Overview of the STORET Program

R9 STORET/WQX Workshop for Tribes

November 18, 2008

The STORET Program

- STORET: STOrage and RETrieval of water quality monitoring data

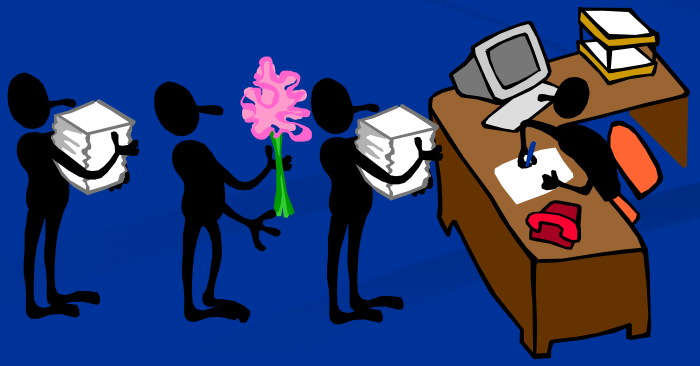
- EPA's STORET Program:
  - promotes sound data management practices
  - stores and maintains water quality data submitted by agencies/groups across the nation in the STORET Data Warehouse

The National STORET Data Warehouse

- A national repository of water quality monitoring data – "Modernized STORET"
- Stores water data of all types (biological, chemical, physical) submitted by states, tribes, watershed groups, other federal agencies, and universities
- Web-enabled: Data are available -- and can be submitted -- using the Web
- Encourages data sharing at a national level

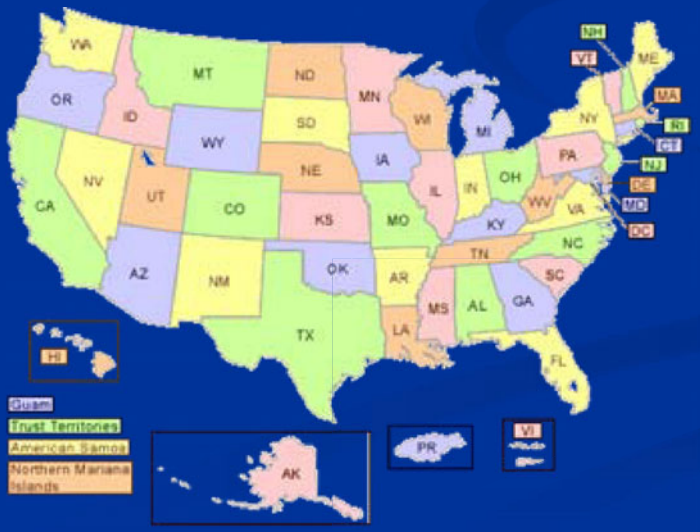
Who Puts Data in?

- State environmental agencies
- Tribal environmental agencies and groups
- Volunteer groups and watershed organizations
- Universities
- Federal Agencies

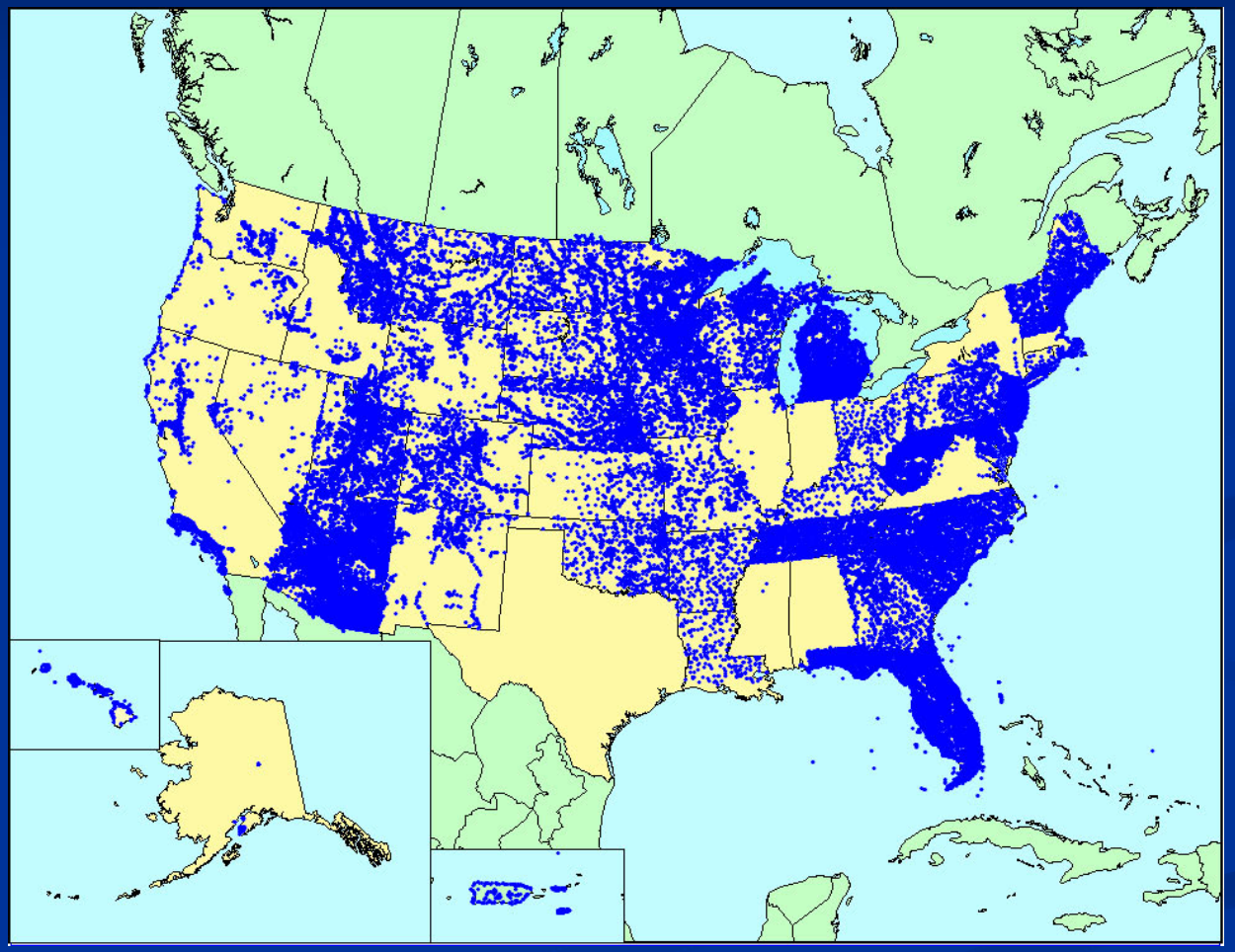


Managing Data Locally

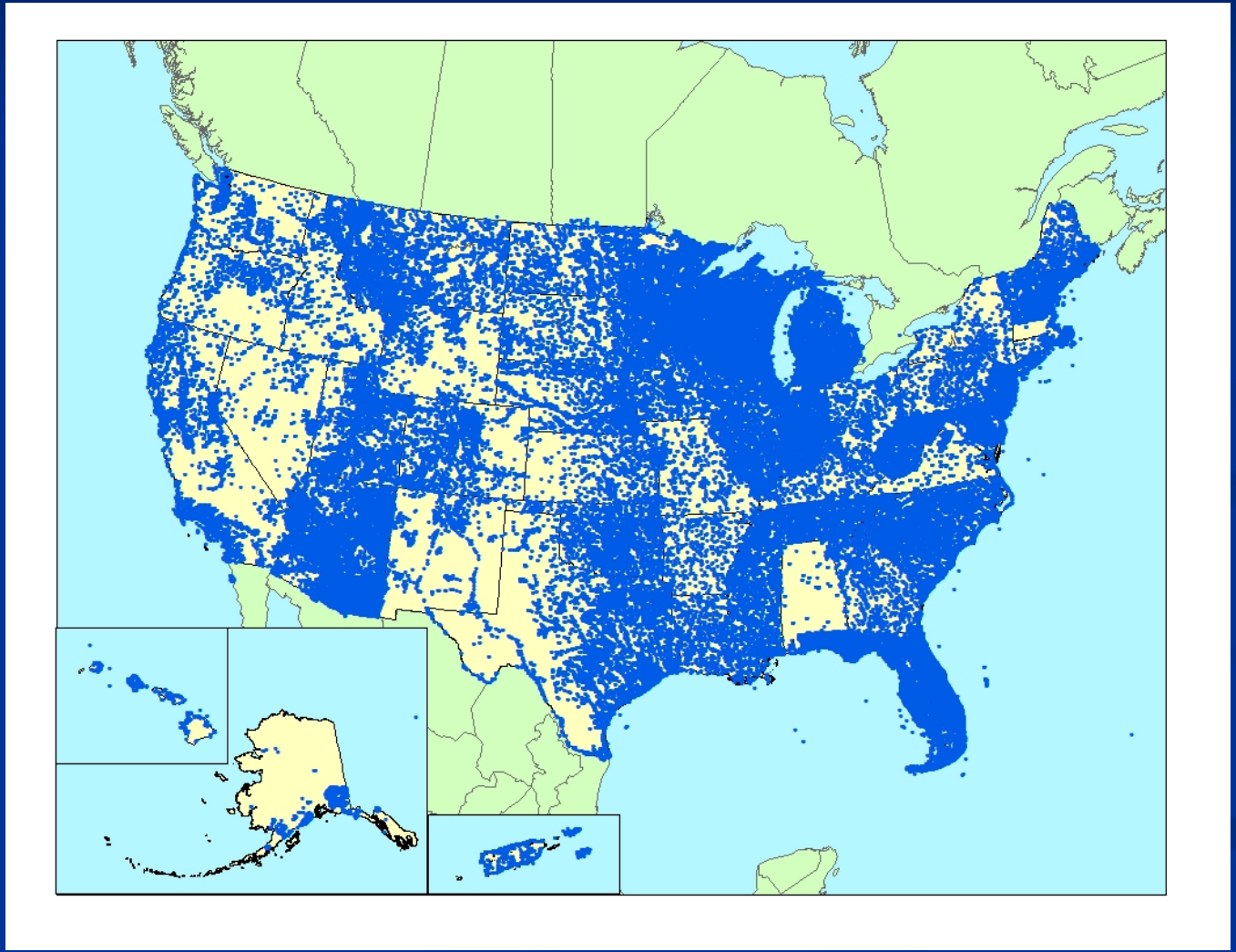
- Data sharing at a national level benefits from:
  - Well documented data at a local level
  - Well managed data at a local level



Data Coverage: 2004



2008



Tribal 106 Guidance Requirement

- All tribes must submit a TAR (Tribal Assessment Report) to continue eligibility for 106 funds (Page 8-3 in the Tribal 106 Guidance)
  - Monitoring Strategy
  - Water Quality Assessment
  - **STORET-compatible electronic data**

How EPA Describes Monitoring Data

Three categories of data:

- Projects (Why data were collected)

  - Brief summary of monitoring plan

- Monitoring Locations (Where data were collected)

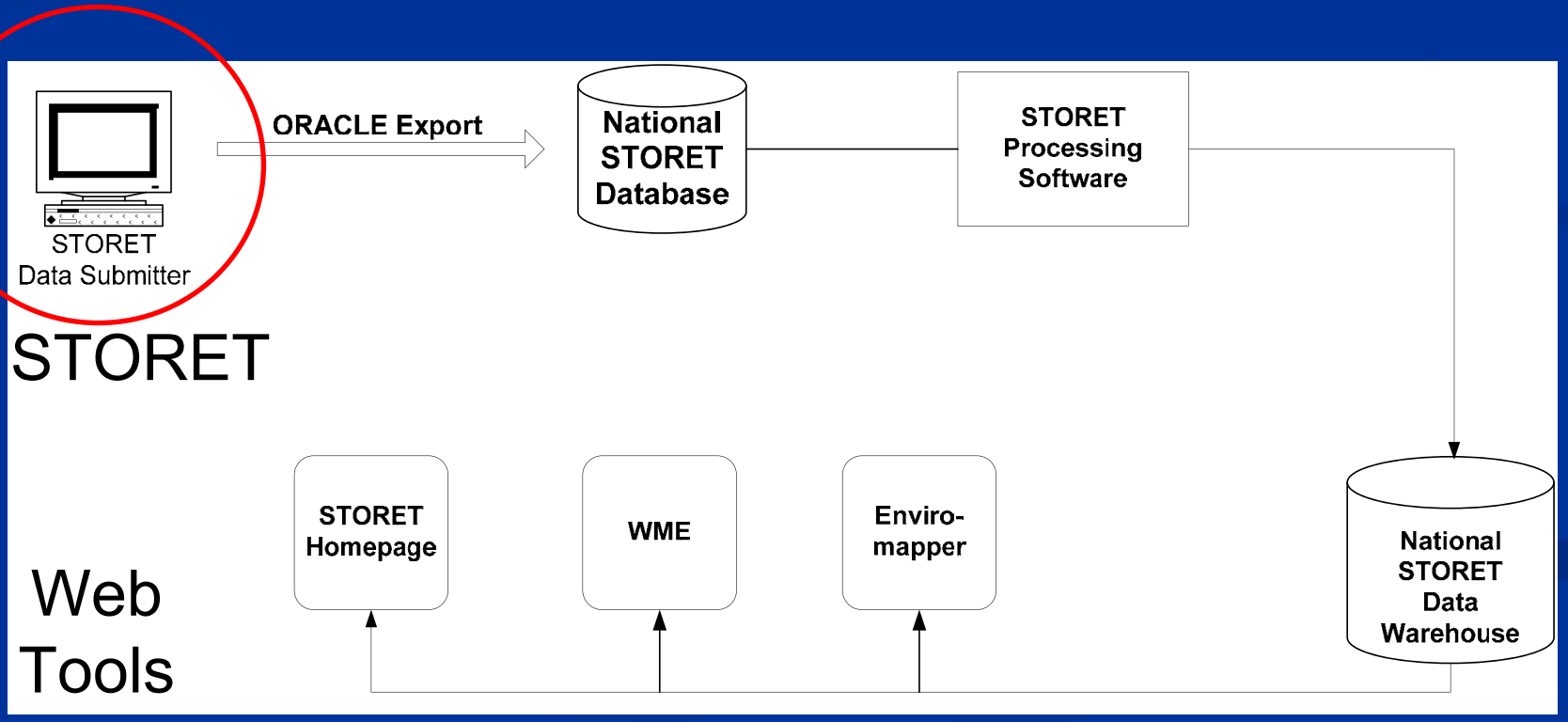
  - Describe where monitoring takes place

- Results (When, How and What were collected)

  - Measurements of what were monitored

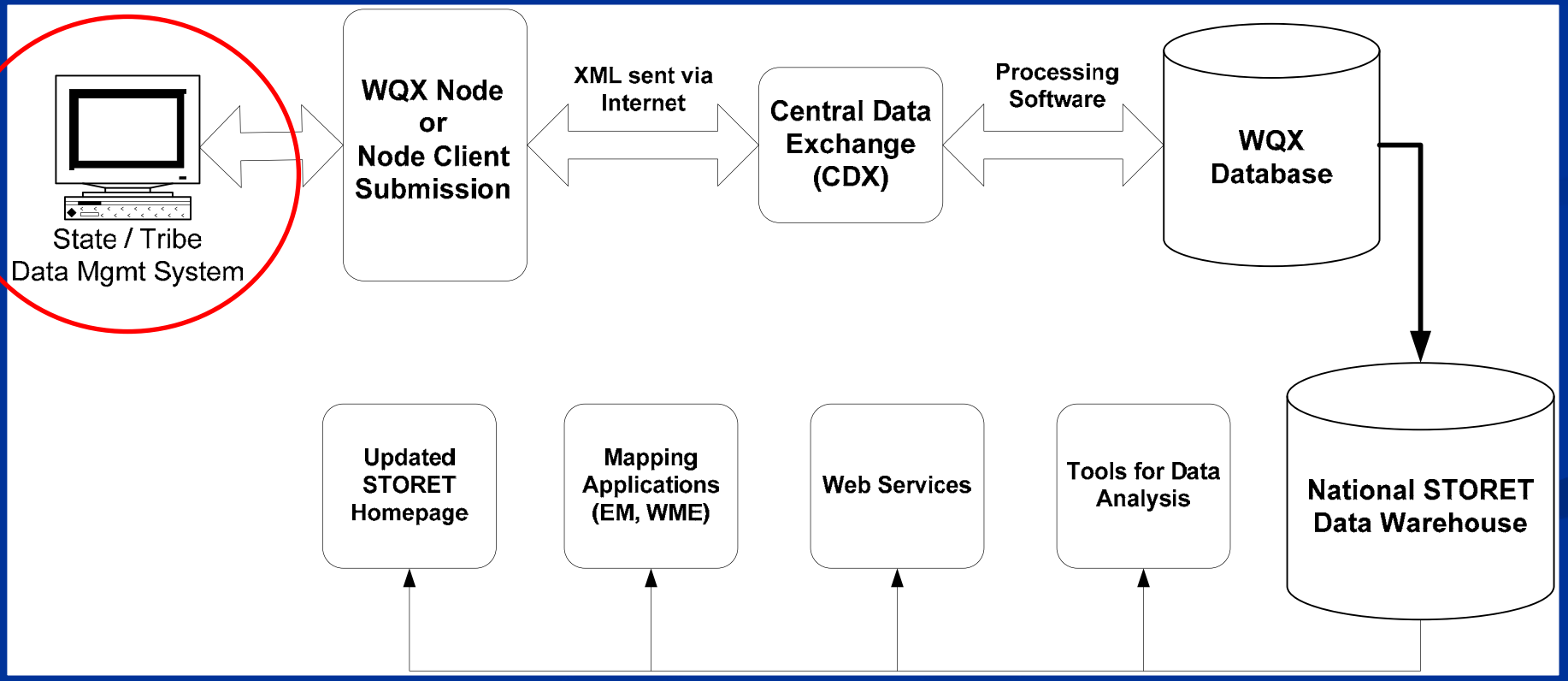
What's Changed?

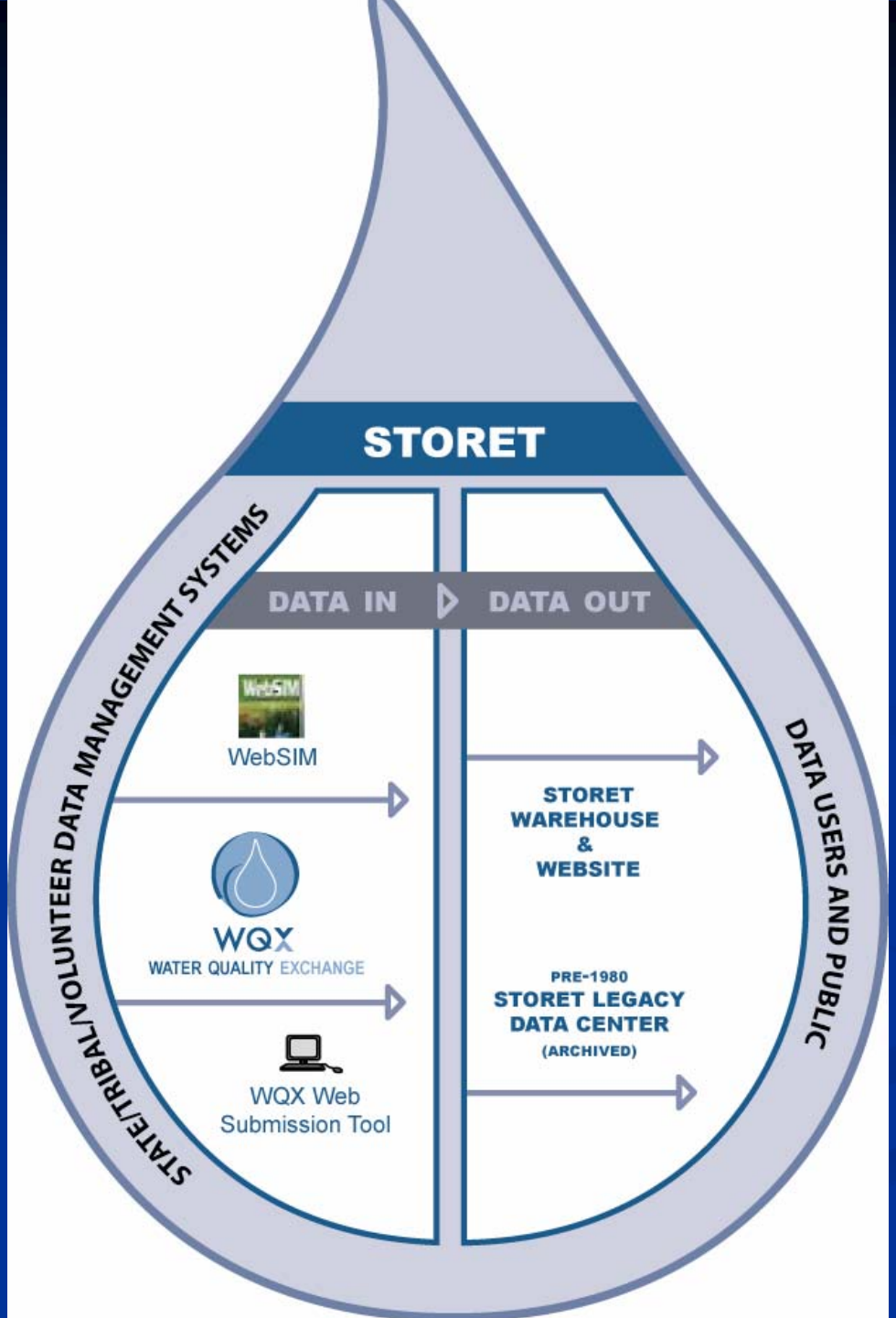
- Distributed STORET is no longer being supported



WQX Flow

- Distributed STORET can be replaced with whatever data system an Organization wants to use




STORET
DATA IN
DATA OUT
STATE/TRIBAL/VOLUNTEER DATA MANAGEMENT SYSTEMS
DATA USERS AND PUBLIC
WebSIM
WQX
WATER QUALITY EXCHANGE
WQX Web
Submission Tool
STORET
WAREHOUSE
&
WEBSITE
PRE-1980
STORET LEGACY
DATA CENTER
(ARCHIVED)

Three options for submitting data

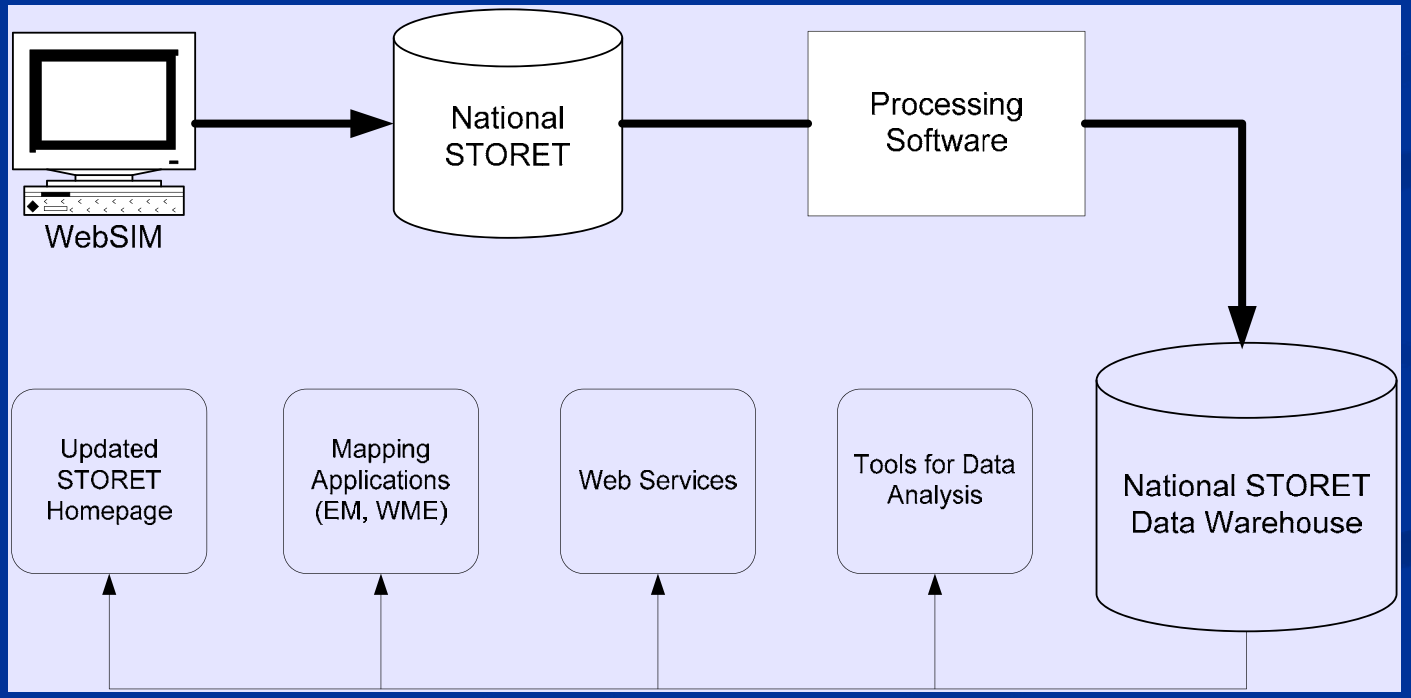
- WebSIM – Web STORET Import Module
  - www.epa.gov/storet/national_websim.html
- WQX – Water Quality Exchange
  - http://www.epa.gov/storet/wqx.html
- WQX Web – Web based data submission using WQX framework
  - http://www.epa.gov/storet/xml_gen_tool.html

Tools to submit data - WebSIM

- WebSIM – Web based STORET Import Module
  - Available until Sept 2009
  - Sits in the EPA Portal
  - Tribe uses the STORET Template to manage and / or format data
  - Template format matches what the tool expects for an import
  - Tool imports data into STORET Database and Warehouse
  - www.epa.gov/storet/national_websim.html

WebSIM Flow

Tribes use template → Tribes save data as text file → Tribe sets up account to use WebSIM → Tribe submits data using WebSIM



STORET Data Template—Physical and Chemical Results

This document is intended to serve as a guide to assist water quality data providers in the process of formatting their data in a STORET-compatible format. The various tabs in this document provide details about the types of information which a data owner must include in order for the data to be successfully stored in STORET using WebSIM (STORET Import Module). For more information about STORET, see the EPA's STORET website: About STORET. Information regarding how STORET organizes data into Projects, Stations, Samples, Results, etc. can be found in the STORET Concepts page.

There are three types of tabs present in this document. The first group (light blue shading in the table below), are tabs which provide detailed information about individual fields (data elements) in STORET. For each data element listed, a brief description of the element is provided along with additional information such as the maximum length of data this field can accept and whether the field is a free-text field or if you need to provide specific allowable-values. For data elements where STORET requires the use of an allowable-value, the data element name has been hyperlinked to a table which displays the acceptable allowable values for that field. The columns listed on the "Station Columns" and "Result Columns" tabs are small subsets of all the data elements actually available in SIM but were identified as columns which are most likely to be needed to adequately describe the data.

The tabs in the second group (shaded in light yellow) are intended serve as data formatting templates. That is, these tabs could be shown to a laboratory or other data provider as an example of an Electronic Data Deliverable (EDD). If the lab could format their electronically reported data in a manner similar to the format shown on these tabs then it would be highly likely that the data could be migrated to STORET with very little intervening data manipulation. Alternatively, these tabs can also be used to enter and format data that is not being provided electronically, such as field data.

The third group of tabs (light green), displays what the appropriate allowable-values are for various fields in STORET. The listing of acceptable values that STORET requires for a particular element is highlighted in light green.

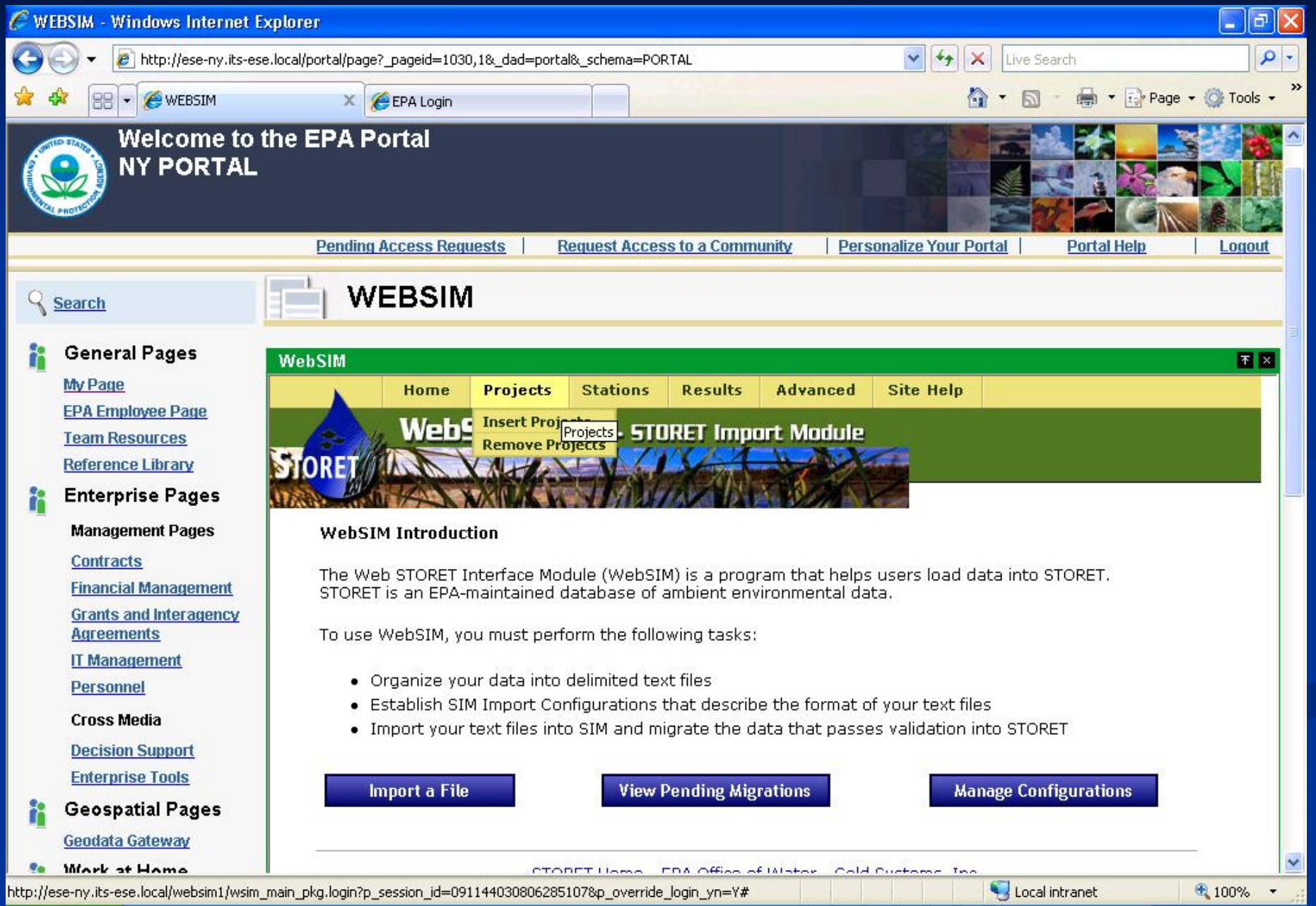
All information in this document is accurate as of STORET DBFix020 (released June 1, 2005).

Please note:

- WebSIM is case sensitive.
- This template is a guide and may be modified by individual users to include additional information.

Tab Name	Description
Project Columns	Lists the STORET data elements for each type of import supported by SIM: a.) whether or not they are required by STORET b.) field length limitations c.) the type of data expected in the field; i.e. free-text or an allowable value d.) a brief description of the data element
Station Columns	
Result Columns	

Submitting Data through WebSIM

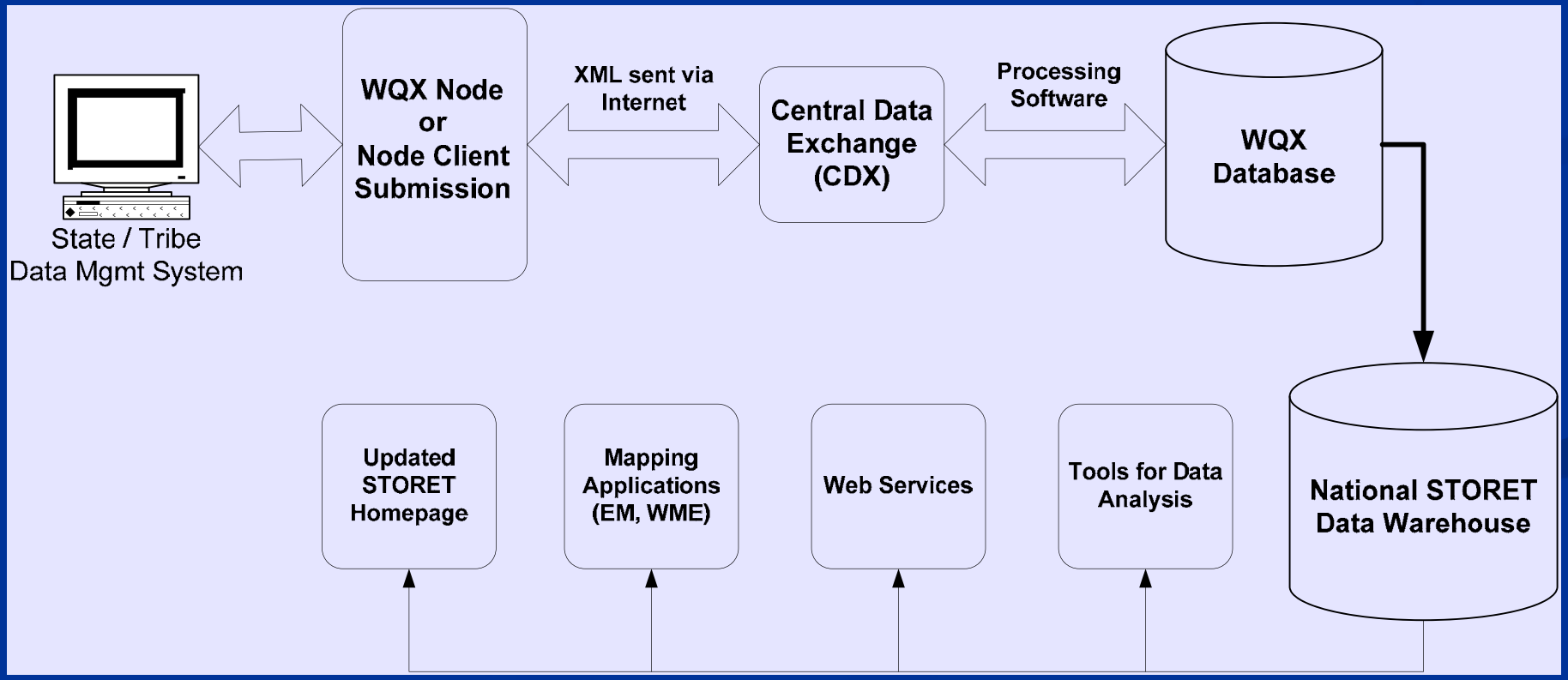


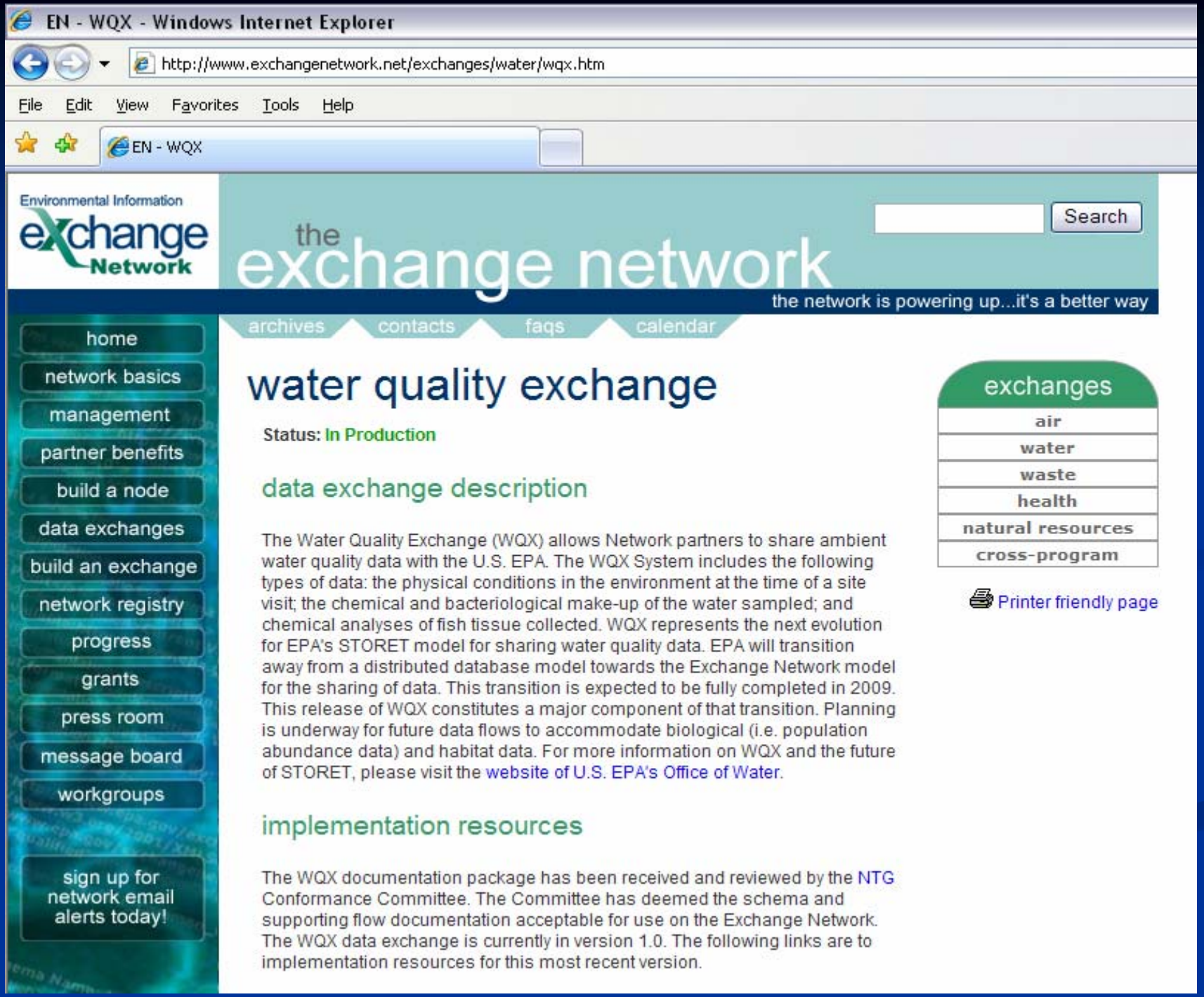
Tools to submit data - WQX

- Water Quality Exchange - An internet and standards based way to submit data to the STORET Warehouse
  - Available now for all types of monitoring data
  - http://www.epa.gov/storet/wqx.html
  - Uses the standards and technology of the National Environmental Information Exchange Network
  - Users have automated "Nodes" to submit data from their databases
  - Users have "Node Clients" to submit data
  - Data format is the WQX Schema

WQX Flow

Tribes use their database → Tribe forms WQX file → Tribe sets up account for WQX → Tribe submits data using WQX



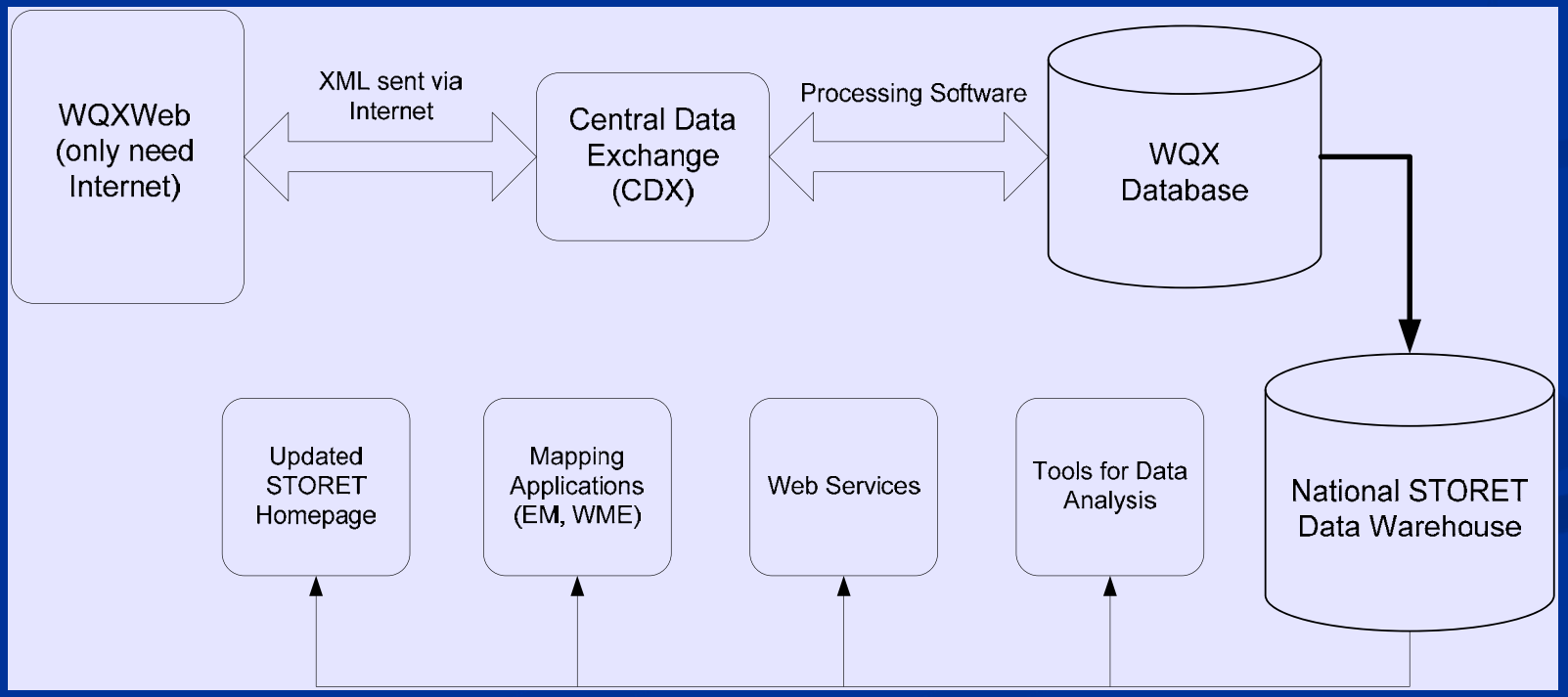

EN - WQX - Windows Internet Explorer
http://www.exchangenetwork.net/exchanges/water/wqx.htm
File Edit View Favorites Tools Help
EN - WQX
Environmental Information exchange Network
the exchange network
Search
the network is powering up...it's a better way
archives contacts faqs calendar
home
network basics
management
partner benefits
build a node
data exchanges
build an exchange
network registry
progress
grants
press room
message board
workgroups
sign up for network email alerts today!
water quality exchange
Status: In Production
data exchange description
The Water Quality Exchange (WQX) allows Network partners to share ambient water quality data with the U.S. EPA. The WQX System includes the following types of data: the physical conditions in the environment at the time of a site visit; the chemical and bacteriological make-up of the water sampled; and chemical analyses of fish tissue collected. WQX represents the next evolution for EPA's STORET model for sharing water quality data. EPA will transition away from a distributed database model towards the Exchange Network model for the sharing of data. This transition is expected to be fully completed in 2009. This release of WQX constitutes a major component of that transition. Planning is underway for future data flows to accommodate biological (i.e. population abundance data) and habitat data. For more information on WQX and the future of STORET, please visit the website of U.S. EPA's Office of Water.
implementation resources
The WQX documentation package has been received and reviewed by the NTG Conformance Committee. The Committee has deemed the schema and supporting flow documentation acceptable for use on the Exchange Network. The WQX data exchange is currently in version 1.0. The following links are to implementation resources for this most recent version.
exchanges
air
water
waste
health
natural resources
cross-program
Printer friendly page

Tools to submit data – WQX Web

- WQX Web
  - Available by end of December
  - http://www.epa.gov/storet/xml_gen_tool.html
  - Web tool that a tribe logs into to submit data to the STORET Warehouse using WQX framework
  - Tribe uses a template to manage and / or format data
  - Tool accepts a simple format; tribe tells the tool how to expect the data
  - Tool catches errors that tribe can then change for resubmission
  - Tool imports data into WQX Database and then STORET Warehouse

WQX Web Flow

Tribe uses template → Tribe saves data as text file → Tribe sets up account to use WQX Web → Tribe submits data using WQX Web



WQX Web Data Template—Physical and Chemical Results

This document is intended to serve as a guide to assist water quality data providers in the process of formatting their data in a WQX-compatible format. The various tabs in this document provide template sheets and allowable values lists for the types of information which a data owner must include in order for the data to be successfully stored in WQX/STORET. For more information about STORET, see the EPA's STORET website: About STORET. Information regarding how WQX/STORET organizes data into Projects, Monitoring Locations, Results, etc. can be found in the STORET Concepts page.

There are three types of tabs present in this document. The first tab (highlighted in pink) provides a mechanism for producing text files in a tab delimited format. These text files are prepared automatically to be compatible with the WQX Web tool, which you may use to upload data to the STORET Data Warehouse via EPA's Central Data Exchange (CDX). The export process, contained in this tab, also converts the county name that you refer to in the County field found in the Monitoring Locations tab to the appropriate county code needed by WQX Web.

The tabs in the second group (shaded in light yellow) are intended serve as data formatting templates. That is, these tabs could be shown to a laboratory or other data provider as an example of an Electronic Data Deliverable (EDD). If the lab could format their electronically reported data in a manner similar to the format shown on these tabs then it would be highly likely that the data could be migrated to WQX/STORET with very little intervening data manipulation. Alternatively, these tabs can also be used to enter and format data that is not being provided electronically, such as field data.

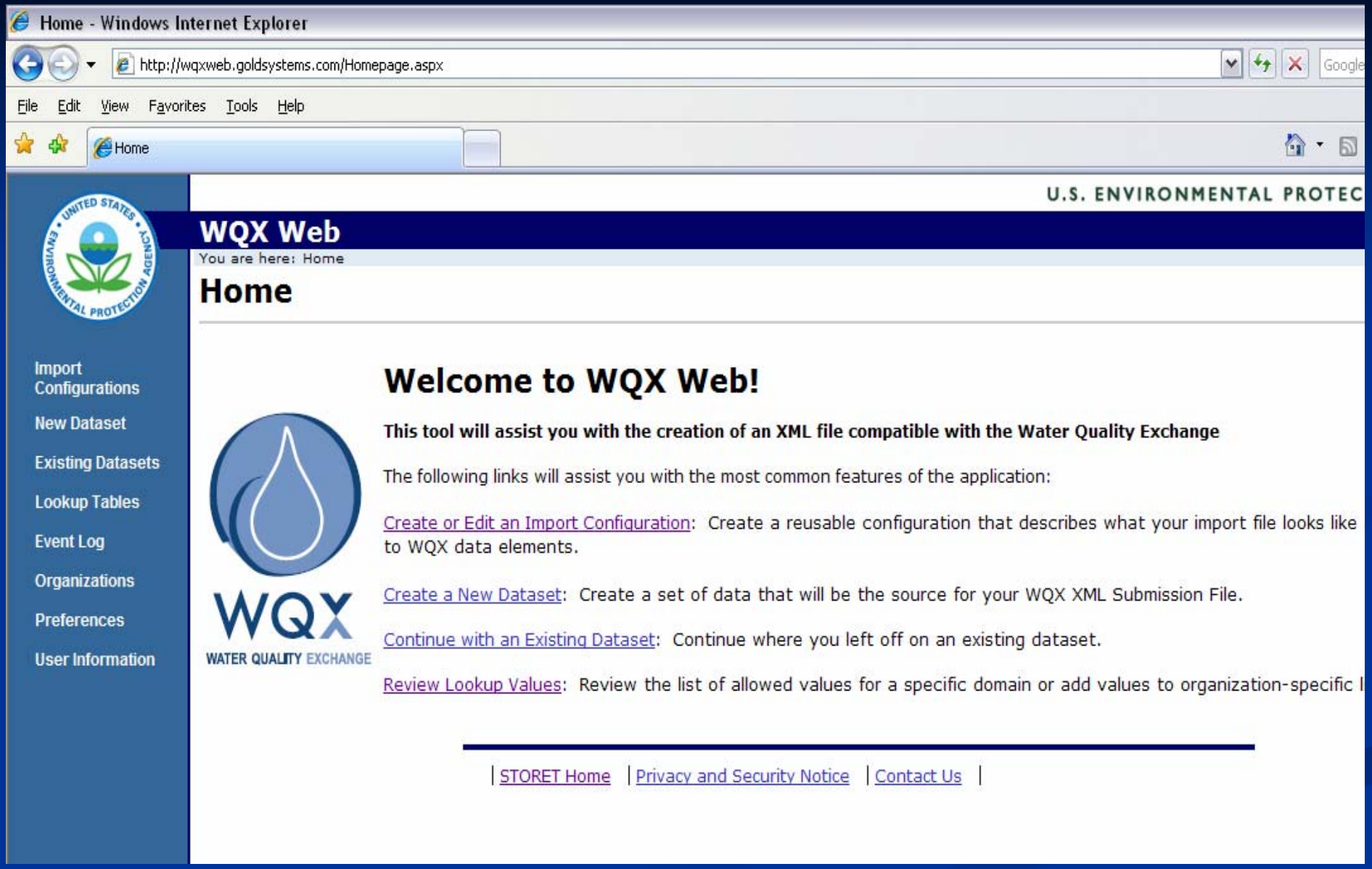
The third group of tabs (light green), displays what the appropriate allowable-values are for various fields in WQX/STORET. The listing of acceptable values that WQX STORET requires for a particular element is highlighted in light green.

All information in this document is accurate as of November 5, 2008.

Please note:

- This template is a guide and may be modified by individual users to include additional information.
- Users should consult the Template Data Dictionary (Template_dictionary_WQX_Web_[Date].xls) for explanations about each data element.

Tab Name	Description
Export	Provides a mechanism to easily export WQX Web compatible tab dleimited text files
Projects	A template which can be used to store Project data
Monitoring Locations	A template which can be used to store Monitoring Location data
Results	A template which can be used to store Results data
Allowed Values - Results	Shows what the Allowable Values are for various Result-related data elements


Home - Windows Internet Explorer
http://wqxweb.goldsystems.com/Homepage.aspx
File Edit View Favorites Tools Help
Home
U.S. ENVIRONMENTAL PROTEC
WQX Web
You are here: Home
Home
Import Configurations
New Dataset
Existing Datasets
Lookup Tables
Event Log
Organizations
Preferences
User Information
WQX
WATER QUALITY EXCHANGE
Welcome to WQX Web!
This tool will assist you with the creation of an XML file compatible with the Water Quality Exchange
The following links will assist you with the most common features of the application:
Create or Edit an Import Configuration: Create a reusable configuration that describes what your import file looks like to WQX data elements.
Create a New Dataset: Create a set of data that will be the source for your WQX XML Submission File.
Continue with an Existing Dataset: Continue where you left off on an existing dataset.
Review Lookup Values: Review the list of allowed values for a specific domain or add values to organization-specific l
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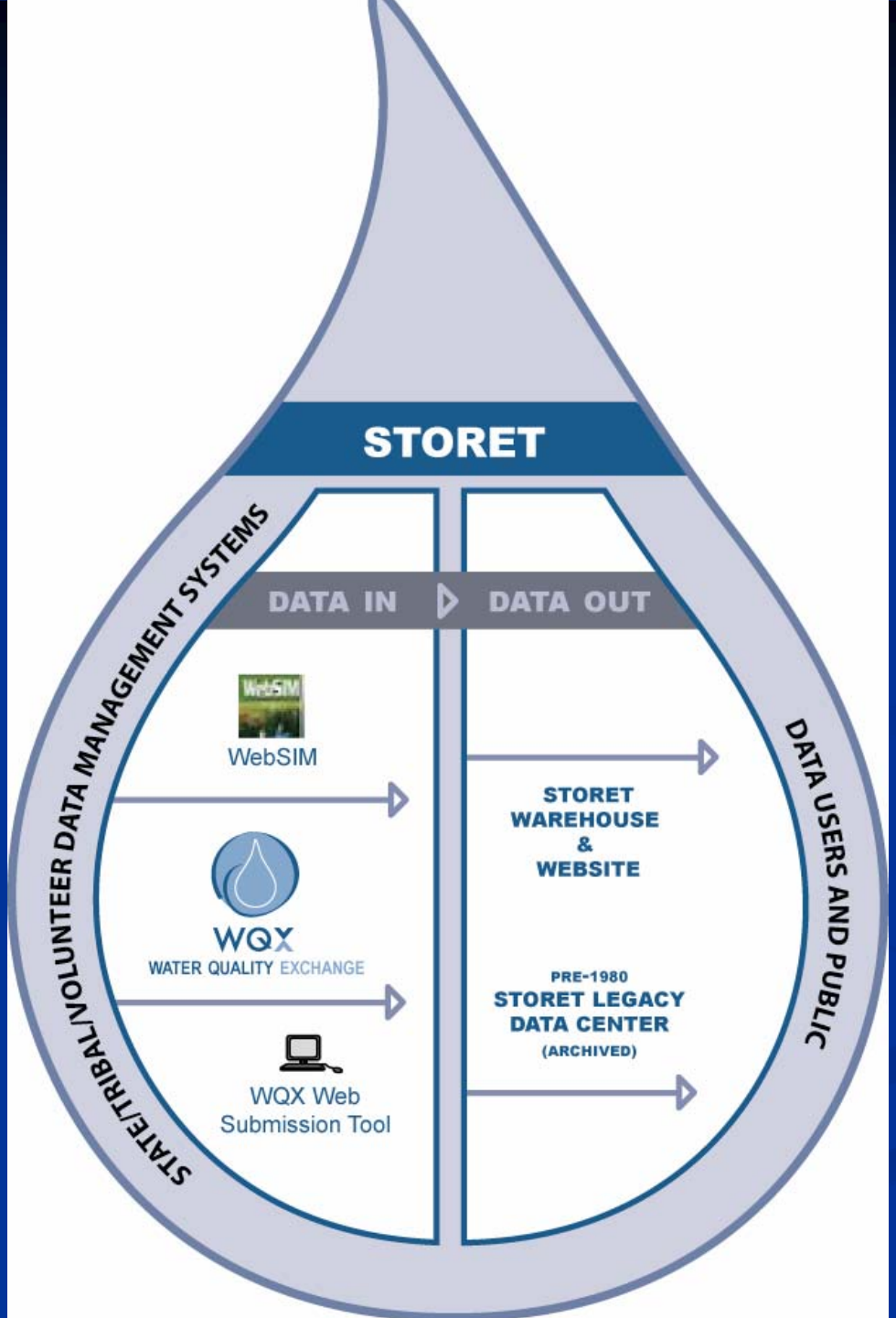
Current Status

- Over 50 tribal organizations with data in the STORET Warehouse (mostly via WebSIM)
- 5 tribes have submitted data via WQX
  - Many tribes applying for EN grants
    - 2008 – 8 tribes submitted proposals for WQX
    - 2007 – 7 tribes were awarded grants to flow WQX


STORET
DATA IN
DATA OUT
STATE/TRIBAL/VOLUNTEER DATA MANAGEMENT SYSTEMS
DATA USERS AND PUBLIC
WebSIM
WQX
WATER QUALITY EXCHANGE
WQX Web
Submission Tool
STORET
WAREHOUSE
&
WEBSITE
PRE-1980
STORET LEGACY
DATA CENTER
(ARCHIVED)

Contacting STORET

- Contact:
  - The STORET Team: storet@epa.gov
  - 1-800-424-9067
- Or Visit:
- www.epa.gov/storet
- www.epa.gov/storet/wqx.html
- http://www.exchangenetwork.net