7X Monthly (Apr-Oct)	Montgomery	Seth Wood	RRMP 23
HOLT-2	Water Quality Sampling	252	7X Monthly (Apr-Oct)	Montgomery	Seth Wood	RRMP 23
HOLT-3	Water Quality Sampling	252	7X Monthly (Apr-Oct)	Montgomery	Seth Wood	RRMP 23
HSBM-	Low level Hg	210	SWQMP Sampling Period	Montgomery	WQ	LLHG
HUCC-1	Geomean E. coli Study	210	SWQMP Sampling Period	Montgomery	James Worley	GEO 1
HUCC-1	Water Quality Sampling	210	8X Monthly (Mar-Oct)	Montgomery	Anthony Roberts	MGY 13
HURD-1	72-hour DO	210	SWQMP Sampling Period	Water	WQB	WQB
HURR-1	Fish IBI Survey	239	SWQMP Sampling Period	Montgomery	Fish Crew	IBI
HURR-1	Geomean E. coli Study	210	SWQMP Sampling Period	Decatur	Tommy Milford	Decatur-IE-1

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Station	Trip Activity	Fund Code	Sampling Summary	Field Office	Crew Leader	TRIP
HURR-1	Macroinvertebrate Survey	210	SWQMP Sampling Period	Montgomery	Bug Crew	Bugs
HURR-1	Water Quality Sampling	210	8X Monthly (Mar-Oct)	Decatur	Tommy Milford	TMILFORD 5
HUTR-4	Macroinvertebrate Survey	210	SWQMP Sampling Period	Montgomery	Bug Crew	Bugs
HUTR-4	Water Quality Sampling	210	8X Monthly (Mar-Oct)	Montgomery	Sarah Buchanon	MGY 6
IC-1A	Water Quality Sampling	591	8X Monthly (Mar-Oct)	Mobile	Clark Gerken	1
IC-3	Water Quality Sampling	591	8X Monthly (Mar-Oct)	Mobile	Clark Gerken	10
IC-3A	Water Quality Sampling	591	8X Monthly (Mar-Oct)	Mobile	Clark Gerken	9
IC-4	Water Quality Sampling	591	8X Monthly (Mar-Oct)	Mobile	Clark Gerken	10
INDM-249	Water Quality Sampling	605***	8X Monthly (Mar-Oct)	Decatur	Ariel Holway-Jones	AHJ 4
INLB-1	Water Quality Sampling	252	7X Monthly (Apr-Oct)	Birmingham	Holly Speigner	8
INMW-1	Geomean E. coli Study	210	SWQMP Sampling Period	Birmingham	Tim Wynn	Trip 12
INMW-1	Water Quality Sampling	210	8X Monthly (Mar-Oct)	Montgomery	Anna Eastis	MGY 10
JACC-1	Water Quality Sampling	252	7X Monthly (Apr-Oct)	Montgomery	Ben Darby	RRMP 26
JDYD-4	Geomean E. coli Study	210	SWQMP Sampling Period	Montgomery	James Worley	GEO 1
JDYD-4	Water Quality Sampling	210	8X Monthly (Mar-Oct)	Montgomery	Ron Sparks	MGY 5
LAYC-12	Low level Hg	210	SWQMP Sampling Period	Montgomery	WQ	LLHG
LAYC-18	Low level Hg	210	SWQMP Sampling Period	Montgomery	WQ	LLHG
LAYC-9	Low level Hg	210	SWQMP Sampling Period	Montgomery	WQ	LLHG
LFKB-1	Water Quality Sampling	605***	12X Monthly (Jan-Dec)	Montgomery	Ron Sparks	MGY 11
LFKJ-5	Water Quality Sampling	210	7X Monthly (Apr-Oct)	Birmingham	Brittany Richardson	7
LICK-2	Macroinvertebrate Survey	210	SWQMP Sampling Period	Montgomery	Bug Crew	Bugs
LICK-2	Organics Sampling	252	3X Monthly (MayJulSep)	Montgomery	Anthony Roberts	Organics
LICK-2	Water Quality Sampling	210	8X Monthly (Mar-Oct)	Decatur	Tommy Milford	TMILFORD 5
LIML-300	Organics Sampling	252	3X Monthly (MayJulSep)	Montgomery	Anthony Roberts	Organics
LIML-300	Water Quality Sampling	605***	8X Monthly (Mar-Oct)	Decatur	Ariel Holway-Jones	AHJ 3
LLCC-2	Macroinvertebrate Survey	252	SWQMP Sampling Period	Montgomery	Bug Crew	Bugs
LLCC-2	Water Quality Sampling	252	8X Monthly (Mar-Oct)	Montgomery	Justin Bagley	MGY 9
LLEB-1	Water Quality Sampling	591	8X Monthly (Mar-Oct)	Mobile	Clark Gerken	3
LLWB-1	Water Quality Sampling	591	8X Monthly (Mar-Oct)	Mobile	Clark Gerken	3
LNDB-1	Geomean E. coli Study	210	SWQMP Sampling Period	Montgomery	James Worley	GEO 2
LNDB-1	Water Quality Sampling	210	8X Monthly (Mar-Oct)	Montgomery	Ron Sparks	MGY 5
LOCH-1	Fish IBI Survey	252	SWQMP Sampling Period	Montgomery	Fish Crew	IBI
LOCH-1	Water Quality Sampling	252	8X Monthly (Mar-Oct)	Montgomery	Alicia Phillips	MGY 4
LONB-24A	Fish IBI Survey	239	SWQMP Sampling Period	Montgomery	Fish Crew	IBI
LONB-24A	Macroinvertebrate Survey	210	SWQMP Sampling Period	Montgomery	Bug Crew	Bugs
LONB-24A	Water Quality Sampling	210	8X Monthly (Mar-Oct)	Birmingham	Brittany Richardson	Trip 6
LTPR-1	Water Quality Sampling	210	12X Monthly (Jan-Dec)	Birmingham	Brittany Richardson	Trip 1
MALL-410	Macroinvertebrate Survey	210	SWQMP Sampling Period	Montgomery	Bug Crew	Bugs
MALL-410	Organics Sampling	252	3X Monthly (MayJulSep)	Montgomery	Anthony Roberts	Organics
MALL-410	Water Quality Sampling	210	8X Monthly (Mar-Oct)	Decatur	Ariel Holway-Jones	AHJ 2
MBFB-1	Geomean E. coli Study	210	SWQMP Sampling Period	Birmingham	Brittany Richardson	Trip 10
MBFB-1	Water Quality Sampling	210	12X Monthly (Jan-Dec)	Birmingham	Brittany Richardson	Trip 6
MBFB-10	Macroinvertebrate Survey	210	SWQMP Sampling Period	Montgomery	Bug Crew	Bugs
MBFB-10	Water Quality Sampling	210	8X Monthly (Mar-Oct)	Montgomery	Justin Bagley	MGY 9
MBFB-13	Water Quality Sampling	210	8X Monthly (Mar-Oct)	Montgomery	Justin Bagley	MGY 9
MBFB-4	Macroinvertebrate Survey	210	SWQMP Sampling Period	Montgomery	Bug Crew	Bugs
MBFB-4	Water Quality Sampling	210	8X Monthly (Mar-Oct)	Montgomery	Justin Bagley	MGY 9
MBFB-5	Water Quality Sampling	210	8X Monthly (Mar-Oct)	Montgomery	Justin Bagley	MGY 9
MBFB-6	Macroinvertebrate Survey	210	SWQMP Sampling Period	Montgomery	Bug Crew	Bugs
MBFB-6	Water Quality Sampling	210	8X Monthly (Mar-Oct)	Montgomery	Justin Bagley	MGY 9

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Station	Trip Activity	Fund Code	Sampling Summary	Field Office	Crew Leader	TRIP
MBFB-7	Water Quality Sampling	210	8X Monthly (Mar-Oct)	Montgomery	Justin Bagley	MGY 9
MBFW-2	72-hour DO	210	SWQMP Sampling Period	Water	WQB	WQB
MBFW-2	Water Quality Sampling	210	7X Monthly (Apr-Oct)	Birmingham	Brittany Richardson	9
MBFW-3	72-hour DO	210	SWQMP Sampling Period	Water	WQB	WQB
MBFW-3	Water Quality Sampling	210	7X Monthly (Apr-Oct)	Birmingham	Brittany Richardson	9
MCH-2	Macroinvertebrate Survey	252	SWQMP Sampling Period	Montgomery	Bug Crew	Bugs
MCH-2	Water Quality Sampling	252	8X Monthly (Mar-Oct)	Montgomery	Justin Bagley	MGY 9
MGNB-101	72-hour DO	210	SWQMP Sampling Period	Water	WQB	WQB
MGNB-101	Water Quality Sampling	210	8X Monthly (Mar-Oct)	Mobile	Gerald Ramos	13
MGRB-8	72-hour DO	210	SWQMP Sampling Period	Water	WQB	WQB
MGRB-8	Water Quality Sampling	210	8X Monthly (Mar-Oct)	Mobile	Joie Horn	4
MGRB-9	72-hour DO	210	SWQMP Sampling Period	Water	WQB	WQB
MGRB-9	Water Quality Sampling	210	8X Monthly (Mar-Oct)	Mobile	Joie Horn	4
MICR-1	Fish IBI Survey	252	SWQMP Sampling Period	Montgomery	Fish Crew	IBI
MICR-1	Water Quality Sampling	252	8X Monthly (Mar-Oct)	Montgomery	Sarah Buchanon	MGY 6
MIFB-1	Geomean E. coli Study	210	8X Monthly (Mar-Oct)	Mobile	Joie Horn	G 6
MIFB-1	Water Quality Sampling	210	8X Monthly (Mar-Oct)	Mobile	Joie Horn	6
MIFB-2	Macroinvertebrate Survey	252	SWQMP Sampling Period	Montgomery	Bug Crew	Bugs
MIFB-2	Water Quality Sampling	252	8X Monthly (Mar-Oct)	Mobile	Gerald Ramos	13
MLCT-3	Geomean E. coli Study	210	SWQMP Sampling Period	Birmingham	Brittany Richardson	Trip 10
MLCT-3	Water Quality Sampling	210	8X Monthly (Mar-Oct)	Montgomery	Jacob Shirley	MGY 8
MLCT-4	Macroinvertebrate Survey	210	SWQMP Sampling Period	Montgomery	Bug Crew	Bugs
MLCT-4	Water Quality Sampling	210	8X Monthly (Mar-Oct)	Montgomery	Jacob Shirley	MGY 8
MOBM-1	Water Quality Sampling	605***	12X Monthly (Jan-Dec)	Mobile	Joie Horn	5
MOOC-2	Macroinvertebrate Survey	210	SWQMP Sampling Period	Montgomery	Bug Crew	Bugs
MOOC-2	Water Quality Sampling	210	8X Monthly (Mar-Oct)	Montgomery	Sarah Buchanon	MGY 6
MOOC-3	Fish IBI Survey	210	SWQMP Sampling Period	Montgomery	Fish Crew	IBI
MOOC-3	Geomean E. coli Study	210	SWQMP Sampling Period	Montgomery	Sarah Buchanon	GEO 6
MOOC-3	Water Quality Sampling	210	8X Monthly (Mar-Oct)	Montgomery	Sarah Buchanon	MGY 6
MUDJ-1	Geomean E. coli Study	210	SWQMP Sampling Period	Birmingham	Brittany Richardson	Trip 10
MUDJ-1	Water Quality Sampling	210	8X Monthly (Mar-Oct)	Birmingham	Brittany Richardson	Trip 3
MURE-1	Water Quality Sampling	252	8X Monthly (Mar-Oct)	Montgomery	Ruthie Perez	MGY 2
MURE-2	Fish IBI Survey	252	SWQMP Sampling Period	Montgomery	Fish Crew	IBI
MURE-2	Water Quality Sampling	252	8X Monthly (Mar-Oct)	Montgomery	Ruthie Perez	MGY 2
NCHT-1	Water Quality Sampling	210	7X Monthly (Apr-Oct)	Birmingham	Brittany Richardson	7
NEDG-2	Macroinvertebrate Survey	210	SWQMP Sampling Period	Montgomery	Bug Crew	Bugs
NEDG-2	Water Quality Sampling	210	8X Monthly (Mar-Oct)	Montgomery	Sarah Buchanon	MGY 7
NEES-16	Low level Hg	210	SWQMP Sampling Period	Montgomery	WQ	LLHG
NEES-17	Low level Hg	210	SWQMP Sampling Period	Montgomery	WQ	LLHG
NFHT-1	Macroinvertebrate Survey	210	SWQMP Sampling Period	Montgomery	Bug Crew	Bugs
NFHT-1	Water Quality Sampling	210	8X Monthly (Mar-Oct)	Montgomery	Jacob Shirley	MGY 8
NGCB-1	Macroinvertebrate Survey	252	SWQMP Sampling Period	Montgomery	Bug Crew	Bugs
NGCB-1	Water Quality Sampling	252	8X Monthly (Mar-Oct)	Mobile	Nancy Shaneyfelt	11
NGOB-2	Macroinvertebrate Survey	252	SWQMP Sampling Period	Montgomery	Bug Crew	Bugs
NGOB-2	Water Quality Sampling	252	8X Monthly (Mar-Oct)	Mobile	Nancy Shaneyfelt	11
NLYW-1A	Geomean E. coli Study	210	SWQMP Sampling Period	Decatur	Tommy Milford	Decatur-IE-2
NLYW-1A	Water Quality Sampling	210	8X Monthly (Mar-Oct)	Decatur	Tommy Milford	TMILFORD 4
NRRT-1	Fish IBI Survey	252	SWQMP Sampling Period	Montgomery	Fish Crew	IBI
NRRT-1	Water Quality Sampling	252	8X Monthly (Mar-Oct)	Montgomery	Jacob Shirley	MGY 8
OLIT-1	Water Quality Sampling	252	7X Monthly (Apr-Oct)	Montgomery	Seth Wood	RRMP 23

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Station	Trip Activity	Fund Code	Sampling Summary	Field Office	Crew Leader	TRIP
OLIT-2	Water Quality Sampling	252	7X Monthly (Apr-Oct)	Montgomery	Seth Wood	RRMP 23
OLIT-3	Water Quality Sampling	252	7X Monthly (Apr-Oct)	Montgomery	Seth Wood	RRMP 23
OLRB-1	Water Quality Sampling	591	8X Monthly (Mar-Oct)	Mobile	Clark Gerken	2
OMSH-2	Water Quality Sampling	210	8X Monthly (Mar-Oct)	Montgomery	Alicia Phillips	MGY 4
OMUH-2	Fish IBI Survey	210	SWQMP Sampling Period	Montgomery	Fish Crew	IBI
OMUH-2	Macroinvertebrate Survey	210	SWQMP Sampling Period	Montgomery	Bug Crew	Bugs
OMUH-2	Water Quality Sampling	210	8X Monthly (Mar-Oct)	Montgomery	Alicia Phillips	MGY 4
OSGC-1	Water Quality Sampling	252	8X Monthly (Mar-Oct)	Montgomery	Sarah Buchanon	MGY 6
OYBB-2	Water Quality Sampling	591	8X Monthly (Mar-Oct)	Mobile	Clark Gerken	1
PALC-2	Geomean E. coli Study	210	SWQMP Sampling Period	Montgomery	Sarah Buchanon	GEO 5
PALC-2	Water Quality Sampling	210	8X Monthly (Mar-Oct)	Montgomery	Christina Stram	MGY 3
PATC-1	Geomean E. coli Study	210	SWQMP Sampling Period	Montgomery	Sarah Buchanon	GEO 5
PATC-1	Water Quality Sampling	210	8X Monthly (Mar-Oct)	Montgomery	Anthony Roberts	MGY 13
PDBB-0	Water Quality Sampling	591	8X Monthly (Mar-Oct)	Mobile	Clark Gerken	2
PDBB-1	Water Quality Sampling	591	8X Monthly (Mar-Oct)	Mobile	Joie Horn	7
PDBB-3	Water Quality Sampling	591	8X Monthly (Mar-Oct)	Mobile	Joie Horn	7
PDBB-5	Water Quality Sampling	605***	12X Monthly (Jan-Dec)	Mobile	Gerald Ramos	13
PEAG-1	Water Quality Sampling	210	7X Monthly (Apr-Oct)	Montgomery	Ben Darby	RRMP 26
PEAG-2	Water Quality Sampling	605***	12X Monthly (Jan-Dec)	Montgomery	Anthony Roberts	MGY 13
PECB-2	Water Quality Sampling	210	8X Monthly (Mar-Oct)	Montgomery	Anthony Roberts	MGY 13
PICL-3	Low level Hg	210	SWQMP Sampling Period	Montgomery	WQ	LLHG
PLSB-1	Geomean E. coli Study	210	SWQMP Sampling Period	Montgomery	James Worley	GEO 2
PLSB-1	Water Quality Sampling	210	8X Monthly (Mar-Oct)	Montgomery	Ron Sparks	MGY 5
PND-3	Low level Hg	210	SWQMP Sampling Period	Montgomery	WQ	LLHG
PNDC-10	Low level Hg	210	SWQMP Sampling Period	Montgomery	WQ	LLHG
PNDC-2C	Low level Hg	210	SWQMP Sampling Period	Montgomery	WQ	LLHG
PONC-2	Fish IBI Survey	252	SWQMP Sampling Period	Montgomery	Fish Crew	IBI
PONC-2	Macroinvertebrate Survey	252	SWQMP Sampling Period	Montgomery	Bug Crew	Bugs
PONC-2	Water Quality Sampling	252	8X Monthly (Mar-Oct)	Montgomery	Ruthie Perez	MGY 2
PRCH-1	Geomean E. coli Study	210	SWQMP Sampling Period	Montgomery	James Worley	GEO 2
PRCH-1	Water Quality Sampling	210	8X Monthly (Mar-Oct)	Montgomery	Ron Sparks	MGY 5
PRRJ-1	Water Quality Sampling	210	8X Monthly (Mar-Oct)	Montgomery	Christina Stram	MGY 12
PRRJ-4	Geomean E. coli Study	210	SWQMP Sampling Period	Decatur	Tommy Milford	Decatur-IE-1
PRRJ-4	Organics Sampling	252	3X Monthly (MayJulSep)	Montgomery	Anthony Roberts	Organics
PRRJ-4	Water Quality Sampling	210	8X Monthly (Mar-Oct)	Montgomery	Christina Stram	MGY 12
PTAC-1	Water Quality Sampling	252	7X Monthly (Apr-Oct)	Montgomery	Ben Darby	RRMP 26
PTAC-2	Water Quality Sampling	210	7X Monthly (Apr-Oct)	Montgomery	Ben Darby	RRMP 26
PTHC-1	Fish IBI Survey	252	SWQMP Sampling Period	Montgomery	Fish Crew	IBI
PTHC-1	Water Quality Sampling	252	8X Monthly (Mar-Oct)	Montgomery	Ruthie Perez	MGY 2
PTRH-1	Geomean E. coli Study	210	SWQMP Sampling Period	Montgomery	James Worley	GEO 2
PTRH-1	Water Quality Sampling	210	8X Monthly (Mar-Oct)	Montgomery	Alicia Phillips	MGY 4
RCKB-2	Water Quality Sampling	252	8X Monthly (Mar-Oct)	Montgomery	Liberty Dobbs	MGY 1
RUSW-1	Fish IBI Survey	239	SWQMP Sampling Period	Montgomery	Fish Crew	IBI
RUSW-1	Water Quality Sampling	252	8X Monthly (Mar-Oct)	Montgomery	Anna Eastis	MGY 10
SCRL-2	Water Quality Sampling	252	8X Monthly (Mar-Oct)	Montgomery	Ron Sparks	MGY 11
SDYB-2	Geomean E. coli Study	210	8X Monthly (Mar-Oct)	Mobile	Clark Gerken	G 9
SDYB-2	Water Quality Sampling	210	8X Monthly (Mar-Oct)	Mobile	Clark Gerken	9
SECE-2B	Macroinvertebrate Survey	252	SWQMP Sampling Period	Montgomery	Bug Crew	Bugs
SECE-2B	Water Quality Sampling	252	8X Monthly (Mar-Oct)	Montgomery	Liberty Dobbs	MGY 1
SECE-6	Water Quality Sampling	252	8X Monthly (Mar-Oct)	Montgomery	Liberty Dobbs	MGY 1

Appendix C. Monitoring activities to be conducted at each sampling location, along with sampling frequency, field office, crew leader, and sampling trip. Associated comments are listed in Appendix B.

Station	Trip Activity	Fund Code	Sampling Summary	Field Office	Crew Leader	TRIP
SF-1	Fish IBI Survey	239	SWQMP Sampling Period	Montgomery	Fish Crew	IBI
SF-1	Macroinvertebrate Survey	210	SWQMP Sampling Period	Montgomery	Bug Crew	Bugs
SF-1	Water Quality Sampling	210	8X Monthly (Mar-Oct)	Montgomery	Anna Eastis	MGY 10
SF-2	Macroinvertebrate Survey	252	SWQMP Sampling Period	Montgomery	Bug Crew	Bugs
SF-2	Water Quality Sampling	252	8X Monthly (Mar-Oct)	Montgomery	Anna Eastis	MGY 10
SF-5	72-hour DO	210	SWQMP Sampling Period	Water	WQB	WQB
SF-5	Water Quality Sampling	210	12X Monthly (Jan-Dec)	Montgomery	Brittany Richardson	9
SF-6	Water Quality Sampling	210	8X Monthly (Mar-Oct)	Birmingham	Brittany Richardson	Trip 6
SGCB-1	Geomean E. coli Study	210	SWQMP Sampling Period	Montgomery	Sarah Buchanon	GEO 5
SGCB-1	Water Quality Sampling	210	8X Monthly (Mar-Oct)	Montgomery	Anthony Roberts	MGY 13
SGRL-2	Water Quality Sampling	210	8X Monthly (Mar-Oct)	Decatur	Tommy Milford	TMILFORD 4
SHLB-1	Water Quality Sampling	591	7X Monthly (Apr-Oct)	Mobile	Clark Gerken	3
SHLL-2	Water Quality Sampling	210	8X Monthly (Mar-Oct)	Decatur	Ariel Holway-Jones	AHJ 2
SHLM-1	Fish IBI Survey	239	SWQMP Sampling Period	Montgomery	Fish Crew	IBI
SHLM-1	Macroinvertebrate Survey	210	SWQMP Sampling Period	Montgomery	Bug Crew	Bugs
SHLM-1	Water Quality Sampling	210	8X Monthly (Mar-Oct)	Decatur	Ariel Holway-Jones	AHJ 5
SHMD-2	Organics Sampling	252	3X Monthly (MayJulSep)	Montgomery	Anthony Roberts	Organics
SHMD-2	Water Quality Sampling	252	8X Monthly (Mar-Oct)	Montgomery	Ron Sparks	MGY 11
SKSD-4	Geomean E. coli Study	210	SWQMP Sampling Period	Montgomery	James Worley	GEO 2
SKSD-4	Water Quality Sampling	210	8X Monthly (Mar-Oct)	Montgomery	Ron Sparks	MGY 5
SLAM-22C	Geomean E. coli Study	210	SWQMP Sampling Period	Birmingham	Tim Wynn	Trip 12
SLAM-22C	Water Quality Sampling	210	8X Monthly (Mar-Oct)	Montgomery	Ron Sparks	MGY 11
SLDB-1	Water Quality Sampling	210	8X Monthly (Mar-Oct)	Mobile	Joie Horn	7
SMIW-1	Water Quality Sampling	252	7X Monthly (Apr-Oct)	Birmingham	Brittany Richardson	9
SMIW-10	Water Quality Sampling	210	7X Monthly (Apr-Oct)	Decatur	Tommy Milford	TMILFORD 3
SMIW-11	72-hour DO	210	SWQMP Sampling Period	Water	WQB	WQB
SMIW-11	Water Quality Sampling	210	7X Monthly (Apr-Oct)	Decatur	Tommy Milford	TMILFORD 3
SMIW-2	Water Quality Sampling	252	7X Monthly (Apr-Oct)	Decatur	Tommy Milford	TMILFORD 3
SMIW-3	Water Quality Sampling	252	7X Monthly (Apr-Oct)	Decatur	Tommy Milford	TMILFORD 3
SMIW-4	Water Quality Sampling	210	7X Monthly (Apr-Oct)	Decatur	Tommy Milford	TMILFORD 3
SMIW-5	Water Quality Sampling	210	7X Monthly (Apr-Oct)	Decatur	Tommy Milford	TMILFORD 3
SMIW-6	Water Quality Sampling	210	7X Monthly (Apr-Oct)	Decatur	Tommy Milford	TMILFORD 3
SMIW-7	Water Quality Sampling	210	7X Monthly (Apr-Oct)	Decatur	Tommy Milford	TMILFORD 3
SMIW-8	72-hour DO	210	SWQMP Sampling Period	Water	WQB	WQB
SMIW-8	Water Quality Sampling	210	7X Monthly (Apr-Oct)	Decatur	Tommy Milford	TMILFORD 3
SMIW-9	72-hour DO	210	SWQMP Sampling Period	Water	WQB	WQB
SMIW-9	Water Quality Sampling	210	7X Monthly (Apr-Oct)	Decatur	Tommy Milford	TMILFORD 3
SPLC-3	Water Quality Sampling	605***	8X Monthly (Mar-Oct)	Montgomery	Christina Stram	MGY 3
SPMH-1	Water Quality Sampling	252	8X Monthly (Mar-Oct)	Montgomery	Alicia Phillips	MGY 4
SPNCV-6	Water Quality Sampling	252	8X Monthly (Mar-Oct)	Montgomery	Liberty Dobbs	MGY 1
SSB-1	Fish IBI Survey	239	SWQMP Sampling Period	Montgomery	Fish Crew	IBI
SSB-1	Macroinvertebrate Survey	252	SWQMP Sampling Period	Montgomery	Bug Crew	Bugs
SSB-1	Water Quality Sampling	252	8X Monthly (Mar-Oct)	Montgomery	Jacob Shirley	MGY 8
SSB-2	Macroinvertebrate Survey	210	SWQMP Sampling Period	Montgomery	Bug Crew	Bugs
SSB-2	Water Quality Sampling	210	8X Monthly (Mar-Oct)	Montgomery	Jacob Shirley	MGY 8
STXB-3	Water Quality Sampling	605***	12X Monthly (Jan-Dec)	Mobile	Gerald Ramos	13
SWNL-392	Fish IBI Survey	210	SWQMP Sampling Period	Montgomery	Fish Crew	IBI
SWNL-392	Macroinvertebrate Survey	210	SWQMP Sampling Period	Montgomery	Bug Crew	Bugs
SWNL-392	Organics Sampling	252	3X Monthly (MayJulSep)	Montgomery	Anthony Roberts	Organics
SWNL-392	Water Quality Sampling	210	8X Monthly (Mar-Oct)	Decatur	Ariel Holway-Jones	AHJ 3

Appendix C. Monitoring activities to be conducted at each sampling location, along with sampling frequency, field office, crew leader, and sampling trip. Associated comments are listed in Appendix B.

Station	Trip Activity	Fund Code	Sampling Summary	Field Office	Crew Leader	TRIP
TA-2	Water Quality Sampling	210	12X Monthly (Jan-Dec)	Birmingham	Brittany Richardson	Trip 1
TCJ-1	Geomean E. coli Study	210	SWQMP Sampling Period	Birmingham	Holly Speigner	Trip 11
TCJ-1	Water Quality Sampling	210	8X Monthly (Mar-Oct)	Birmingham	Holly Speigner	Trip 5
TECB-1	Water Quality Sampling	591	8X Monthly (Mar-Oct)	Mobile	Clark Gerken	2
TENR-215	Water Quality Sampling	210	12X Monthly (Jan-Dec)	Decatur	Ariel Holway-Jones	AHJ 1
TENR-310	Water Quality Sampling	252	7X Monthly (Apr-Oct)	Montgomery	Ranse Williams	RRMP 20
TENR-349	Water Quality Sampling	252	7X Monthly (Apr-Oct)	Montgomery	Ranse Williams	RRMP 20
TENR-417	Water Quality Sampling	210	12X Monthly (Jan-Dec)	Decatur	Tommy Milford	TMILFORD 1
TKYD-1	Fish IBI Survey	252	SWQMP Sampling Period	Montgomery	Fish Crew	IBI
TKYD-1	Low level Hg	252	SWQMP Sampling Period	Montgomery	WQ	LLHG
TKYD-1	Macroinvertebrate Survey	252	SWQMP Sampling Period	Montgomery	Bug Crew	Bugs
TKYD-1	Water Quality Sampling	252	8X Monthly (Mar-Oct)	Montgomery	Alicia Phillips	MGY 4
TMEB-1	Macroinvertebrate Survey	252	SWQMP Sampling Period	Montgomery	Bug Crew	Bugs
TMEB-1	Water Quality Sampling	252	8X Monthly (Mar-Oct)	Mobile	Nancy Shaneyfelt	11
TN-4A	Water Quality Sampling	210	12X Monthly (Jan-Dec)	Decatur	Tommy Milford	TMILFORD 2
TPSL-1	Fish IBI Survey	239	SWQMP Sampling Period	Montgomery	Fish Crew	IBI
TPSL-1	Water Quality Sampling	252	8X Monthly (Mar-Oct)	Montgomery	Anna Eastis	MGY 10
TRKJ-3	Fish IBI Survey	239	SWQMP Sampling Period	Montgomery	Fish Crew	IBI
TRKJ-3	Water Quality Sampling	210	8X Monthly (Mar-Oct)	Birmingham	Holly Speigner	Trip 4
TUST-1	Water Quality Sampling	252	7X Monthly (Apr-Oct)	Montgomery	Scott Hicks	RRMP 22
TUST-2	Water Quality Sampling	252	7X Monthly (Apr-Oct)	Montgomery	Scott Hicks	RRMP 22
TUST-3	Water Quality Sampling	252	7X Monthly (Apr-Oct)	Montgomery	Scott Hicks	RRMP 22
TUST-4	Water Quality Sampling	210	7X Monthly (Apr-Oct)	Montgomery	Scott Hicks	RRMP 22
TUST-5	Water Quality Sampling	210	7X Monthly (Apr-Oct)	Montgomery	Scott Hicks	RRMP 22
UCCR-1	Water Quality Sampling	210	8X Monthly (Mar-Oct)	Montgomery	Sarah Buchanon	MGY 6
VALJ-8	Water Quality Sampling	605***	12X Monthly (Jan-Dec)	Birmingham	Brittany Richardson	Trip 3
VI-3	Water Quality Sampling	210	12X Monthly (Jan-Dec)	Birmingham	Brittany Richardson	Trip 3
VLGJ-5	Low level Hg	210	SWQMP Sampling Period	Montgomery	WQ	LLHG
WARG-1	Water Quality Sampling	252	7X Monthly (Apr-Oct)	Montgomery	Seth Wood	RRMP 23
WARG-2	Water Quality Sampling	252	7X Monthly (Apr-Oct)	Montgomery	Seth Wood	RRMP 23
WARG-3	Water Quality Sampling	252	7X Monthly (Apr-Oct)	Montgomery	Seth Wood	RRMP 23
WARG-4	Water Quality Sampling	210	7X Monthly (Apr-Oct)	Montgomery	Seth Wood	RRMP 23
WARG-5	Water Quality Sampling	210	7X Monthly (Apr-Oct)	Montgomery	Seth Wood	RRMP 23
WARG-6	Water Quality Sampling	210	7X Monthly (Apr-Oct)	Montgomery	Seth Wood	RRMP 23
WARG-7	Water Quality Sampling	210	7X Monthly (Apr-Oct)	Montgomery	Seth Wood	RRMP 23
WB-1	72-hour DO	210	SWQMP Sampling Period	Water	WQB	WQB
WB-1	Water Quality Sampling	210	8X Monthly (Mar-Oct)	Mobile	Joie Horn	4
WCP-1	Water Quality Sampling	210	8X Monthly (Mar-Oct)	Montgomery	Anthony Roberts	MGY 13
WCP-1A	Water Quality Sampling	210	8X Monthly (Mar-Oct)	Montgomery	Anthony Roberts	MGY 13
WDFA-2A	Water Quality Sampling	605***	12X Monthly (Jan-Dec)	Montgomery	Ben Darby	RRMP 26
WDWJ-1	Low level Hg	210	SWQMP Sampling Period	Montgomery	WQ	LLHG
WDWJ-3	Low level Hg	210	SWQMP Sampling Period	Montgomery	WQ	LLHG
WEIC-12	Water Quality Sampling	210	12X Monthly (Jan-Dec)	Decatur	Tommy Milford	TMILFORD 1
WESC-1	Water Quality Sampling	252	7X Monthly (Apr-Oct)	Montgomery	Michael Len	RRMP 24
WESC-2	Water Quality Sampling	252	7X Monthly (Apr-Oct)	Montgomery	Michael Len	RRMP 24
WESC-3	Water Quality Sampling	252	7X Monthly (Apr-Oct)	Montgomery	Michael Len	RRMP 24
WFFM-1	Macroinvertebrate Survey	210	SWQMP Sampling Period	Montgomery	Bug Crew	Bugs
WFFM-1	Water Quality Sampling	210	8X Monthly (Mar-Oct)	Decatur	Ariel Holway-Jones	AHJ 4
WHEL-1	Water Quality Sampling	210	7X Monthly (Apr-Oct)	Montgomery	Ranse Williams	RRMP 20
WHEL-10	Water Quality Sampling	210	7X Monthly (Apr-Oct)	Montgomery	Scott Hicks	RRMP 21

Appendix C. Monitoring activities to be conducted at each sampling location, along with sampling frequency, field office, crew leader, and sampling trip. Associated comments are listed in Appendix B.

Station	Trip Activity	Fund Code	Sampling Summary	Field Office	Crew Leader	TRIP
WHEL-11	Water Quality Sampling	210	7X Monthly (Apr-Oct)	Montgomery	Scott Hicks	RRMP 21
WHEL-13	72-hour DO	210	SWQMP Sampling Period	Water	WQB	WQB
WHEL-13	Water Quality Sampling	210	7X Monthly (Apr-Oct)	Montgomery	Scott Hicks	RRMP 21
WHEL-2	Water Quality Sampling	210	7X Monthly (Apr-Oct)	Montgomery	Ranse Williams	RRMP 20
WHEL-3	Water Quality Sampling	210	7X Monthly (Apr-Oct)	Montgomery	Ranse Williams	RRMP 20
WHEL-4	Water Quality Sampling	210	7X Monthly (Apr-Oct)	Montgomery	Ranse Williams	RRMP 20
WHEL-5	72-hour DO	210	SWQMP Sampling Period	Water	WQB	WQB
WHEL-5	Water Quality Sampling	210	7X Monthly (Apr-Oct)	Montgomery	Ranse Williams	RRMP 20
WHEL-6	Water Quality Sampling	210	7X Monthly (Apr-Oct)	Montgomery	Scott Hicks	RRMP 21
WHEL-7	72-hour DO	210	SWQMP Sampling Period	Water	WQB	WQB
WHEL-7	Water Quality Sampling	210	7X Monthly (Apr-Oct)	Montgomery	Scott Hicks	RRMP 21
WHEL-8	Water Quality Sampling	210	7X Monthly (Apr-Oct)	Montgomery	Scott Hicks	RRMP 21
WHEL-9	Water Quality Sampling	210	7X Monthly (Apr-Oct)	Montgomery	Scott Hicks	RRMP 21
WHIB-74A	Macroinvertebrate Survey	252	SWQMP Sampling Period	Montgomery	Bug Crew	Bugs
WHIB-74A	Water Quality Sampling	252	8X Monthly (Mar-Oct)	Montgomery	Ron Sparks	MGY 11
WKBB-1	72-hour DO	210	SWQMP Sampling Period	Water	WQB	WQB
WKBB-1	Water Quality Sampling	210	8X Monthly (Mar-Oct)	Mobile	Joie Horn	4
WKBB-3	72-hour DO	210	SWQMP Sampling Period	Water	WQB	WQB
WKBB-3	Water Quality Sampling	210	8X Monthly (Mar-Oct)	Mobile	Joie Horn	4
WKBB-4	72-hour DO	210	SWQMP Sampling Period	Water	WQB	WQB
WKBB-4	Water Quality Sampling	210	8X Monthly (Mar-Oct)	Mobile	Joie Horn	4
WLFB-11	Water Quality Sampling	591	8X Monthly (Mar-Oct)	Mobile	Joie Horn	6
WLFB-12	Water Quality Sampling	591	8X Monthly (Mar-Oct)	Mobile	Joie Horn	6
WLFB-2	Water Quality Sampling	591	8X Monthly (Mar-Oct)	Mobile	Clark Gerken	9
WMCC-2	Macroinvertebrate Survey	252	SWQMP Sampling Period	Montgomery	Bug Crew	Bugs
WMCC-2	Water Quality Sampling	252	8X Monthly (Mar-Oct)	Montgomery	Justin Bagley	MGY 9
WOFW-1	Low level Hg	210	SWQMP Sampling Period	Montgomery	WQ	LLHG
WPHM-1	Fish IBI Survey	210	SWQMP Sampling Period	Montgomery	Fish Crew	IBI
WPHM-1	Water Quality Sampling	210	8X Monthly (Mar-Oct)	Decatur	Ariel Holway-Jones	AHJ 4
YBCM-3	Fish IBI Survey	210	SWQMP Sampling Period	Montgomery	Fish Crew	IBI
YBCM-3	Organics Sampling	252	3X Monthly (MayJulSep)	Montgomery	Anthony Roberts	Organics
YBCM-3	Water Quality Sampling	210	8X Monthly (Mar-Oct)	Montgomery	Christina Stram	MGY 12
YERC-3	Water Quality Sampling	605***	12X Monthly (Jan-Dec)	Montgomery	Anthony Roberts	MGY 13

Appendix D. Description of each sampling location.

Station	Sampling	Latitude	Longitud	Waterbody Name	UT	Location	County	Basin	Eco	Sq Mi	Station
3-C	W-WQS	31.31729	-86.27991	Frank Jackson Res	Y	Unnamed Tributary to Lake Frank Jackson on Private Property in T4N, R18E, S18, SE 1/4	Covington	Yellow	65F	0.12	River/Stream
ABIH-2	W-BIO	31.47246	-85.16238	Abbie Ck	N	Abbie Creek at State Hwy 95	Henry	Chattahoochee	65D	146.49	River/Stream
ANDL-1	NWB	34.82335	-87.24274	Anderson Ck	N	Anderson Creek at CR 70 in front of boat ramp	Lauderdale	Tennessee	71F	58	Reservoir Embayment
ANDL-8	W-BIO	34.85150	-87.23610	Anderson Ck	N	Anderson Creek at Snake Road Bridge	Lauderdale	Tennessee	71F	48.97	River/Stream
BAKW-10	W-BIO	33.66197	-87.21074	Baker Ck	N	Baker Ck @ AL Hwy 269	Walker	Black Warrior	68F	12.84	River/Stream
BAKW-9	W-BIO	33.66342	-87.21267	Baker Ck	N	Baker Ck upstream of Hwy 269 bridge (across from intersection of Hwy 269 and Gorgas Ln)	Walker	Black Warrior	68F	12.62	River/Stream
BANT-1	NWB	33.46417	-87.35111	Bankhead Res	N	Lower reservoir. Deepest point, main river channel, dam forebay.	Tuscaloosa	Black Warrior	68F	3977.74	Reservoir
BANT-2	NWB	33.50949	-87.26372	Bankhead Res	N	Mid reservoir. Deepest point, main river channel, mid-reservoir. Approx. 0.5 mi. upstream of Little Shoal Creek confluence	Jefferson	Black Warrior	68F	3868.92	Reservoir
BANT-3	NWB	33.54480	-87.17498	Bankhead Res	N	Locust Fork. Deepest point, main river channel, Locust Fork. Approx. 1.5 mi. upstream of Mulberry Locust confluence	Jefferson	Black Warrior	68F	1200.68	Reservoir
BANT-4	NWB	33.57322	-87.20552	Bankhead Res	N	Mulberry Fork. Deepest point, main river channel, Mulberry Fork. Approx. 1.5 mi. upstream of Mulberry Locust confluence	Walker	Black Warrior	68F	2367.97	Reservoir
BANT-5	NWB	33.63799	-87.24702	Lost Ck (Bankhead)	N	Deepest point, main creek channel, Lost Creek embayment. Approximately 0.5 mile downstream of Walker Co. Rd. 53 bridge	Walker	Black Warrior	68F	342.26	Reservoir Embayment
BANT-6	NWB	33.52312	-87.22987	Valley Ck (Bankhead)	N	Deepest point, main creek channel, Valley Creek embayment. Approximately 1.0 mile upstream of confluence with Warrior River	Jefferson	Black Warrior	68F	256.25	Reservoir Embayment
BANT-7	NWB	33.48760	-87.34430	Big Yellow Ck (Bankhead)	N	Big Yellow Creek embayment, approximately 1 mile upstream of confluence with Warrior River.	Tuscaloosa	Black Warrior	68F	64.95	Reservoir Embayment
BANT-8	NWB	33.62340	-87.07070	Village Ck	N	Village Creek embayment approximately 0.5 mile upstream of confluence with Warrior River.	Jefferson	Black Warrior	68F	97.24	River/Stream
BCCW-1	W-BIO	33.69540	-87.08065	Burnt Cane Ck	N	Burnt Cane Cr at Walker Co Rd 81 (Sharon Blvd)	Walker	Black Warrior	68F	7.91	River/Stream
BEC-1	W-BIO	31.01060	-87.26290	Big Escambia Ck	N	Big Escambia Creek @ US Hwy 31.	Escambia	Escambia	65F	332.35	River/Stream
BECE-5	W-BIO	31.11085	-87.36509	Big Escambia Ck	N	Big Escambia Ck at Big Creek Rd	Escambia	Escambia	65F	199.08	River/Stream
BEEW-1	W-BIO	34.29723	-87.30594	Beech Ck	N	@ Winston Co. Rd 70 nr Grayson	Winston	Black Warrior	68E	10.96	River/Stream
BEHE-1	W-BIO	31.11202	-86.71293	Bear Head Ck	N	Bear Head Ck at Conecuh National Forest Rd (FR311D)	Escambia	Blackwater	65F	4.09	River/Stream
BERD-1	W-BIO	31.44496	-85.70336	Bear Ck	N	Bear Ck at State Hwy 27	Dale	Choctawhatchee	65D	22.97	River/Stream
BERD-2	W-WQS	31.57680	-85.47330	Bear Ck	N	Bear Creek at Highway 105	Dale	Choctawhatchee	65D	30.53	River/Stream
BERF-6	NWG-S	34.65582	-88.12170	Bear Ck	N	Bear Ck at Colbert CR1 (FTMP: BEAR CREEK APPROX 0.25 MILE DOWNSTREAM OF COLBERT CO. RD. 1 NEAR BURNSTOWN)	Colbert	Tennessee	65J	667	River/Stream
BGCD-1	W-BIO	31.42215	-85.53071	Big Ck	N	Big Ck @ Co. Rd. 59	Dale	Choctawhatchee	65D	7.89	River/Stream
BGCH-1	W-BIO	31.02069	-85.35033	Big Ck	N	Big Creek at State Line Rd, Houston Co at ST HW 55 bridge crossing approx 2 miles upstream of AL/FL state line	Houston	Chipola	65G	97.68	River/Stream
BGEH-46A	W-BIO	32.61249	-87.68285	Big German Ck	N	@ Hale Co. Rd 16	Hale	Black Warrior	65A	29.22	River/Stream
BKHP-2	W-BIO	31.84217	-85.75905	Buckhorn Ck	N	Buckhorn Ck @ US Hwy 29	Pike	Choctawhatchee	65D	15.64	River/Stream
BKRE-1A	W-BIO	30.98953	-86.72031	Blackwater R	N	Blackwater River at Charles Booker Rd in Florida.	Okaloosa	Blackwater	65F	91.07	River/Stream
BLAW-2	W-BIO	33.88519	-87.16151	Blackwater Ck	N	Blackwater Creek @ AL Hwy 69 Bridge Crossing	Walker	Black Warrior	68F	214.21	River/Stream
BLFB-2	W-BIO	33.93591	-86.61598	Blackburn Fk	N	Blackburn Fork @ slab on unnumbered CR	Blount	Black Warrior	68D	189.5	River/Stream

Appendix D. Description of each sampling location.

Station	Sampling	Latitude	Longitud	Waterbody Name	UT	Location	County	Basin	Eco	Sq Mi	Station
BLWH-1	W-BIO	31.38087	-85.39734	Blackwood Ck	N	Blackwood Creek at County Road 83	Henry	Choctawhatchee	65G	24.14	River/Stream
BLWH-2	W-BIO	31.37610	-85.35570	Blackwater Ck	N	Intersection @ CR-5	Henry	Choctawhatchee	65G	9.29	River/Stream
BOTC-1	W-BIO	31.26862 76	- 86.763732	Bottle Ck	N	Bottle Cr. at Conecuh Co Rd. 43	Conecuh	Escambia	65F	40.61	River/Stream
BOTC-1A	W-BIO	31.26863	-86.76373	Bottle Ck	N	Bottle Cr. at Conecuh Co Rd. 43	Conecuh	Escambia	65F	40.61	River/Stream
BPRH-44B	W-BIO	32.58276	-87.52100	Big Prairie Ck	N	B. Prairie Ck at Perry Co. Rd 20	Perry	Black Warrior	65A	30.3	River/Stream
BPRH-44C	W-BIO	32.56380	-87.56066	Big Prairie Ck	N	Big Prairie Ck at Co. Rd. 10	Hale	Black Warrior	65A	59.35	River/Stream
BRE-1	W-BIO	31.03334	-86.70961	Bear Ck	N	Bear Ck on dirt trail off Escambia Co Rd 51, approximately 0.7 miles upstream of confluence with Blackwater R. (off old Ranch Rd)	Escambia	Blackwater	65F	28.21	River/Stream
BRNL-2	W-BIO	34.32944	-87.37750	Borden Ck	N	Borden Creek at restricted access Forest Service Rd. 208.	Lawrence	Black Warrior	68E	15.13	River/Stream
BRSL-3	W-BIO	34.33070	-87.28620	Brushy Ck	N	Brushy Ck upstream of North Loop of Co Rd 73 (east of Co Rd 70), in Bankhead National Forest	Lawrence	Black Warrior	68E	8.9	River/Stream
BS-1	NWB	30.30221	-87.73575	Bon Secour R	N	Bon Secour River at Oyster Bay Canal.	Baldwin	Mobile	75K	48.5	Coastal River/Stream
BSBB-5	NWB	30.31726	-87.71258	Bon Secour R	N	Bon Secour River approximately 4 miles upstream of mouth just prior to "No Wake" sign in the middle of river	Baldwin	Mobile	75K	23.94	Coastal River/Stream
BSCB-1	W-BIO	31.94260	-85.63755	Big Sandy Ck	N	Big Sandy Ck @ Co. Rd. 8	Bullock	Choctawhatchee	65D	17.66	River/Stream
C-1	W-BIO	33.60503	-86.54924	Cahaba R	N	Cahaba River at St. Clair Co Rd 10 (Roper Rd) at Whites Chapel	St Clair	Cahaba	67H	50.84	River/Stream
C-3	W-BIO	33.28469	-86.88281	Cahaba R	N	Cahaba River at Shelby CR 52 Bridge west of Helena	Shelby	Cahaba	67H	353.39	River/Stream
CAHS-1	W-BIO	33.36350	-86.81320	Cahaba R	N	Cahaba River at Co Rd 175 Bains Bridge (Old Montomery Hwy)	Shelby	Cahaba	67H	229.16	River/Stream
CANM-220	W-BIO	34.48492	-86.53137	Cane Ck	N	Cane Cr at Greenbrier Road Bridge (unnamed Co rd)	Marshall	Tennessee	71G	11.53	River/Stream
CANW-3	W-BIO	33.81906	-87.31620	Cane Ck	N	Cane Cr @ Ala Hwy 69	Walker	Black Warrior	68F	0.61	River/Stream
CEDT-62B	W-BIO	33.63952	-87.60109	Cedar Ck	N	@ bridge crossing on Flat Creek Road just downstream of the Town of Berry WWTP in Berry, AL	Etowah	Black Warrior	68F	15.73	River/Stream
CH-103	W-BIO	31.02003	-85.30840	Boggy Ck	N	Boggy Ck at Sealy Wells Rd	Houston	Chipola	65G	8.87	River/Stream
CHAC-1	NWG-S	34.29028	-85.50917	Chattooga R	N	Chattooga R at Cherokee CR 97 at gauge station	Cherokee	Coosa	67F	366.7	River/Stream
CHCB-1	W-BIO	33.98467	-86.44192	Champion Ck	N	At State HWY75	Blount	Black Warrior	67F	6.99	River/Stream
CHO-9	NWG-S	31.15917	-85.78472	Choctawhatchee R	N	Choctawhatchee R Co. Rd. 45 northeast of Geneva	Geneva	Choctawhatchee	65G	1281.45	River/Stream
CHTH-1	NWB	31.03839	-85.00862	Chattahoochee R	N	Deepest point, main river channel, near Alabama/Florida state line.	Houston	Chattahoochee	65P	8448	River/Stream
CHTH-2	NWB	31.27890	-85.11340	Chattahoochee R	N	Deepest point, main river channel, just upstream of Omusee Creek/ Chattahoochee River confluence.	Houston	Chattahoochee	65P	8020	River/Stream
CHTH-3	NWB	31.41156	-85.08046	Abbie Ck	N	Deepest point, main creek channel, Abbie Cr. Embayment	Henry	Chattahoochee	65P	198	River/Stream
CHTH-4	NWB	31.28102	-85.11941	Omusee Ck	N	Deepest point, main creek channel, Omusee Cr. embayment.	Houston	Chattahoochee	65P	176	River/Stream
CLBD-2	W-BIO	31.44239	-85.71037	Claybank Ck	N	Claybank Ck at State Hwy 27	Dale	Choctawhatchee	65D	35.61	River/Stream
CLC-1	W-BIO	31.12192	-86.37575	Clear Ck	N	Clear Creek on Swimming Hole Road upstream of Covington Co Rd. 20	Covington	Yellow	65G	38.85	River/Stream

Appendix D. Description of each sampling location.

Station	Sampling	Latitude	Longitud	Waterbody Name	UT	Location	County	Basin	Eco	Sq Mi	Station
CLCJ-2	W-WQS	33.58633	-87.14780	Coal Ck	N	Small concrete bridge crossing creek on Co. Rd. 81 under water transmission lines.	Jefferson	Black Warrior	68F	3.62	River/Stream
CLPB-1	W-BIO	33.93508	-86.58250	Calvert Prong	N	Calvert Prong @ Moss Bridge	Blount	Black Warrior	68D	81.3	River/Stream
CMCT-2	W-BIO	33.17614	-87.54798	Cribbs Mill Ck	N	County: TUSCALOOSA, Alabama Ecoregion: 65I Ichthyoregion: Hills & Coastal Terraces	Tuscaloosa	Black Warrior	65I	9.87	River/Stream
CNEC-1	NWG-S	34.70177	-87.84182	Cane Ck	N	Cane Cr @ AL Hwy 247.	Colbert	Tennessee	71G	42	River/Stream
COLW-1	W-BIO	34.26036	-87.28261	Collier Ck	N	Collier Creek at end of Forest Service Rd. 253	Winston	Black Warrior	68E	7.41	River/Stream
CONC-3	NWG-S	31.57520	-86.25226	Conecuh R	N	Deepest point, main river channel, approximately 0.5 miles upstream of US Hwy 331, south of Brantley, AL.	Crenshaw	Escambia	65D	485.56	River/Stream
CONE-1	NWB	30.99865	-87.16300	Conecuh R	N	Deepest point, main river channel, at Alabama/Florida state line.	Escambia	Escambia	65P	3335.59	River/Stream
CONE-2	NWB	31.06827	-87.05842	Conecuh R	N	Deepest point, main river channel, approximately 0.5 miles upstream of State Hwy 41, near East Brewton.	Escambia	Escambia	65P	2648.84	River/Stream
CPSY-1	W-BIO	34.26957	-87.21056	Capsey Ck	N	@ unnamed Winston CR (FS 266) nr Inmanfield	Winston	Black Warrior	68E	20.01	River/Stream
CRTT-1	W-BIO	33.00681	-87.62212	Carthage Br	N	Carthage Br @ dirt road approximately 1/2 mile down Cherokee Bend Drive.	Tuscaloosa	Black Warrior	65I	1.39	River/Stream
CSPJ-69	W-BIO	34.67380	-86.32250	Cole Spring Br	N	Cole Spring Br dwnstrm of Hwy 65 in the TNC Roy B. Whitaker Paint Rock River Preserve.	Jackson	Tennessee	71G	11.93	River/Stream
CSPJ-70	NWG-S	34.68280	-86.32970	Cole Spring Br	N	Cole Spring Br at AL 65----Bridge at G.W. Jones' Farm	Jackson	Tennessee	71G	9.91	River/Stream
CTCM-1	NWG-S	34.46342	-86.71297	Cotaco Ck	N	Cotaco Creek just upstream of AL Hwy 36 off of Red Oak Road little side road	Morgan	Tennessee	71G	167	River/Stream
CTCM-37	NWG-S	34.41333	-86.68749	Cotaco Ck	N	Cotaco Cr at Pines Rd	Morgan	Tennessee	71G	136	River/Stream
CTMC-1	NWB	34.18617	-86.80415	Lake Catoma	N	Lake Catoma lower reservoir. Deepest point of main river channel dam forebay.	Cullman	Black Warrior	68D	30.28	Reservoir
CTWG-1	NWB	31.02690	-85.85630	Choctawhatchee R	N	Deepest point, main river channel, approximately 0.5 miles upstream of the confluence with Pea River.	Geneva	Choctawhatchee	65G	1543.24	River/Stream
CYC-1	W-BIO	31.13020	-85.40030	Cypress Ck	N	Cypress Creek @ Blackman Rd.	Houston	Chipola	65G	11.7	River/Stream
CYC-2	W-BIO	31.14730	-85.39107	Cypress Ck	N	Cypress Creek @ Hodgesville Rd.	Houston	Chipola	65G	7.84	River/Stream
CYC-4	W-BIO	31.15870	-85.37730	Cypress Ck	N	Cypress Creek @ WWTP access road just before entering the gate.	Houston	Chipola	65G	5.9	River/Stream
DNCT-2	W-BIO	33.30502	-87.38513	Daniel Ck	N	Daniel Cr @ Coalbed Methane pad off of Davis Road	Tuscaloosa	Black Warrior	68F	17.76	River/Stream
DOWG-1	W-WQS	31.12683	-85.69371	Dowling Br	N	Dowling Creek at Geneva CR 36 (Dundee Rd) approx 0.2 miles upstream of confluence with Ham Branch. SE1/4, Sec 24, T2N, R23E	Geneva	Choctawhatchee	65G	3.38	River/Stream
DOWG-2	W-WQS	31.12047	-85.68884	Dowling Br	N	Dowling Branch approx 0.2 miles upstream of lagoon bridge in free-flow portion of stream. NW1/4, Sec 30, T2N, R24E	Geneva	Choctawhatchee	65G	2.4	River/Stream
DUCC-6	NWB	34.17832	-86.69174	Duck River Reservoir	N	Duck River Reservoir - Deepest point main river channel dam forebay	Cullman	Black Warrior	68D	33.28	Reservoir
DYCM-2	W-BIO	34.75207	-86.69315	Dry Ck	N	Intersection at Providence Main Street NW	Madison	Tennessee	71G	17.7	River/Stream
DYSB-1	W-WQS	30.93374	-87.68493	Dyas Ck	N	Dyas Creek @ US Hwy 31 intersect	Baldwin	Perdido	65F	57.3	River/Stream
DYSB-2	NWG-S	30.86992	-87.64024	Dyas Ck	N	Dyas Ck @ Baldwin Co Rd 61 intersect	Baldwin	Perdido	65F	98.86	River/Stream
E-1	NWG-S	30.86274	-88.41787	Escatawpa R	N	Escatawpa River in the vicinity of US Hwy 98 bridge west of Wilmer, AL.	Mobile	Escatawpa	65F	508.6	River/Stream
ELLH-1	W-BIO	32.99474	-87.62414	Elliotts Ck	N	Al. Highway 69 at Moundville	Hale	Black Warrior	65P	32.19	River/Stream

Appendix D. Description of each sampling location.

Station	Sampling	Latitude	Longitud	Waterbody Name	UT	Location	County	Basin	Eco	Sq Mi	Station
FI-1	W-BIO	30.54580	-87.79830	Fish R	N	Fish River at AL Hwy 104.	Baldwin	Mobile	65F	56.11	River/Stream
FJAC-1	NWB	31.30180	-86.28040	Frank Jackson Res	N	Deepest point, main creek channel, dam forebay.	Covington	Yellow	65F	75	Reservoir
FLCE-1	W-BIO	31.08127	-87.59734	Fletcher Ck	N	Fletcher Creek at Ewing Dr	Escambia	Perdido	65F	10.12	River/Stream
FLIM-2A	NWG-S	34.74926	-86.44666	Flint R	N	Flint River at Madison County Rd. 60 (Brownsboro Rd.)	Madison	Tennessee	71G	372.91	River/Stream
FM-1	W-BIO	33.59111	-86.80361	Fivemile Ck	N	Fivemile Ck at US Hwy 31	Jefferson	Black Warrior	68F	31.8	River/Stream
FMCJ-1A	W-BIO	33.58893	-86.77071	Fivemile Ck	N	Fivemile Ck downstream of Springdale Rd, just downstream of confluence with Unnamed Tributary	Jefferson	Black Warrior	67F	25.7	River/Stream
FMCJ-1B	W-BIO	33.60191	-86.75527	Fivemile Ck	N	Fivemile Ck at AL State Hwy 79 (near Ketona)	Jefferson	Black Warrior	67F	22.59	River/Stream
FMCJ-2	W-BIO	33.58498	-86.78891	Fivemile Ck	N	Fivemile Ck upstream of Sloss Discharge and above Railroad Yard	Jefferson	Black Warrior	68F	29.14	River/Stream
FMCJ-6	W-WQS	33.66341	-86.97380	Fivemile Ck	N	Fivemile Ck at Old Hwy 78	Jefferson	Black Warrior	68F	96.53	River/Stream
FMCL-1	W-BIO	34.75655	-86.89503	French Mill Ck	N	French Mill Creek @ Limestone Cnty Rd 93 (Same as PINL-319)	Limestone	Tennessee	71G	7.8	River/Stream
FSHB-7	NWB	30.47421	-87.80221	Fish R	N	Fish River at Baldwin CR 32	Baldwin	Mobile	65F	121	Coastal River/Stream
FSHB-97	W-WQS	30.63659	-87.79959	Fish R	N	Fish R @ US Hwy 90 crossing.	Baldwin	Mobile	65F	17.25	River/Stream
FTCM-6	NWB	34.49114	-86.96539	Flint Ck	N	Flint Creek downstream of Flint Creek/West Flint Creek confluence. Vicinity of US Hwy 31.	Morgan	Tennessee	71G	413	River/Stream
GEOH-1	NWB	31.65700	-85.08291	WF George Res	N	Deepest point, main river channel, dam forebay. Chattahoochee River mile 75.4.	Henry	Chattahoochee	65D	7420	Reservoir
GEOH-10	NWB	31.97427	-85.10963	Cowikee Ck (WF George)	N	Deepest point, main channel, Cowikee Creek embayment.	Barbour	Chattahoochee	65P	465	Reservoir Embayment
GEOH-12	NWB	31.86283	-85.16054	Barbour Ck (WF George)	N	Barbour Creek embayment of Walter F. George Reservoir approximately 0.2 mile downstream of U.S. Hwy 431, deepest point, main channel	Barbour	Chattahoochee	65D	95.9	Reservoir Embayment
GEOH-13	NWB	31.83000	-85.16759	Cheneyhatchee Ck (WF George)	N	Deepest point, main channel Cheneyhatchee Creek embayment.	Barbour	Chattahoochee	65D	53.2	Reservoir Embayment
GEOH-16	NWB	32.30436	-84.95452	Uchee Ck (WF George)	N	Deepest point, main creek channel, Uchee Creek embayment.	Russell	Chattahoochee	65P	332	Reservoir Embayment
GEOH-4	NWB	31.89293	-85.11962	WF George Res	N	Mid reservoir. Deepest point, main river channel, approximately 0.25 miles upstream of U.S. Highway 82 causeway	Barbour	Chattahoochee	65P	6700	Reservoir
GEOH-6	NWB	32.08179	-85.05161	WF George Res	N	Upper reservoir. Deepest point, main river channel, immediately downstream of Florence Marina State Park	Russell	Chattahoochee	65P	6080	Reservoir
GEOH-9	NWB	32.14188	-85.06784	Hatchechubbee Ck (WF George)	N	Deepest point, main channel, Hatchechubee Creek embayment	Russell	Chattahoochee	65P	145	Reservoir Embayment
GMEX-8	NWB	30.25765	-87.51843	Gulf Of Mexico	N	Gulf of Mexico, 1.5 miles offshore at extent of state waters (AL/FL state line).	Baldwin	Perdido	9999		Ocean
GNTC-1	NWB	31.40445	-86.47918	Gantt Res	N	Lower reservoir. Deepest point, main river channel, dam forebay.	Covington	Escambia	65F	643.99	Reservoir
GNTC-2	NWB	31.44041	-86.45151	Gantt Res	N	Upper reservoir. Deepest point, main river channel, approx. one mi. upstream of Covington Co. 86 bridge	Covington	Escambia	65F	614.6	Reservoir
GOOM-1	W-BIO	34.62978	-86.45234	Goose Ck	N	Goose Cr @ Old Hwy 431	Madison	Tennessee	71G	10.51	River/Stream
GRVB-4	W-BIO	34.04500	-86.57200	Graves Ck	N	Graves Creek @ Blount Co. Rd. (Martis Mill Rd.)	Blount	Black Warrior	68D	13.96	River/Stream

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Station	Sampling	Latitude	Longitud	Waterbody Name	UT	Location	County	Basin	Eco	Sq Mi	Station
GUNM-1	NWB	34.83665	-85.82496	Crow Ck (Guntersville)	N	Deepest point, main creek channel, Crow Creek embayment, approximately 0.5 mile downstream of US Hwy 72 bridge	Jackson	Tennessee	68B	265	Reservoir Embayment
GUNM-11	NWB	34.89911	-85.70357	Long Island Ck (Guntersville)	N	Deepest point, main creek channel, approximately 0.5 mile upstream from the main reservoir.	Jackson	Tennessee	68B	85.3	Reservoir Embayment
H-1	W-BIO	33.22983	-87.46181	Hurricane Ck	N	Hurricane Creek @ Co. Rd. 88 (old Co Rd 116) near Peterson (CM 6.9)	Tuscaloosa	Black Warrior	68F	112.88	River/Stream
HACL-1	W-BIO	32.69633	-85.25603	Halawakee Ck	N	Halawakee Creek @ Co Rd 390	Lee	Chattahoochee	45B	42.72	River/Stream
HALC-1	W-BIO	31.51948	-85.87587	Halls Ck	N	Halls Ck @ Coffee Co Rd 114 and 138 intersect	Coffee	Choctawhatchee	65D	6.1	River/Stream
HARL-1	NWB	32.66763	-85.09190	Harding Res	N	Lower reservoir. Deepest point, main river channel, dam forebay.	Lee	Chattahoochee	45B	4240	Reservoir
HARL-2	NWB	32.68878	-85.12679	Halawakee Ck (Harding)	N	Deepest point, main creek channel, Halawakee Creek embayment.	Lee	Chattahoochee	45B	95.1	Reservoir Embayment
HARL-3	NWB	32.72072	-85.12866	Osanippa Ck (Harding)	N	Deepest point, main channel, Osanippa Creek embayment.	Lee	Chattahoochee	45B	126	Reservoir Embayment
HARL-4	NWB	32.76599	-85.13879	Harding Res	N	Upper reservoir. Deepest point, main river channel, immediately downstream of Johnson Island.	Chambers	Chattahoochee	45B		Reservoir
HATC-1	W-BIO	32.91821	-86.26938	Hatchet Ck	N	Hatchet @ CR 18 @ USGS continous Gage (02408540)	Coosa	Coosa	45A	262.02	River/Stream
HNMB-4	W-BIO	33.87612	-86.56885	Hendrick Mill Br	N	Hendrick Mill Br@ Blount Co. Rd.15	Blount	Black Warrior	67F	3.02	River/Stream
HO-1	W-BIO	30.86769	-87.71697	Hollinger Ck	N	Hollinger Creek @ Wiggins Still Road (off Baldwin Co. Rd. 112)	Baldwin	Perdido	65F	8.97	River/Stream
HOLR-1	W-BIO	32.49184	-85.03308	Holland Ck	N	Holland Creek at Railroad Street Bridge	Russell	Chattahoochee	65I	7.22	River/Stream
HOLT-1	NWB	33.25418	-87.44429	Holt Res	N	Lower reservoir. Forebay area, downstream of Deerlick Creek public access area.	Tuscaloosa	Black Warrior	68F	4220	Reservoir
HOLT-2	NWB	33.34641	-87.41554	Holt Res	N	Mid reservoir. Deepest point, main river channel, mid-reservoir. Immed. upstream of Pegues Creek, Black Warrior confluence	Tuscaloosa	Black Warrior	68F	4160	Reservoir
HOLT-3	NWB	33.44900	-87.36570	Holt Res	N	Upper reservoir. Deepest point, main river channel, approximately 0.5 miles downstream of Big Indian Creek, Black Warrior confluence	Tuscaloosa	Black Warrior	68F	3990	Reservoir
HSBM-242A	W-BIO	34.68990	-86.59630	Huntsville Spr Br	N	Huntsville Spring Br @ Johnson Road	Madison	Tennessee	71G	40.94	River/Stream
HUCC-1	W-BIO	31.55550	-85.81868	Huckleberry Ck	N	Huckleberry Cr @ Coffee CR 117	Coffee	Choctawhatchee	65D	3.41	River/Stream
HURD-1	W-BIO	31.36309	-85.61576	Hurricane Ck	N	Hurricane Cr. at Dale CR 21	Dale	Choctawhatchee	65D	26.41	River/Stream
HURR-1	W-BIO	34.91799	-86.13300	Hurricane Ck	N	Hurricane Ck just off Jackson Co. Rd. 9	Jackson	Tennessee	68C	44.38	River/Stream
HUTR-4	W-BIO	32.17700	-85.30820	Hurtsboro Ck	N	Hurtsboro Cr. At Russell CR 49	Russell	Chattahoochee	65B	25.08	River/Stream
IC-1A	NWB	30.27930	-87.68700	Intracoastal Waterway	N	Intracoastal Waterway in Gulf Shores at HWY 59.	Baldwin	Mobile	75K		Coastal River/Stream
IC-3	NWB	30.30417	-87.54167	Bay La Launch	N	Intracoastal Waterway 1/2 mile from Hatchet Point @ marker 69	Baldwin	Perdido	75K		Estuary
IC-3A	NWB	30.30136	-87.61257	Intracoastal Waterway	N	Intracoastal Waterway just west of Wolf Bay at designated coordinates.	Baldwin	Perdido	75A		Coastal River/Stream
IC-4	NWB	30.31353	-87.43640	Intracoastal Waterway	N	Intracoastal Waterway in no-wake zone between Holiday Harbor Marina and Florida SR 292 bridge crossing, FL waters	Escambia	Perdido	75K		Coastal River/Stream
INDM-249	W-BIO	34.69731	-86.70000	Indian Ck	N	Indian Creek at U.S. Highway 72 Alternate (Madison Blvd.)	Madison	Tennessee	71G	48.98	River/Stream

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Station	Sampling	Latitude	Longitud	Waterbody Name	UT	Location	County	Basin	Eco	Sq Mi	Station
INLB-1	NWB	33.83469	-86.55094	Inland Res	N	Lower reservoir. Deepest point, main river channel, dam forebay.	Blount	Black Warrior	68D	69.3	Reservoir
INMW-1	W-BIO	34.21590	-87.22400	Inman Ck	N	Inman Creek @ unnamed Forest Service Rd in the Bankhead National Forest	Winston	Black Warrior	68E	5.32	River/Stream
JACC-1	NWB	30.99290	-86.32470	L Jackson	N	Approximate center of lake.	Covington	Yellow	65F	0.51	Lake
JDYD-4	W-WQS	31.44451	-85.56536	Judy Ck	N	Judy Creek at County Road 20	Dale	Choctawhatchee	65D	114.45	River/Stream
LAYC-12	NWB	33.20703	-86.48864	Dry Br (Lay)	N	Deepest point, main creek channel, Dry Branch embayment, approx. 1 mile upstream from lake confluence	Shelby	Coosa	67F	3.88	Reservoir Embayment
LAYC-18	NWB	33.19727	-86.45623	Hay Spr Br (Lay)	N	Deepest point main creek channel Hay Spring Branch embayment approx. 0.5 mile upstream from lake confluence	Talladega	Coosa	67F		Reservoir Embayment
LAYC-9	NWB	33.24758	-86.45697	Yellowleaf Ck (Lay)	N	Deepest point, main creek channel, Yellowleaf Creek embayment, upstream of Gaston Steam Plant discharge	Shelby	Coosa	67F		Reservoir Embayment
LFKB-1	W-BIO	34.02370	-86.57334	Locust Fk	N	Locust Fork @ ALA HWY 231	Blount	Black Warrior	68D	302.82	River/Stream
LFKJ-5	NWB	33.63653	-87.06124	Locust Fk	N	Locust Fork @ Co Rd 45"Porter Road"	Jefferson	Black Warrior	68F	1040	River/Stream
LICK-2	W-BIO	34.86549	-86.25331	Lick Ck	N	Lick Creek at CR 513	Jackson	Tennessee	68C	12.7	River/Stream
LIML-300	W-BIO	34.75210	-86.82320	Limestone Ck	N	Limestone Cr at Hwy 72 Bridge	Limestone	Tennessee	71G	120.88	River/Stream
LLCC-2	W-BIO	34.12352	-86.79050	Loveless Ck	N	Intersection @ CR-702	Cullman	Black Warrior	68D	6.96	River/Stream
LLEB-1	NWB	30.25490	-87.69918	Little Lagoon	N	East Little Lagoon.	Baldwin	Perdido	75K		Estuary
LLWB-1	NWB	30.23891	-87.77928	Little Lagoon	N	West Little Lagoon.	Baldwin	Perdido	75K		Estuary
LNDB-1	W-BIO	31.72006	-85.48532	Lindsey Ck	N	Lindsey Ck @ Barbour Co Rd 41 intersect	Barbour	Choctawhatchee	65D	40.3	River/Stream
LOCH-1	W-BIO	31.32244	-85.30180	Little Omusee Ck	N	Intersection of Creek with CR-13	Henry	Chattahoochee	65G	5.42	River/Stream
LONB-24A	W-BIO	33.84301	-86.72717	Longs Br	N	@ unnamed Blount Co Rd	Blount	Black Warrior	68F	16.15	River/Stream
LTPR-1	NWG-S	33.43722	-85.39917	Little Tallapoosa R	N	Randolph Co. Rd. 82	Randolph	Tallapoosa	45A	405.81	River/Stream
MALL-410	W-BIO	34.67830	-87.18990	Mallard Ck	N	Browns Ferry rd Bridge By Smith Cemetary	Lawrence	Tennessee	71G	21.28	River/Stream
MBFB-1	W-BIO	33.87240	-86.92378	Mulberry Fk	N	Mulberry Fork at CR 17	Blount	Black Warrior	68E	488.13	River/Stream
MBFB-10	W-BIO	34.17364	-86.56114	Mulberry Fk	N	Mulberry Fork @ US Hwy 278	Blount	Black Warrior	68D	67	River/Stream
MBFB-13	NWG-D	33.94997	-86.83792	Mulberry Fk	N	Mulberry Fork , on private property off of County Road 501. Station is by an old burned out bridge of "Ricetown Road". Prev Coord (33.95045, -86.83842)	Cullman	Black Warrior	68E	415.6	River/Stream
MBFB-4	W-BIO	33.99667	-86.74964	Mulberry Fk	N	Mulberry Fork at Garden City River Park off Old US Hwy 31, downstream of Garden City WWTP Outfall	Blount	Black Warrior	68E	364.59	River/Stream
MBFB-5	W-BIO	34.01208	-86.73658	Mulberry Fk	N	Mulberry Fork at CR 26	Blount	Black Warrior	68E	358.15	River/Stream
MBFB-6	W-BIO	34.05430	-86.70646	Mulberry Fk	N	Mulberry Fork at CR 10	Cullman	Black Warrior	68D	330.77	River/Stream
MBFB-7	NWG-S	34.08669	-86.69739	Mulberry Fk	N	Mulberry Fork at CR 47	Cullman	Black Warrior	68D	97.1	River/Stream
MBFW-2	NWB	33.81711	-87.12932	Mulberry Fk	N	Deepest point of the main river channel of Mulberry Fork approx. 1 mi N Hwy 78 bridge	Walker	Black Warrior	68F	1590	River/Stream
MBFW-3	NWB	33.82755	-87.05238	Mulberry Fk	N	On the Mulberry Fork, approximately 1 mile or so upstream of the confluence with the Sipsey Fork. Coordinates for the launch site are 33.816012 , -87.057668	Walker	Black Warrior	68D	565.25	River/Stream
MCH-2	W-BIO	34.05517	-86.73967	Mud Ck	N	Mud Creek at CR 532 crossing	Cullman	Black Warrior	68D	12.64	River/Stream
MGNB-101	W-WQS	30.40662	-87.73671	Magnolia R	N	Magnolia River @ US Hwy 98 crossing.	Baldwin	Mobile	65F	15.74	River/Stream
MGRB-8	NWB	30.39669	-87.78344	Magnolia R	N	Magnolia River approximately 2.5 miles upstream of Weeks Bay. Area just upstream of Weeks Creek/Magnolia River confluence	Baldwin	Mobile	75A	26.5	Coastal River/Stream

Appendix D. Description of each sampling location.

Station	Sampling	Latitude	Longitud	Waterbody Name	UT	Location	County	Basin	Eco	Sq Mi	Station
MGRB-9	NWB	30.39020	-87.80820	Magnolia R	N	Magnolia River downstream of Noltie Creek.	Baldwin	Mobile	75A	39.4	Coastal River/Stream
MICR-1	W-BIO	32.46560	-85.00078	Mill Ck	N	Mill Creek @ Broad St in Phenix City	Russell	Chattahoochee	65I	24.54	River/Stream
MIFB-1	NWB	30.36370	-87.60270	Miflin Ck	N	Miflin Creek at Co Rd 20.	Baldwin	Perdido	75A		Coastal River/Stream
MIFB-2	W-BIO	30.40023	-87.59116	Miflin Ck	N	Miflin Ck at dirt road off of Selene Ln west.	Baldwin	Perdido	65F	5.97	River/Stream
MLCT-3	W-BIO	33.24137	-87.60319	Mill Ck	N	Mill Creek at the end of Eleanor Street off of Hwy 43.	Tuscaloosa	Black Warrior	65I	12.06	River/Stream
MOBM-1	NWB	31.01370	-88.01853	Mobile R	N	Mobile River at Bucks near the MAWSS water intake	Mobile	Mobile	75I	43293.2	River/Stream
MOOC-2	W-BIO	32.85285	-85.19823	Moores Ck	N	Moore's Creek @ AL Hwy 50 intersect	Chambers	Chattahoochee	45B	10.08	River/Stream
MOOC-3	W-BIO	32.81521	-85.17129	Moores Ck	N	Moores Ck at AL Hwy 29	Chambers	Chattahoochee	45B	17.84	River/Stream
MUDJ-1	W-BIO	33.44585	-87.19014	Mud Ck	N	Mud Creek at CR 54 (Lock 17 Rd)	Jefferson	Black Warrior	68F	43.07	River/Stream
MURE-1	W-BIO	31.10081	-87.06807	Murder Ck	N	Murder Creek at Lee St	Escambia	Escambia	65F	435	River/Stream
MURE-2	W-BIO	31.19198	-87.02632	Murder Ck	N	Murder Creek at Upper Kirkland Rd	Escambia	Escambia	65F	328.71	River/Stream
NCHT-1	NWB	33.29058	-87.48328	Lake Nicol Res	N	YELLOW CREEK, LAKE NICOL, LAKE WIDE SAMPLE	Tuscaloosa	Black Warrior	68F	26.41	Reservoir
NEDG-2	W-BIO	32.69870	-87.90320	Needham Ck	N	Needham Creek @ US Hwy 43.	Greene	Black Warrior	65A	6.56	River/Stream
NEES-16	NWB	34.00791	-85.95652	Coal Ck (Neely Henry)	N	Deepest point main creek channel Coal Creek embayment approx. 0.5 miles upstream of lake confluence	Etowah	Coosa	67G		Reservoir Embayment
NEES-17	NWB	34.01050	-85.92320	Cove Ck (Neely Henry)	N	Deepest point main creek channel Cove Creek embayment approx. 0.5 miles upstream of lake confluence	Etowah	Coosa	67G		Reservoir Embayment
NFHT-1	W-BIO	33.22328	-87.30665	N Fk Hurricane Ck	N	North Fork Hurricane Ck at private bridge located at far side of Mobile Home Park nr Tuscaloosa CR 59	Tuscaloosa	Black Warrior	68F	13.61	River/Stream
NGOB-2	W-BIO	30.48700	-87.63200	Negro Ck	N	~100ft Downstream of Hwy 83	Baldwin	Perdido	65F	16.4	River/Stream
NLYW-1A	W-BIO	34.81696	-87.30259	Neely Br	N	at McLean Rd.	Lauderdale	Tennessee	71G	4.04	River/Stream
NRRT-1	W-BIO	33.47980	-87.59681	North R	N	North River at CR 38	Tuscaloosa	Black Warrior	65I	222.55	River/Stream
OLIT-1	NWB	33.21139	-87.58344	Oliver Res	N	Lower reservoir. Deepest point, main river channel, dam forebay.	Tuscaloosa	Black Warrior	65I	4830	Reservoir
OLIT-2	NWB	33.24257	-87.50428	Oliver Res	N	Mid reservoir. Deepest point, main river channel, mid-reservoir. Immed. downstream of North River, Black Warrior confluence	Tuscaloosa	Black Warrior	65I	4800	Reservoir
OLIT-3	NWB	33.25320	-87.46100	Oliver Res	N	Upper Oliver Reservoir at deepest point, main channel, approximately 0.5 mi ds of confluence with Hurricane Creek	Tuscaloosa	Black Warrior	68F	4370	Reservoir
OLRB-1	NWB	30.28396	-87.51833	Perdido Bay	N	Old River between Ono Island and Flora-Bama Yacht Club.	Baldwin	Perdido	9999		Estuary
OMSH-2	W-BIO	31.31045	-85.27443	Omusee Ck	N	at E County 22 Rd	Houston	Chattahoochee	65G	77.9	River/Stream
OMUH-2	W-BIO	31.26390	-85.31780	Omusee Ck	N	Omussee Cr approximately 1 mile downstream of the WWTP at first Co Rd crossing	Houston	Chattahoochee	65G	46.14	River/Stream
OSGC-1	W-WQS	32.92274	-85.29971	Oseligee Ck	N	Oseligee Creek at County Road 92	Chambers	Chattahoochee	45B	86.34	River/Stream
OYBB-2	NWB	30.27110	-87.73194	Oyster Bay	N	Oyster Bay middle.	Baldwin	Mobile	75K		Estuary
PALC-2	NWG-S	31.59590	-86.40407	Patsaliga Ck	N	Patsaliga Creek at State Highway 106 (near Brantley)	Crenshaw	Escambia	65D	440.75	River/Stream
PATC-1	W-BIO	31.43840	-86.11210	Patrick Ck	N	Patrick Cr On Coffee County Rd 368 (was Co 97)	Coffee	Choctawhatchee	65D	9.08	River/Stream

Appendix D. Description of each sampling location.

Station	Sampling	Latitude	Longitud	Waterbody Name	UT	Location	County	Basin	Eco	Sq Mi	Station
PDBB-0	NWB	30.27968	-87.54948	Perdido Bay	N	Perdido Bay at approximately 0.25 miles us of State Highway 182 bridge.	Baldwin	Perdido	9999		Estuary
PDBB-1	NWB	30.36600	-87.45170	Perdido Bay	N	Perdido Bay at mid-bay west of DuPont Point.	Baldwin	Perdido	75A		Estuary
PDBB-3	NWB	30.45010	-87.38200	Perdido Bay	N	Perdido Bay at mid-channel south of Chambers Point. Fish tissue location near Grassy Point and Chambers Point	Baldwin	Perdido	75A		Estuary
PDBB-5	NWG-S	30.69047	-87.44026	Perdido R	N	Perdido River at Barrineau Park Rd. on AL/FL line (off State Highway 112)	Baldwin	Perdido	65F	393.31	River/Stream
PEAG-1	NWB	31.02460	-85.87600	Pea R	N	Deepest point, main river channel, approximately 0.5 miles upstream of the confluence with Choctawhatchee River	Geneva	Choctawhatchee	65G	1553.71	River/Stream
PEAG-2	NWG-S	31.11200	-86.09937	Pea R	N	Pea River at State Highway 52 (near Samson)	Geneva	Choctawhatchee	65G	1181.59	River/Stream
PECB-2	W-WQS	31.79662	-85.65303	Pea Ck	N	Pea Creek at County Hwy 9	Barbour	Choctawhatchee	65D	104.5	River/Stream
PICL-3	NWB	34.74694	-87.86389	Cane Ck (Pickwick)	N	Cane Creek embayment approximately 1 mile upstream of confluence with Tennessee River.	Colbert	Tennessee	71G	58.9	Reservoir Embayment
PLSB-1	W-WQS	31.76225	-85.49271	Pauls Ck	N	Pauls Creek at County Road 20	Barbour	Choctawhatchee	65D	15.58	River/Stream
PND-3	W-BIO	34.75813	-87.60212	Pond Ck	N	Pond Creek at Second Street (AKA Ala Hwy 184) at man's driveway. (NE1/4 of Section 32)	Colbert	Tennessee	71G	19.6	River/Stream
PNDC-10	W-BIO	34.78958	-87.64392	Pond Ck	N	Pond Creek at mouth upstream of TVA trail bridge	Colbert	Tennessee	71G	32.86	River/Stream
PNDC-2C	W-WQS	34.75772	-87.60092	Pond Ck	N	Pond Creek upstream of Wise Alloys canal	Colbert	Tennessee	71G	17.71	River/Stream
PONC-2	W-BIO	31.10252	-86.53908	Pond Ck	N	Pond Creek at County Road 24/Open Pond Road	Covington	Yellow	65G	4.57	River/Stream
PRCH-1	W-BIO	31.54617	-85.39748	Panther Ck	N	Panther Creek @ Co. Rd. 40	Henry	Choctawhatchee	65D	11.86	River/Stream
PRRJ-1	NWG-S	34.62417	-86.30639	Paint Rock R	N	Paint Rock R at U.S. Highway 72	Jackson	Tennessee	71G	320.87	River/Stream
PRRJ-4	W-WQS	34.69861	-86.30809	Paint Rock R	N	Paint Rock R on Jones Farm	Jackson	Tennessee	71G	291	River/Stream
PTAC-1	NWB	31.36214	-86.51637	Point A Res	N	Lower reservoir. Deepest point, main river channel, dam forebay.	Covington	Escambia	65F	1259	Reservoir
PTAC-2	NWB	31.37855	-86.52325	Patsaliga Ck (Point A)	N	Deepest point, main channel, Patsaliga Creek embayment.	Covington	Escambia	65F	599.82	Reservoir Embayment
PTHC-1	W-BIO	31.10827	-86.65471	Panther Ck	N	Panther Creek @ FR 305	Covington	Blackwater	65F	11.3	River/Stream
PTRH-1	W-BIO	31.48045	-85.14764	Peterman Ck	N	Peterman Ck @ Henry Co Rd 28 intersect	Henry	Chattahoochee	65D	31.61	River/Stream
RCKB-2	W-BIO	30.55193	-87.67309	Rock Ck	N	Rock Ck US of Robertsdale STP	Baldwin	Perdido	65F	6.6	River/Stream
RUSW-1	W-BIO	34.27356	-87.25157	Rush Ck	N	Rush Ck at Forest Service Rd. 245	Winston	Black Warrior	68E	12.1	River/Stream
SCRL-2	W-BIO	34.29843	-86.11664	Scarham Ck	N	Scarham Creek at Marshall County Rd. 372 (McVille Rd.)	Marshall	Tennessee	68D	54.51	River/Stream
SDYB-2	NWB	30.37040	-87.61840	Sandy Ck	N	Sandy Creek approximately 50ft downstream of Co Rd 20/ Miflin Rd.	Baldwin	Perdido	75A	13.34	Coastal River/Stream
SECE-2B	W-BIO	31.09925	-87.39003	Sizemore Ck	N	Sizemore Ck @ Co. Rd 27 (Robinson Rd), downstream	Escambia	Escambia	65F	79.81	River/Stream
SECE-6	W-BIO	31.08617	-87.50546	Sizemore Ck	N	Sizemore Ck @ Co. Rd 27 (Robinson Rd), downstream	Escambia	Escambia	65F	6.7	River/Stream
SF-1	W-BIO	34.28558	-87.39906	Sipsey Fk	N	Sipsey Fork at Winston Co. Rd. 60 (Cranal Rd.)	Winston	Black Warrior	68E	89.19	River/Stream
SF-2	W-BIO	34.21810	-87.36891	Sipsey Fk	N	Sipsey Fork @ AL Hwy 33 north of Double Springs	Winston	Black Warrior	68E	125.81	River/Stream
SF-5	NWB	33.82124	-87.07076	Sipsey Fk	N	Sipsey Fork, approximately 1 mile upstream of the confluence with the Mulberry Fork.	Walker	Black Warrior	68E		River/Stream
SF-6	NWG-S	33.90864	-87.08226	Sipsey Fk	N	Sipsey Fork AL HWY 69 Bridge @ the Riverside Fly Shop boat ramp.	Cullman	Black Warrior	68E	967.68	River/Stream
SGCB-1	W-BIO	31.99172	-85.60669	Spring Ck	N	At Bucllock Co Rd 14	Bullock	Choctawhatchee	65D	10.52	River/Stream
SGRL-2	W-BIO	34.89680	-87.14300	Sugar Ck	N	Sugar Cr @ Limestone Co. Rd. 21.	Limestone	Tennessee	71H	172.71	River/Stream

Appendix D. Description of each sampling location.

Station	Sampling	Latitude	Longitud	Waterbody Name	UT	Location	County	Basin	Eco	Sq Mi	Station
SHLB-1	NWB	30.25933	-87.66223	L Shelby	N	Lake Shelby in Gulf State Park in deep hole ~ 15-18 feet deep created by a spring.	Baldwin	Perdido	75K		Lake
SHLL-2	W-WQS	35.02403	-87.57899	Shoal Ck	N	Shoal Creek at Iron City Road in Iron City, Tennessee, at USGS gage # 03588500	Lawrence	Tennessee	71F	348	River/Stream
SHLM-1	W-WQS	34.38910	-86.42502	Shoal Ck	N	@ Marshall Co. Rd. 240.	Marshall	Tennessee	68D	27.19	River/Stream
SHMD-2	W-BIO	34.30261	-86.02032	Scarham Ck	N	Scarham Cr @ Co Rd 28.	Dekalb	Tennessee	68D	30.07	River/Stream
SKSD-4	W-WQS	31.67310	-85.53194	Sikes Ck	N	Sikes Creek at AL Hwy 10	Barbour	Choctawhatchee	65D	21.67	River/Stream
SLAM-22C	W-BIO	34.21226	-86.27232	Slab Ck	N	@ unnamed Marshall Co Rd nr Douglas	Marshall	Black Warrior	68D	23.48	River/Stream
SLDB-1	NWB	30.34569	-87.49500	Soldier Ck	N	SOLDIER CREEK LAT/LON CALCULATED AT MOUTH TO PERDIDO BAY CREEK-WIDE SAMPLE	Baldwin	Perdido	75A		Coastal River/Stream
SMIW-1	NWB	33.94954	-87.11081	Smith Res	N	Deepest point, main river channel, dam forebay.	Cullman	Black Warrior	68E	944	Reservoir
SMIW-10	NWB	33.96190	-87.10080	Ryan Ck (Lewis Smith)	N	Deepest point, main creek channel, Ryan Creek embayment.	Cullman	Black Warrior	68E	174	Reservoir Embayment
SMIW-11	NWB	34.03132	-86.95278	Simpson Ck (Lewis Smith)	N	Deepest point, main creek channel, Simpson Creek embayment, approx. 2.5 mi upstream of Ryan Creek	Cullman	Black Warrior	68E	18.3	Reservoir Embayment
SMIW-2	NWB	33.98607	-87.20529	Smith Res	N	Deepest point, main river channel, at Duncan Creek/Sipsey River confluence. Downstream of Alabama Hwy 257 bridge	Winston	Black Warrior	68E	524	Reservoir
SMIW-3	NWB	34.06350	-87.25840	Smith Res	N	Deepest point, main river channel, immed. downstream of Brushy Creek confluence.	Winston	Black Warrior	68E	356	Reservoir
SMIW-4	NWB	34.07542	-87.25055	Brushy Ck (Lewis Smith)	N	Deepest point, main creek channel, Brushy Creek embayment.	Winston	Black Warrior	68E	137	Reservoir Embayment
SMIW-5	NWB	34.08218	-87.25805	Smith Res	N	Sipsey R. Deepest point, main river channel, approx. 0.5 miles downstream of the Sipsey Fork, Yellow Creek confluence	Winston	Black Warrior	68E	216	Reservoir
SMIW-6	NWB	34.02100	-87.26300	Clear Ck (Lewis Smith)	N	Deepest point, main creek channel, Clear Creek embayment.	Winston	Black Warrior	68E	150	Reservoir Embayment
SMIW-7	NWB	34.01350	-87.19120	Smith Res	N	Deepest point, main creek channel, Dismal Creek embayment.	Winston	Black Warrior	68E	13.1	Reservoir
SMIW-8	NWB	33.99874	-87.11970	Rock Ck (Lewis Smith)	N	Deepest point, main creek channel, Rock Creek embayment.	Winston	Black Warrior	68E	205	Reservoir Embayment
SMIW-9	NWB	34.06271	-87.12304	Crooked Ck (Lewis Smith)	N	Deepest point, main creek channel, Crooked Creek embayment. Approx. 1.5 miles upstream of Winston Co. Rd. 22 bridge	Winston	Black Warrior	68E	75.2	Reservoir Embayment
SPLC-3	NWG-S	31.45362	-86.78680	Sepulga R	N	Sepulga River at U.S. Highway 31 (near McKenzie)	Conecuh	Escambia	65F	469.39	River/Stream
SPMH-1	W-BIO	31.33812	-85.24979	Spivey Mill Ck	N	Spivey Mill Ck @ Henry Co. Rd. 6	Henry	Chattahoochee	65G	18.28	River/Stream
SPNCV-6	W-BIO	30.39538	-87.46214	Peterson Br	N	Peterson Br at Pensacola St.	Baldwin	Perdido	75A	2.4	Coastal River/Stream
SSB-1	W-BIO	32.96906	-87.39776	S Sandy Ck	N	South Sandy Creek @ Talladega National Forest Rd. 731.:Validated Ecoregional Reference Site	Bibb	Black Warrior	65I	11.46	River/Stream
SSB-2	W-BIO	32.94268	-87.37584	S Sandy Ck	N	South Sandy Ck approximately 0.5mi upstream of crossing with National Forrest Road 726	Bibb	Black Warrior	65I	1.29	River/Stream
STXB-3	W-WQS	30.60532	-87.54700	Styx R	N	Styx River at Baldwin County Rd. 87 (near Elsanor)	Baldwin	Perdido	65F	190.67	River/Stream
SWNL-392	W-BIO	34.78497	-86.94780	Swan Ck	N	Swan Cr at US Hwy 72/SR 2 near Athens	Limestone	Tennessee	71G	30.16	River/Stream
TA-2	W-BIO	33.73272	-85.37217	Tallapoosa R	N	Tallapoosa River @ bridge crossing east of Muscadine	Cleburne	Tallapoosa	45D	315.21	River/Stream

Appendix D. Description of each sampling location.

Station	Sampling	Latitude	Longitud	Waterbody Name	UT	Location	County	Basin	Eco	Sq Mi	Station
TCJ-1	W-BIO	33.82488	-87.27584	Town Ck	N	Town Creek approximately 1 mi. us of WWTP discharge at 26th St. East bridge	Walker	Black Warrior	68F	11.86	River/Stream
TECB-1	NWB	30.28778	-87.55715	Terry Cove	N	Terry Cove about 1/4 mile North East of Boggy Point boat ramp	Baldwin	Perdido	9999		Estuary
TENR-215	NWB	34.99830	-88.19890	Tennessee R	N	Pickwick Reservoir on the Tennessee River at mile 215.1	Lauderdale	Tennessee	65J	32800	River/Stream
TENR-310	NWB	34.57844	-86.89942	Wheeler Res	N	Main river channel, approx. 1/2 mi upstream of the I-65 bridge.	Limestone	Tennessee	71G	26400	Reservoir
TENR-349	NWB	34.42778	-86.40236	Tennessee R	N	Tennessee River below Guntersville Dam	Marshall	Tennessee	68C	24500	River/Stream
TENR-417	NWB	35.00422	-85.69738	Tennessee R	N	At AL/TN stateline just upstream of Long Island at RM 417.	Jackson	Tennessee	68B	22700	River/Stream
TKYD-1	W-BIO	31.41790	-85.43190	Turkey Ck	N	Intersection with CR-16	Dale	Choctawhatchee	65D	5.12	River/Stream
TMEB-1	W-BIO	30.47287	-87.55510	Threemile Ck	N	Three Mile Ck @ Baldwin Co Rd 32 intersect	Baldwin	Perdido	65F	11.68	River/Stream
TN-4A	NWB	35.01415	-86.99465	Elk R	N	Elk River at Veto Rd. (near Prospect TN)	Giles	Tennessee	71H	1805	River/Stream
TPSL-1	W-BIO	34.34100	-87.47120	Thompson Ck	N	Thompson Creek @ US Forest Service Rd. 208. in the Bankhead National Forest	Lawrence	Black Warrior	68E	15.36	River/Stream
TRKJ-3	W-BIO	33.70248	-86.69717	Turkey Ck	N	Turkey Ck at Preserve Park rapids	Jefferson	Black Warrior	68F	26.71	River/Stream
TUST-1	NWB	33.26853	-87.50843	Tuscaloosa Res	N	Lower reservoir. Deepest point, main river channel, dam forebay.	Tuscaloosa	Black Warrior	65I	423	Reservoir
TUST-2	NWB	33.37468	-87.59459	Tuscaloosa Res	N	Upper reservoir. Deepest point, main river channel, immed. downstream of Binion Creek confluence. TUS2: One mile downstream of Hwy 43/Binion Ck boat ramp. Below the confluence of Binion Ck and North R.	Tuscaloosa	Black Warrior	65I	358	Reservoir
TUST-3	NWB	33.34054	-87.56042	Tuscaloosa Res	N	Mid reservoir. Deepest point, main river channel, approximately 1.0 mile downstream of Alabama Hwy. 69 bridge.	Tuscaloosa	Black Warrior	65I	379	Reservoir
TUST-4	NWB	33.39790	-87.57950	Tuscaloosa Res	N	North River immediately upstream of Bull Slough Road crossing, deepest point, main channel.	Tuscaloosa	Black Warrior	65I	268	Reservoir
TUST-5	NWB	33.39720	-87.61010	Binion Ck (Tuscaloosa)	N	Binion Creek, deepest point, main channel, immediately upstream of Hwy 43.	Tuscaloosa	Black Warrior	65I	65.1	Reservoir Embayment
UCCR-1	NWG-S	32.31663	-85.01448	Uchee Ck	N	Uchee Ck @ AL Hwy 165	Russell	Chattahoochee	65D	321.81	River/Stream
VALJ-8	W-BIO	33.44742	-87.12187	Valley Ck	N	Jefferson Co. Rd. near Oak Grove	Jefferson	Black Warrior	68F	148.49	River/Stream
VI-3	NWG-S	33.54797	-86.92567	Village Ck	N	Village Creek at Jefferson Co Rd 65.	Jefferson	Black Warrior	68F	52.22	River/Stream
VLGJ-5	W-BIO	33.62729	-87.05334	Village Ck	N	Village Creek on CR 45 at Power Plant nr West Jefferson	Jefferson	Black Warrior	68F	96.36	River/Stream
WARG-1	NWB	32.77967	-87.83922	Warrior Res	N	Lower reservoir. Deepest point, main river channel, dam forebay.	Greene	Black Warrior	65P	5810	Reservoir
WARG-2	NWB	32.89492	-87.78727	Warrior Res	N	Mid reservoir. Deepest point, main river channel, immediately downstream of Lock 8 Public Use Area.	Greene	Black Warrior	65P	5540	Reservoir
WARG-3	NWB	32.99508	-87.70566	Warrior Res	N	Upper reservoir. Deepest point, main river channel, at Lock 9 Public Use Area.	Greene	Black Warrior	65P	5290	Reservoir
WARG-4	NWB	33.13380	-87.68260	Warrior Res	N	Above I-59. Deepest point, main river channel, approximately 3.5 miles upstream of I-59 crossing.	Tuscaloosa	Black Warrior	65P	4910	Reservoir
WARG-5	NWB	33.04470	-87.62310	Big Sandy Ck (Warrior)	N	Main creek channel of Big Sandy Creek, approximately 0.5 mi us of confluence with Black Warrior River	Tuscaloosa	Black Warrior	65P	177	Reservoir Embayment
WARG-6	NWB	32.89990	-87.75590	Fivemile Ck (Warrior)	N	Five Mile Creek approximately 0.5 mi us of confluence with Black Warrior River	Hale	Black Warrior	65P	109	Reservoir Embayment

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Station	Sampling	Latitude	Longitud	Waterbody Name	UT	Location	County	Basin	Eco	Sq Mi	Station
WARG-7	NWB	32.83340	-87.80380	Big Brush Ck (Warrior)	N	Big Brush Creek approximately 0.5 mi us of confluence with Black Warrior River	Hale	Black Warrior	65P	196	Reservoir Embayment
WB-1	NWB	30.41469	-87.82583	Fish R	N	Weeks Bay at US Hwy 98 (Marina).	Baldwin	Mobile	75A	153	Coastal River/Stream
WCP-1	W-WQS	31.76950	-85.92480	Walnut Ck	N	Walnut Cr approximately 1/3 mile downstream of US Hwy 231, immediately upstream of the Troy Walnut Cr WWTP effluent mixing zone	Pike	Choctawhatchee	65D	21.23	River/Stream
WCP-1A	W-WQS	31.76652	-85.92567	Walnut Ck	N	Walnut Cr just downstream of the Troy Walnut Cr WWTP effluent mixing zone	Pike	Choctawhatchee	65D	21.24	River/Stream
WDFA-2A	NWB	32.41142	-86.40836	Woodruff Res	N	Deepest point, main river channel, immediately upstream of Hwy 31 bridge.	Elmore	Alabama	65P	15099.2	Reservoir
WDWJ-1	NWG-S	34.91653	-85.76835	Widows Ck	N	At old AL Hwy 72 near Bridgeport.	Jackson	Tennessee	68B	37.08	River/Stream
WDWJ-3	NWB	34.89174	-85.74112	Widows Ck	N	Widows Creek between Tennessee River confluence and 1.0 mile upstream of confluence.	Jackson	Tennessee	68B		River/Stream
WEIC-12	NWB	34.20244	-85.45240	Weiss Res	N	Deepest point, main river channel, Alabama/Georgia state line.	Cherokee	Coosa	67G	4294.98	Reservoir
WESC-1	NWB	32.93430	-85.19175	West Point Res	N	Lower reservoir. Deepest point, main river channel, dam forebay .	Chambers	Chattahoochee	45B	3430	Reservoir
WESC-2	NWB	32.99830	-85.19836	West Point Res	N	Deepest point, main creek channel, immediately downstream of Wehadkee/Veasey/Stroud Creeks confluence	Troup	Chattahoochee	45B	152	Reservoir
WESC-3	NWB	33.02865	-85.16483	West Point Res	N	Upper reservoir. Deepest point, main river channel, at GA Hwy. 109 bridge.	Troup	Chattahoochee	45B	3250	Reservoir
WFFM-1	W-BIO	34.96079	-86.57181	W Fk Flint R	N	West Fork Flint River at Old Hwy-Flood Lane	Madison	Tennessee	71G	35.5	River/Stream
WHEL-1	NWB	34.48325	-86.45508	Paint Rock R (Wheeler)	N	Deepest point, main river channel, Paint Rock River, approximately 1 mile upstream of confluence with Tennessee River	Madison	Tennessee	68C	458	Reservoir Embayment
WHEL-10	NWB	34.83745	-87.37147	Second Ck (Wheeler)	N	Deepest point, main creek channel, Second Creek embayment, approximately 0.5 mile downstream of Hwy 72 bridge	Lauderdale	Tennessee	71F	56.4	Reservoir Embayment
WHEL-11	NWB	34.63767	-87.02961	Bakers Ck (Wheeler)	N	Bakers Creek upstream of Bakers Creek/Tennessee River confluence.	Morgan	Tennessee	71G		Reservoir Embayment
WHEL-13	NWB	34.66969	-87.00228	Swan Ck (Wheeler)	N	Deepest point, main creek channel, Swan Creek embayment, approximately 1 mile downstream of CR 45 bridge	Limestone	Tennessee	71G	56.5	Reservoir Embayment
WHEL-2	NWB	34.51073	-86.51411	Flint R (Wheeler)	N	Deepest point, main river channel, Flint River, approximately 1 mile upstream of confluence with Tennessee River	Madison	Tennessee	71G	568	Reservoir Embayment
WHEL-3	NWB	34.58431	-86.72915	Indian Ck (Wheeler)	N	Deepest point, main creek channel, Indian Creek embayment, 1 mile upstream of lake confluence.	Madison	Tennessee	71G	189	Reservoir Embayment
WHEL-4	NWB	34.54297	-86.72628	Cotaco Ck (Wheeler)	N	Deepest point, main creek channel, Cotaco Creek embayment, immediately upstream of Sharps Ford Bridge	Morgan	Tennessee	71G	228	Reservoir Embayment
WHEL-5	NWB	34.59333	-86.89028	Limestone Ck (Wheeler)	N	Limestone Creek embayment beginning approximately 1 mile upstream of confluence with Tennessee River	Limestone	Tennessee	71G	287	Reservoir Embayment
WHEL-6	NWB	34.55889	-86.94806	Flint Ck (Wheeler)	N	Deepest point, main creek channel, Flint Creek embayment, 1 mile downstream of AL Hwy 67 bridge at public access area	Morgan	Tennessee	71G	444	Reservoir Embayment

Appendix D. Description of each sampling location.

Station	Sampling	Latitude	Longitud	Waterbody Name	UT	Location	County	Basin	Eco	Sq Mi	Station
WHEL-7	NWB	34.62081	-87.00064	Dry Br (Wheeler)	N	Deepest point, main creek channel, Dry Branch embayment, immediately downstream of Alt. Hwy. 72 bridge	Morgan	Tennessee	71G	5.42	Reservoir Embayment
WHEL-8	NWB	34.69864	-87.05074	Round Island Ck (Wheeler)	N	Deepest point, main creek channel, Round Island Creek embayment, approximately 1.5 miles upstream of lake confluence	Limestone	Tennessee	71G	49.7	Reservoir Embayment
WHEL-9	NWB	34.72263	-87.28049	Spring Ck (Wheeler)	N	Deepest point, main creek channel, Spring Creek embayment, approximately 0.5 mile upstream of Co Rd 400 bridge	Lawrence	Tennessee	71G	16.5	Reservoir Embayment
WHIB-74A	W-BIO	34.09506	-86.38320	Whippoorwill Ck	N	@ Blount Co. Rd 36	Blount	Black Warrior	68D	18.35	River/Stream
WKBB-1	NWB	30.39750	-87.83361	Weeks Bay	N	Central Weeks Bay about 1.4 miles north of the mouth.	Baldwin	Mobile	75A	154	Estuary
WKBB-3	NWB	30.37490	-87.83790	Weeks Bay	N	Mouth of Weeks Bay	Baldwin	Mobile	75K		Estuary
WKBB-4	NWB	30.39360	-87.82224	Weeks Bay	N	Weeks Bay at mouth of Magnlia River, 400 yards due south of point.	Baldwin	Mobile	75A	41.9	Estuary
WLFB-11	NWB	30.35308	-87.60319	Wolf Bay	N	Wolf Bay at Mid-Bay south of Moccasin Bayou	Baldwin	Perdido	999		Estuary
WLFB-12	NWB	30.34441	-87.58037	Wolf Bay	N	Wolf Bay upper reach of Hammock Creek Embayment	Baldwin	Perdido	9999	7.66	Estuary
WLFB-2	NWB	30.32124	-87.58962	Wolf Bay	N	Wolf Bay at Mid-Bay off Mulberry Point	Baldwin	Perdido	999		Estuary
WMCC-2	W-BIO	34.08900	-86.75400	Whaley Mill Ck	N	County: CULLMAN, Alabama Ecoregion: 68D Ichthyoregion: Plateau	Cullman	Black Warrior	68D	7.07	River/Stream
WOFW-1	NWG-S	33.63139	-87.31694	Wolf Ck	N	Wolf Cr @ Co. Rd. 35 in	Walker	Black Warrior	68F	100.48	River/Stream
WPHM-1	W-BIO	34.78841	-86.59854	W Fk Pinhook Ck	N	West Fork Pinhook Creek at Blue Springs Rd	Madison	Tennessee	71G	2.28	River/Stream
YBCM-3	W-BIO	34.54863	-86.45071	Yellow Bank Ck	N	Yellow Bank Cr at Oak Grove Rd - just us of Hobbs Island Rd (better flow?)	Madison	Tennessee	71G	8	River/Stream
YERC-3	NWG-S	31.01070	-86.53750	Yellow R	N	Deepest point, main river channel, at Covington Co. Rd. 4 bridge.	Covington	Yellow	65F	461.23	River/Stream

Appendix E. Relationship between waterbody types in the Consolidated Assessment and Listing Methodology (CALM), the SWQMP Sampling Protocols, and ALAWADR Station Types. Mimimum data requirements by CALM Waterbody Type and ALAWADR Station Type, based on OAW, PWS, S, and F&W use classification requirements.

CALM Waterbody Type	SWQMP Sampling Protocol	ALAWADR Station Type	Required Minimum Parameters			
			HA[a]	Conv Paras[b]	Bacteriological Samples[c]	Inorganic (Metals)
Wadeable River or Stream	Wadeable-Bio (BIO-W)	River/Stream	1	8	8[d]	3[h]
	Wadeable-Water (H2O-W)					
	Nonwadeable Grab-Shallow (NWG-Shallow)					
Non-wadeable River or Stream	Nonwadeable Boat Stations (NWB)	River/Stream		8	8[d]	3[h]
	Nonwadeable Grab-Deep (NWG-Deep)					
Reservoirs and Embayments	Nonwadeable Boat Stations (NWB)	Reservoir; Reservoir Embayment		7[e]	7[d, f]	
	Nonwadeable Grab-Shallow (NWG-Shallow)					
Wadeable Estuary or Coastal Water	Wadeable-Coastal (W-Coastal)	Coastal River/Stream; Ocean		8	8[g]	
Nonwadeable Estuary or Coastal Water	Nonwadeable Boat-Coastal (NWB-Coastal)	Coastal River/Stream; Ocean		8[e]	8[g]	

a. Habitat Assessment: Generally conducted during a macroinvertebrate or fish bioassessment

b. Conventional Parameter Samples

c. Samples collected in waters classified for shellfish harvesting are analyzed for Fecal coliform, in addition to other required pathogen analysis.

d. Samples analyzed for E. coli

e. Conv parameters include two Chl a-growing season means

f. 4 samples collected, in reservoir embayments only

g. Samples analyzed for Enterococcus

h. four samples generally collected at Category 2 and 3 waters as part of SWQMP

Appendix F. Summary of minimum data/sampling requirements by sampling protocol.

Minimum data / sampling requirements and wadeable-bio rivers and streams: W-BIO

Sampling Protocol	**W-BIO**		
Protocol Definition	A station is classified as wadeable-bio if the 300 ft. sampling reach is completely wadeable (~≤3 ft) ***AND*** the 300 ft reach upstream and downstream of the sampling location are also completely wadeable (~≤3 ft). Based on historical data, this protocol is generally appropriate to use in watersheds ranging between 5-70 sq miles.		
SWQMP Parameter	**SWQMP Parameter**	**Sampling Frequency**	**Comments**
FLOW	**Flow: USGS Gage**	8X monthly (Mar-Oct)	measured during ALL STATION VISITS; parameter is selected separately
	Flow: Wadeable		
Conventional Parameters	**Conventional Parameters-W**		Conventional and Bacteriological paras listed in CALM to SWQMP Para
	Conventional Parameters-Reference W		CALM Conv Paras PLUS TOC and COD
	Blackwater Parameters		For sites located in ecoregion 65; Blackwater Paras (DOC and Color)
	Metals and Hardness	4X monthly (Mar-Oct)	Inorganic (Metals) listed in CALM to SWQMP Paras
Biological Surveys	**Macroinvertebrate Survey**	SWQMP Sampling Period; Habitat and macroinvert community assessments, in situ field parameters, and flow	generally in non-SHU watersheds, or to compliment study sites where inverts collected
	Fish IBI Survey	SWQMP Sampling Period; Habitat and fish community assessments, in situ field parameters, and flow	generally in SHU watersheds, or to compliment study sites where IBIs conducted

Minimum data / sampling requirements and wadeable-bio rivers and streams: W-WQS

Sampling Protocol	**W-WQS**		
Protocol Definition	A station is classified as wadeable-H20 if water samples can be collected within the sampling reach, but the sampling reach is not completely wadeable; and/or, the 300 ft reach upstream and downstream of the sampling location are not wadeable. Based on historical data, this protocol is generally appropriate to use in watersheds ranging between 70-600 sq miles.		
SWQMP Parameter	**SWQMP Parameter**	**Sampling Frequency**	**Comments**
FLOW	**Flow: USGS Gage**	8X monthly (Mar-Oct)	measured during ALL STATION VISITS; parameter is selected separately
	Flow: Wadeable		
Conventional Parameters	**Conventional Parameters-W**		Conventional and Bacteriological paras listed in CALM to SWQMP Para
	Conventional Parameters-Reference W		Conv and bacteriological Paras PLUS TOC and COD
	Blackwater Parameters		for streams and rivers in ecoregion 65; COD and color
	Metals and Hardness	4X monthly (Mar-Oct)	
Biological Surveys	**Macroinvertebrate Survey**	SWQMP Sampling Period; Habitat and macroinvert community assessments, in situ field parameters, and flow	Bioassessments are only routinely conducted in freshwater, single-channel, W-BIO (5-70 sq mi) streams; bioassessments outside of this range need to be discussed, and a study-specific reference reach may need to be selected
	Fish IBI Survey	SWQMP Sampling Period; Habitat and fish community assessments, in situ field parameters, and flow	

Minimum data / sampling requirements and wadeable-bio rivers and streams: NWG-S

Appendix F. Summary of minimum data/sampling requirements by sampling protocol.

Sampling Protocol	NWG-S		
Protocol Definition	NWG-S stations are < 10 ft. in depth, and sampled from a bridge or small boat. A minimum of 3 measurements		
SWQMP Parameter	SWQMP Parameter	Sampling Frequency	Comments
FLOW	Flow: USGS Gage Flow: ADCP	8X Monthly (Mar-Oct)	If gage present, flow downloaded and recorded on datasheet; ADCP Flow conducted on small number of stations; must be requested.
Conventional Parameters	Conventional Parameters NW-Grab		Conventional and Bacteriological paras listed in CALM to SWQMP Para; mid-depth or surface samples collected
	Conventional Parameters-Ref NW Grab		Conv and bacteriological Paras PLUS TOC and COD
	Blackwater Parameters		for streams and rivers in ecoregion 65; COD and color
	Metals and Hardness	4X Monthly (Mar-Oct)	
Biological Surveys	Macroinvertebrate Survey	SWQMP Sampling Period; Habitat and macroinvert community assessments, in situ field parameters, and flow	Biological surveys are only routinely conducted in freshwater, single-channel, W-BIO (5-70 sq mi) streams; bioassessments outside of this range need to be discussed, and a study-specific reference reach may need to be selected
	Fish IBI Survey	SWQMP Sampling Period; Habitat and fish community assessments, in situ field parameters, and flow	

Minimum data / sampling requirements and wadeable-bio rivers and streams: **NWG-D**

Sampling Protocol	NWG-D		
Protocol Definition	NWG-D stations are ≥ 10 ft. in depth, and sampled from a bridge or small boat. If possible, full vertical profiles		
SWQMP Parameter	SWQMP Parameter	Sampling Frequency	Comments
FLOW	Flow: USGS Gage Flow: ADCP	8X Monthly (Mar-Oct)	If gage present, flow downloaded and recorded on datasheet; ADCP Flow conducted on small number of stations; must be requested.
Conventional Parameters	Conventional Parameters-NW Grab		Conventional and Bacteriological paras listed in CALM to SWQMP Para; mid-depth or surface samples collected
	Conventional Parameters-Ref NW Grab		as above plus ref reach paras (TOC and COD)
	Blackwater Parameters		for streams and rivers in ecoregion 65; COD and color
	Metals and Hardness	4X monthly (Mar-Oct)	Inorganic (Metals) listed in CALM to SWQMP Paras
Biological Surveys	Macroinvertebrate Survey	SWQMP Sampling Period; Habitat and macroinvert community assessments, in situ field parameters, and flow	Biological surveys are only routinely conducted in freshwater, single-channel, W-BIO (5-70 sq mi) streams; bioassessments outside of this range need to be discussed, and a study-specific reference reach may need to be selected
	Fish IBI Survey	SWQMP Sampling Period; Habitat and fish community assessments, in situ field parameters, and flow	

Minimum data / sampling requirements and wadeable-bio rivers and streams: **NWB**

Appendix F. Summary of minimum data/sampling requirements by sampling protocol.

Sampling Protocol	NWB		
Protocol Definition	Samples should be collected as photic zone composites. Full vertical profiles should be measured. Nonwadeable		
SWQMP Parameter	SWQMP Parameter	Sampling Frequency	Comments
FLOW	Flow: USGS Gage Flow: ADCP	7X Monthly (Apr-Oct); E. coli and hardness (4X Monthly (Apr-Oct))	If gage present, flow downloaded and recorded on datasheet; ADCP Flow conducted on small number of stations; must be requested.
Conventional Parameters	Conventional Parameters-NWB		Full profile data logger measurements, photic zone composite water samples;
	AGPT	1X (generally Aug)	
Biological Surveys	Macroinvertebrate Survey	SWQMP Sampling Period; Habitat and macroinvert community assessments, in situ field parameters, and flow	Biological surveys are only routinely conducted in freshwater, single-channel, W-BIO (5-70 sq mi) streams; bioassessments outside of this range need to be discussed, and a study-specific reference reach may need to be selected
	Fish IBI Survey	SWQMP Sampling Period; Habitat and fish community assessments, in situ field parameters, and flow	

Minimum data / sampling requirements and wadeable-bio rivers and streams: W-H2O-Coastal

Sampling Protocol	W-H2O-Coastal		
Protocol Definition	A station is classified as wadeable-H20-Coastal if it is tidally-influenced and meets the definition of W-H2O.		
SWQMP Parameter	SWQMP Parameter	Sampling Frequency	Comments
FLOW	Flow: USGS Gage Flow: Wadeable	8X Monthly (Mar-Oct)	measured during ALL STATION VISITS; parameter is selected
Conventional Parameters	Conventional Parameters Coastal-W		Conventional and Bacteriological paras listed in CALM to SWQMP Para: salinity is added as a data logger measurement; Enterococcus replaces E. coli
	Blackwater Parameters		For streams and rivers in ecoregion 65; COD and color
	Metals and Hardness	4X Monthly (Mar-Oct)	
Biological Surveys	Macroinvertebrate Survey	SWQMP Sampling Period; Habitat and macroinvert community assessments, in situ field parameters, and flow	Biological surveys are only routinely conducted in freshwater, single-channel, W-BIO (5-70 sq mi) streams; bioassessments outside of this range need to be discussed, and a study-specific reference reach may need to be selected
	Fish IBI Survey	SWQMP Sampling Period; Habitat and fish community assessments, in situ field parameters, and flow	

Minimum data / sampling requirements and wadeable-bio rivers and streams: NWB-Coastal

Sampling Protocol	NWB-Coastal

Appendix F. Summary of minimum data/sampling requirements by sampling protocol.

Protocol Definition	A station is classified as NWB-Coastal if it is tidally-influenced and meets the definition of NWB. ADEM defines		
SWQMP Parameter	**SWQMP Parameter**	**Frequency**	**Comments**
FLOW	**Flow: USGS Gage**	8X Monthly (Mar-Oct)	If gage present, flow downloaded and recorded on datasheet; ADCP Flow conducted on small number of stations; must be requested.
	Flow: ADCP		
Conventional Parameters	**Conventional Parameters-NWB-Coastal**		Full profile data logger measurements, photic zone composite water samples
	Fecal Coliform		**Shellfish harvesting waters ONLY**
	Metals and Hardness	1X monthly (May or Jun)	**TBD**
Biological Surveys	**Macroinvertebrate Survey**	SWQMP Sampling Period; Habitat and macroinvert community assessments, in situ field parameters, and flow	Biological surveys are only routinely conducted in freshwater, single-channel, W-BIO (5-70 sq mi) streams; bioassessments outside of this range need to be discussed, and a study-specific reference reach may need to be selected
	Fish IBI Survey	SWQMP Sampling Period; Habitat and fish community assessments, in situ field parameters, and flow	

Appendix G. List of individual parameters included in each SWQMP Parameter request.

SWQMP Parameter	Individual Parameters	Comments
Conventional Lab Parameters - NWB	Alkalinity CBOD-5/BOD-5 Chl a Chloride Data logger (Dep, Temp-H2O, DO, pH, Cond) DRP/Ortho-P E. coli Hardness NH3-N NO3+NO2-N Non-wadeable Field Data Sheet (FOD I Form 10) Phosphorus, Total TDS TKN TSS	
Conventional Parameters Coastal-W	Alkalinity CBOD-5/BOD-5 Chl a Chloride Data logger (Dep, Temp-H2O, DO, pH, Cond, Salinity) DRP/Ortho-P Enterococcus NH3-N NO3+NO2-N Phosphorus, Total Sulfate TDS TKN TSS Water Quality Field Data Sheet w/ Datalogger import (FOD I Form 8-DL)	
Conventional Parameters NW-Grab	Alkalinity CBOD-5/BOD-5 Chl a Chloride Data logger (Dep, Temp-H2O, DO, pH, Cond) DRP/Ortho-P E. coli NH3-N NO3+NO2-N Phosphorus, Total Sulfate TDS TKN TSS Water Quality Field Data Sheet w/ Datalogger import (FOD I Form 8-DL)	

Appendix G. List of individual parameters included in each SWQMP Parameter request.

SWQMP Parameter	Individual Parameters	Comments
Conventional Parameters-NWB-Coastal	Alkalinity CBOD-5/BOD-5 Chl a Chloride Coastal Non-wadeable Field Data Sheet (FOD I-Form 12) Data logger (Dep, Temp-H2O, DO, pH, Cond, Salinity) DRP/Ortho-P Enterococcus NH3-N NO3+NO2-N Phosphorus, Total TDS TKN TSS	
Conventional Parameters-Ref NW Grab	Alkalinity CBOD-5/BOD-5 Chl a Chloride COD DRP/Ortho-P E. coli NH3-N NO3+NO2-N Phosphorus, Total Sulfate TDS TKN Total Organic Carbon (TOC) TSS Water Quality Field Data Sheet w/ Datalogger import (FOD I Form 8-DL)	
Conventional Parameters-Reference W	Alkalinity CBOD-5/BOD-5 Chl a Chloride COD Data logger (Dep, Temp-H2O, DO, pH, Cond) DRP/Ortho-P E. coli NH3-N NO3+NO2-N Phosphorus, Total Sulfate TDS TKN Total Organic Carbon (TOC) TSS Water Quality Field Data Sheet w/ Datalogger import (FOD I Form 8-DL)	

Appendix G. List of individual parameters included in each SWQMP Parameter request.

SWQMP Parameter	Individual Parameters	Comments
Conventional Parameters-W	Alkalinity CBOD-5/BOD-5 Chl a Chloride Data logger (Dep, Temp-H2O, DO, pH, Cond) DRP/Ortho-P E. coli NH3-N NO3+NO2-N Phosphorus, Total Sulfate TDS TKN Color and DOC (Ecoregion 65) Water Quality Field Data Sheet w/ Datalogger import (FOD I Form 8-DL)	
Hardness	Hardness, mg/L	
Metals and Hardness	Total and Dissolved Aluminum (Al), µg/L Total and Dissolved Antimony (Sb), µg/L Total and Dissolved Arsenic^{+3} (As^{+3}), µg/L Total and Dissolved Cadmium (Cd), µg/L Total and Dissolved Chromium^{+3} (Cr^{+3}), µg/L Total and Dissolved Copper (Cu), µg/L Total and Dissolved Iron (Fe), µg/L Total and Dissolved Lead (Pb), µg/L Total and Dissolved Manganese (Mn), µg/L Total and Dissolved Nickel (Ni), µg/L Total and Dissolved Selenium (Se), µg/L Total and Dissolved Silver (Ag), µg/Lug/l Total and Dissolved Thallium (Tl), µg/L Total and Dissolved Zinc (Zn), µg/L Hardness, mg/L	
Flow-NW (ADCP)	Flow-NW (ADCP)	
Flow-USGS Gage	Flow-USGS Gage	
Flow-Wadeable (ADV)	Flow-Wadeable (ADV)	
Blackwater_Parameters (Ecoregion 65 Only)	Color Dissolved Organic Carbon (DOC)	
Macroinvertebrate Survey	Appropriate flow (generally USGS gage or wadeable) Data logger (Dep, Temp-H2O, DO, pH, Cond) Macroinvertebrate Survey	

Appendix G. List of individual parameters included in each SWQMP Parameter request.

SWQMP Parameter	Individual Parameters	Comments
	Phys Char, Substrate, WQ & HA Field Data Sheet w/ Datalogger Import (W or NW)	includes habitat survey
Fish IBI Survey	Appropriate flow	
	Data logger (Dep, Temp-H2O, DO, pH, Cond)	
	Fish IBI Survey	
	Phys Char, Substrate, WQ & HA Field Data Sheet w/ Datalogger Import	includes habitat survey
72-hour DO	Continuous Data Logger Reading	
	Flow	
AGPT	AGPT	
Geomean E. coli Study	Appropriate Flow	2 sets of 5 SVs; total of 10 SVs
	Appropriate Form	
	Data logger (Dep, Temp-H2O, DO, pH, Cond)	
	Ecoli	
Intensive TSS-Rain Event Sampling	Continuous Data Logger Reading	
	Set of multiple TSS samples	
Low level Hg Only (Method 1631)	Low Level Mercury (EPA 1631E)	
Periphyton Survey	Appropriate Flow	
	Data logger (Dep, Temp-H2O, DO, pH, Cond)	
	Periphyton Bioassessment	
	Phys Char, Substrate, WQ & HA Field Data Sheet w/ Datalogger Import	includes habitat survey
Pesticides, Semi-volatiles, Atrazine, Glyphosate	Appropriate flow (USGS gage or wadeable)	3 SVs, 1 each SV
	Water Quality Field Data Sheet w/ Datalogger import (FOD I Form 8-DL)	3 SVs, 1 each SV
	Atrazine (Immunoassay)	3 SVs, 1 each SV
	Glyphosate (EPA547)	3 SVs, 1 each SV
	Organochlorine Pesticides (SW8081A)	3 SVs, 1 each SV
	Organophosphorus Cmpds (SW8141A)	3 SVs, 1 each SV
	Semivolatile Organics (SW8270C)	3 SVs, 1 each SV
Siltation Survey	Appropriate flow (USGS gage or wadeable)	
	Continuous Data logger (Dep, Turbidity, Temp-H2O, DO, pH, Cond)	
	Water Quality Field Data Sheet w/ Datalogger import (FOD I Form 8-DL)	
Ultimate-BOD	CBOD/BOD - Ultimate	

Weeks Bay/Fish River/Magnolia River Intensive Survey Study Plan

DATE: July 29, 2024 – August 1, 2024

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I. Introduction

The Department is planning to conduct an intensive water quality study on the Fish River, Magnolia River, and Weeks Bay in Baldwin County in 2024. The water quality data collected as part of this intensive study will serve to aid in the development and calibration of a water quality model to address wasteload allocations (WLAs) for point sources in the Weeks Bay watershed.

II. Scope of Study

The sampling time period will consist of a weeklong study, starting Monday, July 29, 2024, and finishing on Thursday, August 1, 2024. A total of ten instream stations in the Weeks Bay watershed (three mainstem Fish River stations, three mainstem Magnolia River stations, and four Weeks Bay stations) will be sampled. Furthermore, two significant point sources (Spanish Fort Sewer WWTP – AL0042234 and Loxley WWTP – AL0060283) in the Fish River watershed will be monitored as well. Please note that the Spanish Fort Sewer WWTP is comprised of two separate WWTPs that are covered under one permit. Outfall 0011 has a design flow of 0.25 MGD and discharges to the west side of Bay Branch, while Outfall 0022 has a design flow of 1.0 MGD and discharges to the east side of Bay Branch.

The intensive survey scope-of-study will include the following:

- Field and conventional laboratory parameters sample collection
- Streamflow measurements
- Datasonde deployment for *in-situ* continuous field parameters
- Injection of Rhodamine dye for a time-of-travel study
- Point sources effluent 24-hour composite sampling

Table 1. Weeks Bay Intensive Study - Instream Stations

Waterbody Name	Station ID	Latitude	Longitude	Station Description	Sampling Protocol
Fish River	FSHB-97	30.636594	-87.799585	Fish River at US Highway 90	Wadeable Water Quality Sampling
Fish River	FI-1	30.5458	-87.7983	Fish River at AL Highway 104	Wadeable – Water Quality Sampling
Fish River	FSHB-7	30.47421	-87.80221	Fish River at Baldwin County Road 32	Nonwadeable Boat
Magnolia River	MGNB-101	30.406621	-87.736712	Magnolia River at US Highway 98	Wadeable Water Quality Sampling
Magnolia River	MGRB-8	30.396694	-87.783444	Magnolia River approximately 2.5 mi upstream of Weeks Bay	Nonwadeable Boat
Magnolia River	MGRB-9	30.3902	-87.8082	Magnolia River DS of Noltie Creek	Nonwadeable Boat
Weeks Bay	WB-1	30.41469	-87.82583	Weeks Bay @ US Highway 98	Nonwadeable Boat
Weeks Bay	WKBB-1	30.3975	-87.833611	Central Weeks Bay approximately 1.4 miles north of the mouth.	Nonwadeable Boat
Weeks Bay	WKBB-3	30.3749	-87.8379	Mouth of Weeks Bay	Nonwadeable Boat
Weeks Bay	WKBB-4	30.393598	-87.822241	Weeks Bay at mouth of Magnolia River	Nonwadeable Boat

III. Instream Crew Responsibilities

For the ten stations listed above in Table 1, field parameters and conventional lab parameters should be collected a total of two times as follows: Tuesday afternoon (PM) (July 30th) and Wednesday morning (AM) (July 31st). The Tuesday afternoon (PM) sampling period should start after 12:00 pm and continue until completion and the Wednesday morning (AM) sampling period should start after 7:00 am and continue until completion.

The Water Quality Crew will be responsible for measuring streamflows and taking pictures; therefore, the FOD crew(s) will not need to measure streamflows or take pictures at any stations.

Field Parameters
The field parameters recorded on a field sheet should include:

- Collector – use Last Name, First Initial (or Logon Initials)
- Crew member – use Last Name, First Initial (or Logon Initials)
- Date (Month, Day, Year)
- Time (24 hr)
- Air Temperature, °C
- Sample Collection Depth, feet/meters
- Turbidity, NTU (with Nephelometer, not multiprobe) (SOP #2042)
- Weather Conditions
- Visual observations and notes

The field parameters measured using a data logger should include:

- Water Temperature, °C (SOP #2041)
- Total Stream Depth at Sampling Point, feet/meters
- Field Measurement Depth, feet/meters
- Dissolved Oxygen (DO), mg/l (SOP #2047)
- Conductivity, µmhos/cm @ 25C (SOP #2047)
- pH, s.u. (SOP #2047)

Conventional Laboratory Parameters

The conventional laboratory parameters collected at the ten instream stations listed in Table 1 should be completed in accordance with ADEM's approved Quality Assurance Program Plan (QAPP) and appropriate standard operating procedure documents (SOPs), based on the type of sample being collected and the appropriate sampling protocol for use at that station.

An ultimate CBOD sample will also need to be collected at the seven instream stations listed in Table 2 below during the July 31st (Wednesday) morning (AM) sampling period. In addition to the "normal" conventional laboratory parameter sample requirements, the collection of two half-gallon jugs will be required at each instream station for ultimate CBOD analysis.

Table 2. Ultimate CBOD Sample Stations

Waterbody Name	Station ID	Latitude	Longitude
Fish River	FSHB-97	30.636594	-87.799585
Fish River	FI-1	30.5458	-87.7983
Fish River	FSHB-7	30.47421	-87.80221
Magnolia River	MGRB-9	30.3902	-87.8082
Magnolia River	MGNB-101	30.406621	-87.736712
Weeks Bay	WB-1	30.41469	-87.82583
Weeks Bay	WKBB-3	30.3749	-87.8379

IV. CSI Crew Responsibilities

Point Source 24-hr Composite Samples

The Field Operations CSI crew(s) will deploy the ISCO portable samplers to collect a 24-hour composite sample at the facilities listed in Table 3. Please note that the Spanish Fort Sewer WWTP is comprised of two separate WWTPs that are covered under one permit. Outfall 0011 has a design flow of 0.25 MGD and discharges to the west side of Bay Branch, while Outfall 0022 has a design flow of 1.0 MGD and discharges to the east side of Bay Branch.

Table 3. Flint River Intensive Study Point Sources

Permit	Facility name
AL0060283	Loxley WWTP
AL0042234	Spanish Fort Sewer WWTP – 0011 – 0.25 MGD
AL0042234	Spanish Fort Sewer WWTP – 0022 – 1.0 MGD

The ISCOs should be deployed on Tuesday (July 30th) morning and programmed to begin collecting the 24-hour composite sample at 12:00 PM. Once the 24-hour sampling period has been completed on Wednesday at 12:00 PM, the samples should be prepared for transport to the appropriate lab. Each sample jug should be labeled based on the facility's NPDES permit number. The appropriate outfall number (0011 or 0022) should be included on the Spanish Fort Sewer WWTP sample jugs. In addition to the "normal" conventional laboratory parameter sample requirements, the collection of an additional four half-gallon jugs will be required at each point source for ultimate CBOD analysis.

Effluent Field Parameters

The CSI crew(s) will measure the following field parameters at the point sources on both Tuesday (July 30th) and Wednesday (July 31st):

- Water Temperature, °C
- Dissolved Oxygen (DO), mg/l
- pH, s.u.

V. Water Quality Branch (WQB) Responsibilities

Flow Measurements

All in-stream flow measurements will be collected by the WQB crew(s). Streamflow measurements should be collected at all stations on both Tuesday (July 30th) and Wednesday (July 31st). If time permits, additional streamflow measurements should be made on Monday (July 29th) and Thursday (August 1st). Streamflow measurements should be made at all of the stations listed above in Table 1, with the exception of stations FI-1 and MGNB-101 (USGS streamflow gages present at those stations).

Diurnal Study

The WQB crew(s) will deploy datasondes on Monday (July 29th) at all the stations listed in Table 1 to continuously monitor the following parameters throughout the duration of the study:

- Water Temperature (°C)
- Total Stream Depth (feet/meters)
- Dissolved Oxygen (mg/l)
- Conductivity (µmhos/cm)
- pH (s.u)
- Rhodamine Dye (ug/l)

Datasondes will be retrieved on Thursday (August 1st).

Time of Travel Study

On Monday (July 29th), there will be three separate rhodamine dye injections at stations FSHB-97, FI-1, and FSHB-7. Dye injections should begin at the most downstream injection station and proceed upstream. This will ensure the dye clouds from the upstream injections do not overlap the downstream dye clouds.

There will be a total of three stations (FI-1, FSHB-7, and WB-1) along the mainstem of the Fish River where datasondes equipped with rhodamine dye probes will be deployed to monitor instream dye concentrations.

Table 4. Fish River TOT Stations

From[a]	To[b]	Length (miles)
FSHB-97	FI-1	3.52
FI-1	FSHB-7	6.27
FSHB-7	WB-1	6.67

a. Dye Injection Station

b. Datasonde deployed w/ Rhodamine sensor

Table 5. Weeks Bay Intensive Study Timeline

	7:00 AM	8:00 AM	9:00 AM	10:00 AM	11:00 AM	12:00 PM	1:00 PM	2:00 PM	3:00 PM	4:00 PM
Monday	WQ crews will deploy datasondes , inject dye tracer, and measure stream flows									
Tuesday	WQ crews will measure stream flows and check all instruments									
	CSI crew deploys ISCO sampler at outfall stations and measures effluent field parameters									
						Instream FOD crews collect field and lab parameters (Tues. PM) at instream stations				
Wednesday	WQ crews will measure stream flows and check all instruments									
	CSI crew retrieves ISCO sampler at outfall stations and measure effluent field parameters									
	Instream FOD crews collect field parameters, lab parameters, and ultimate CBODs (Wed. AM) at instream stations									
Thursday	WQ crews retrieve datasondes and measure stream flows									

Personnel
WQ Crew
FOD Instream Crew
FOD CSI Crew

Figure 1. Weeks Bay Intensive Study Stations