



Technical Support for Assessment, TMDL Tracking and Implementation System (ATTAINS) Redesign Planning (EP-C-12-054, TO 1)

Workgroup 1 'Data Elements and Schema'

Recommendations Report

Final

August 2014

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Acronym List

Acronym	Description
ADB	Assessment Database
ATTAINS	Assessment TMDL Tracking & Implementation System
AU	Assessment Unit
CDX	Central Data Exchange
EPA	Environmental Protection Agency
IR	Integrated Reporting
NHD	National Hydrography Dataset
NTTS	National TMDL Tracking System
STORET	STorage and RETrieval Data Warehouse
TMDL	Total Maximum Daily Load
WG	Work Group
WQX	Water Quality Exchange Network
WQS	Water Quality Standards
XML	Extensible Markup Language

List of References

A Long-Term Vision for Assessment, Restoration, and Protection under the Clean Water Act
Section 303(d) Program:
http://water.epa.gov/lawsregs/lawguidance/cwa/tmdl/upload/vision_303d_program_dec_2013.pdf

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Executive Summary

The ATTAINS re-design project is part of the larger Water Quality Framework, which seeks to better integrate EPA's existing data systems (ATTAINS, NHDPlus, STORET/WQX, GRTS). The Framework will first focus on the ATTAINS data system. This project seeks to leverage state and EPA Regional staff knowledge to refine the process used to submit Integrated Reporting (IR) data to EPA and then make that data visible to the public. One goal of this Workgroup will be to redesign the ATTAINS data system and make it the system of record for Strategic Measures reporting to reduce the reporting burden on states.

Timeline for the new ATTAINS system:

- Late 2014 – Begin designing new system (Oct/Nov)
- Early 2015 – Begin System development
- Late 2015 – New system is ready to use
- 2016 – States can continue to use current system to submit data; however EPA will be looking for approximately 10 states to volunteer to use the new system. Lessons learned from the volunteer states will be used to tweak the system.
- Compile lessons learned from 2016 release of ATTAINS system and compile list of needed changes.
- 2018 – Finalize system and transition all states to new system

This project consists of four workgroups: WG1 – Data Elements and Schema, WG2 – Data Exchange Methodology, WG3 – Performance Measure Evaluation and WG4 – Improved Assessment Methods.

WG1, Data Elements and Schema, was charged with defining the data elements and drafting an eXtensible Markup Language (XML) schema for exchanging Integrated Reporting information between the states and EPA. EPA published a list of data elements for integrated reporting in the [2006 Integrated Reporting Guidance](#)¹, and the results of the statistical surveys in the [2010 Integrated Reporting Memo](#)². These lists of data elements provided the initial list for discussion by this workgroup. Additionally, EPA has provided guidance on what constitutes an [ADB-compatible submission](#)³, which was also used to help understand what data elements are needed for an IR.

The schema defined by this workgroup started with these data elements and made recommendations about:

- defining the data elements,
- which data elements are required and/or optional,
- the order and relationship of the data elements,
- the rules for when to include certain data elements, and
- the list of allowed values for certain data elements.

Upon completion of the workgroup conference calls, all comments and suggestions received from the workgroup were compiled and used to update the new ATTAINS schema. Once the final list of data elements are completed, an XML schema and database structure will be created. EPA anticipates having this work complete by Fall 2014. EPA is planning a series of on-site meetings to discuss and solicit

¹ http://water.epa.gov/lawsregs/lawsguidance/cwa/tmdl/upload/2005_08_11_tmdl_2006IRG_report_2006irg-appendix-2.pdf

² <http://water.epa.gov/lawsregs/lawsguidance/cwa/tmdl/final52009.cfm#app1>

³ http://www.epa.gov/waters/ir/data_submission_tools.html

feedback on the ATTAINS redesign. These meetings will take place at EPA regional offices; EPA will make every effort to visit as many regions as possible

1. Methodology

In order to define the appropriate data elements and schema need for the re-designed ATTAINS data system; the workgroup held bi-weekly conference calls to discuss the data elements. A totally of 11 meetings were held via conference call and webinar, in which six EPA regions and 23 States participated. A Microsoft SharePoint site was used to exchange data and post shared documents for the workgroup.

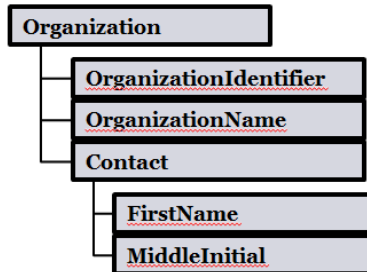
EPA’s current list of data elements required for integrated reporting ([2006 Integrated Reporting Guidance](#)⁴, [2010 Integrated Reporting Memo](#)⁵.) was used as a starting point to define the necessary data elements. A Data Exchange Template, developed by EPA, provided the workgroup with a list of all the data elements and their order for the proposed ATTAINS schema. The template also included a crosswalk of the new data elements with the existing data elements (including elements from ATTAINS, the OWIR data flow and the ADB). The header rows in the template are shown with a blue color and the data elements are shown in white. The relationships for the data elements are indicated as:

- 1:1 – Required and you must only have one entry,
- 1:Many – Required, and you must have at least one entry,
- O:1 – Optional, but you can only have one entry, and
- O:Many – Optional, but you can have many.

The SORT ID provides the key to understanding to the hierarchy:

Parent	1.0	Organization	Organization responsible for the data reported.
	1.0.1	OrganizationIdentifier	A unique identifier assigned to the organization. Identifiers would be managed centrally by EPA
Children	1.0.2	OrganizationName	Name corresponding to unique organization ID (i.e. Utah Division of Water Quality)
	1.0.3	Contact	Organization Contact Information
	1.0.3.1	FirstName	First name of a person.
	1.0.3.2	MiddleInitial	Middle Initial of a person.

Same as:



⁴ http://water.epa.gov/lawsregs/lawsguidance/cwa/tmdl/upload/2005_08_11_tmdl_2006IRG_report_2006irg-appendix-2.pdf

⁵ <http://water.epa.gov/lawsregs/lawsguidance/cwa/tmdl/final52009.cfm#app1>

2. Data Elements

This section will discuss the WG’s recommendations and comments on the data elements required for the new ATTAINS data system. In particular, the WG discussed: which data elements will be required vs. optional; the order and relationship of the data elements and; the rules for when to include certain data elements. Due to time constraints, not all data elements were discussed. Instead the WG discussions focused on key data element.

A list of data elements discussed by the WG is provided below:

- Organization
- Assessment Units
- Assessments
- Uses
- Causes
- Observed Effects
- Probable Sources
- Delistings
- TMDLs
- Implementation Actions

The sections below will discuss each of these data elements in detail. A complete list of data elements is available in the Data Exchange Template.

2.1 Organization

The organization data element is new to the ATTAINS schema. This data block allows a user to capture metadata on the organization that is the “OWNER” of the data. The STORET/WQX data schema uses a similar concept. The new schema gathers data that is identical to the organization data element in STORET/WQX.



Summary of WG Discussion

The workgroup had no objections to adding this data block to the schema. The WG considered this a straight forward data element that did not require discussion.

Final Decisions / Recommendations

- No changes made to this data element.

2.2 Assessment Units

The assessment units (AUs) data elements block was modified significantly from the current system.

The most notable change is that AUs would no longer be cycle dependent. Under the new schema, AUs can be defined once and then reused from cycle to cycle. Changes to an AU would be captured in the AU History data element. The advantage of this approach is that states can now submit only the new and/or updated AUs for a cycle instead of re-submitting all AUs every cycle. This will help reduce the reporting burden on the state. Another significant change to the ATTAINS schema is that monitoring locations can be associated with Assessment Units.



Summary of Workgroup Discussion

The workgroup discussed several data elements in the Assessment Units data block.

AgencyCode (new concept): Data element used to capture organization that defined an AU (State vs. EPA Region).

- No comments from workgroup.

Status Indicator: Data element used to capture if an AU is active. In this proposed scenario an AU would never get deleted. Instead, for example, if you spilt one AU and created two new AUs, you would retire the original instead of deleting it and then add the new AU. This new process would not allow for the re-use of the same AU ID.

- No comments from workgroup.

Monitoring Location: These data elements allow users to link monitoring locations with AUs. For the purposes of this schema monitoring location is defined as a STORET/WQX monitoring location. (Note: may need to include USGS monitoring stations as well). The goal would be to allow the public/decision makers to see the monitoring data that was used for an assessment. This will be an optional data element.

- Workgroup comments:
 - Creates liability to keep the two systems in-sync.
 - States will have to maintain this and better coordinate with monitoring staff.
 - May need to add history tracking if the monitoring location changes.
 - Suggested using stations mapped to the NHD for this data element.
 - This option creates issues of what version/scale of NHD would be used.
 - Reporting the NHDPlus catchment that a station resides in may be a better option.

AU History: Data block used to capture information on changes that have been made to this AU over time. A user can use this data element to track, by cycle, changes in an AU, not at the assessment level, but at the definition level of the AU. EPA also envisions being able to track pollutant changes in this data element. For example, if in the previous cycle the pollutant type was unknown, but in the current cycle it is known, you could track that change. This would make it easier to see the pollutant changes over time.

- Workgroup comments:
 - Should there be rules for splitting AUs? For example if a state wanted to split an AU and make two new ids then retire the original AU.
 - NM raised the following issue about split AUs: “Our practice is not to retire the original AU and create new ids. EPA is already tracking the original AU. This makes it difficult to track listed waters if we change the AU ids.”

Pollutant Code: Data element is for tracking pollutants at the AU level. This would be used if the pollutant changed from cycle to cycle, (Example: last cycle the cause was unknown, for the next cycle the state now knows what the cause of impairment is). Note: New pollutants would not be included here, only changes in pollutants.

- Workgroup comments:
 - Consider placing this data element at the assessment level.

UseClass: Data element that allows users to capture the use class for an AU as defined in the organization's water quality standards. States that do not have classes would not need to populate this section.

- Workgroup comments:
 - Consider placing this data element at the AU level.

Final Decisions / Recommendations

AU History	2.1.1	Add a code(s) and/or data element to distinguish between geospatial changes and attribute changes.
	2.1.2	Add the ability to track the nature of an AU (segment based vs. watershed based).
	2.1.3	Develop List of Best Practices for re-defining AUs.
Use Class	2.1.4	Track at the AU Level.
Pollutant Code	2.1.5	Place this data element at the assessment level.

2.3 Assessments

The assessments data block is a new concept for ATTAINS. The most notable change is that the assessment is done at the cycle level. For an assessment users would provide all the information that is included in an IR Report. Information captured here includes assessment information such as, AUs, use, cause, observed effects, and sources; and also includes delisting information associated with that cycle. The main concept is that the assessment is done at the cycle level.



Essentially this is all the data elements that have the potential to change every cycle. For example if a state has 10 AUs and for the current cycle only 2 were assessed. The other 8 would just roll over from last cycle. This creates two reporting possibilities: (1) Submit only the two that are assessed (2) or submit all AUs. However, the waters that are part of the 303(d) list must be reported on each year as part of the official record.

Summary of Workgroup Discussion

Assessment data block:

- Add a data element to capture the vintage of monitoring data used for an assessment.
 - WG discussed the difference between cycle (or date) last assessed and last date monitored. For example, when an AU was last assessed the monitoring data used may have been up to five years old. Depending on what an AU was assessed for, knowing the date of the monitoring data used for the assessment would give you more confidence in rolling forward an assessment. The WG felt that this concept would give states more flexibility in creating sub-categories for waterbodies.
- EPA Region 1 asked if re-categorization (e.g. defining the categories) is something that could be discussed in this workgroup.
 - This action isn't a part of any of the existing workgroups, however, this issue will be passed on to the EPA HQ staff currently working on the next IR guidance document.

Trend Code: This data element is used to capture any trends observed for an AU per cycle and is at the use level. This would be a defined list that users could pick from. Historically this data element was used for the 314, Clean Lakes Program.

- The workgroup would like the ability to indicate that a waterbody is on a downward trend but is not threatened or impaired. These waters should be a high priority for protection and it would be helpful to be able to identify and report on these waters.
- Issue for discussion: how much data is needed to define a trend?
 - WG suggested adding a text string to allow users to define a trend.
 - Another suggestion was to find a way to capture how states define trend in their assessment methodology.
 - System should capture what pollutant/cause group the trend pertains to.

Final Decisions / Recommendations

Assessment Data Block	2.3.1	Add ability to capture vintage of monitoring data used for an assessment.
Trend Code	2.3.2	Capture this information in the new data system.
	2.3.3	May need to change the name to something like “potential change”.
	2.3.4	Keep at the use level and maybe add to the cause level as well.
	2.3.5	Add a text string to allow users to define a trend.
	2.3.6	Capture how states define trend in their assessment methodology.
	2.3.7	Capture the pollutant/cause group for the trend.

2.4 Uses

The uses data element block is used to capture all use attainment decisions. In the existing system the EPA category is calculated using the underlying data. This data element block was changed to allow states to provide the category and descriptions.



Summary of Workgroup Discussion

Uses data element block

The WG discussed the pros and cons of this approach. Which metadata elements should be required was also discussed. The current system requires metadata for each of the uses being assessed, such as type of assessment, confidence level, etc. Another metadata element in that ADB that is not required is assessment methods. The EPA does not use this information in any of its reports.

- Category calculation: The majority of the WG felt the way the categories are calculated by the current system works and doesn’t need to be changed.
 - WV does not use the ADB and likes to use the report generated by EPA as a way to check the manually calculated categories. They would find this data element very helpful.
 - The new system should auto generate this information earlier in the process, before a user generates a report.
- Metadata: The majority of the WG felt that the metadata elements were not useful.
 - States that still populate this information mainly do so because they were required at one point.

- The EPA regional staff also feel that these data elements are less relevant and/or useful. For example, EPA Region 1 only looks at this information if a state has changed a category.
- WG suggestion: find a way to document whether the assessment was based on extrapolating data or monitoring data.
- Start/End Date fields: These fields were originally added for KY. The possibility of dropping these fields was discussed.
 - KY explained how they use the start/end date for assessment data. The dates indicate the date range of when data was collected for an assessment (start date = day when they started collecting data; end date = day they stopped data collection). This information indicates the age of the monitoring data used for an assessment.
 - WV had some concerns that this information could cause concern for public if an assessment is based on old data.
 - For example, for some AUs in WV the assessment data are 15 years old, but there hasn't been any new monitoring data to use to update the assessment.
 - This info could also be useful in determining where to monitor; for instance, if several AUs have really old data, this could spur state to monitor them.
 - CT does not use this data element much since this information is available in their monitoring methodology.
 - They suggested that it might be useful to add a way to capture a data range for all the AUs. That way a user would not have to enter the same date over and over for all AUs.
- Statewide Assessments: In the current system these are captured as a use determination on every AU reported. The following Questions were put forth to the WG for discussion: (1) How do we capture state wide TMDLs? and (2) Should state wide assessment be captured and reported separately?
 - EPA suggested that instead of having that use determination on every single AU, there would be one blanket assessment, which says this is a state wide assessment for this use and these are the impairments associated with that.
 - The WG was open to this idea.

Monitoring Activities: (new concept), in this data element a user can capture any sample information that corresponds to the assessment being performed. Basically a user would be reporting any linkage back to the monitoring data stored in the National Water Quality Portal. This data element would be optional.

- Workgroup members expressed concern that this data element was located under uses. For example, in OR monitoring activities are more associated with a specific cause/pollutant, they are not associated with Uses.
- It can be problematic for some states to try and link back to specific samples. Many states use a static version of monitoring data that is in STORET/WQX for assessments, whereas the data in STORET/WQX can be dynamic.
 - MT gets around this issue by creating a citations page for each AU, where they list any source of data used for the assessment (i.e. where it's stored, type of data).
- RTI developed a white paper to explore ideas to link AUs and monitoring data to address the WGs concerns. (See appendix D). The WG discussed the recommendations provided in the white paper. After discussion, the WG decided to retain the data block that associates monitoring stations with assessment units, but it will be an optional data element. The WG also proposed dropping the data block that has to do with monitoring activities at the assessment level. Instead

the WG would like to add a new data block at the use level where a user can indicate other parameters that were evaluated but not impaired, but it will also be optional. In addition, the WG requested that EPA evaluate the metadata values to make sure that they are adequate to capture some monitoring activities.

Final Decisions / Recommendations

Category Calculation	2.4.1	Keep this data element but change it slightly so it's describing a state derived category code.
	2.4.2	The other two data elements state category code and state category code description will become sub-categories to allow for states to be able to submit information on what category they think the waterbody should be in.
	2.4.3	Continue auto calculation of the official EPA category and flag any differences.
Metadata Required	2.4.4	Keep the assessment type and assessment method data elements, but change assessment type to be not required.
	2.4.5	Assessment Methods should stay where it currently is.
	2.4.6	Document whether the assessment was based on extrapolating data or monitoring data by adding codes to the assessment methods table.
Start/End Date fields	2.4.7	Change the name of the fields to either monitoring start/end date or sample start/end date.
	2.4.8	Move to the monitoring activities data element block.
	2.4.9	Add functionality to the user interface to allow a user to enter a date range for all AUs.
Monitoring Activities	2.4.10	Keep the data block that associates monitoring stations with assessment units, but it will be optional (see Assessment Unit recommendations)
	2.4.11	Drop the proposed data block that has to do with monitoring activities at the assessment level. <ul style="list-style-type: none"> • Add a new data block at the use level where a user can indicate other parameters that were evaluated but not impaired, but it will also be optional.
	2.4.12	Evaluate the metadata values to make sure that are adequate to capture some monitoring activities.
Associated Uses Data Block	2.4.13	Required if user is submitting an IR.
	2.4.14	Non-Integrated states only need to provide data elements that define the 303(d) List.

2.5 Causes

In this data element block users list the causes of impairment, including 303(d) listing information. This section has been updated to allow the listing information to be more directly tied to the causes. There must be uses associated with causes if a state is submitting an IR.



Summary of Workgroup Discussion

Cycle Expected to Attain: Data element captures the cycle by which the AU is expected to attain its standards.

- Workgroup member asked “under the business rules this is required conditionally, (condition for requirement is that the waterbody is expected to reach attainment sometime in the future) that in theory would be everything right?”
 - EPA explained that this data element is required for 4b waters.
 - Workgroup suggested that the definition for this data element be updated to reflect this.

Tracking all parameters monitored: The WG discussed whether or not the new system should track parameters that were monitored but are not causing an impairment.

- The WG was divided on whether or not to include this information.
 - After WG discussion, EPA suggested moving this information to the monitoring activities data block as an optional field.
 - The workgroup was in favor of this suggestion.
- Causes would still stay as causes of impairment.
 - For the TMDLs that are associated with causes we still want to be able to capture that TMDL information even after the water has been restored and that cause is no longer associated with that assessment unit.
 - WG evaluated adding it at the TMDL level to be sure that it can be tracked back to the assessment unit, or having some sort of tracking of it at the AU history level.
 - MT asked if the parameters would be made available on the WATERS public website.
 - EPA would like this to be public and the look-up table would be similar to the WQX/STORET list
- The workgroup also wanted to know if the data model allows for states to track back to their WQS.
 - Currently this is not being captured in the new data model.

Pollutant Indicator: Data element used to indicate whether a cause of impairment is a pollutant as defined in the IR guidance. EPA added a seasonal indicator data element to indicate if a cause is seasonal in nature. In the current data system this is expressed as a yes/no field.

- The workgroup discussed whether or not we need to still track this data element.
 - The WG did not have any preference.
- WG also discussed if the new system needed to gather more information (other than Yes/No) for the seasonal indicator data element.
 - Suggested adding a new data block with the ability to add multiple start/end dates.

Listing Information: Data block is used to provide all the information you are required to provide (under the old data model) if a water is on the 303d list.

- The workgroup wanted to know if the NPDES permits would be captured in this data block. Those permits IDs could potentially go here or when the TMDL is developed, they go there as well.
 - EPA noted that some states use these data elements for their category 4b waters.

Final Decisions / Recommendations

Cycle Expected to Attain	2.5.1	Refine definition to indicate that this data element refers to 4b waters.
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Parameter Tracking	2.5.2	Add to the monitoring activities block the ability to track other parameters monitored including an indication as to what the conclusion was on the data looked at for that parameter.
	2.5.3	Causes would stay as causes of impairment.
	2.5.4	Capture historic causes (rather than just delete out a cause when the status changes).
	2.5.5	For the TMDLs that are associated with causes we still want to be able to capture that TMDL information even after the water has been restored and that cause is no longer associated with that assessment unit. <ul style="list-style-type: none"> • Evaluate adding it at the TMDL level and be sure that we can track back to the assessment unit. • Or some sort of tracking of it at the AU history level.
Pollutant Indicator	2.5.6	This data element will be included in the new data system.
	2.5.7	Add ability to enter multiple start/end dates for seasonal.
Listing Information	2.5.8	EPA will review the IR guidance and be sure all data elements for category 4b rational are being captured in the new data model

2.6 Observed Effects

Observed Effects are defined as “other conditions observed for an assessment unit that might be indicators of impairment, but are not the causes of impairment (i.e. poor quality biota)”. Observed Effects are associated with uses.



Summary of Workgroup Discussion

Observed Effects – Definitions/Business Rules:

- The workgroup discussed “Do we need to write a better definition and create rules around observed effects?”
- WG identified that a larger policy discussion is needed.
 - The workgroup would like to know exactly how EPA/EPA Regions are going to review listings in terms of pollutants, non-pollutants, and observed effects.
 - Asked EPA to explain the rational for placing observed effects under uses instead of under causes. EPA explained that observed effects can occur on fully supporting waters, and are not exclusive to causes, which is why they are associated to uses.
- The WG did not see any major changes needed to this data element.

Final Decisions / Recommendations

Observed Effects	2.6.1	No changes required from a data element perspective.
	2.6.2	Need policy decision on how to use this field. This will be discussed and made a part of the next integrated reporting guidance.
	2.6.3	When reporting on Public site clarify not assessed vs. insufficient information. For example: this group of waters has some monitoring information, but not enough to say whether the water is impaired or not.
	2.6.4	Include a data element called associated uses.

	2.6.5	Add another data element indicating the type of observed effect (possible cause of impairment vs. observation).
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2.7 Probable Sources

This data element block captures probable sources of impairments. The major change for this data element is the name. Instead of sources they have been re-named probable sources. All other aspects of this data block are the same as the current data model.



Summary of Workgroup Discussion

Source Confidence: EPA removed the data element for source confidence. The WG discussed if this should be added back to the new system.

- The WG had no objections to removing this data element.

Tracking of PS/NPS/Mix: The workgroup discussed adding a data block to track Point Sources (PS), Non-Point sources, and/or mix of sources.

- Workgroup felt that they did not have enough information at the time of the assessment to include this information.
- Basic information about point source and non-point sources is required by 305(b), so there is still a need to track this information.

Final Decisions / Recommendations

Source Confidence	2.7.1	Remove this data element.
PS/NPS/Mix Data block	2.7.2	Do not add a new data block to track Point Sources (PS), Non-Point sources and/or mix of sources. <ul style="list-style-type: none"> • Instead add the ability to track this under the probable sources data block as part of the domain lists.

2.8 Delistings

In this data element block users capture the waterbody/cause combinations that have been removed from the 303(d) list along with the reason for the removal. The new schema is similar the current schema. The main change is that this has been made cycle independent. This makes it possible to have a delisting at any time.



Summary of Workgroup Discussion

Spilt AU issue:

- CT pointed out a common issue with delisting occurs when an AU is split and one part is still impaired. The current data system doesn't really capture this.

Re-done TMDLs:

- Workgroup pointed out that the system will need to know how to handle a TMDL that is re-done. For example, the criteria have changed and the TMDL is no longer valid.

- EPA noted that these situations would be captured under the TMDL data block since they are not really a delisting. A delisting should always be based on the removal of the AU/cause combination.
- MA noted that they had to put a lot of work into reconciling the last 303(d) list due to miss-use of the delisting table. It would help to clarify the use of the de-listing table.

Final Decisions / Recommendations

Delistings	2.8.1	EPA should clarify the use of the delisting table.
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2.9 Total Maximum Daily Loads (TMDLs)

This data element captures information related to TMDLs. The submittal of TMDL information would be optional for users. This data element would also allow users to retrieve approved TMDL information from EPA.

Proposed process flow for TMDLs:

- The states develop a report then either through this new system or CDX flow, submit this information to EPA electronically. (Including all information from the TMDL report)
- EPA would review and approve electronically.
- Approved TMDL would be made available in the state view (not available to the public) of the new ATTAINS data system.
 - States could set up a CDX flow to retrieve TMDL approval information.
 - Eliminates the need to manually create the TMDL snapshot download for the new ATTAINS data system.
- Any decision letters or other documents related to the TMDL approval process would also be made available electronically and/or via a CDX data flow and made available in ATTAINS.

This new concept would allow states to submit TMDL information and make the regional review process faster and easier. The proposed data block for TMDL information is the same as what is used for the NTTS and is built around the TMDL Report. In order for this data block to work efficiently, the WG needed to define the data elements to effectively capture the data that is included in the TMDL Report.

Summary of Workgroup Discussion

TMDL Tracking ID discussion:

- This section will be optional. States do not need to submit TMDLs with the new ATTAINS system. If they chose not to use this method, the region will continue to enter the TMDL information into the national system.
- The Workgroup members indicated that most states have their own tracking number assigned to a TMDL report. It would be useful if the state could add this information to the new data system. EPA suggested adding a data element for State Tracking Code. This would make the State’s tracking code the official identifier instead of having EPA generate a code.
- The new TMDL process would be: states enter all the TMDL information from the report; then regions review this information electronically.
 - EPA Regions wouldn’t have to worry about an identifier because it will be managed by the state.
 - EPA would only have to provide an identifier if the TMDL was developed by them.

- The state was concerned that this approach could cause problems if a state used an existing ID.
 - EPA pointed out that this would not be a problem since the state ID would be linked to an organization. The combination of TMDL ID and Organization code provides a unique identifier.
- Currently EPA only assigns a TMDL ID after the TMDL is approved. If the ID is now going to be generated by the state prior to EPA approval and the TMDL ID is required in order to delist the water, how do we resolve this timing issue?
 - EPA thinks that the new system could have logic built into it to handle this. There is an EPA action code that is only populated by EPA. Until this data element is set to 'approved' by EPA, the waterbody can't go from category 5 to 4a. EPA is envisioning an integrated system instead of two separate systems (assessments vs TMDLs). This integrated approach would allow the public to see changes over time.
- Another TMDL issue is how to handle a TMDL report that has been approved and then segments were added requiring the TMDL to be approved again.
 - The new system may have to include a date field or some other additional data elements to address these situations.
- The EPA Regional staff noted that there is a range of actions with listing decisions and TMDL reports (including partial approvals of TMDL Report). The data system would have to accommodate these different scenarios.

Waste Load Allocation discussion:

- The WG also asked if the waste load allocation data element should be required.
 - EPA will research whether not this data element would be required in all cases.

TMDL Documents data block: This is where users would put all the documents related to the TMDL (currently, NTTS only captures the TMDL Report), examples include: decision memo and supporting documents (i.e. Word documents, Excel spreadsheets, pdf documents, etc.)

- User would need to develop a unique identifier for each file.
- The WG had no comments on this data block.

TMDL End Point: Data element in free text form that is used to describe the TMDL End Point.

- The workgroup asked if EPA was looking for an explicit value and unit (similar to load allocations) for this data element?
 - Currently this field is being used in many different ways.
 - The WG agreed this was useful information to capture.
 - Keep this field as free text.

Pollutants: This data block is used to identify the pollutants in the TMDL. TMDLs are driven by the concept of a pollutant. This terminology is different from cause.

- The new data model makes a distinction between a pollutant and a cause. A pollutant is something that a user can develop a waste load allocation for. For example, if the cause of impairment is dissolved oxygen, the pollutant may be nitrate.
- The workgroup wanted to know if this section had to be entered manually and who would be responsible for entering this information (note the assessment staff are not always the same people that create TMDLs).

- The concept that EPA is envisioning is that the TMDL staff develop the TMDL report, then, when they are ready to send it to EPA, they either enter the information into the state's local system (if they have one) or log-on to the TMDL portion of ATTAINS and enter the information for the TMDL and upload the TMDL Report.
- When they click finish, EPA would be notified that there is a new TMDL to review and give them all the info needed for review.
- Once EPA has approved the TMDL, they click a button to notify the state of the decision. The decision letter also gets added to ATTAINS as a document.
- If the system is built right, all those linkages between the TMDL and assessment unit will be automatic as a result of entering the data electronically. That sets the AUs in the TMDLs a user up for the next cycle to be 4a waters.
- Alternatively, a state could upload the document and other supporting materials to ATTAINS, and the Region would enter the detailed information into the system.

AU Load allocation Link:

- The workgroup identified an issue with linking AUs back to load allocations values.
- Currently, they are not linked. The only way that they would be linked is if they both have the same pollutant. But there's nothing that tells you that this particular NPDES permit is on this particular AU.
- There's no mechanism in the current or proposed data model to do this. The workgroup felt that the benefit of capturing this information did not outweigh the data entry cost, especially since this same information could be derived using GIS after both the TMDL data and the NPDES data are entered into their respective systems.

Sources: WG discussed whether sources should be associated with the entire TMDL report? Or should sources be associated at the pollutant level?

- Some members would like to see this at the pollutant/AU combination level. This would make it easier to parse out the pollutant/waterbody combination for prioritization.
- There was some confusion about the types of sources discussed previously in the assessments data block. The WG previously discussed probable sources as part of the assessment.
 - Sources in the TMDL data block is a very similar in concept. At this point it is not probable anymore it's been confirmed via TMDL.
- EPA would like to see this item populated more so this information can be used to identify sources of pollution.
- One concept proposed was to drop probable sources from the assessment side and let the assessors identify causes and the real sources through TMDL development.
 - Not sure we can get away from this field. This field is still used in the IR report. There is a requirement as part of 305(b) to include the extent of NPS causes of impairment. This information has to be captured in the IR report.

Probable Sources: The WG noted that a major issue with probable sources is that the public may view these has a real source before confirmed by TMDL.

- NM deals with this issue by first listing waters as source unknown and then when the TMDL is done, the state updates the probably source list in the integrated report. NM does not consider those two separate lists.
- EPA suggested an alternative approach: Remove sources from this data block, and instead place this data element in the assessment block. When a TMDL is completed the source would be

confirmed. This way the new system can distinguish between a probable source and a confirmed source.

- One of the challenges that we have with putting it in the assessment block is that kind of information is sent to EPA every other year, rather than TMDLs which are more constant data entry.

Final Decisions / Recommendations

TMDL Data Block	2.9.1	Add data element for State TMDL Tracking ID.
	2.9.2	Include date field or other additional data element to track changes in approved TMDLs.
	2.9.3	Ensure new data system can accommodate a wide range of actions taken on TMDLs/delisting(s).
	2.9.4	Create better definition for TMDL endpoint field.
	2.9.5	EPA: check with legal staff to ensure the new system can show delisting changes as they occur.

2.10 Implementation Actions

Implementation Actions are used to track the activities that take place during the implementation of a TMDL or other measure. This data element is meant to track the actions that take place between when a water is listed; when a TMDL is completed; and when the water is restored. There are many steps that can occur between those milestones that may be worthwhile to track.

The purpose of having these implementation actions is to open up the possibility for EPA/States to be able to track progress. EPA has heard from states that it’s really difficult to show that water quality is improving. It can take decades for a waterbody to go from impaired to restored. That does not mean that state isn’t working on restoring water quality in the meantime.

This data element will allow users to track incremental activities that lead to restoration. The structure of this data element is very similar to the TMDL data block.

Summary of Workgroup Discussion

The WG asked EPA if this would be tracked at the AU level or priority level. These will be implemented the same way as the TMDLs and 4bs. Users can identify them at a fairly large scale. Then for the individual actions a user can identify which waters are actually being addressed with this implementation action. They don’t have to be listed waters.

Another issue posed by the WG is “who is the consumer for this information, EPA or States?” It is envisioned that this data would be useful to both states and EPA/Congress. It will provide a more transparent picture as to the progress being made toward restoring water quality.

The WG expressed interest in linking to the GRTS system in order to better track the money that is spent on restoration projects. Another option suggested would be to have the TMDL link to a website where the public could see the funding source(s).

Final Decisions / Recommendations

Implementation Actions Data Block	2.10.1	Implementation actions should be kept very high level.
	2.10.2	Rename Implementation actions to more reflect what they are (not just TMDL implementation activities).
	2.10.3	Create a URL link field on the TMDL_Report_ID to a website where the public could see funding source(s).

2.11 Prioritization

As part of the new 303(d) vision, states can identify priorities. For more information: http://water.epa.gov/lawsregs/lawsguidance/cwa/tmdl/upload/vision_303d_program_dec_2013.pdf. This data element block will allow for the tracking of what those priorities are, and help establish a baseline against which the state will work

Summary of Workgroup Discussion

No changes recommend.

Final Decisions / Recommendations

No changes recommend.

3. Domains

The workgroup reviewed the Domains Tab of the Data Exchange Template, which is being developed by EPA, and made recommendations about the list of allowed values for certain data elements.

3.1 StatusIndicator

This data element is used as an indicator of whether the Assessment Unit is currently “active”, or if the identifier has been “retired” and is being kept for historical tracking purposes and is part of an Assessment Unit History of another Assessment Unit.

Summary of Workgroup Discussion

The WG had several questions related to this domain.

- Some states perform re-segmentation on a regular basis and these states will need the system to accommodate multiple changes.
- Will new system track all AU changes over time?
 - EPA Response: Yes, EPA would like the new system to track what happens to AUs over time.
- What is the starting point/baseline for this domain?
 - EPA Response: EPA will move over a few cycles of data for this approach. However, this will probably end up being a state by state decision.

Final Decisions / Recommendations

StatusIndicator	3.1.1	System will handle multiple changes to an AU.
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3.2 WaterTypeCode

This domain consists of codes used to represent the water type for an AU. As a starting point the list used for discussion was the one currently available in ATTAINS.

Summary of Workgroup Discussion

- A workgroup member suggested adding “connected wetland” to the list of Waterbody types.
- The WG discussed whether it was better to pare the list down to major categories or keep it as is to allow for ultimate flexibility.
 - Would prefer not to pare down list, but remove duplicates
- Another option suggested is to investigate how the current list lines up with feature types available in GNIS/NHDPlus.

Final Decisions / Recommendations

WaterTypeCode	3.2.1	Do not pare down list, but remove any duplicates.
	3.2.2	Add Connected wetland to the list.
	3.2.3	Investigate how the current list lines up with feature types available in GNIS/NHDPlus.

3.3 LocationTypeCode

This domain captures the description of the type of location (i.e. 8-digit HUC, County, etc.).

Summary of Workgroup Discussion

EPA asked the WG to discuss if any additional types needed to be added.

- The workgroup suggested a few location types to add to the list.

Final Decisions / Recommendations

LocationTypeCode	3.3.1	Add “Ecoregions”.
	3.3.2	Add a user defined option.
	3.3.3	Add “State Watershed”.
	3.3.4	Add more HUC levels (i.e. HUC 4 or 6).

3.4 ModificationTypeCode

This domain describes the type of modification that was made to an AU (i.e. spilt, merge, rename, etc.)

Summary of Workgroup Discussion

EPA asked the WG to discuss if any additional types needed to be added.

- WG suggested adding a corrections code.

Final Decisions / Recommendations

ModificationTypeCode	3.4.1	Add a “Corrections Code” option.
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3.5 UseName

The UseName data element is used to capture the name of the beneficial use.

Summary of Workgroup Discussion

The list used for discussion was compiled from the data currently available in ATTAINS. This question was discussed by the WG: “What are the ground-rules for use name? Should EPA accept whatever the state submits or should uses have to adhere to the language used in the states WQS documents?”

- MT felt that the use names should be what is listed in the state’s WQS.
- Another option discussed was keeping the uses very general (i.e. aquatic life, primary contact recreation etc.)
 - The WG leaned toward keeping these more specific.

Final Decisions / Recommendations

UseName	3.5.1	States should be given the opportunity to review the list to add new uses and delete UseNames that no longer apply.
	3.5.2	Keep use name specific instead of generic.

3.6 AssessmentTypeCode

This domain consists of codes that represent the type of assessment that was performed on an AU.

- No change recommended.

3.7 AssessmentConfidenceCode

This domain consists of codes that indicate the confidence level a state has in the AssessmentType.

- No change recommended.

3.8 MethodTypeName

This domain is used to capture the name of the assessment method used.

- No change recommended.

3.9 CauseName

This domain is used to capture the name of the cause.

Summary of Workgroup Discussion

Historically EPA has not allowed states to use major categories such as “nutrients” or “metals” as a cause code. The WG discussed adding these major categories as cause names.

- The WG had a mixed reaction to removing nutrients.
 - Some members felt that states should only be reporting specific nutrients;
 - Others felt it would be problematic to remove, since it’s already in the database and being used.
- The WG pointed out that the metal cause name is not necessary since states don’t write WQS for metals.
- There is also interest in flagging causes as pollution vs. pollutant.
 - Originally EPA had avoided this since definitions can differ by state.
 - However, this could be overcome by defaulting items like flow/habitat as pollution, but a state could override and flag it as a pollutant if necessary.
 - The WG will work to make the list of cause name as clean and concise as possible.
- EPA would like to line up cause names with the substance registry system.
 - The WG had no objections to this suggestion, however, they would like to have crosswalk developed.

Final Decisions / Recommendations

CauseName	3.9.1	Do not remove nutrient cause name.
	3.9.2	Line-up cause names with Substance Registry <ul style="list-style-type: none">• Create crosswalk
	3.9.3	Follow-up state by state to clean up cause name/cause group name. <ul style="list-style-type: none">• Identify cause names that are indicators/observed effects• Identify cause names that are pollutants/pollution

3.10 SourceName

This domain is used to capture the name of the source.

Summary of Workgroup Discussion

EPA suggested following the same rule of keeping SourceName clean and concise.

- Changes to the list should be evaluated and/or vetted state by state.
- The WG discussed whether source names should be generic (as they currently are) or be made more specific.
 - WG is fine with keeping source names general.

Final Decisions / Recommendations

SourceName	3.10.1	Keep source names general.
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3.11 DelistingReasonCode

This domain consists of codes that indicate the reason the AU/cause is being delisted.

Summary of Workgroup Discussion

EPA has heard some complaints from states about the current delisting reasons, such as the: they are too long; and there should be an “other” option.

- Other comments from the workgroup member include: WQS based delisting reasons are too broad, need definition for what might fall under a general delisting category.

Final Decisions / Recommendations

DelistingReasonCode	3.11.1	WQS based delisting reasons are too broad.
	3.11.2	Need definition for what might fall under a general delisting category.

3.12 PollutantName

This domain is used to capture the Pollutant Name.

Summary of Workgroup Discussion

Workgroup will try to keep this as clean and concise as possible.

- For this table the goal will be to remove anything that isn't a pollutant, such as impaired biology.
- The pollutant ID will be replaced in the new system by pollutant name.

Final Decisions / Recommendations

PollutantName	3.12.1	Remove Pollutant ID, <ul style="list-style-type: none">• Replace with pollutant name.
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3.13 ActionTypeCode

The ActionTypeCode is used to identifying the type of action being taken. These are actions that are done on a water. The main purpose of these codes is that they trigger different measures.

- No change recommended.

3.14 PriorityTypeCode

The PriorityTypeCode is used to identify the type of priority that is being set. This code is associated with the new 303d program vision, where states can define their priority zones for developing TMDLs.

- No change recommended.

4. Next Steps

The comments and suggestion received from the workgroup were compiled and will be used to update the new ATTAINS schema. Once the final list of data elements are completed, an XML schema and database structure will be created. EPA anticipates having this work complete by Fall 2014.

EPA is planning a series of on-site meetings to discuss and solicit feedback on the ATTAINS redesign. These meetings will take place at EPA regional offices; EPA will make every effort to visit as many regions as possible

Appendix A – Meeting Minutes from WG 1 Conference Calls

Appendix B – How States Create AUs

Appendix C – Water Quality Questions that can be answered by State IR Data.

Appendix D – White Paper, Associating Monitoring Locations with AUs.

