WQX User Meeting
September 24, 2020

There were approximately 37 participants.
The next WQX User Call is scheduled for October 29, 2020

Webinar documents – ftp://newftp.epa.gov/storet/xfer/how/2020-09-24/
two spreadsheets displayed as graphic images "Benthic Data Using Biological Template"

1. Demo Biological Template Mapping Benthic Macroinvertebrate Data to WQX
2. Error Resolution practices for WQX/WQX Web?
    . Domain Value business rule requirements: CHARACTERISTICs, ACTIVITY TYPEs, etc...
    a. Discussion of Activity Elements - For each Activity ID all activity elements must be the same.
    b. FAQs (frequently asked questions)
        i. Multiple Project assignments for each activity
        ii. WQX Business Rules – via URL and PDF
        iii. Lake Profile data - Result Depth element – would have one single activity ID and varying result depths
3. Open Discussion

See notes captured as PowerPoint presentation below.

WQX User Call

September 24, 2020 @ 12pm EST

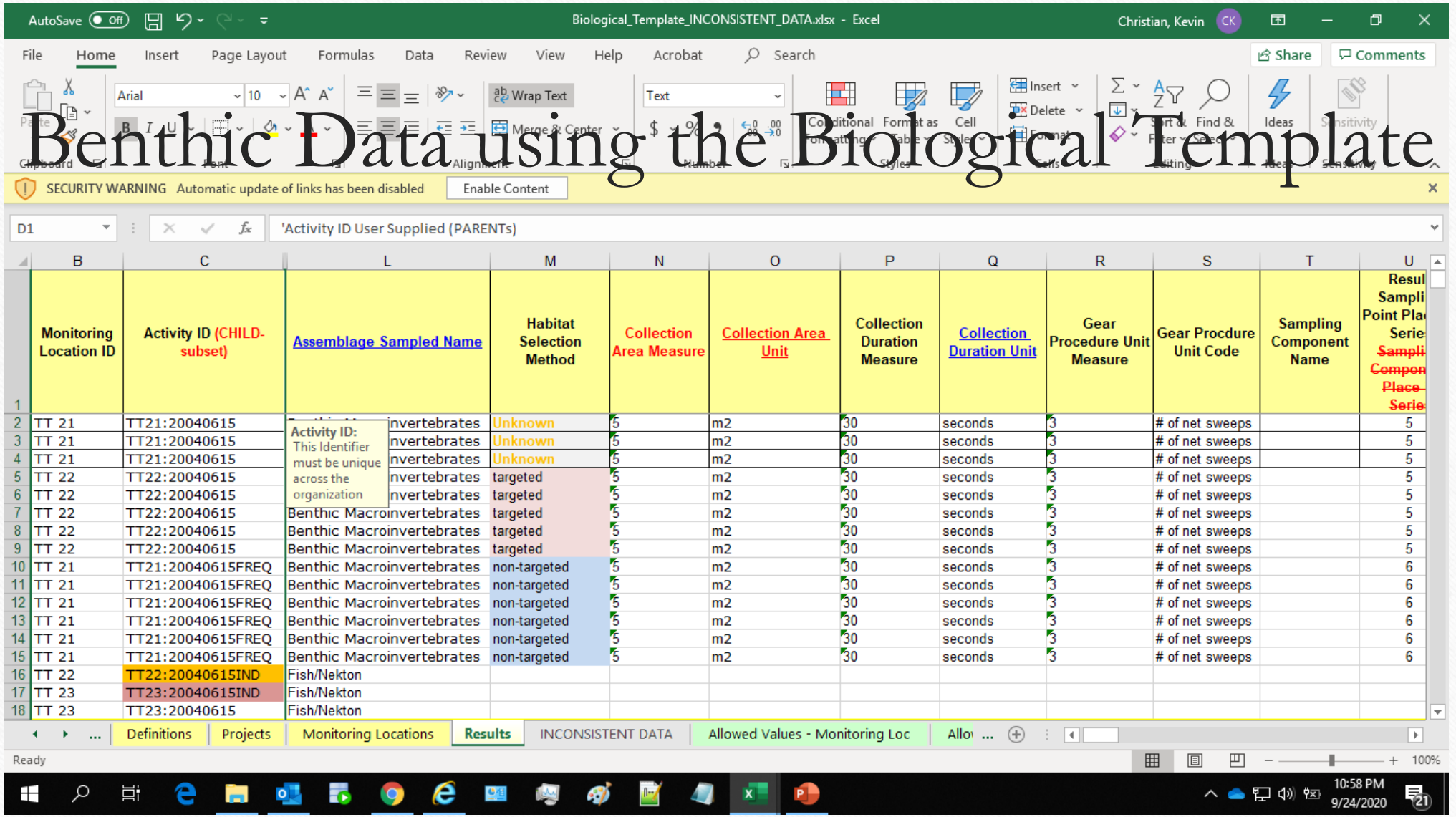
Agenda

- Demo Biological Template mapping Benthic Macroinvertebrate Data to WQX
- Best practices in Error Resolution for WQX/WQX Web
  - Domain Value business rule requirements: CHARACTERISTICs, ACTIVITY TYPEs, etc..
  - Discussion of Activity Elements - For each Activity ID, all activity elements (combinations) must be the same.
  - FAQs (frequently asked questions)
    - How multiple elements (ie Project) are assigned for each activity / result
    - Review WQX 3.0 Business Rules – via URL and PDF
    - Lake Profile data – example of a single activity id with multiple result elements
      - Result Depth, Analysis Time, Analysis Date, Result Sampling Point, etc…
      - Instead of activity elements Activity Start Date, Activity Start Time, Activity Depth, Activity Lat/Long

Best Practices for Submitting Benthic Macroinvertebrate Data to the Water Quality eXchange (WQX)

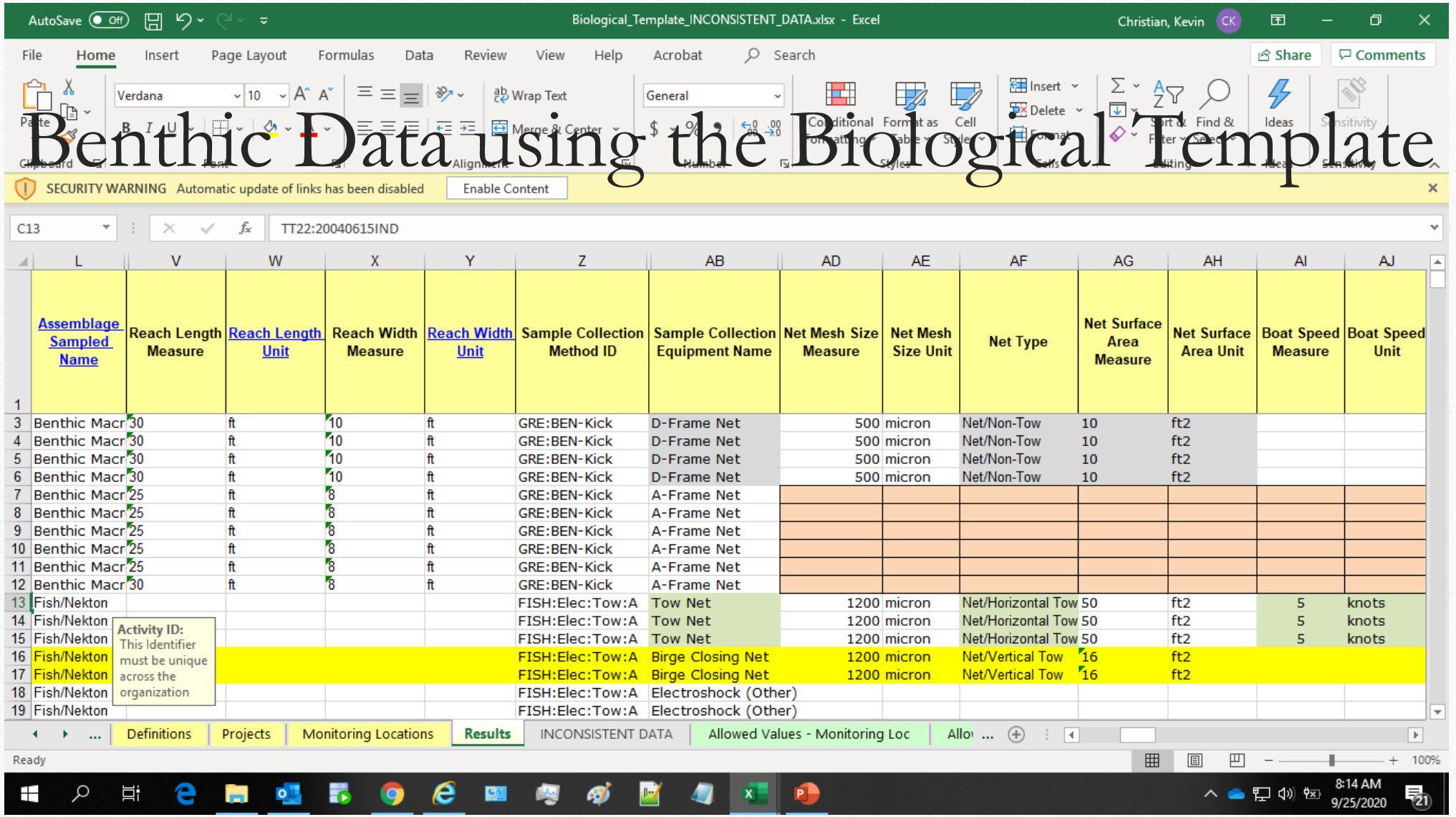
- The Best Practices Guide provides recommended approaches to addressing eight areas of concern with respect to documenting benthic macroinvertebrate data. These include recommendations on (1) assemblage sampled name, (2) biological intent, (3) habitat selection method, (4) collection effort, (5) sample collection equipment name, (6) net mesh size, (7) characteristic name, (8) target count, (9) proportion sample processed, (10) target taxonomic levels, (11) subject taxonomic name, (12) subject taxonomic name user supplied, and (13) uploading QA/QC documents.
- https://www.epa.gov/waterdata/best-practices-sharing-benthics-data

Benthic Data using the Biological Template



	B	C	L	M	N	O	P	Q	R	S	T	U
1	Monitoring Location ID	Activity ID (CHILD-subset)	Assemblage Sampled Name	Habitat Selection Method	Collection Area Measure	Collection Area Unit	Collection Duration Measure	Collection Duration Unit	Gear Procedure Unit Measure	Gear Procedure Unit Code	Sampling Component Name	Result Sampling Point Place Series ~~Sampling Component Place Series~~
2	TT 21	TT21:20040615	Benthic Macroinvertebrates	Unknown	5	m2	30	seconds	3	# of net sweeps		5
3	TT 21	TT21:20040615	Benthic Macroinvertebrates	Unknown	5	m2	30	seconds	3	# of net sweeps		5
4	TT 21	TT21:20040615	Benthic Macroinvertebrates	Unknown	5	m2	30	seconds	3	# of net sweeps		5
5	TT 22	TT22:20040615	Benthic Macroinvertebrates	targeted	5	m2	30	seconds	3	# of net sweeps		5
6	TT 22	TT22:20040615	Benthic Macroinvertebrates	targeted	5	m2	30	seconds	3	# of net sweeps		5
7	TT 22	TT22:20040615	Benthic Macroinvertebrates	targeted	5	m2	30	seconds	3	# of net sweeps		5
8	TT 22	TT22:20040615	Benthic Macroinvertebrates	targeted	5	m2	30	seconds	3	# of net sweeps		5
9	TT 22	TT22:20040615	Benthic Macroinvertebrates	targeted	5	m2	30	seconds	3	# of net sweeps		5
10	TT 21	TT21:20040615FREQ	Benthic Macroinvertebrates	non-targeted	5	m2	30	seconds	3	# of net sweeps		6
11	TT 21	TT21:20040615FREQ	Benthic Macroinvertebrates	non-targeted	5	m2	30	seconds	3	# of net sweeps		6
12	TT 21	TT21:20040615FREQ	Benthic Macroinvertebrates	non-targeted	5	m2	30	seconds	3	# of net sweeps		6
13	TT 21	TT21:20040615FREQ	Benthic Macroinvertebrates	non-targeted	5	m2	30	seconds	3	# of net sweeps		6
14	TT 21	TT21:20040615FREQ	Benthic Macroinvertebrates	non-targeted	5	m2	30	seconds	3	# of net sweeps		6
15	TT 21	TT21:20040615FREQ	Benthic Macroinvertebrates	non-targeted	5	m2	30	seconds	3	# of net sweeps		6
16	TT 22	TT22:20040615IND	Fish/Nekton									
17	TT 23	TT23:20040615IND	Fish/Nekton									
18	TT 23	TT23:20040615	Fish/Nekton									

Benthic Data using the Biological Template



	L	V	W	X	Y	Z	AB	AD	AE	AF	AG	AH	AI	AJ
1	Assemblage Sampled Name	Reach Length Measure	Reach Length Unit	Reach Width Measure	Reach Width Unit	Sample Collection Method ID	Sample Collection Equipment Name	Net Mesh Size Measure	Net Mesh Size Unit	Net Type	Net Surface Area Measure	Net Surface Area Unit	Boat Speed Measure	Boat Speed Unit
3	Benthic Macr	30	ft	10	ft	GRE:BEN-Kick	D-Frame Net	500	micron	Net/Non-Tow	10	ft2		
4	Benthic Macr	30	ft	10	ft	GRE:BEN-Kick	D-Frame Net	500	micron	Net/Non-Tow	10	ft2		
5	Benthic Macr	30	ft	10	ft	GRE:BEN-Kick	D-Frame Net	500	micron	Net/Non-Tow	10	ft2		
6	Benthic Macr	30	ft	10	ft	GRE:BEN-Kick	D-Frame Net	500	micron	Net/Non-Tow	10	ft2		
7	Benthic Macr	25	ft	8	ft	GRE:BEN-Kick	A-Frame Net							
8	Benthic Macr	25	ft	8	ft	GRE:BEN-Kick	A-Frame Net							
9	Benthic Macr	25	ft	8	ft	GRE:BEN-Kick	A-Frame Net							
10	Benthic Macr	25	ft	8	ft	GRE:BEN-Kick	A-Frame Net							
11	Benthic Macr	25	ft	8	ft	GRE:BEN-Kick	A-Frame Net							
12	Benthic Macr	30	ft	8	ft	GRE:BEN-Kick	A-Frame Net							
13	Fish/Nekton					FISH:Elec:Tow:A	Tow Net	1200	micron	Net/Horizontal Tow	50	ft2	5	knots
14	Fish/Nekton					FISH:Elec:Tow:A	Tow Net	1200	micron	Net/Horizontal Tow	50	ft2	5	knots
15	Fish/Nekton					FISH:Elec:Tow:A	Tow Net	1200	micron	Net/Horizontal Tow	50	ft2	5	knots
16	Fish/Nekton					FISH:Elec:Tow:A	Birge Closing Net	1200	micron	Net/Vertical Tow	16	ft2		
17	Fish/Nekton					FISH:Elec:Tow:A	Birge Closing Net	1200	micron	Net/Vertical Tow	16	ft2		
18	Fish/Nekton					FISH:Elec:Tow:A	Electroshock (Other)							
19	Fish/Nekton					FISH:Elec:Tow:A	Electroshock (Other)							

“User Supplied” Elements for dataowners

- Elements with naming convention “User Supplied” are freetext which directly support the data owner naming convention
- Primary Identifiers (ie. ActivityIdentifier) may have additional unique naming requirements governed by alignment with business rules
- ActivityIdentifierUserSupplied = data owner sample id
- CharacteristicName User Supplied = Abbreviation, local/in-house substance name
- SubjectTaxonomicNameUserSupplied = Common name, dataowner latin name,
- SubjectTaxonomicNameUserSuppliedReferenceText = Identify the source

Discussion of Activity Elements

(Each unique combination of elements = a unique Activity_ID)

- **Activity ID (CHILD-subset), Activity ID User Supplied (PARENTs), Activity Bottom Depth/Height Measure, Activity Bottom Depth/Height Unit, Activity Comment, Activity Depth Altitude Reference Point, Activity Depth/Height Measure, Activity Depth/Height Unit, Activity End Date, Activity End Time, Activity End Time Zone, Activity Horizontal Accuracy Measure, Activity Horizontal Accuracy Unit, Activity Horizontal Collection Method, Activity Horizontal Reference Datum, Activity Latitude, Activity Location Description Text, Activity Longitude, Activity Media Name, Activity Media Subdivision Name,**
- **Activity Relative Depth Name, Activity Source Map Scale, Activity Start Date, Activity Start Time, Activity Start Time Zone, Activity Top Depth/Height Measure, Activity Top Depth/Height Unit, Activity Type, Assemblage Sampled Name, Boat Speed Measure, Boat Speed Unit, Chemical Preservative Used, Collection Area Measure, Collection Area Unit, Collection Description Text, Collection Duration Measure, Collection Duration Unit, Collection Effort Gear Procedure Unit, Collection Effort Measure, Current Speed Measure, Current Speed Unit, Habitat Selection Method, Hydrologic Condition, Hydrologic Event, Monitoring Location ID,**
- **Net Mesh Size Measure, Net Mesh Size Unit, Net Surface Area Measure, Net Surface Area Unit, Net Type, Pass Count, Reach Length Measure, Reach Length Unit, Reach Width Measure, Reach Width Unit, Sample Collection Equipment Comment, Sample Collection Equipment Name, Sample Collection Method ID, Sample Container Color, Sample Container Label Name, Sample Container Type, Sample Preparation Method ID, Sample Transport Storage Description, Sampling Component Name, Thermal Preservative Used, Toxicity Test Type, Activity Attachment File Name, Activity Attachment Type, Activity Conducting Organization(s), Activity Group ID, Activity Group Name, Activity Group Type, Project ID**

Activity XML Element Tags

(Each element is assigned only "one value")

- <ActivityIdentifier>
<ActivityIdentifierUserSupplied>
<ActivityBottomDepthHeightMeasure/MeasureValue>
<ActivityBottomDepthHeightMeasure/MeasureUnitCode> <ActivityComment>
<ActivityDepthAltitudeReferencePoint>
<ActivityDepthHeightMeasure/MeasureValue>
<ActivityDepthHeight/MeasureUnitCode> <ActivityEndDate>
<ActivityEndTime/Time>
<ActivityEndTime/TimeZone>
<ActivityHorizontalAccuracyMeasure/MeasureValue>
<ActivityHorizontalAccuracyMeasure/MeasureUnitCode>
<ActivityHorizontalCollectionMethod>
<ActivityHorizontalReferenceDatum>
<ActivityLatitude>
<ActivityLocationDescriptionText>
<ActivityLongitude>
<ActivityMediaName>
<ActivityMediaSubdivisionName>

- <ActivityRelativeDepthName>
<ActivitySourceMapScale> <ActivityStartDate>
<ActivityStartTime/Time>
<ActivityStartTime/TimeZone>
<ActivityTopDepthHeightMeasure/MeasureValue>
<ActivityTopDepthHeightMeasure/MeasureUnitCode>
<ActivityTypeCode> <AssemblageSampledName>
<BoatSpeedMeasure/MeasureValue>
<BoatSpeedMeasure/MeasureUnitCode>
<ChemicalPreservativeUsedName>
<CollectionAreaMeasure/MeasureValue>
<CollectionAreaMeasure/MeasureUnitCode>
<CollectionDescriptionText>
<CollectionDurationMeasure/MeasureValue>
<CollectionDurationMeasure/MeasureUnitCode> <CollectionEffortMeasure/GearProcedureUnitCode>
<CollectionEffortMeasure/MeasureValue>
<CurrentSpeedMeasure/MeasureValue>
<CurrentSpeedMeasure/MeasureUnit>
<HabitatSelectionMethod> <HydrologicCondition>
<HydrologicEvent> <MonitoringLocationIdentifier>

- <NetMeshSizeMeasure/MeasureValue>
<NetMeshSizeMeasure/MeasureUnitCode>
<NetSurfaceAreaMeasure/MeasureValue>
<NetSurfaceAreaMeasure/MeasureUnitCode> <NetTypeName> <PassCount>
<ReachLengthMeasure/MeasureValue>
<ReachLengthMeasure/MeasureUnitCode>
<ReachWidthMeasure/MeasureValue>
<ReachWidthMeasure/MeasureUnitCode>
<SampleCollectionEquipmentComment>
<SampleCollectionEquipmentName>
<SampleCollectionMethodIdentifier>
<SampleContainerColorName>
<SampleContainerLabelName>
<SampleContainerTypeName>
<SamplePreparationMethodIdentifier>
<SampleTransportStorageDescription>
<SamplingComponentName>
<ThermalPreservativeUsedName>
<ToxicityTestType>
<ActivityAttachedBinaryObject/BinaryObjectFileName>
<ActivityAttachedBinaryObject/BinaryObjectFileTypeCode>

Activity Elements per ACTIVITY ID

Only one value assigned

- <ActivityIdentifier> <ActivityIdentifierUserSupplied>
<ActivityBottomDepthHeightMeasure/MeasureValue>
<ActivityBottomDepthHeightMeasure/MeasureUnitCode> <ActivityComment>
<ActivityDepthAltitudeReferencePoint> <ActivityDepthHeightMeasure/MeasureValue>
<ActivityDepthHeight/MeasureUnitCode> <ActivityEndDate> <ActivityEndTime/Time>
<ActivityEndTime/TimeZone> <ActivityHorizontalAccuracyMeasure/MeasureValue>
<ActivityHorizontalAccuracyMeasure/MeasureUnitCode> <ActivityHorizontalCollectionMethod>
<ActivityHorizontalReferenceDatum> <ActivityLatitude> <ActivityLocationDescriptionText>
<ActivityLongitude> <ActivityMediaName> <ActivityMediaSubdivisionName>
<ActivityRelativeDepthName> <ActivitySourceMapScale> <ActivityStartDate>
<ActivityStartTime/Time> <ActivityStartTime/TimeZone>
<ActivityTopDepthHeightMeasure/MeasureValue>
<ActivityTopDepthHeightMeasure/MeasureUnitCode> <ActivityTypeCode>
<AssemblageSampledName> <BoatSpeedMeasure/MeasureValue>
<BoatSpeedMeasure/MeasureUnitCode> <ChemicalPreservativeUsed>
<CollectionAreaMeasure/MeasureValue> <CollectionAreaMeasure/MeasureUnitCode>
<CollectionDescriptionText> <CollectionDurationMeasure/MeasureValue>
<CollectionDurationMeasure/MeasureUnitCode> < CollectionEffortMeasure/GearProcedureUnitCode>
<CollectionEffortMeasure/MeasureValue> <CurrentSpeedMeasure/MeasureValue>
<CurrentSpeedMeasure/MeasureUnitCode> <HabitatSelectionMethod> <HydrologicCondition>
<HydrologicEvent> <MonitoringLocationIdentifier> <NetMeshSizeMeasure/MeasureValue>
<NetMeshSizeMeasure/MeasureUnitCode> <NetSurfaceAreaMeasure/MeasureValue>
<NetSurfaceAreaMeasure/MeasureUnitCode> <NetTypeName> <PassCount>
<ReachLengthMeasure/MeasureValue> <ReachLengthMeasure/MeasureUnitCode>
<ReachWidthMeasure/MeasureValue> <ReachWidthMeasure/MeasureUnitCode>
<SampleCollectionEquipmentComment> <SampleCollectionEquipmentName>
<SampleCollectionMethodIdentifier> <SampleContainerColorName> <SampleContainerLabelName>
<SampleContainerTypeName> <SamplePreparationMethodIdentifier>
<SampleTransportStorageDescription> <SamplingComponentName> <ThermalPreservativeUsedName>
<ToxicityTestType> <ActivityAttachedBinaryObject/BinaryObjectFileName>
<ActivityAttachedBinaryObject/BinaryObjectFileTypeCode>

One or more values assigned

- <ProjectIdentifier>
- <ActivityGroupIdentifier>
- <ActivityConductingOrganization>

Format file as:

- repeated columns or
- repeated xml element tags

WQX Business rules & Domain value services

- WQX Business Rules URL
  - https://cdx.epa.gov/WQXWeb/StaticPages/GlossaryWqx.htm#ValidationRules
- WQX Business Rule PDF document
  - https://www.epa.gov/waterdata/wqx-flow-configuration-30
- Review Domain Values and Domain Rules
  - https://www.epa.gov/waterdata/storage-and-retrieval-and-water-quality-exchange-domain-services-and-downloads#domain
  - Activity conditionally require Monitoring Location, and/or
  - Activity conditionally require Analytical Method
  - Characteristic conditionally require Sample Fraction , and/or
  - Characteristic conditionally require Method Speciation , and/or
  - Characteristic conditionally require Analytical Method

Lake Data profile recommendation

- Result Depth versus Activity Depth
- Sampling with frequently changing parameter values
  - <ResultDepthHeightMeasure/MeasureValue>
    <ResultDepthHeight/MeasureUnitCode>
  - <AnalysisStartTime/Time > < AnalysisStartTime/TimeZoneCode> for sampling event interval
  - <ResultSamplingPointName> for actual sampling location lat/long and Transects
    <ResultSamplingPointPlaceInSeries>

FAQs

- **User Community**
- User Call - The WQX Team hosts a call on the 4th Thursday of each month, from 12-1 EST, to inform the user community of recent updates and answer user questions. You can view the monthly user call notes at: Monthly Conference Call Notes
- List Serve - To be notified of user calls and water data updates, sign up for our List serve by sending a blank email to subscribe-storetinfo@lists.epa.gov. To unsubscribe, send another blank email to unsubscribe-storetinfo@lists.epa.gov.
- Help Desk Support - The user help desk is available for any WQX and Water Quality Portal related issues or questions. To access the help desk, please contact us at: 1-800-424-9067 or wqx@epa.gov.