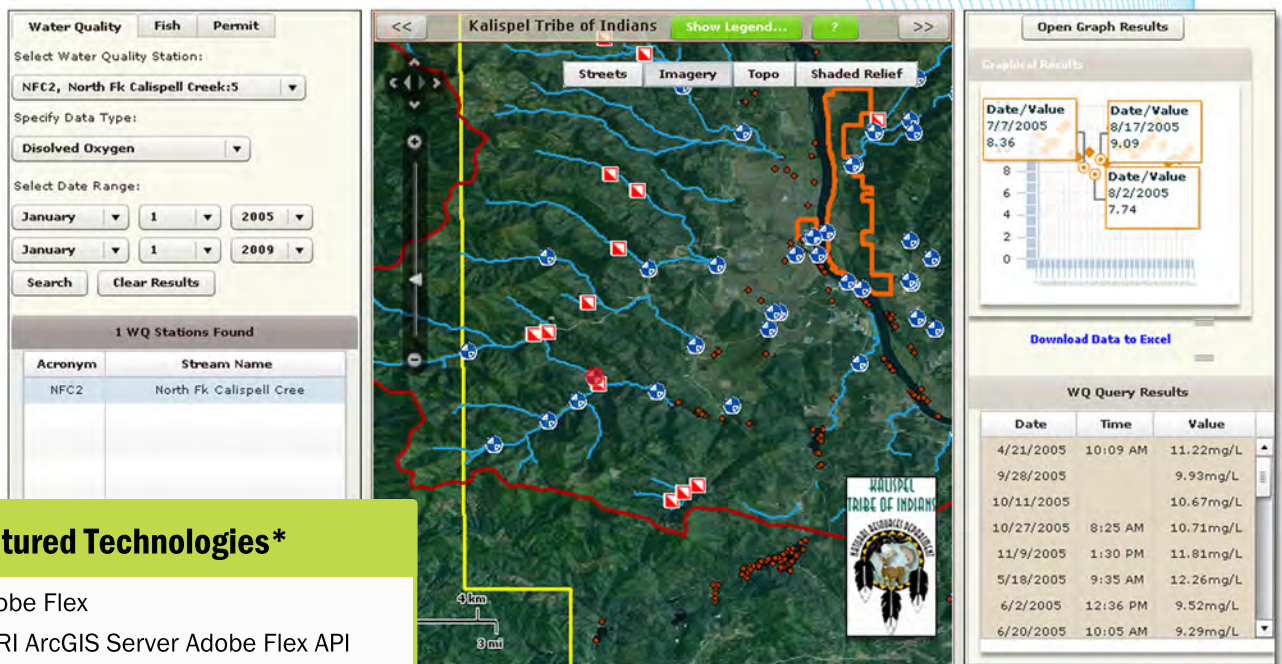


Custom Web Application Delivers Water Quality Data

Kalispel Tribe of Indians Natural Resources Department

GCS Research built a custom web application using ESRI ArcGIS Server with Adobe Flex API for interacting with the water quality database at the Kalispel Tribe of Indians Natural Resources Department. This public web portal combines high-performance geospatial visualization, graphical display of environmental information, and rich search capabilities in an easy-to-use interface.

The web application, utilizing a Service Oriented Architecture (SOA) and REST API, offers tools for broad searches (e.g. presence of a trout species) or detailed ones (e.g. Dissolved Oxygen in North Fork of Calispell Creek on 5/1/07), returning results in seconds. Additional content includes summary reports, graphs, photos and shoreline permits as electronic documents.



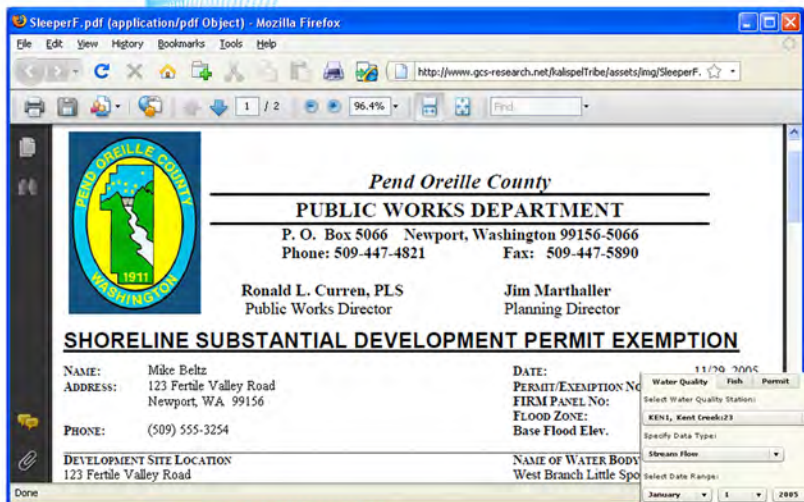
The screenshot displays the web application interface for water quality data. On the left, a search panel allows users to select a station (NFC2, North Fk Calispell Creek:5), specify data type (Dissolved Oxygen), and choose a date range (January 1, 2005 to January 1, 2009). The central map shows the geographic location of the station with various map layers (Streets, Imagery, Topo, Shaded Relief) and a legend. On the right, a 'Graphical Results' section shows a line graph of Dissolved Oxygen levels over time, with a callout for a specific data point (8/2/2005, 7.74). Below the graph is a 'Download Data to Excel' button. At the bottom right, a table displays the 'WQ Query Results'.

Date	Time	Value
4/21/2005	10:09 AM	11.22mg/L
9/28/2005		9.93mg/L
10/11/2005		10.67mg/L
10/27/2005	8:25 AM	10.71mg/L
11/9/2005	1:30 PM	11.81mg/L
5/18/2005	9:35 AM	12.26mg/L
6/2/2005	12:36 PM	9.52mg/L
6/20/2005	10:05 AM	9.29mg/L

Featured Technologies*

- Adobe Flex
- ESRI ArcGIS Server Adobe Flex API
- ESRI ArcGIS Server REST Map Services
- Microsoft SQL Server
- ESRI ArcGIS Online

The water quality search page on the Kalispel Tribe web application features complex but intuitive search tools with a dynamic display of results.

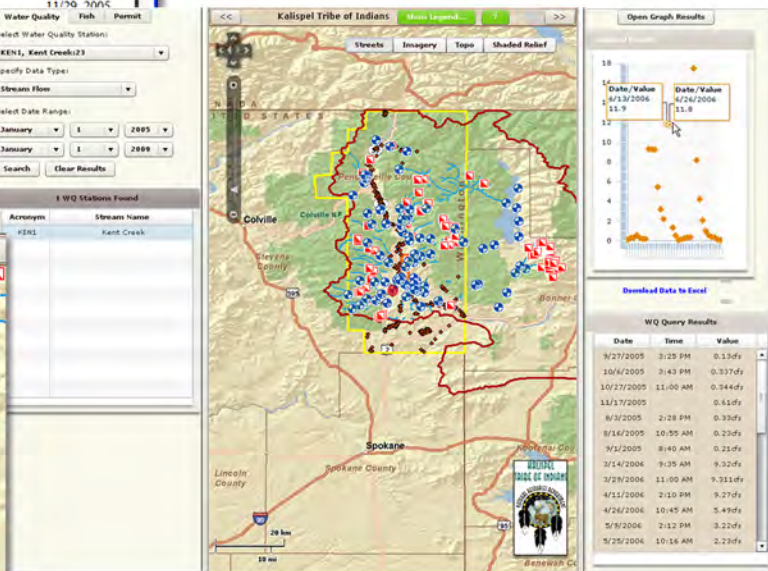


Shoreline permit records are available as PDFs.

Shoreline permits are available as PDF files. Stations and permit points are accessible from a map viewer and through simple search pages. The Adobe Flex Viewer offers dynamic map zooms, three map views from ArcGIS Online, and online Help instructions for conducting searches.



Clicking a fish barrier site on the map displays a photo taken at that location.



Water quality readings from a search, displayed in a graph. Clicking on different points reveals the detailed data associated with each location.

<http://globe.gcs-holdings.net/kalispelTribe/>



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