

Community Assistantship Program

River Watch Database Project Update

Prepared in partnership with
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River Watch Database - Project Update

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<http://riverwatch.umn.edu>

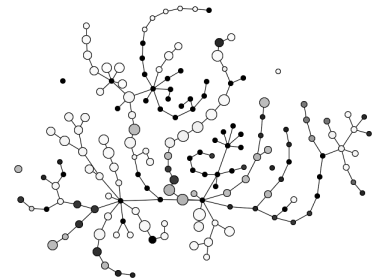
The River Watch database project is currently in a “beta” phase. The system is online and running, and initial testing is complete. The next steps include finalizing the initial database and beginning the training of River Watch schools. Included in this report are a description of completed, current and future tasks.

Completed Tasks

The database system is fully online, and is technically ready for use. Users can upload multiple file types, including Excel spreadsheets and photographs. Excel files can be parsed and imported into the database, after a comprehensive error-checking process that catches obvious problems in the data. This may include incorrect site IDs, missing required fields, and nonsensical data (such as a pH of 19). A detailed interface has been created that allows project coordinators to assign range validation values to help the system identify what data is nonsensical.

User management has been carefully designed for optimal security. Several roles have been defined, with increasing privilege levels: guest, student, instructor, coordinator, and administrator. While all roles can view data, only students and higher can upload and import information. Instructors can update school information, as well as review and override some data errors that students cannot. Coordinators can manage the list of sites and schools. Administrators have full access, including the ability to define new users and roles.

A basic query tool has been implemented. This tool allows for the retrieval of simple chart showing data for a specific site as it changes over time. In addition, a mostly completed graphing tool shows the entire system at a glance, using an idealized topological layout and colored icons to represent each site (right).



Two basic informational sessions have been held, each providing useful feedback. On March 13, 2006, an early prototype/alpha system was presented at the River Watch Forum at UMC, to various students and instructors. On October 20, a video conference was held between the River Watch coordinators, for the purpose of demonstrating the beta system and assigning user roles.

Current Tasks

The next step is to finalize the list of active sites and import all current River Watch data from the “master” Excel file(s). Importing the data will require some review of the error-checking parameters and the data itself, as most of the data (about 2/3) currently fails the validation process. Site-specific validation ranges will also be defined, based on a mean/standard deviation model. This will allow more accurate error checking, as some sites are known for having much higher conductivity than others, for example.

Once the site list is finalized it will be important to update and verify the topographic map of the sites – that is, the links between each site and its upstream and downstream neighbors. This information is used by the graphing tool mentioned above, and will also provide an intuitive navigation framework.

The data visualization system will be built on extensively. This will include more chart types and the ability to graph multiple variables simultaneously. Various other features will be added, including legends, trend lines, and error bars. There will also be a number of data output formats. Schools will be able to download their data log in Excel format, add to it, and resubmit it. STORET-compatible files will allow linking with larger GIS systems. SPSS and other formats could be used to allow advanced statistical processing.

Finally, the site will need to be thoroughly proof-tested and analyzed by the coordinators as well as about six pilot schools. This process will likely require some additional training in the near future.

Upcoming Tasks

The social features of the site will be enhanced, including support for blogging and other communication tools. The goal for these features will be to make the River Watch site a type of forum where information and tips can be shared – in addition to data. The structure of the site as a broader community resource will also be improved. This will include designing an interface to allow outside guests to view and understand River Watch data and how it applies to them. An important component of this goal will be direct incorporation of the River Watch system into the existing RRBDIN website (www.rrbdin.org).

As the site goes live early next year, there will be a detailed manual to provide new users with instruction on how to use the site. More importantly, the site will be made to be as streamlined as possible by incorporating feedback from the pilot schools and other users. The site must be intuitive and user-friendly, as it will be useless unless it is actually used regularly by the River Watch participants. More training sessions will occur, including (hopefully) a major session at the upcoming International Water Conference on March 13-15, 2007. We will also give a general presentation and discussion of the system at that conference.