Overview of EDAS2 for Managing and Analyzing Water Quality Data

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New England Association of Environmental Biologists
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EDAS2
Environmental Data Analysis System

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EDAS2
Environmental Data
Analysis System

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EDAS2 Topics

1. Background and overview of the advancement from EDAS to EDAS2.
2. Key Features of EDAS2 that enhance the ability of states and organizations to manage data.
3. The link from data management to biological data analysis.
4. Sending or retrieving data from WQX\STORET, easy export of data to WQX.
5. Questions, comments, future enhancements, contact information

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1. Background

Tetra Tech developed EDAS and EDAS2 as a tool to support our own data management, data QC, and data analysis tasks related to developing water quality indices for agencies engaged in water quality monitoring. EDAS and EDAS2 will continue to be maintained, enhanced, and supported as these products are used continually by Tetra Tech. Reasons for developing EDAS2 include:

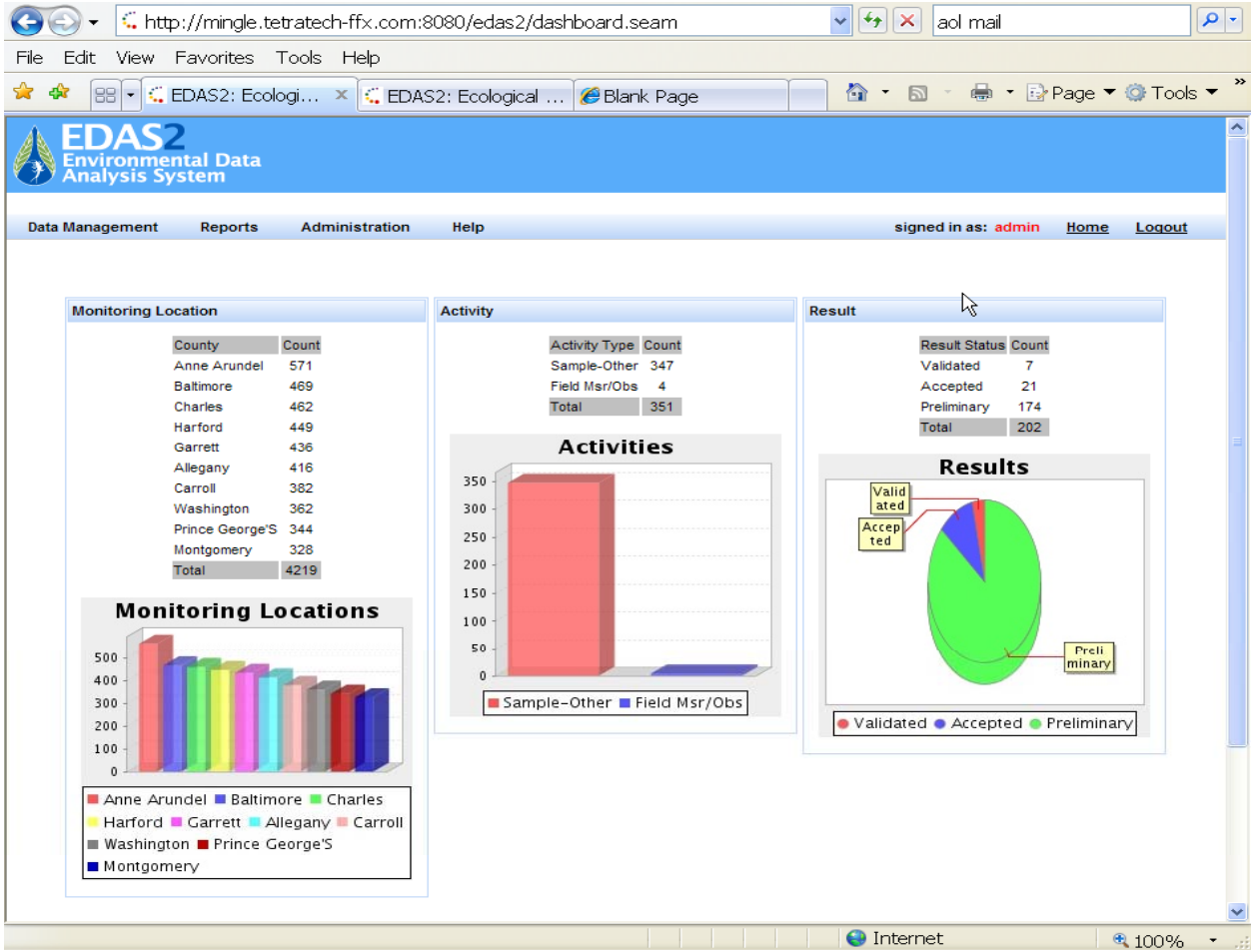
- Maintaining compatibility with EPA's Water Quality Exchange (WQX). EDAS2 contains the same data elements, data types, and naming conventions as found in the WQX data model\database.
- Providing the option of managing and evaluating water chemistry parameters along with biology.
- To take advantage of current database and software technologies.
- To promote data sharing and exchange of analytical methods

- Overview of the advancement from EDAS

EDAS	EDAS2
Desktop database developed in MS Access	Server based for multiple users
Includes Biological and Habitat data with limited water chemistry	Includes the complete data base as found in WQX allowing storage of biological and physical/chemical data
Limited data sharing and limited number of users Must use correct version of MS Access	No software to install on the user's PC. Connect to EDAS2 using your web browser.

2. Key Features of EDAS2 that enhance the ability of states to manage monitoring data

- The EDAS2 home page includes a 'Dashboard' view of the database.
- The Dashboard can be customized and provides data summaries by location, activity, and results



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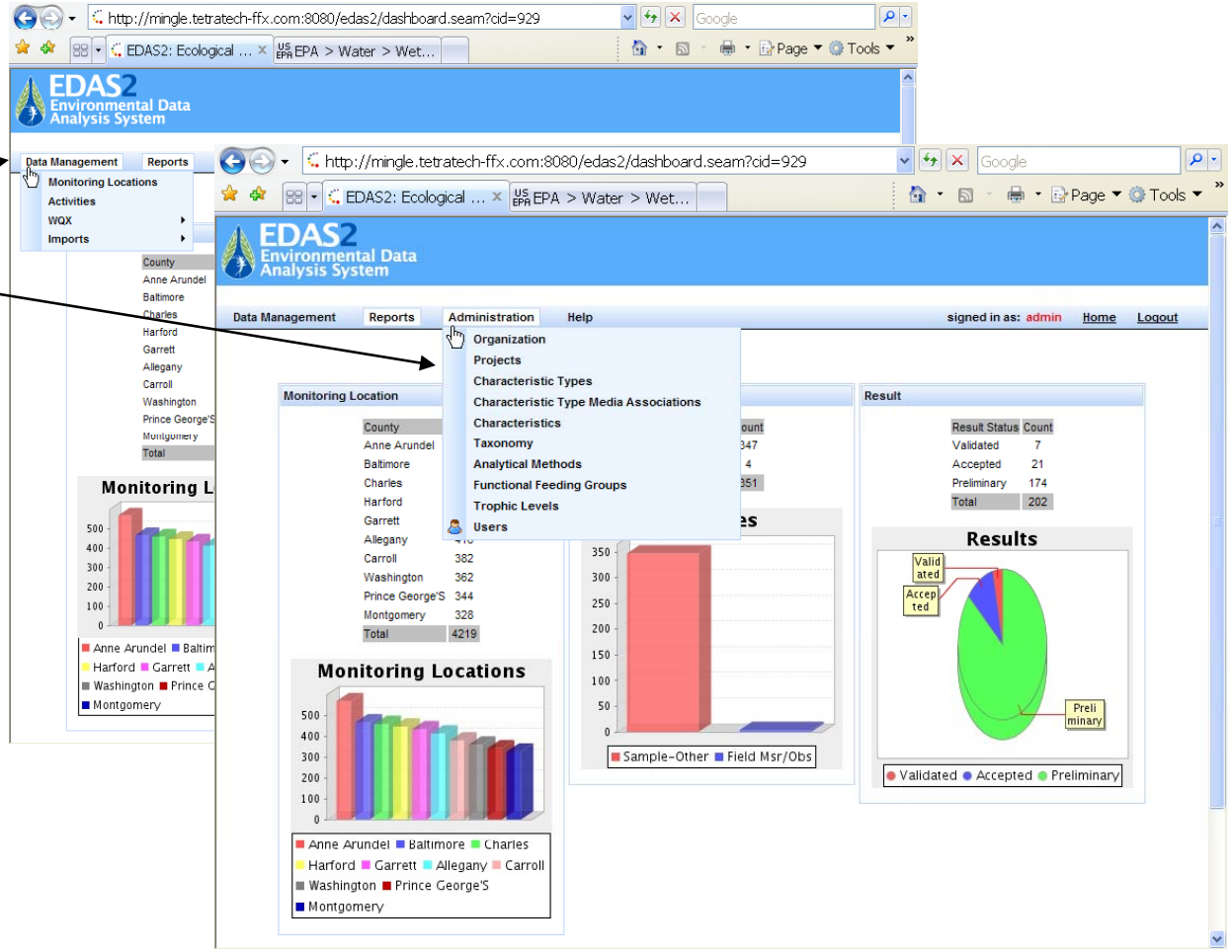
- Navigation is easily accomplished using the drop-down menus



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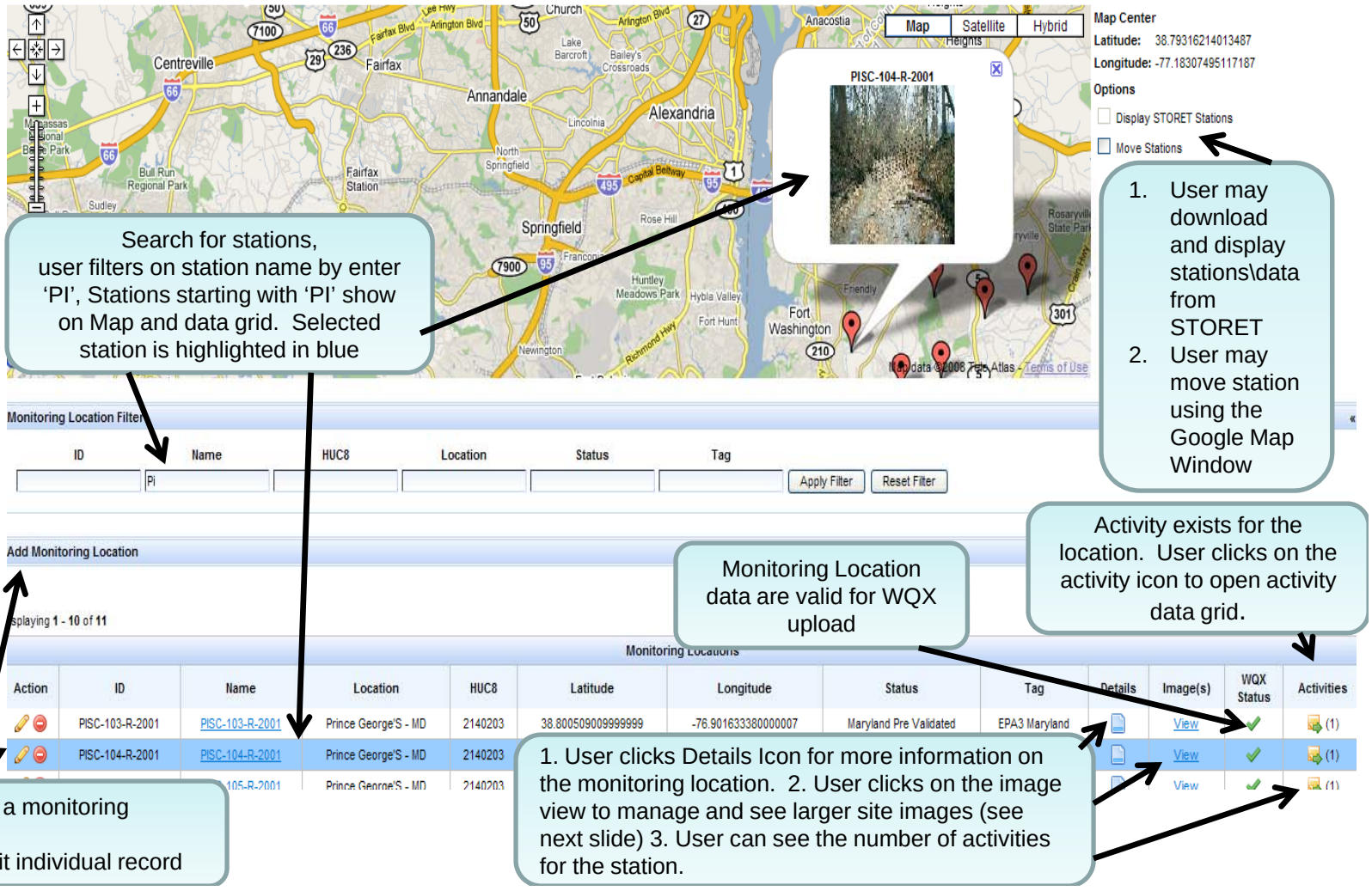
- The monitoring location screen is typical of screens in EDAS2, allowing users to view, create, or update records.
- This Monitoring Location screen includes multiple tools and appears when the user selects monitoring locations from the drop down menu.



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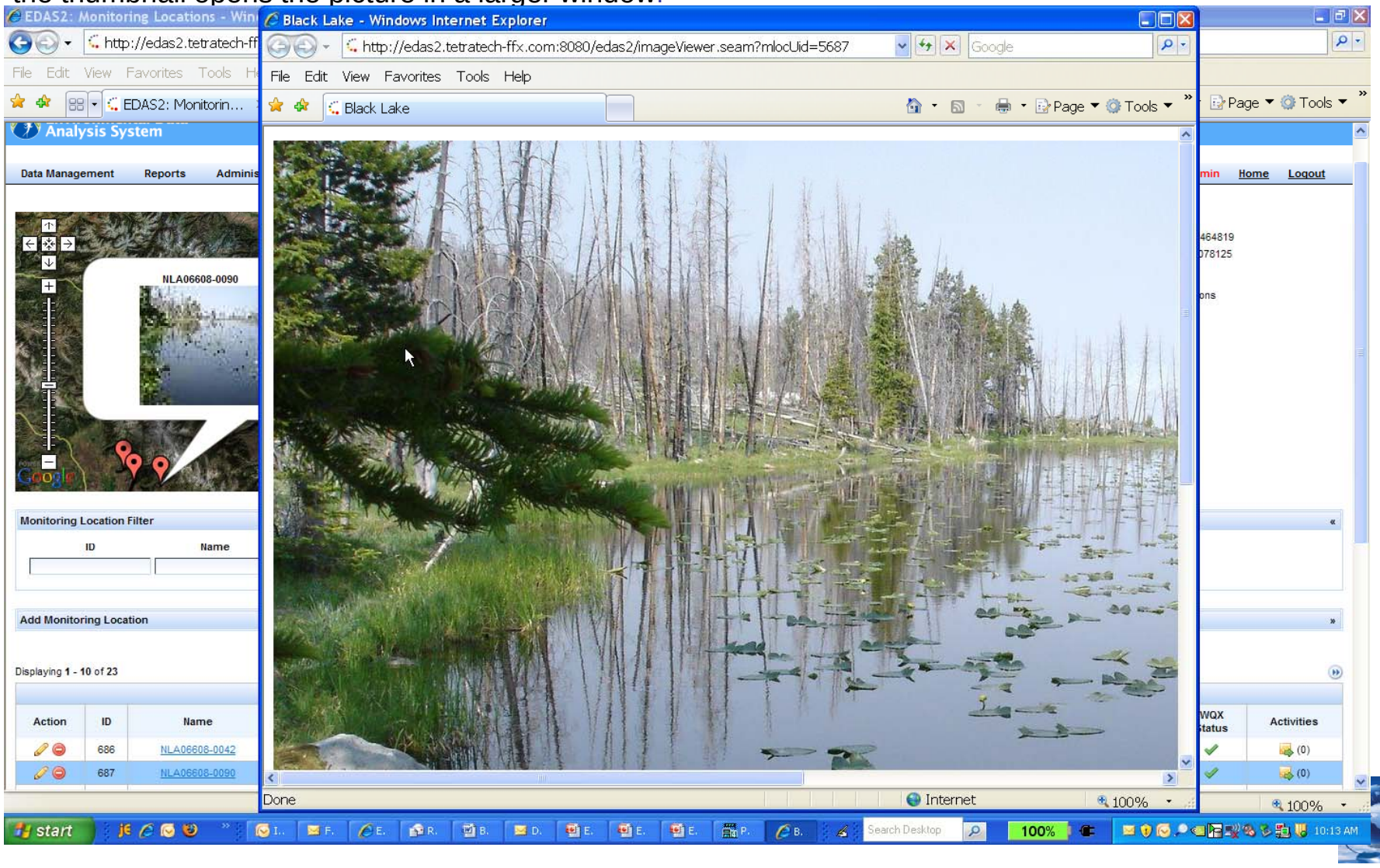
- From the Monitoring Location screen a user may add multiple pictures of a monitoring location, clicking on the thumbnail opens the picture in a larger window.

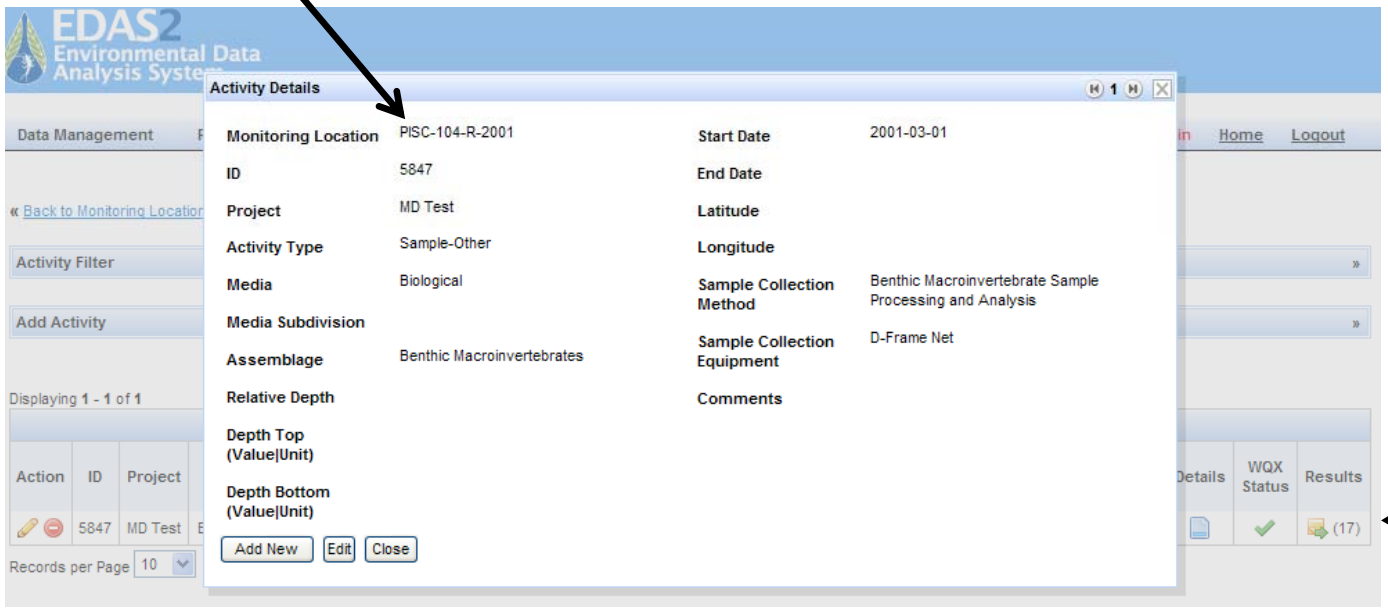


- Back to the Monitoring Location Screen and ‘drilling’ down to activities and results for our selected monitoring location (PISC-104-R-2001)

Displaying **1 - 10** of **28**

Monitoring Locations

Action	ID	Name	Location	HUC8	Latitude	Longitude	Status	Tag	Details	Image(s)	WQX Status	Activities
	PISC-103-R-2001	PISC-103-R-2001	Prince George'S - MD	2140203	38.800509009999999	-76.901633380000007	Maryland Pre Validated	EPA3 Maryland		View		(1)
	PISC-104-R-2001	PISC-104-R-2001	Prince George'S - MD	2140203	38.723885260000003	-76.968612440000001	Maryland Pre Validated	EPA3 Maryland		View		(1)
	PISC-105-R-	PISC-105-R-	Prince George'S -			-	Maryland Pre	EPA3				



1. Click on the activity icon for the monitoring location and the activity screen opens.
2. The user may edit an existing activity or create a new activity.

3. Drill down to Results

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- Drill down from the activity to results for site PISC-104-R-2001

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Activity Details

Data Management | Home | Logout

Monitoring Location	PISC-104-R-2001	Start Date	2001-03-01
ID	5847	End Date	

Displaying **1 - 17 of 17**

Benthic Macroinvertebrates Measurement Results for Activity (5847)

Action	Taxon *	Count *	Status	Exclude	Comments	Details	WQX Status
	Tipula	30	Validated		Most found in CPOM		
	Stegopterna	6	Validated				
	Rheotanytarsus	12	Validated				
	Prostoia	27	Validated				
	Paratanytarsus	42	Validated				
	Parametriocnemus	5	Validated				
	Microtendipes	1	Preliminary				
	Lumbriculidae	1	Preliminary				
	Dubiraphia	1	Preliminary				
	Dicranota	1					
	Diamesa	32					
	Crangonyx	1					
	Conchapelopia	11					
	Clioperla	3	Preliminary				
	Clinocera	4	Preliminary				
	Cheumatopsyche	2	Preliminary				
	Ameletus	4	Preliminary				

Not set
Accepted
Validated
Rejected
Preliminary
Final

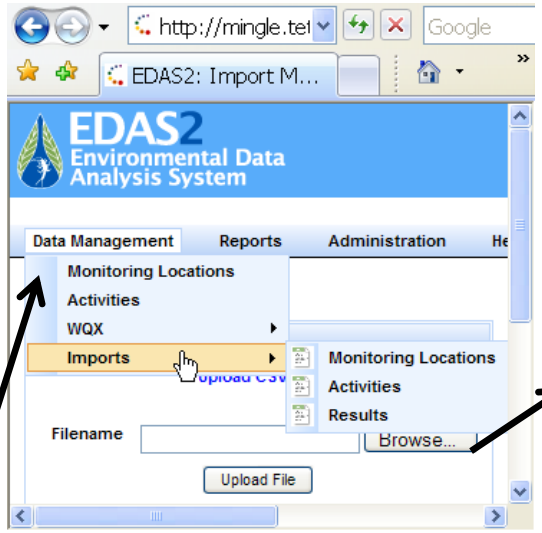
Records per Page 25

1. The user clicked on the Result Icon which opens the results screen

WQX Status	Results
✓	(17)

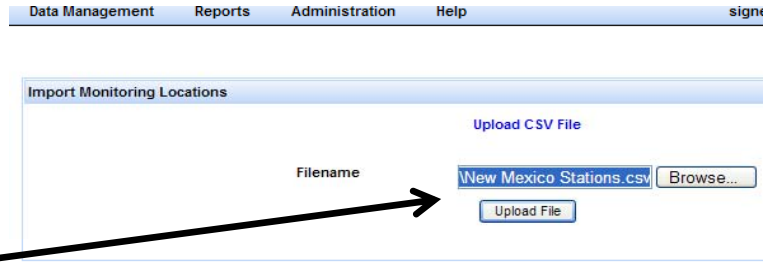
2. The results screen is like other EDAS2 screens, records are editable and many fields are tied to lists to reduce typing and errors.

- EDAS2 lets you import data from a flat file that you would receive from a lab

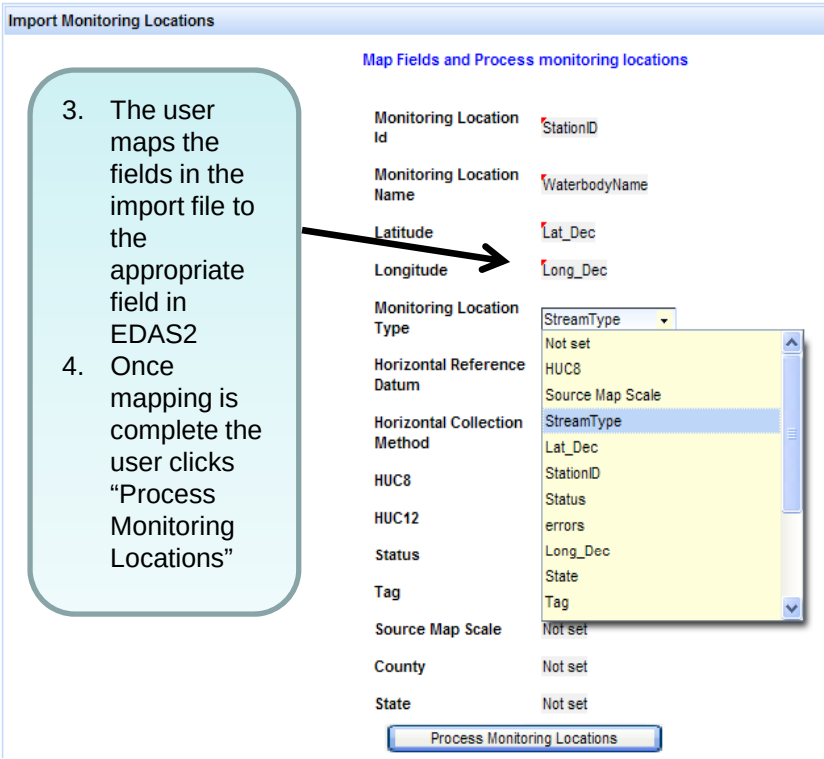


1. The user clicks on Data Management > Imports > Monitoring Locations (or activities or results)

2. The user finds the file for importing by using the Browse feature



3. The user maps the fields in the import file to the appropriate field in EDAS2
4. Once mapping is complete the user clicks "Process Monitoring Locations"



5. Next Slide

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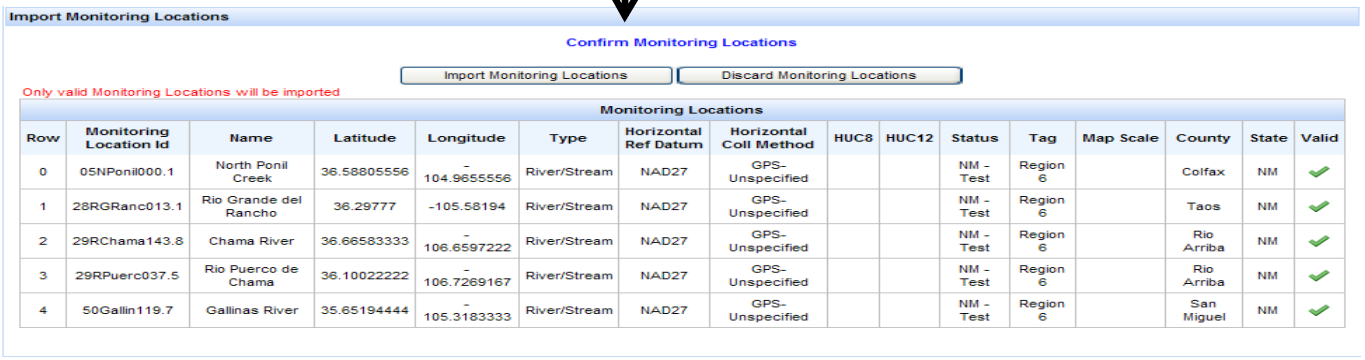
- EDAS2 Imports bulk data from a flat file.

1. After clicking “Process Monitoring Stations” (previous slide), EDAS2 opens this window confirm data import



Import Monitoring Locations

Confirm Monitoring Locations

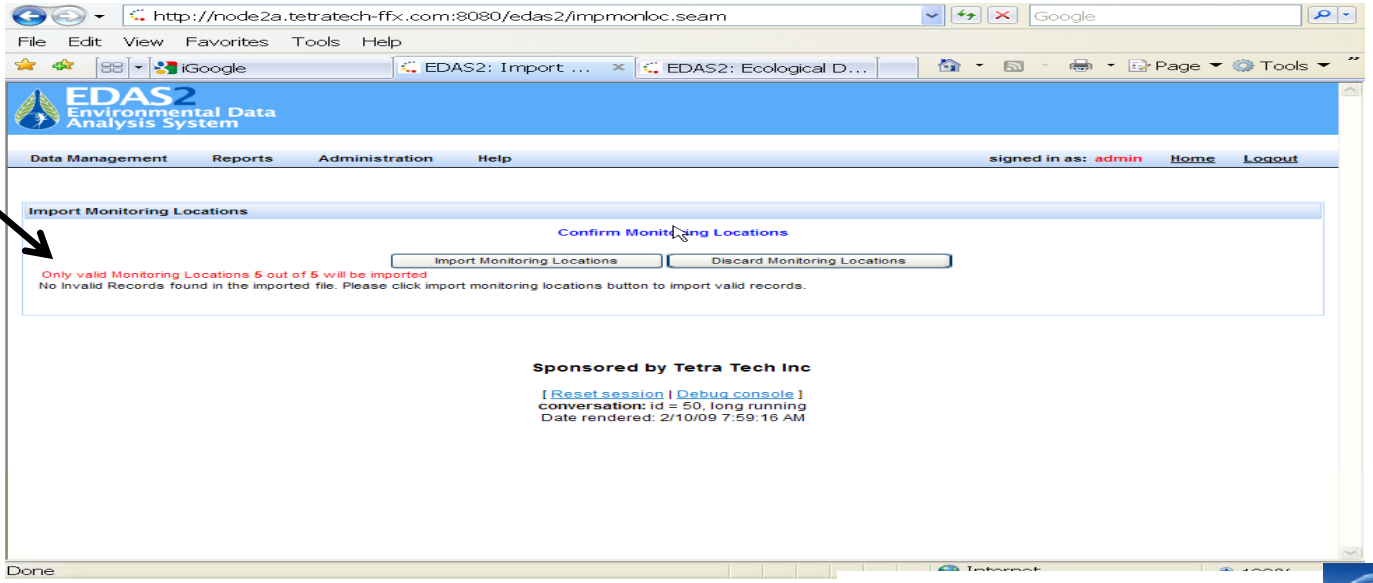
Import Monitoring Locations | Discard Monitoring Locations

Only valid Monitoring Locations will be imported

Monitoring Locations

Row	Monitoring Location Id	Name	Latitude	Longitude	Type	Horizontal Ref Datum	Horizontal Coll Method	HUC8	HUC12	Status	Tag	Map Scale	County	State	Valid
0	05NPonil000.1	North Ponil Creek	36.58805556	-104.9655556	River/Stream	NAD27	GPS-Unspecified			NM - Test	Region 6		Colfax	NM	✓
1	28RGRanc013.1	Rio Grande del Rancho	36.29777	-105.58194	River/Stream	NAD27	GPS-Unspecified			NM - Test	Region 6		Taos	NM	✓
2	29RChama143.8	Chama River	36.66583333	-106.6597222	River/Stream	NAD27	GPS-Unspecified			NM - Test	Region 6		Rio Arriba	NM	✓
3	29RPuerc037.5	Rio Puerco de Chama	36.10022222	-106.7269167	River/Stream	NAD27	GPS-Unspecified			NM - Test	Region 6		Rio Arriba	NM	✓
4	50Gallin119.7	Gallinas River	35.65194444	-105.3183333	River/Stream	NAD27	GPS-Unspecified			NM - Test	Region 6		San Miguel	NM	✓

2. After clicking “Import Monitoring Locations”. EDAS2 opens this window



http://node2a.tetratech-ffx.com:8080/edas2/impmonloc.seam

File Edit View Favorites Tools Help

EDAS2: Import ... | EDAS2: Ecological D...

EDAS2 Environmental Data Analysis System

Data Management | Reports | Administration | Help | signed in as: admin | Home | Logout

Import Monitoring Locations

Confirm Monitoring Locations

Import Monitoring Locations | Discard Monitoring Locations

Only valid Monitoring Locations 5 out of 5 will be imported

No Invalid Records found in the imported file. Please click import monitoring locations button to import valid records.

Sponsored by Tetra Tech Inc

[Reset session | Debug console]

conversation: id = 50, long running

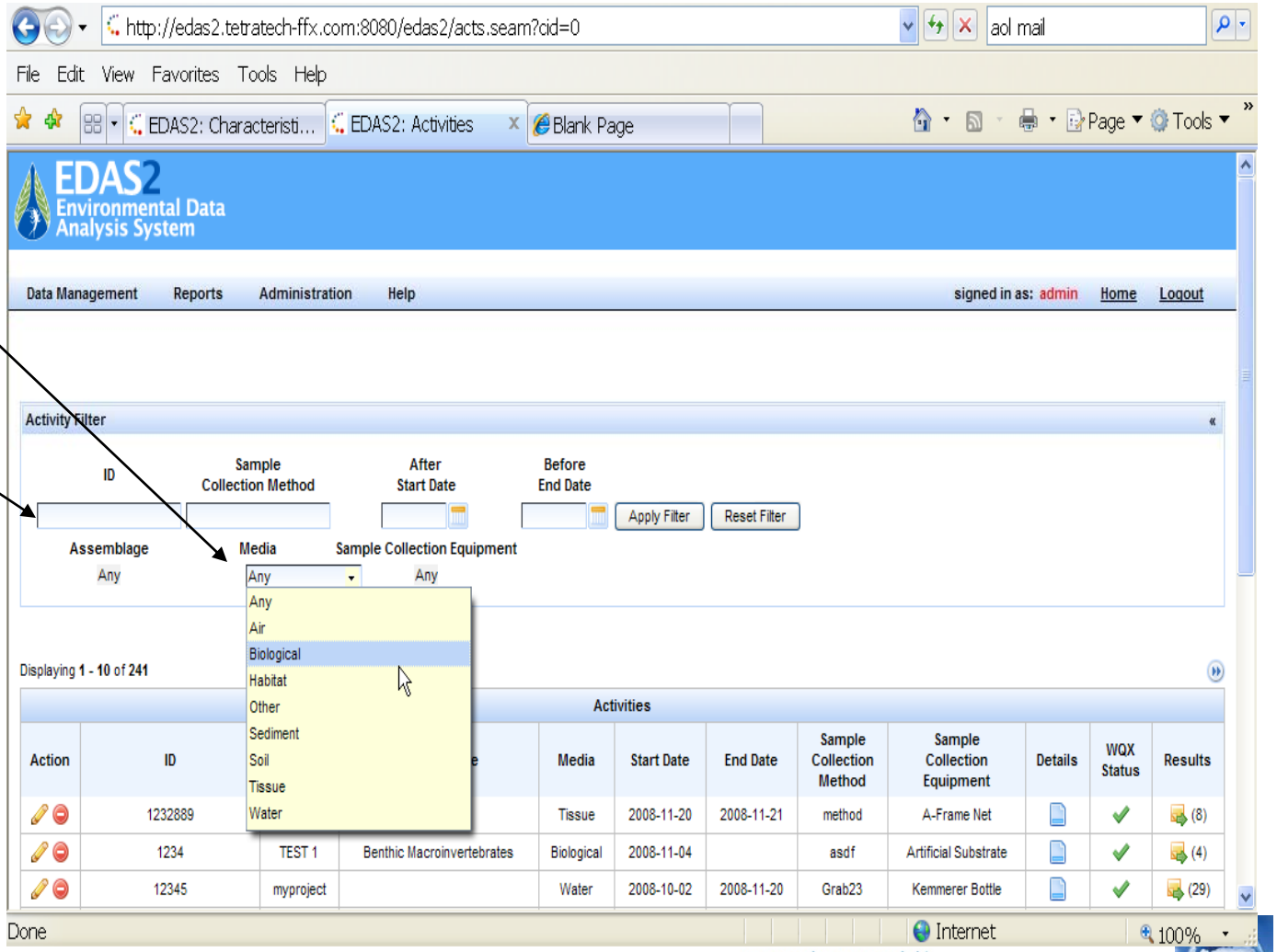
Date rendered: 2/10/09 7:59:16 AM

Done

3. FYI..
The process for importing activities and results follows the same process. You start by importing Monitoring locations (ML) because activities must be associated with ML and results must be associated with activities.

- More EDAS2 Features that enhance the ability of states to manage monitoring data

- Support Cross-Media monitoring data management and submission
- Assemblages include benthic macroinvertebrates, fish, periphyton, etc.



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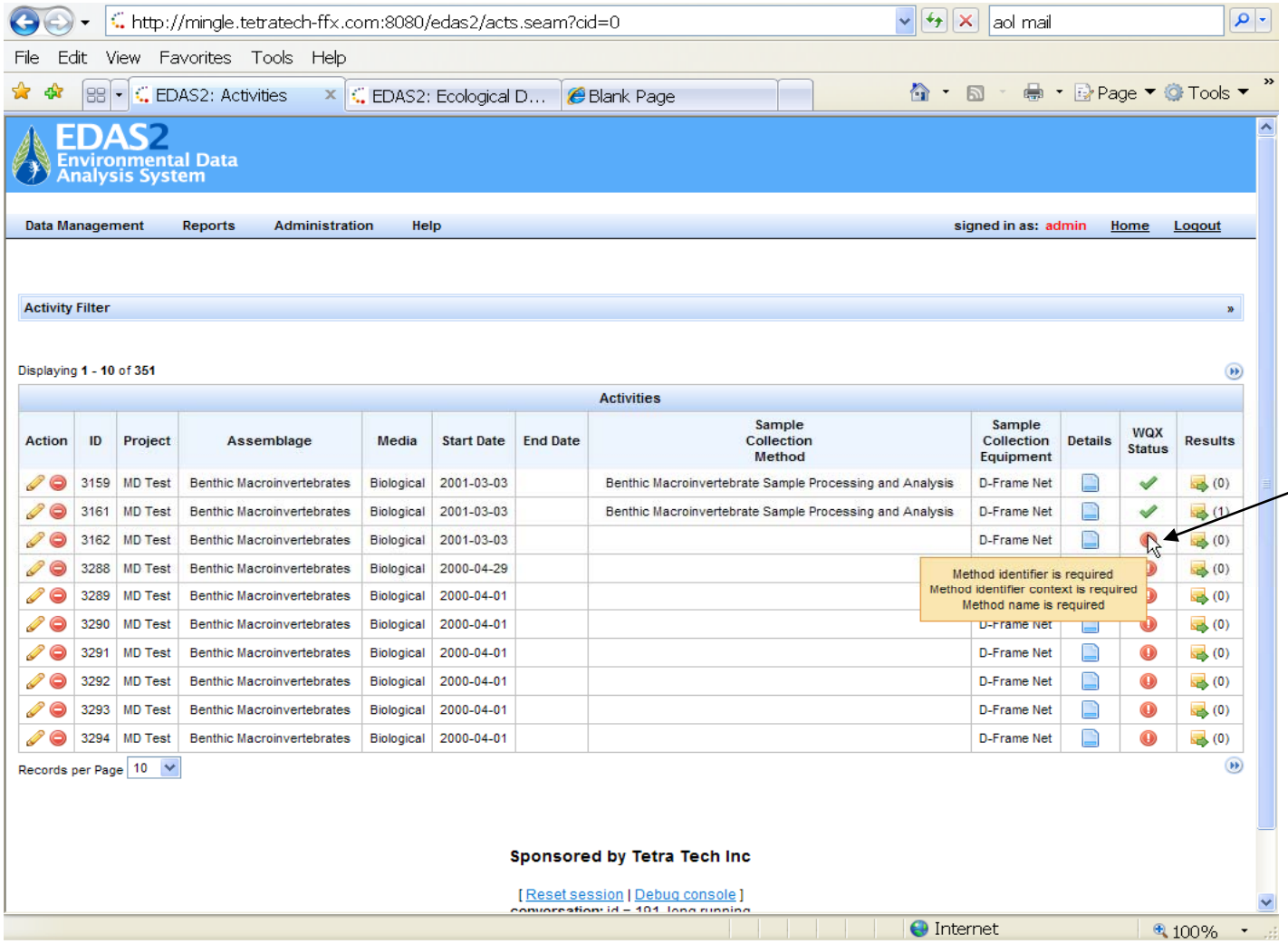

- Provides data standard compliance using result and activity-level record flagging that alerts the user to missing or non-valid data.

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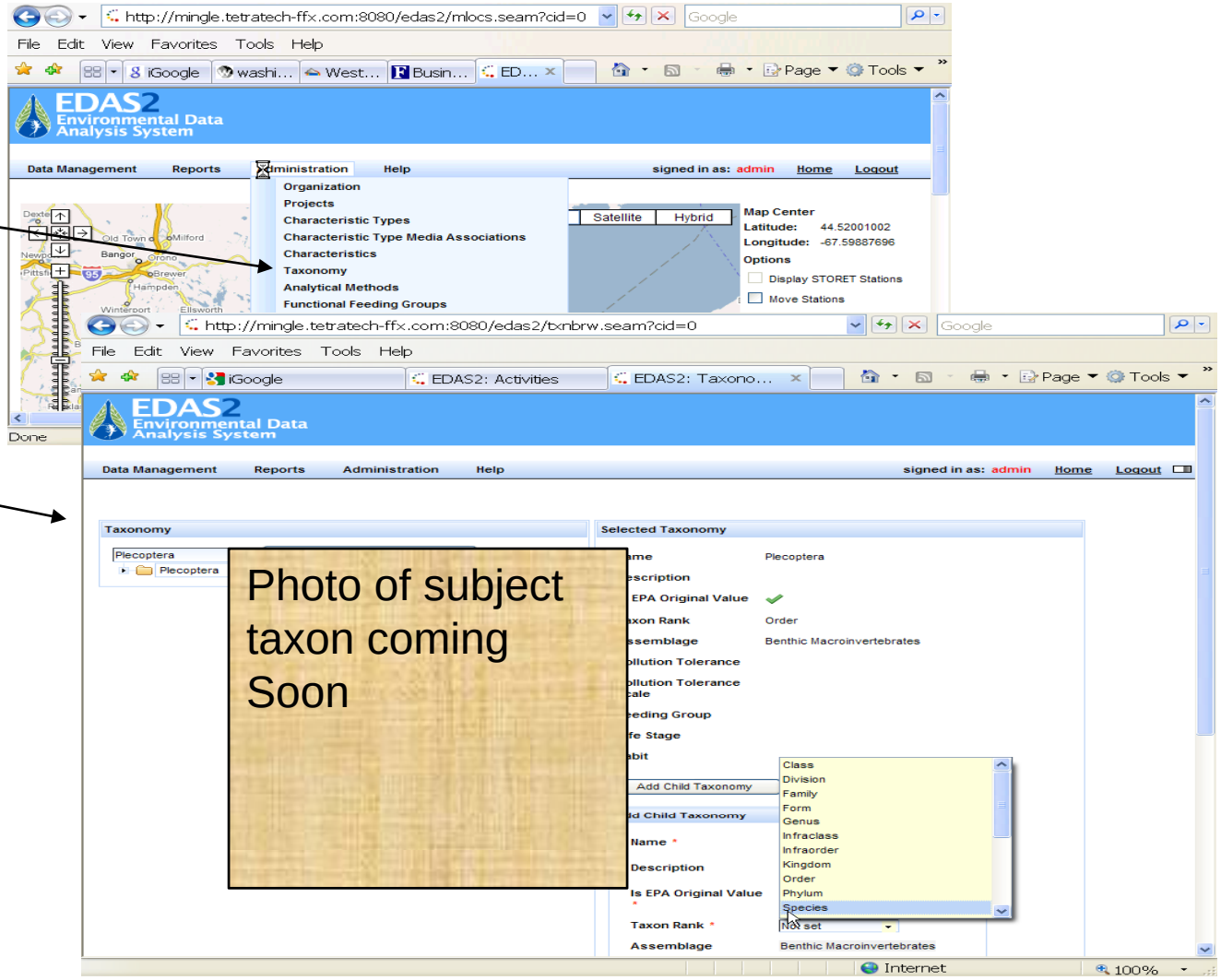
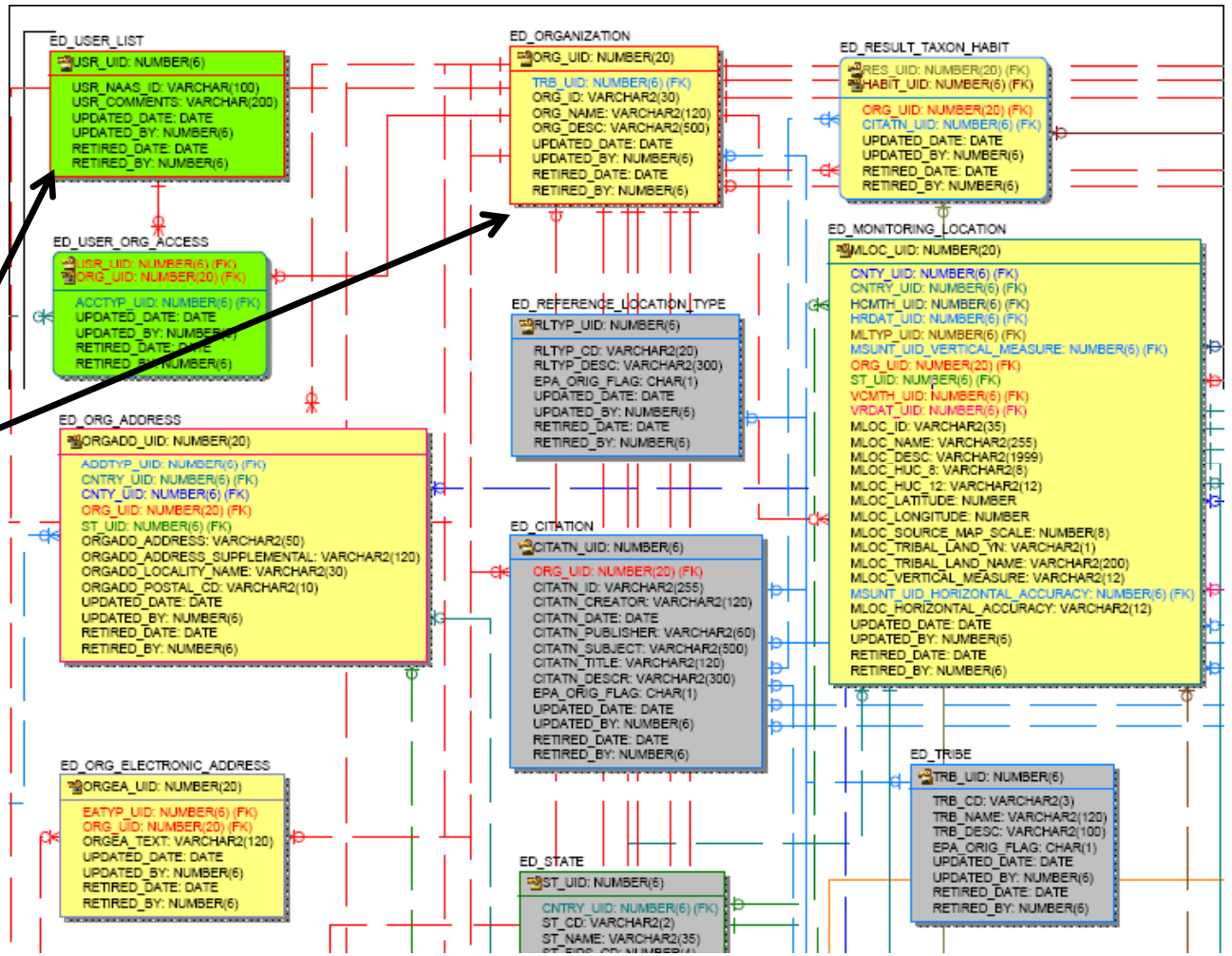
- Manage characteristics or domain lists including the taxonomy list
- Taxonomy browser for managing the taxa list.



3. The link from data management to data analysis

- The data elements and metadata in EDAS2 provide the who, what, when, where, why, and how required for complete and known quality data.
- The back-end database includes all the data elements found in WQX, multiple users and multiple organizations are supported.
- EDAS2 can be customized by adding additional data elements to accommodate requirements for an organization. Examples may include staffing, monitoring location reconnaissance, sample chain of custody, etc.



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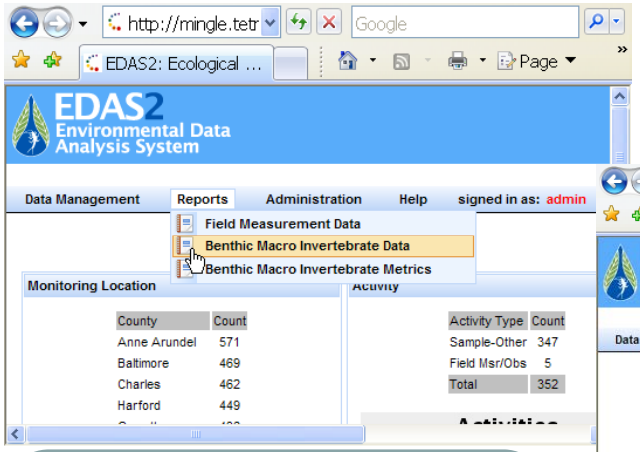
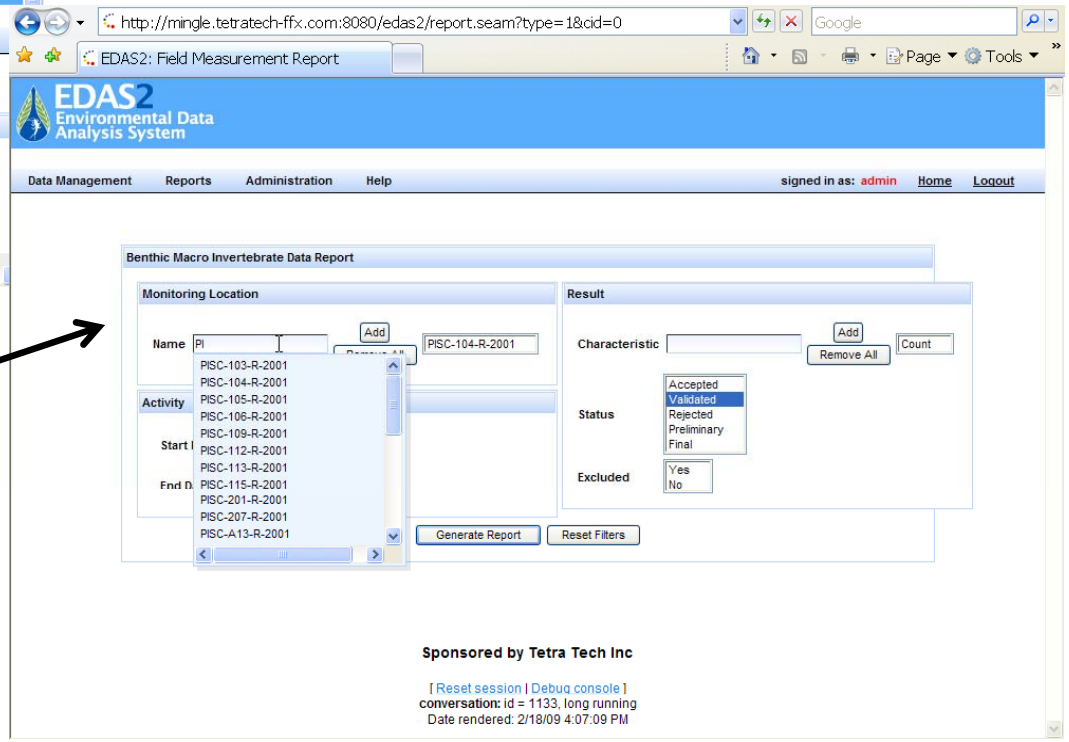
- Tools for data analysis
- EDAS2 can export raw data or metric values



1. Select Reports > Benthic Macro Invertebrate Data



2. After selecting the report EDAS2 opens this window that allows the user to filter or select specific Monitoring locations, activity dates, and characteristics such as 'count' for taxa abundance data.

3. FYI…
Additional analysis tools and report templates are currently being added to EDAS2

4. Next Slide

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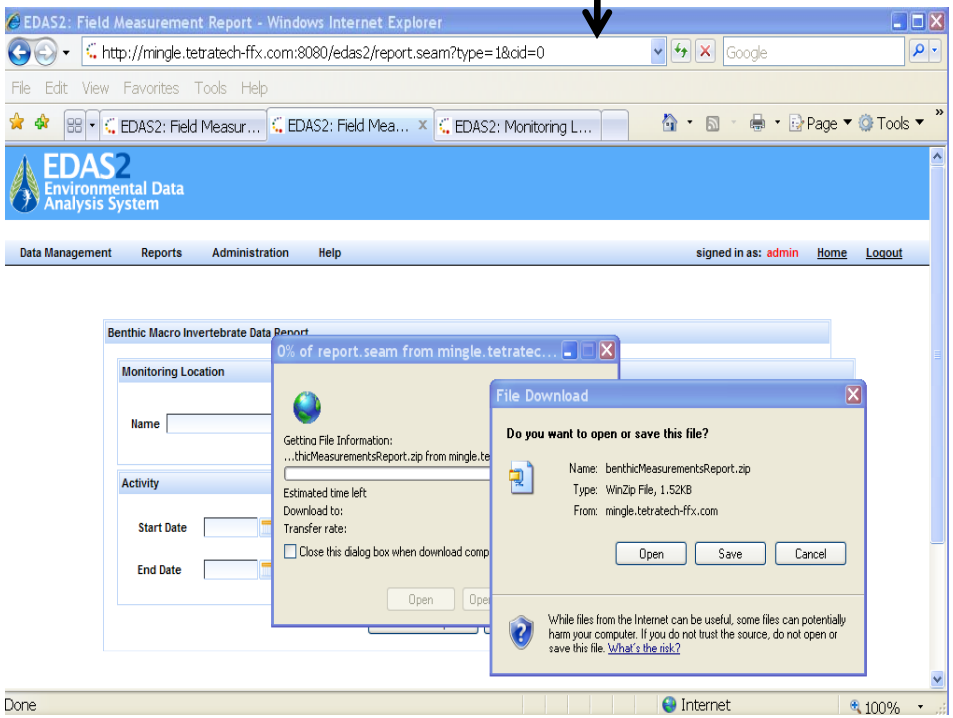
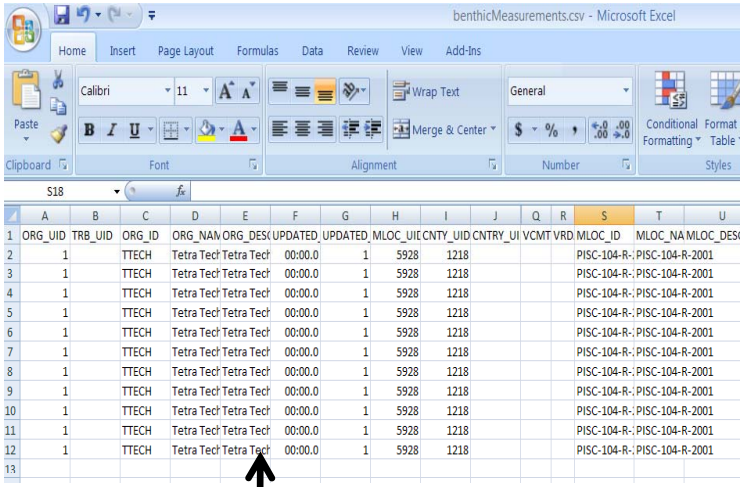
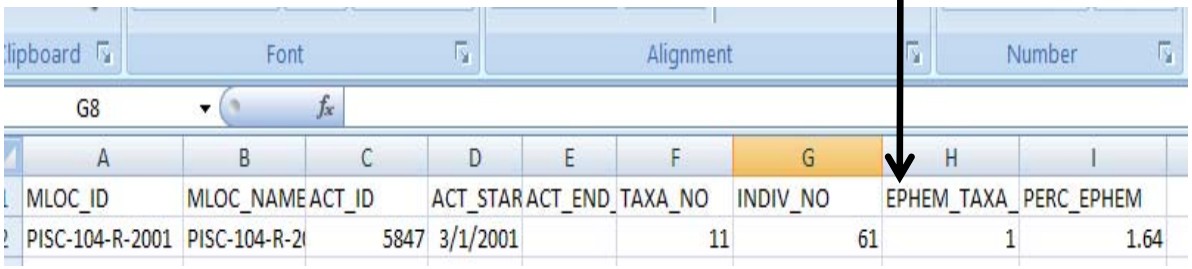
1. User clicked “Generate Report” (previous slide). Report is generated and can be saved or opened





2. Benthic Measurements data (raw) open in Excel.
3. The same process is used to select biological data, calculate metrics, download metric values (results).



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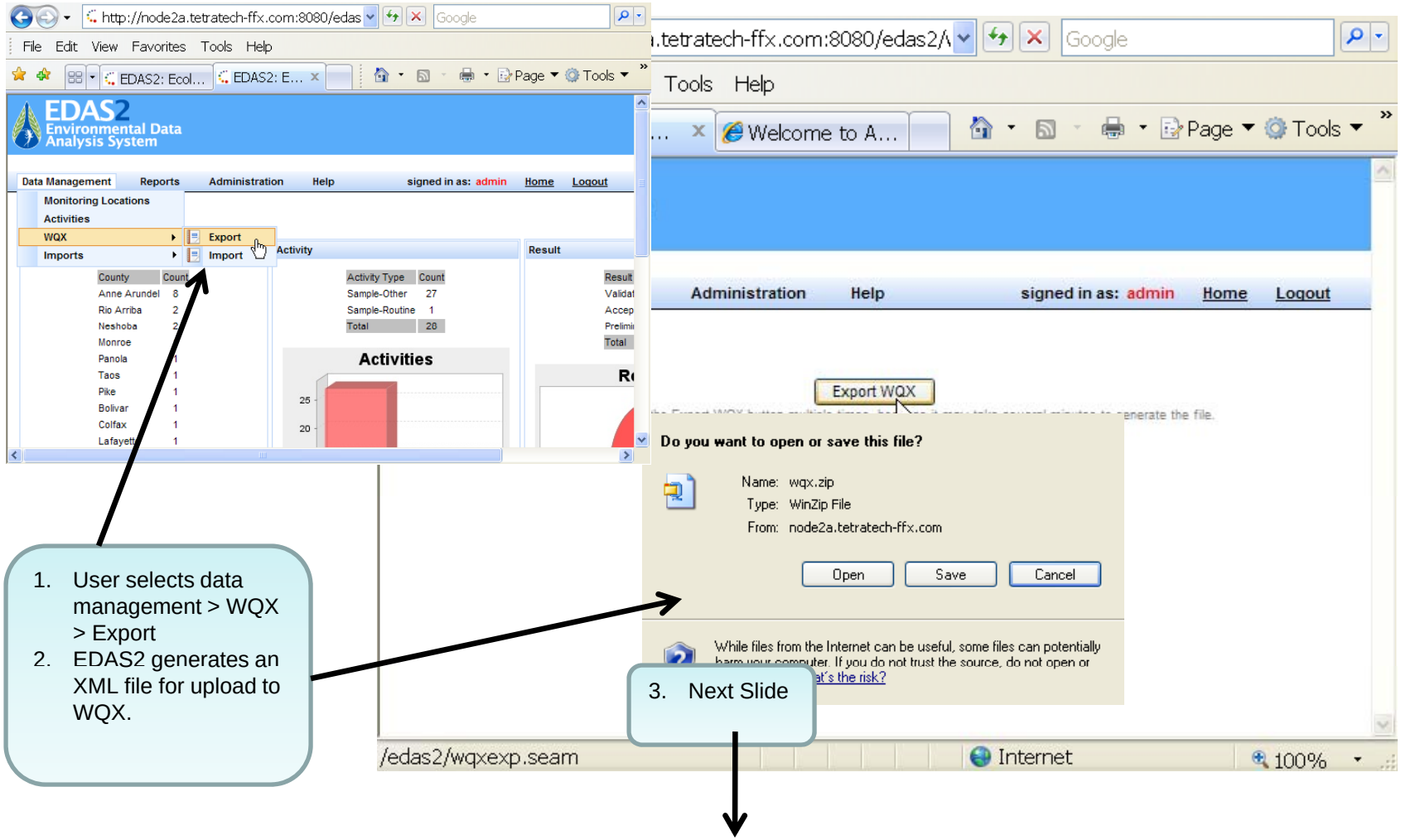
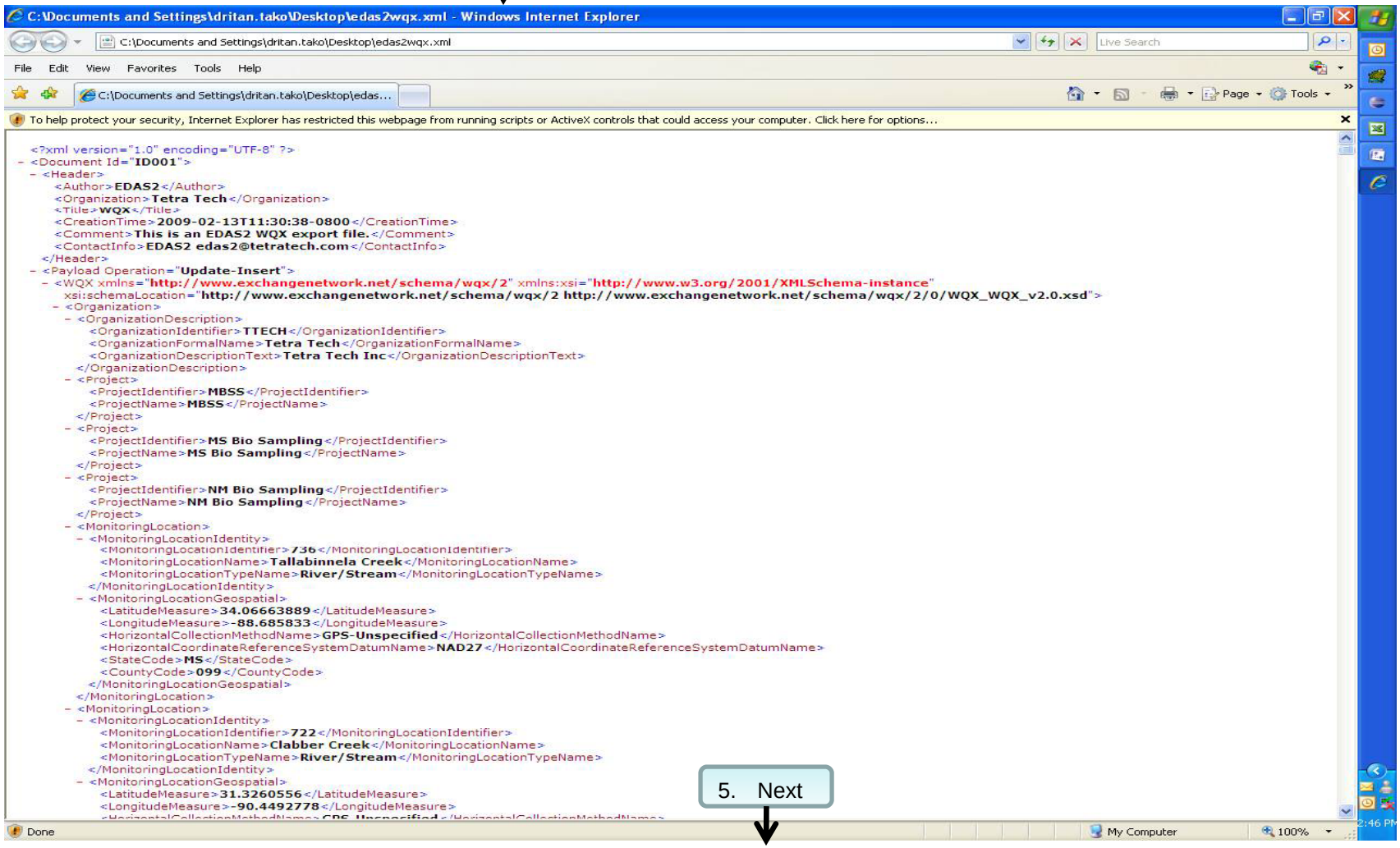
4. Sending or retrieving data to\from WQX\STORET, easy export of data to WQX.



1. User selects data management > WQX > Export
2. EDAS2 generates an XML file for upload to WQX.

3. Next Slide

4. The XML file generated by EDAS2



5. Next

6. Options for loading the EDAS2 XML file to WQX

1. Once you generate a WQX file and you have a node, a node user/administrator can **submit** the WQX file to EPA's CDX through the node (after generated and downloaded from EDAS2).

2. If you already have a node, you can **implement** a node flow (plugin) that will read the EDAS2 database, generate the WQX file and submit to CDX (all these operations being done either manually or automatically through the node).
   a. Tetra Tech has available a flow (plugin) created for the CGI Node, but it will **only** work with the CGI node.
   b. The Tetra Tech CGI node plugin will allow the above described operations to be done manually only from the node client interface or through web services, there is no automatic functionality at this time:
      - user authenticates to the node
      - user calls the EDAS2 WQX flow which will generate the WQX file
      - user will download the generated file from the node client
      - user will use the node SUBMIT method to submit the downloaded file to CDX
   c. The reverse flow is defined for the CGI node as a plugin:
      - user authenticates to the node
      - user uses the WQX EDAS2 flow to upload an existing WQX file
      - user downloads an error report /success report after the transaction is done (import into EDAS2)

4. Questions, comments, and future enhancements

Additional Comments:

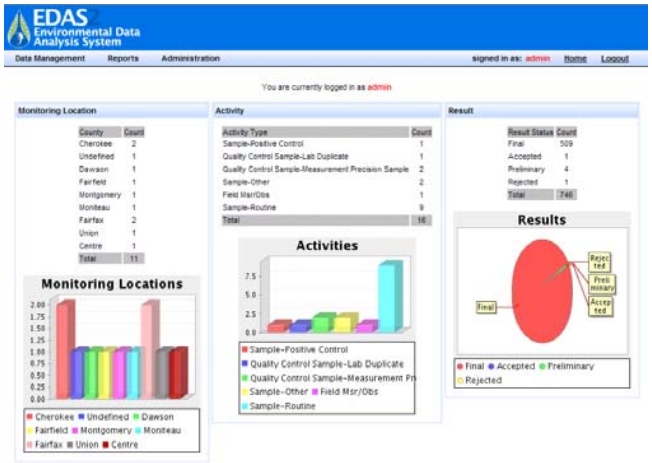
- Tetra Tech's new, web-based Environmental Data Analysis System (EDAS2) is an open source database and application for management, analysis, and exchange of monitoring data.
- Targeted at organizations that need a simple to use system for managing, analyzing, visualizing and sharing a wide range of environmental data
- Tetra Tech provides EDAS2 to states as part of their data management and analysis services.
- EDAS2 consists of an Oracle database and user interface (UI). The UI is written in Java.
- EDAS2 can be enhanced or modified to accommodate the requirements of an organization while retaining the required data elements for WQX

Additional Comments:

- EDAS2 can support multiple user with different roles or privileges. As example certain users could see and edit all data while basic or public user could only view certain data.
- Supported through community portal

http://www.edas2.com

- This presentation can be found on the portal and may be updated from time to time.
- Please provide comments or suggestions for enhancements to the EDAS2 contacts



Highest Priority Enhancements:

- Add all the metrics as found in the original EDAS
- Add additional query tools for selecting data for analysis and export
- Enhance the taxonomy browser

Planned enhancements continued:

- Add additional analysis tools including Biological Condition Gradient (BCG), O\E index, Relative Bed Stability
- User's manual and installation manual
- The complete addition of EMAP habitat assessment forms for use on a rugged PC tablet. Users will record habitat data in the field on rugged PC tablets for use in EDAS.
- Enhancements to accommodate wetland monitoring and analysis

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