Water Quality Data Management and Exchange among Tribes through a Tribal Consortium

By

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Overview

• Introduction – NWIFC and its member tribes
• Tribal Water Quality Data Needs
• Objectives of the NWIFC Data Exchange Project
• NWIFC Data Management and Exchange Solution
• Benefits of the NWIFC solution
• Lessons Learned
• Next Steps
The Northwest Indian Fisheries Commission (NWIFC)

- Consortium of 20 treaty tribes in western Washington State
- Provides direct services to member tribes to assist them in natural resource management
Tribal Water Quality Data Needs

- Tribes monitor watersheds and collect water quality data
- Data are collected and stored in various formats

Needs:

- Effective storage, management and analysis of data
- Data exchange with each other, the NWIFC and others
- Data submission to EPA’s Water Quality Exchange (WQX)
- Regional analysis using data from multiple partners
NWIFC Exchange Network Project

- In 2007, NWIFC received a National Information Exchange Network grant from EPA

Objectives:

- Facilitate the exchange of information by and between the NWIFC and its member tribes, as well as other interested partners.

- Provide the ability of member tribes to provide ambient water quality data to the NWIFC and EPA.

- Develop a WQX-complaint Tribal Water Quality Database (TWQD) to help member tribes manage and exchange data.

- Train and mentor member tribes to use TWQD and the Exchange Network tools.
Components of NWIFC Data Exchange Solution

1. Tribal Water Quality Database (TWQD)

- Microsoft SQL Express database
- Uses WQX schema
- Validates key fields against WQX domains
- Tribes may use to store and manage data locally
Components of NWIFC Data Exchange Solution

1. Tribal Water Quality Database (TWQD)

2. Exchange Network Node Client

- Custom built application for installed at each tribes
- Easy to use with a browser
- Tribes may use to submit and receive data
Components of NWIFC Data Exchange Solution

1. Tribal Water Quality Database (TWQD)

2. Exchange Network Node Client

3. Exchange Network Node

   - OpenNode 2 at the NWIFC communicates with tribal node clients and EPA node
   - May be used to send or receive data – allows both inbound and outbound flows
   - Responds to requests for data from partners
NWIFC Exchange Network Node Overview

Graphic: Windsor Solutions Inc
Data Exchange using the NWIFC Solution

TWQD
Submit to EPA?
Age?
Node Client

Tribal Node Database

NWIFC Staging Database

NWIFC Node Database

GIS
TWQD
NWIFC AquaScape

TRIBE

EPA

WQX
XML File

WQX

NWIFC

Exchange Network

TWQD
NWIFC Data Exchange Solution – Current Status

• 14 tribes with the TWQD installed
• 12 tribes with the Node Client installed
• 4 tribes sending data to EPA WQX
• Most tribes currently mapping data to TWQD to facilitate the transfer to EPA
Benefits of the NWIFC Solution

• Efficient data exchange technology
  - Twenty tribes are able to exchange data with each other, EPA, NWIFC and others

• Cost effective – “Build Once, Use by Many”
  - Nodes clients and TWQD are available at little or no cost

• Common database structure
  - Allows for more cost-effective tools development and support

• Flexible implementation
  - Accommodates differences in data resources, systems and technology among tribes
NWIFC Data Exchange Solution - Lessons Learned

• Tribes have varied technical environments and capabilities
  - Hardware/software/personnel
  - Not all tribes can support leading edge software

• Involve tribes early in project scoping
  - Ensures that all key requirements are identified early
  - Reduces chances of scope adjustments during implementation

• Involve more tribes in the implementation and testing phase
  - Ensures double coverage if a tribe was unavailable
NWIFC Data Exchange Solution – Next Steps

Make improvements to:

• TWQD
  - Add query capability

• Node Client
  - Tabular and spatial data viewers
  - Ability to generate reports

Continue training and mentoring tribes
NWIFC Data Exchange Solution

Questions?

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Node Client

Tribal Node Database

WQX XML File

NWIFC Staging Database

NWIFC Node Database

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