



Tales of River Databases:

Data Tracking for River Organizations

by Laura Quinn, Idealware www.idealware.org

If someone asked you how many of your new donors also volunteered this year, how long would it take you to answer? What about the number of activists you have in a particular county? In what areas water quality has improved most over the last five years?

Databases can transform organizations' ability to answer these types of questions. They are an invaluable tool for small organizations in particular, as they are a very cost effective way to focus energy on the things that are really making a difference. Effective databases allow you to find and manage data for thousands of people or programs. Creating a list of people to contact becomes straightforward. And database software makes reporting much easier—rather than having to laboriously tally spreadsheets or contacts, you can generate overviews at the touch of a button.

But with this power comes some complexity. There are many options and factors to consider. To help you navigate the process, we talked to a number of small and mid-sized river organizations to understand what they are struggling with, what is working well and what questions they have. Below, we offer a set of database best practices for river organizations and a set of case studies describing what others are doing in this area.



What is a Database?

A database, at least for the purposes of this article, is something that allows you to organize—and thus view and edit—a related set of information. A database might store all your constituents, all of your educational programs, environmental data or anything else you want to be able to easily track and report.

What about Excel? Is it a database? Well, technically it is, but it is not the type of database that we are talking about. When most people refer to a database, they mean what's called a "relational database." A relational database can link multiple types and levels of information together, making it far easier to store, say, people, the organizations they work for and volunteer programs, and manage the relationships between all of those things.

This article focuses on **relational database software**—anything from Access or FileMaker Pro (tools that allow you to build your own database) to packaged software like GiftWorks, DonorPerfect, DemocracyInAction or Salesforce—that can help you manage your organization's information.

Planning for a Database

Before you consider what actual database tool is right for you, it is important to think through what is important for your organization.

- **Understand who will use it.** Your organization's databases should not be the domain of the technical. Many people will need to use it—for instance, a constituent database should be used



River Network

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From The President

A good database is as important to a modern organizer as a wheel was to an ancient engineer. With enough human blood, sweat and tears it's conceivable that we could do most of our jobs without technology. But the cost in terms of time and money would be enormous. And unlike the pharaohs, watershed organizers don't have human capital to waste. To the contrary: Our job is to maximize the human capital we have.

I began my watershed organizing a quarter-century ago, vaguely aware that new computer tools were on the horizon, but woefully ignorant of what little was already available. We literally put what information we could gather about our supporters on index cards in a shoebox, along with their donations, which we would dutifully deposit in the bank each Friday. Once a month, we would address each member's newsletter by hand.

How times have changed! And they have changed for the benefit especially of grassroots organizers.

Today, any group, no matter its size or resources, can track all manner of information about its members, including giving history, volunteer efforts, personal interests, voting district, the watershed in which they reside, and much more. Consequently, the potential organizing power of watershed groups has never been greater.

This issue of *River Voices* is dedicated to people like me—those who came to this work with passion, determination and a few skills, but who have little or no understanding of how available technology can help. I hope you find it valuable.

Amy Elder



Photo credit: River Network Collection

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by anyone looking up a constituent phone number or tracking a contact with someone.

- **Think through the processes and data you need to track.** What do you currently do that should be supported in the new system? What is not working well right now that could be improved with a new system? What do you think you might want to do down the road? Try to consider all the ways that you could interact with the data you are going to track.
- **Begin with your outputs in mind.** Make a list of the reports, lists and other things that you will want to output from the system. What information will you need? In what ways will you need to filter the data?
- **Get a sense for what is possible.** Understanding what organizations like yours are doing, or some of the features that are offered in common database software can help you understand what you might want to do yourself. On the other hand, be critical of “sexy” features: don’t be seduced by features that are just nifty rather than actually useful.
- **Prioritize your needs.** Define which of your needs are critical, and which are just nice to have. Trying to support everything at once can result in a system that is too complicated for your needs or not being able to find a system at all.



Planning sets the groundwork for a good database choice, and for effective use of your database once you get it. A little thought and a few meetings up front can make the difference between a great technology tool

and an expensive mistake.

Choosing a Solution

With a sense of what you are looking for, you will need to take a look at the available database packages.

- **Know the options.** Don’t just decide to go with the only software package with which you are familiar. Get a sense of what is available. For an overview, see Idealware’s article *A Few Good Low-Cost Constituent Databases* at www.idealware.org/articles/fgt_low_cost_dbs.php.
- **Be skeptical of building your own.** It can seem like an easy answer to just build something that does exactly what you want in Access or FileMaker Pro, and this might make sense if you have unusual needs. Ask yourself whether your organization is effectively equipped to produce software. Do you have the resources to design it, build it and test it effectively? To maintain and update it down the road? What will happen if the person who builds it is no longer available?
- **Integrate, don’t proliferate.** Strive to have as few databases as possible. All the information about each person your organization contacts ideally should be in a single database. If you find that you need to add another database system, think through how you will integrate the data with the systems you already have.
- **Use price as only one criteria.** A database that is free or cheap but does not meet your needs is not useful. In fact, the time you spend in trying to work around it is likely to cost you far more than you would have paid for the right database.
- **Don’t assume bigger is better.** More features and more power almost invariably translate to something that

will be harder for your staff to learn and use. Look for something that meets your core needs without a bunch of additional features.

You'll need to balance the desire to look at every possible solution and find the perfect database with the realities of your time and the market. If you define your needs up front, you will be able to tell when a database is good enough to be effective for your organization.

Database Care and Feeding

Picking a great solution is just the beginning of a process to make sure your database is useful and used.

- **Don't underestimate the start-up process.** Getting your new database ready to use can be time consuming. You will need to move all your existing data— whether from an existing database or from spreadsheets, Outlook, or other sources—into the database, and train your staff in how to use the new package. Keep in mind that change can be difficult, and you may need to work through resistance to the new system.
- **Define and document data practices and standards.** Make sure that everyone understands how data should be entered. What does each category or code mean? Should addresses be capital or lowercase? Data that's entered inconsistently is a nightmare when it's time to create lists or reports. Written documentation or "cheat sheets" of best practices—particularly on how to use categories or codes—can make a huge difference in people's ability to use these practices effectively.
- **Put someone in charge.** Someone needs to keep an eye on the database and the data that is entered to make sure that things are going smoothly and

to troubleshoot problems. Staff members will need to know who to go to with questions, as well.

With a little bit of time devoted to training, standards and oversight, you can keep things on an even keel and avoid big headaches down the road.

Some Database Case Studies

As mentioned above, one of the best ways to learn about the benefits, challenges and strategies of a database is to understand what organizations like yours are using, and what they are struggling with. To get you started, below we offer three cases studies of different organizations using databases in different ways.

The Greater Yellowstone Coalition, WY

The Greater Yellowstone Coalition protects the lands, waters and wildlife of the Greater Yellowstone ecosystem. It is a big job, and they are a sizable organization: 25 staff members in four different offices, with a base of about 22,000 members, donors and activists. They use two different packaged database systems to manage these constituents: **DemocracyInAction** and **DonorPerfect** to track their members and donors and to manage their activist email addresses.

They use DemocracyInAction to send out email blasts asking their advocates for help, and to process online donations. Prior to each advocacy email, they export a list of updates and additions to their constituent list from DonorPerfect, and load it into DemocracyInAction to ensure they're sending to the most up-to-date list. In this way, DemocracyInAction serves as the central repository for their email list. On the other hand, DonorPerfect is the primary source for donor information, so when an online donation comes in through DemocracyInAction, that donation is entered by hand into DonorPerfect as well.

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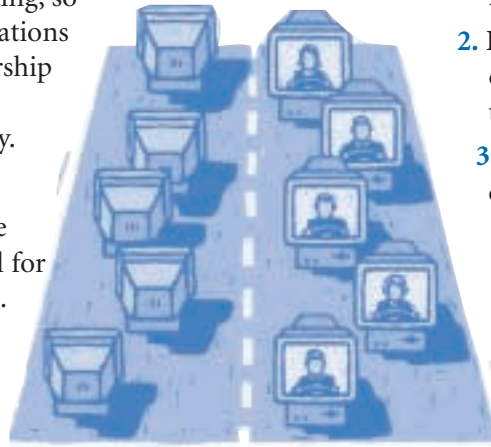
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DonorPerfect allows them to effectively track information about the members and donors who give the organization money. They can create targeted lists for direct mailings using categories, understand how well a particular list is performing, identify members who are up for renewal, and much more. The database is hooked into accounting, so that the donations and membership fees can be tracked easily.

These two databases are working well for the coalition. They prefer to have only one database

rather than the two, but invested so much time and energy in working with DonorPerfect over the years that they feel the substantial effort to move their data would not be worthwhile. While DemocracyInAction can store some donor and member data, and they can integrate DonorPerfect into their website to handle email and online donations to a certain extent, neither of them alone would meet their needs as well as the two systems working together.

What advice do they have for other organizations? Heidi Barrett, the Associate Director of Development, suggests that organizations start by thinking clearly about what information they will want to use for outreach and reports, both now and in the future. While it is hard to know everything that might be desirable down the road, by planning in advance and leaving room for growth, organizations can reduce the need to go back through all their data later to change a category or add a field.



The South Yuba River Citizens League, CA

When the South Yuba River Citizens League set up their databases system more than five years ago, they did a lot of research into available options. They were looking for a solution that could handle four different types of data:

1. **General information** about their members and contacts.
2. **Logistical information**, such as rentals, contacts and follow-ups needed for their Film Festival.
3. **Program schedules and demographic data** describing the types of students and schools they had reached with their school-based programs.
4. **Environmental quality data** for their river monitoring program.

They wanted to track these four kinds of data in a similar database environment, although they knew that they would need different types of fields and processes for each. To solve this issue, they opted to build four custom databases in FileMaker Pro, a software package that allows those experienced in database setup to create their own databases. One of their staff members carefully designed and built software that was highly tailored to their needs—with exactly the fields and reports they wanted, and custom alerts that facilitate their organizational process. In addition, FileMaker provided them with out-of-the-box functionality to generate complex lists, reports and mail merges.

These databases have served the organization efficiently and well. However, five years later, they are showing their age. They were built on a 1998 version of FileMaker Pro, which is not only outdated itself, but precludes the organization from updating the operating system and other software on their desktops. For instance, they can't run a current version of Word and FileMaker Pro 98 on the same computer.

They are planning on upgrading the FileMaker Pro version, but this will require substantial updates to the code underlying the databases. The original database designer is no longer on staff, so they are considering hiring her back as a consultant to help with the update. They are also looking into FileMaker Pro consultants that are listed on the FileMaker Pro website.

For their environmental quality database in particular, they are looking at new options for a different reason: they would like to establish a common database format with a number of other monitoring sites. By choosing a common database, they will be able to share data and do richer analyses across organizations.

Woonasquatucket River Watershed Council, RI

Over the past year, the Woonasquatucket River Watershed Council has participated in a database selection process with a group of other small watershed councils and land trusts from around Rhode Island. This collaborative was formed with the idea that if they could select a database that each of the organizations could implement, they could then share the costs of selection, training, support and more.

They went through a process to identify what features were desirable in a system, and what were “must-haves” for at least some of the organizations. Some of the key things that they identified were:

- **Online access.** As many of the organizations had people in various locations, the ability to access the database from the internet was important.
- **Donor, member and volunteer tracking.** They wanted to be able to track all of their constituents in one place.



- **Donations.** Tracking the source of each donation, as well as a donor’s donation history, was critical. Some of the organizations also needed to be able to track more complex donations of land or trusts.
- **Broadcast email.** They needed software that provided or seamlessly integrated with functionality to send emails to lists.
- **Households and addresses.** The handling of multiple people in the same household, and of seasonal addresses for Rhode Island’s summer population, was a key concern.
- **Reporting.** It was important to be able to customize reports with both fields and filters.
- **Ease of use.** They did not want a system that would require extensive training for each staff member.

They took a careful look at database packages including iMIS, eTapestry, DonorPerfect and Salesforce. They found iMIS to be too complicated and hard to use for their needs, although it was very powerful. eTapestry and DonorPerfect Online were promising, but were quite expensive for those organizations with more sizable numbers of constituents.

Salesforce seemed like the best option. It appeared to meet their needs, is used by a number of environment nonprofits, and the software itself is free for small nonprofits.

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While the tool is oriented towards business users, the collaborative found this to be an advantage in some ways, as Salesforce's larger market means more money can be spent on development.

However, the package uses business-focused language and processes that will need to be customized to be more appropriate to their needs. The collaborative is considering hiring a consultant who can tailor a single template that will meet the needs of the majority of the organizations. The collaborative has budgeted several thousand dollars towards this customization process. In addition, each organization in the collaborative will need to move their data from its current location to the new system. Fees for mapping and transferring the data could be \$2000 - \$5000 or more, depending on the complexity of the current setup. For organizations tracking less than 1000 or so constituents, they suspect that it will be less costly simply to re-enter the data into the new system.

As Founder and Director of Idealware, Laura S. Quinn directs Idealware's research and writing to provide candid reports and articles about nonprofit software. Prior to Idealware, she consulted with nonprofits about website strategy and design. Laura is a frequent speaker and writer on nonprofit technology topics.

They advise other organizations to look at prospective software packages carefully. Test drive the system yourself, if you can, and try out actual tasks. Ask for references and talk to organizations that are similar to yours that are using the system (and if there aren't any, consider that a danger sign).

Wrapping it Up

Databases can provide huge benefits, but choosing one wily-nilly and slapping it into place is likely to cause only trouble down the road. Think through what you need, take a look at what other organizations are doing, choose a solution carefully and keep a careful eye on your ongoing data and processes. With some care, a database can be a tremendously powerful tool, allowing you to easily identify groups of constituents, quickly generate reports, improve your programs and relationships, and above all, to better achieve your mission.



FOR MORE INFORMATION

A Few Good Low-Cost Constituent Databases

www.idealware.org/articles/fgt_low_cost_dbs.php

An Introduction to Integrating Constituent Data: Three Basic Approaches

www.idealware.org/articles/intro_data_integration.php

Donor-Management Software Comparison

www.techsoup.org/learningcenter/databases/page5961.cfm

Four Steps to Selecting Donor Management Software

www.npowerseattle.org/education/resources/donor_toolkit.htm

Fundraising Software Comparison Chart

www.grassrootsfundraising.org/howto/software.html

Roundup of Database Articles

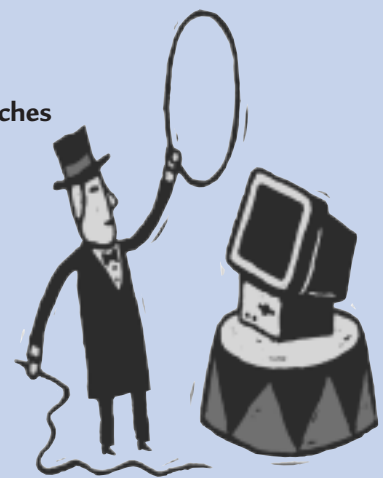
www.metrix.fcny.org/wiki/display/docs/Introduction+to+Databases

Ten Common Mistakes in Selecting Donor Databases (And How to Avoid Them)

www.idealware.org/articles/ten_common_mistakes_in_selecting_donor_databases.php

Usability and Maintainability: Guidelines for Choosing a Nonprofit Database

www.techsoup.org/learning_center/database/page5213.cfm



It's All in the Contract

Databases can be an incredibly useful tool for tracking people. But where to begin? Start by thinking carefully and thoughtfully about (1) how you plan to use your database and (2) whether there are prepackaged databases that will suit your organization's needs. If the answer to the second question is "no," or you have a database that does not address your needs, hiring a consultant might help you design the appropriate system to track your constituents.

Hiring a database consultant is a huge financial investment. Some charge \$75-\$150 an hour. Do your homework when choosing the consultant. It is like hiring a carpenter to design your kitchen cabinets. The person will be creating an object that you'll be using daily. If you can't place your mixing bowls on the shelf or the door opens the wrong way, you've spent a great deal of money on something that doesn't work for your needs and you'll never be able to use it to the fullest extent. The same holds true when using a consultant in developing a customized database.

Define the specific requirements for your database and write these needs and expectations into a scope of work. The scope of work explains what will happen, when it will happen, how much it will cost and what will be delivered.

For example, describe:

- the types of information to be captured,
- the types of reports the system needs to generate,
- how many users to accommodate, security and data integrity measures needed, and

- the documentation of the database structure and existing hardware and operating system.

This information can be packaged into a Request for Proposal (RFP) when you are searching for a consultant; simply add additional information to determine their expertise and obtain a list of references. Interview the potential consultants and contact references to ensure they are a good fit for your organization and project.

Once you find the consultant, create a contract that spells out the project's terms and conditions. Your contract should

include the project description; project objectives, consultant's responsibilities, your organization's responsibilities, fees, timeline, and legal conditions. Include the scope of work in the

written contract to eliminate surprises from either party and addresses the circumstances under which the contract may be cancelled. Spending the time to communicate your organization's needs and helps ensure and document that the cabinet door opens the right way and the bowls fit on the shelf.



by [Laura Alex](#)
Program Coordinator
[Stony Brook-Millstone
Watershed Association](#)
www.thewatershed.org

EXAMPLES OF CONSULTING AGREEMENTS & SCOPE OF WORK

www.techsoup.org/learningcenter/consultants/page5069.cfm

www.npower.org/resources/sampleconsultingscope.doc

FURTHER RESOURCES

TechSoup, www.techsoup.org, has a number of articles on databases and using consultants, such as interviewing consultants, defining a consulting project, finding a consultant and managing the consultant.

Choosing the Right Database for Your Watershed Organization: Don't Get Fooled Again

by Sean Larkin
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Deploying the right database for your organization can be a challenging process. It is likely to require a significant time and/or financial commitment. Choosing correctly will allow you to leverage your relationships with donors and other supporters. The wrong choice, however, or one that does not take into consideration all the different ways that you need to track and utilize contact data, can create an organizational nightmare.

When managing the fundraising and membership database for the river conservation organization, Amigos Bravos, in Taos, NM, I remember hearing stories of the organization's first database. That database consisted of a large wooden box containing a 3"x 5" queue card for each of the organization's supporters. Each card listed the supporter's contact information, as well as a list of contributions.

As funny as it sounds, that paper and plywood database was a more effective organizing tool than many hobbled together computerized applications. It was centralized and structured—and because its organization was logical and accessible, staff used it consistently. In other words, it provided a *usable system*—which could be intuitively integrated into the organization's overall workflow and daily tasks. The point is, the most comprehensive, feature-rich, *whiz-bang* database application in the world is worthless if it is too complicated, or if there is not staff to consistently use it. Alternatively, if a database application fails to integrate with existing systems and administrative processes, it can complicate and hinder your organization's workflow.

Fortunately, there are a lot of resources and organizations that can help you with this decision-making process. And today, the functionality available at affordable prices is pretty incredible. So, don't give up hope! This article will first look at the goals in

choosing a database and basic considerations when comparing different alternatives. Then, it will look at both the specific functionality included with various database systems, and provide a few example applications.

What are We Comparing When We Look at Different Databases?

Cost vs. Functionality

Now for the fun part—comparing database tools and systems. When comparing databases, there are two primary issues to consider: *cost* and *functionality*. Of course, \$\$\$ signs are not the only costs that we have to consider. And, *functional* can be defined in many ways. Costs include upfront installation fees, maintenance or licensing fees, training expenses and sometimes even hardware costs. Functionality can include features such as donation tracking, mass-mail support, direct mail campaign tracking, advocacy campaign tracking event organizing and volunteer management.

Back in the "early days" (e.g., way back in the early 90s) of deploying databases in the nonprofit community, functionality was directly proportional to cost. You either paid a programmer to build a custom solution from the ground up, or you purchased a proprietary software package from a software development company. *Open source projects* such as eBase (discussed in greater detail later in this article), changed this landscape in the late 90s.

Open Source vs. Proprietary

Open source applications refer to software for which the source code is publicly and freely available. Open source software contrasts with *proprietary software* (sometimes referred to as "closed source" software), for which the source code is not freely available for modification. Proprietary software, like Microsoft's Office Suite, often requires that you pay a licensing fee to use.

Proprietary software is generally developed by a single company that takes full responsibility for maintaining the software, providing users with software updates and releasing documentation, training materials and other support services to the application's user community.

Because anyone can get under the hood of open source applications and modify the code—and more importantly because people are free to share the modifications and extensions they make to the code—the development of open source software is rapid, organic and generally progresses at reduced costs to its user community. There are literally tens of thousands of programmers around the world volunteering time towards the development of highly-professional open source applications such as eBase and CiviCRM (another web-based application we will soon discuss). Consequently, you can be pretty darn sure that any problem your organization faces in terms of data management, or any feature you would like to see added to your database application, has probably been tackled by some developer working with these open source applications.

Because open source database tools are generally community-based projects, the documentation, installation instructions and general support can sometimes require more effort to track down. However, because the software is free, financial resources otherwise spent on expensive licensing fees (which can sometimes run up to \$10,000), can be invested into training, support and customization of your open source solution.

As an employee of an open source software development company, I am admittedly biased towards the community and political values of the open source software movement. I believe that for *many* organizations, open source solutions are more feature-rich, more secure, easier to

deploy, more cost-effective and certainly more customizable than their proprietary and close-source counterparts.

However, I don't want to suggest that an open source database application is the "de facto" best solution for your particular organization. There are many good reasons that organizations choose proprietary database tools. For example, you may have a staff person or volunteer who already has expertise with a specific proprietary application, or perhaps you already have a license for a specific piece of database software. Many organizations appreciate knowing that there is a single company responsible for maintaining their database application—or, more importantly, that there is a single throat to choke, if something goes wrong with the application.



Regardless, it is clear that the open source movement has radically increased the options available to your organization and continues to challenge proprietary database software companies to streamline their pricing and increase functionality. You will see this as we look at specific database alternatives.

Platform

There's one last primary consideration to discuss before looking at specific database applications—the platform required to run

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the software. When most people think of platform, they think of Mac versus Microsoft. That is accurate, and certain database applications will only run on a Microsoft-based PC, but platform also refers to whether or not the application runs on your desktop computer or in a web-browser. eBase, for example, can run on either a PC or a Mac desktop computer—generally on top of another proprietary (and not-free) software application called FileMaker Pro. eBase itself is free and open source code, but to take advantage of all its features, you need to run it on FileMaker Pro.

On the other hand, more and more database applications are becoming web-based. As such, they can be accessed from any computer that has a web browser, like Internet Explorer or Mozilla Firefox. This provides increased flexibility and access, though it often means if you do not have a relatively fast and reliable internet connection, you can't easily access your data.

Application Service Providers

A subset of web-based database applications now includes **subscription-based** online applications, such as eTapestry and CivicSpace On Demand. These companies, referred to as **application service providers** (ASPs), charge monthly fees for access to their services and sometimes a one-time setup fee. Often, they also provide different "modules," such as bulk email tools that you can add to your basic service at an additional cost.

Arguably, these online application services can be more expensive in the long-run than other alternatives. Likewise, they are usually much less customizable and may or may not

fit your organization's exact needs. However, they do have certain benefits. They are easy to setup, often include solid phone-based customer support and remove the headaches of software updates and data backups.

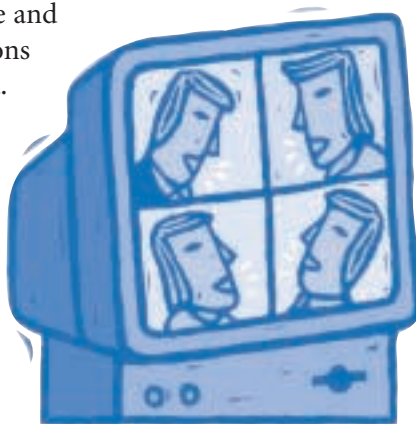
So, What's Even Possible? Show Me Some Database Bling-Bling!

What do you want to do with your database? Do you want to link it to your direct mail or letter writing campaigns? Do you want it to link your database to donation pages on your website? What about newsletter subscriptions, event sign-ups or volunteer

management? As nonprofit database tools expand, they are being described more and more as "Constituent Relationship Management" tools (CRMs) rather than just fundraising databases. Donation tracking is just one feature of many of the newest database tools.

Constituent Relationship Management:

How do you interact with your contacts? Do you keep track of volunteer hours? Do you lead watershed hikes or paddling trips? Do you host special events? Do you have a direct mail or major donor program? While we generally think of database applications as fundraising tools, many of our organizations track different types of constituent relationships. A classic mistake that occurs within many watershed organizations that have separate staff working on fundraising efforts from those handling volunteer management or program work is that contact data is not integrated or shared. Consequently, when contact lists are pooled, say, for an event invitation mailing, duplication often occurs. Similarly, in these situations sharing updated contact information across these disparate systems can be a real challenge.



Let's Look at Seven Specific Database Applications

1. eBase

eBase is the veteran of the nonprofit open source fundraising database movement. eBase is "open source" in that you can freely download and modify all the FileMaker Pro files that make it work. However, it is important to note that in order to use eBase in a multi-user environment and take advantage of its advanced features, you are required to purchase a FileMaker Pro license for each concurrent user. For large organizations, or if you need to access your eBase database from outside of your office, purchasing a copy of the server version of FileMaker Pro (which is quite expensive) might also be required.

eBase benefits from a large, active nonprofit development community. Highly-professional eBase fee-for-service support is also readily available. eBase is very extendable. It's a solid tool for direct mail and membership renewal management, as well as, volunteer tracking. However, eBase is not web-based. While custom integration of eBase with your website is possible, it was not designed to fit this task.

For more information on eBase, visit www.ebase.org. To see if your nonprofit might qualify for discounted FileMaker Pro licensing, visit www.techsoup.org.

2. Raiser's Edge

Blackbaud's **Raiser's Edge** is the giant of the nonprofit database world. Raiser's Edge is a very established, highly-sophisticated application. It is most often used by very large nonprofits, foundations and educational institutions that require their constituent data to be directly linked to their accounting system. Raiser's Edge is proprietary, Microsoft Windows dependent and very expensive (even a basic installation costs upwards of \$10,000, and pricing is only

available if you schedule an interview). In addition to its high price tag, Raiser's Edge has a steep learning curve and required considerable setup time and training.

For most watershed organizations, choosing Raiser's Edge is like picking up a sledgehammer to push in a thumbtack. As a desktop database application, it is pretty much on the opposite side of the spectrum from eBase. But for really large organizations managing very sophisticated fundraising processes that need to be linked tightly with accounting data, Raiser's Edge is a powerful tool.

For more information, visit www.blackbaud.com.

3. Sage Fundraising 50

Sage Fundraising 50 (formally, Paradigm) represents a middle ground between eBase and Raiser's Edge. Sage Fundraising 50 is a proprietary desktop application and does require Microsoft Windows. Sage is much easier to learn than Raiser's Edge and much less expensive (around \$3,000 to install and configure). However, Sage is a less robust application than Raiser's Edge (which likely will not be a problem for your organization), and does not provide as extensive an array of online donation and constituent relationship management tools as many other solutions. For organizations that feel more comfortable with a proprietary desktop application developed by a respected company, Sage is a solid alternative.

For more information, visit www.sagenonprofit.com.

4. CiviCRM

CiviCRM is a free, open source, web-based constituent relationship management application. It is generally installed as part of a *web-based content management system* such as Drupal (www.drupal.org) or Joomla! (www.joomla.org). Content management

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systems are database-driven website platforms that make it easy to update content on your website and usually include tools such as blogs or forums. Of course, you don't need to redo your website to use CiviCRM. CiviCRM can be installed on "the backend" of your existing website or most web servers.

Installing CiviCRM usually requires the support of a web developer. However, because the software is free, contracting with someone to install the application can often be done at a lower cost than the price of buying proprietary software or paying monthly fees for an application service provider, such as eTapestry.

Like eBase, CiviCRM is actively developed by an international community of volunteer and professional web programmers. CiviCRM supports highly-sophisticated mass email, event management and contribution tracking tools, as well as, a feature-rich fundraising calendar. Since CiviCRM is web-based, you can access it from any web-browser. Since it is open source, you can provide as many staff login accounts as you need at no additional cost.

For more detailed information on CiviCRM, visit: www.civcrm.org.

5. CivicSpace On Demand

If you like the idea of using an open source, web-based solution, but don't want to have to worry about finding a web developer to install and maintain the application, you can subscribe to **CivicSpace On Demand's** CiviCRM hosting services. CivicSpace On Demand is a subscription-based application service provider that has grown out of CivicSpace Labs (www.civicspacelabs.org), one of the leading organizations in the open source development of CiviCRM. For \$50/month, they will provide you with a standard installation of CiviCRM and Drupal, which they maintain and backup on

their servers. Their installation of CiviCRM includes a powerful suite of contribution tracking, online donation processing, event management and mass emailing tools. Integrating CiviCRM with Drupal, you can build a feature-rich and interactive website as the front-end of your fundraising database. You can create donation pages, event sign-up pages and electronic advocacy pages that link directly to your constituent database. If your organization currently does not have a dynamic website, you should also consider CivicSpace On Demand for its Drupal hosting tools alone.

CivicSpace On Demand provides you with a variety of customizable tools and administrative interfaces. However, because CivicSpace Labs maintains your installation of the software, you are limited in your ability to modify the code that drives the application. Of course, if down the line your organization grows to the point that you have both the expertise and need to host the application yourself, CivicSpace Labs will gladly allow you to export your installation of the software and install it on your own web host.

For information on CivicSpace On Demand's CiviCRM application services, visit www.civicspacelabs.org.

6. eTapestry

Like CivicSpace On Demand, **eTapestry** is a web-based application service provider. eTapestry can be integrated into your existing website with customized donation pages. Like CiviCRM, you can access eTapestry from any web-browser with an internet connection. Even more so than CiviCRM or CivicSpace On Demand, your eTapestry account can be extended with an incredible list of add-on functionalities, such as e-commerce tools and integration with Microsoft Outlook. Exporting contact data to spreadsheets that you can use on your desktop is also a breeze with eTapestry.

eTapestry is a proprietary solution and pricing depends on the number of users and contact records you want to support, as well as, the functionality your organization requires. Each "module" or additional service you order, increases your monthly fees by a percentage of the base cost of your account. While this means that a very advanced installation of eTapestry can get very expensive, eTapestry's modular pricing is very clear and allows you to easily price out current and future functionality your organization may require. Consequently, eTapestry is a flexible tool that can grow with your organization. Like CivicSpace On Demand, eTapestry handles all security and backups of your data. Solid customer support is available at an additional fee.

For more information and pricing, visit www.etapestry.com.

7. Just Do It Yourself

In the final moments of reviewing this article, I realized that I had not yet touched on one additional software option facing you as organizer of fundraising and other constituent data. You could build your own application or basic tracking system yourself using such tools as



Microsoft Excel, Microsoft Access or FileMaker Pro.

Many watershed organizations have incredibly sophisticated, well-designed completely custom database solutions that a staff member, volunteer or paid contractor has built from the ground up. If built correctly, such applications can be fine-tuned to meet very specific needs. Similarly, if you are just establishing your organization and can't afford a more expensive solution, just keeping track of fundraising and basic

contact data even in an Excel spreadsheet is a great start.

However, as a web and database developer, I have seen many "homegrown" solutions create significant problems for organizations, particularly as they grow and begin to collect more complex constituent data. Often, an organization does not know that they have outgrown their "starter database" until it slows down to a crawl—or worse, breaks all together. If that happens, bringing in an outside consultant to fix a completely custom database can often be more expensive than starting over with a completely new system.

Consequently, my parting advice, if you either currently use or are considering a totally custom-built constituent relationship management system, is that you: a) make sure that the code running your system is

- very well documented so that, if necessary, another programmer could take over support for it; and
- b) that you consider the long-term technology needs of your organization *early on*, so that you can systematically plan for upgrading your application—before it breaks.

In Conclusion

There are obviously a lot of factors that go into choosing the right database application for your organization. "Functionality versus cost" is clearly a primary consideration, as is "open source versus proprietary," and platform. The first step is to consider what type of constituent data you are looking to track—and then to consider what functionality you can afford.



Sean Larkin is the Project Manager for OpenSourcery (www.opensourcery.com), an open source web development company in Portland, OR.

When comparing database applications, consider this (admittedly non-exhaustive) list of features:

MULTI-USER ACCESS & MANAGEMENT

- Simultaneous Staff Access
Differentiate Staff Access Privileges
Remote Access

FUNDRAISING TOOLS

- Monetary, In-kind, Matching Gift Tracking
Pledge Tracking
Membership Renewal Management
Donation Acknowledgment Printing
Donor Correspondence Tracking
Online donation tools
Fundraising Calendar with a "Tickler"
Mail Merge for Direct Mail
Email-based Fundraising

Fundraising Campaign Reporting ●●●●● Database applications differ in the level and complexity of fundraising reports you can run. Some advanced applications will allow you to create custom reports. Open source database applications are generally more likely to allow you to modify reports.

Donor Categorization ●●●●●●●●●● Many databases will allow you to aggregate donations per contact and categorize donors based on contribution levels.
(Major Donor or Membership Level Management)

Online Shopping Carts and Other E-Commerce Tools ●●●●● Some database applications, particularly online applications, integrate with e-commerce tools and allow you to manage inventory and online shopping carts.

ADVOCACY CAMPAIGNING

Voter Registration/Demographics Tracking ● Some database tools allow you to track voter registration or demographic information that can be useful when targeting campaigns to specific communities.

Online Advocacy Tools ●●●●●●●●●● Some database applications, particularly web-based applications, allow you to create online campaigns and allow your site visitors to take action via your site.

EVENT MANAGEMENT

Event Sign-up Management ●●●●●●●●●● Certain database applications allow you to manage event invitation mailings and RSVPs.

Electronic Event RSVP or Sign-up ●●●●●● Some databases, particularly web-based applications, allow you to create sign-up pages for special events. Depending on the application, you may be able to process event registration and payment online.

VOLUNTEER MANAGEMENT

Volunteer Skills Inventory Management ●●● Most databases will allow you to add custom fields for tracking personal information about your contacts, such as skills, interests or occupations.

Volunteer Availability Tracking ●●●●●●● Some databases will allow you to track volunteer availability.

Volunteer Scheduling ●●●●●●●●●● Some databases will allow you to schedule and track volunteer hours.

Online Volunteer Sign-up ●●●●●●●●●● Some databases, particularly web-based applications, will allow you to create pages on your website for collecting volunteer sign-up and scheduling information.

VENDOR MANAGEMENT

Vendor Services Management ●●●●●●●● In addition to tracking volunteers and donors, many database applications allow you to keep track of your organization's vendors or other partner organizations.

Invoice and Payment Tracking ●●●●●●●● In addition to donation tracking, some database applications will allow you to track vendor payments.



Ahhh—a database. Somehow I doubt most of us had visions of data entry when we made the decision to enter the field of river conservation. For many of us, a database is more than just a compound word, it is two four-letter words strung together to create massive amounts of frustration. But, databases, if implemented properly, should help maximize efficiency and minimize—not create—aggravation.

Below, River Network Partners offer some suggestions and tips based on their personal experiences with a variety of available databases.

A data base should have continuity over a significant period of time. We have been dealing with a project where flow data was collected in one place for a period of 10 years during the 1920s to '30s. Then, in another part of the watershed for a 10 year period during the 1930s. Another one during the 1950s and 60s, etc. This is NOT continuous data and will not give defensible results. Some scientists cloud the issues by saying they have continuous data when it really is not. Beware!

We feel that the best way to learn more about a new watershed project is to get outdoors and document stream conditions and riparian land use. For several years now, we have used a modified version of the US Department of Agriculture Stream Visual Assessment Protocol (SVAP) to collect baseline information on physical stream conditions including channel stability, riparian buffer, water appearance, nutrient enrichment and other characteristics. The SVAP protocol allows us to assign numeric values to features of a stream that may not often be thought of as quantifiable; the numeric values can be organized and sorted through to prioritize solutions to water quality issues, target monitoring locations and determine areas of ecological value in the watershed. After data is collected in the field, the volunteer, student or staff person enters their collected data into an online database. This database can be downloaded off the web and imported into ESRI ArcMap so that the data can be spatially evaluated against land use, soils and proximity to features in the watershed such as potable water supplies, open space or highways. The database allows for data to continually be updated with new entries and provides a simple way to organize a lot of data in a format able to be shared with others.



Passaic River Coalition, NJ
www.passaicriver.org

Friends of Milwaukee's Rivers recently went through a database search process and decided to use Salesforce, a product that is marketed towards corporations, but is donated to qualifying nonprofits. We chose a database that is hosted online, so our whole staff and board can access the information without installing (and updating) software. Most hosted options are very expensive (thousands of dollars

per year). This made Salesforce a great option for us since there is no ongoing hosting fee. We did pay a consultant to import our data, customize the database and train our staff. Even with a consultant to help, the transition has been difficult, and there have been technical bugs to contend with. I would recommend Salesforce, but only for an organization that doesn't mind getting a little technical and working through some kinks.

Rutgers Cooperative Extension
Water Resources Program, NJ
www.water.rutgers.edu

Friends of Milwaukee's Rivers, WI
www.mkeriverkeeper.org

My main advice about databases (I configured/cleaned/maintained an MS Access database that both recorded information and tracked donors for 2 years at a previous job) is to stick with just one database, unless you are a very large organization. A very wise executive director once taught me this, and I think it is the best advice regarding databases. Donor specific databases are alluring in what they promise to do, but the time and energy and consistency of double entering so much data is next to impossible. I think MS Access is very usable for both information and donor records. You can give all your employees access to it, but limit where each can add information.

Sierra Nevada Alliance, CA
www.sierranevadaalliance.org

Because we're an arm of local government, we had no choice in our database software and use Access 2000. We weren't allowed to get Oracle, and thus couldn't use STORET, but we probably couldn't have used STORET anyway, because many of our physical-habitat parameters are fairly unique. Our monitoring program is fairly complex, and with only 1.3 staff, there's no way we could have developed the database we have without help. Initial database development took about two years and was funded by about \$15,000 in grant money. Since that point, we've been lucky enough to have the free services of one of our volunteers, who has continued to put in about 6 hr/wk on database development and troubleshooting (4 hrs worth of that working together with staff), much of it involving Visual Basic programming, which enables data-checking and validation procedures, and sophisticated reports, such as multi-metric indices. We've come to understand that in a dynamic program, database development never ends.

Our recommendation to any organization operating on a shoestring budget (such as ours) is to find a volunteer with a computer background willing to make a long-term commitment, spend whatever money it takes to get that person trained, and then hope that they stay healthy! Also, document everything you do as you go, so that you're not bereft when that person leaves. (When things get weird and complicated in our Visual Basic programming, we put little side-notes in with the programming language; many times, those comments have helped us remember why we did something a certain way five years ago!)

Streamkeepers of Clallam County, WA
www.clallam.net/streamkeepers

Since we are so small, I use the standard Microsoft Access program (created from a survey of watershed folks a couple years ago) and a Microsoft Word file with my mail list. I have approximately 120 names on the mailing list. This system is not high tech, but works for easy updates and changes!

Moxahala Watershed Restoration Commission, OH

For online websites that use database(s) and manipulation/queries (add, delete, select, etc. records), especially those sites hosted by Linux servers, we've used the classic, free MySQL database and PHP language to query it. Since we're talking Linux, MySQL and PHP, I'll add the last component, Apache server software, to complete the LAMP (Linux, Apache, MySQL, and PHP) setup we've found useful. Offline, in-office, we use FileMaker Pro from Claris.

Fishing Outfitters Association of Montana
www.foam-montana.org/



CASE STUDY

Colorado Water Quality Monitoring Council's Data Sharing Network Are Statewide or Regional Databases Really Possible?

by Barb Horn
Co-Chair

Colorado Water Quality
Monitoring Council

barb.horn@state.co.us

www.coloradowatershed.org

Have you ever heard the suggestion “what we need is a statewide or regional clearinghouse or database?” Have you wondered why every state doesn’t already have one? It makes so much sense, one place everyone could go to enter and retrieve data. We don’t mean a database that is provided by a state agency with their data only, but a database that serves multiple, even all, data generators and users. There must be high hurdles, if such a broad-based common need exists and is not yet in place in most, if not all states.

In Colorado, we found two things to be true. First, resource and capacity hurdles are too high for any individual group alone to jump and yet; many groups were reinventing the wheel at a smaller scale and devoting a large amount of resources (money and time) to creating a unified database. The Colorado Water Quality Monitoring Council (CWQMC) is successfully making the case that those resources could be reallocated to support a statewide database for less than groups are expending on smaller efforts, allowing liberated resources to be used for more data analyses, collection or other priorities, and in the process provide more available data for each individual group. We had to find the selling points from their point of view for actual participation, even though everyone wants the desired end point. Once a critical mass is using the system, the rest join from peer pressure or because participation is now the best feasible option. The CWQMC is finishing the first year of a three year grant to implement the Colorado Data Sharing Network (CDSN).

Who is the CWQMC and How Did We Morph this Support?

Our experience, hopefully, will save you time and energy. The CWQMC informally formed, under a different name twenty years ago during an era of decreasing budgets, increasing Clean Water Act responsibilities

and complexity, long drought periods and rapid growth in population and the resource extraction industry. In other words, the pressure to collaborate and be more efficient and effective hit a threshold across Colorado.

Since the beginning, the CWQMC has been and continues to be a diverse group of volunteers. Participation includes the Forest Service, Bureau of Land Management, Colorado Division of Wildlife, Colorado Public Health, Waste Water Utility Council, Water Supply Utility Council, counties, municipalities, special districts for water, irrigation and soil, multiple nonprofits, industry representatives and consultants. Faces of the Council have changed over the past 20 years, but the group has common goals to share data within and across watershed and political boundaries and increase on the ground monitoring collaboration that remain the same.

Efforts evolved through three eras in order to arrive at the current project. In the 1980s, the focus was on standardization of field and laboratory methods. This failed because no entity was willing to change their methods; they had 20 years of data at risk or their needs varied too much. In the 1990s, the focus evolved to simply exchanging data and monitoring locations. This too failed for a variety of reasons, some of which included:

- **Quality:** Data were in a variety of formats, structures and nomenclatures, sometimes not even electronic;
- **Gaps:** Entities were not gathering or recording sufficient information about the data (meta-data);
- **Trust:** Not everyone wanted everyone else to have access to their data;
- **Management:** Entities did not want to have to manage their data in two locations and two different ways. If we required a certain format, it would not

be compatible with their current management scheme;

- **Time:** people wanted others' data but didn't want to take the time to organize their own to share.

The continuous obstacles moved the group to try just exchanging meta-data, basic information about the data (e.g., what, where, when, why, how they monitored) and contact information to access the data. We called these Watershed SWAPS. We piloted a SWAP with a watershed categorized with a 14-digit hydrologic unit code. Clear Creek follows I-70 from Loveland Pass into Denver. Then we tried a larger scaled watershed—the South Platte River that runs through Denver. Both of these worked well when conducted on a watershed scale versus statewide. During these pilot swaps, we also shared watershed monitoring priorities, needs and concerns and were also able to develop on the ground monitoring collaboration efforts. The Council took this idea and developed it into the current Colorado Data Sharing Network (CDSN).

What is the Colorado Data Sharing Network?

To start, CDSN put forth four major components with the attached guiding principles:

1. To establish a water quality data management system that meets the needs of Colorado's Nonpoint Source Program and local data providers of data sets not already organized and widely accessible. *Water quality data includes chemical, physical habitat and biological data for rivers, lakes, reservoirs, wetlands and groundwater.* The hardware and software system:
 - needs to have simple uploads, meaningful downloads and the ability to conduct simple summary statistics;
 - must use existing available technology at low or no cost, and be available via internet;
 - employ a minimum set of data elements (specific fields) for each area; and
 - place data accuracy and quality responsibility on the generator not system operators.
2. To establish a web-based map, ArchIMS, that would serve as comprehensive directory of who is doing what, where, why, how and include contact information. When possible, the actual data would be in our system; if not, a direct link to the data or contact information will be provided.
3. To actively put data into the system via strategic training and outreach for three years.
4. To develop and implement a long term support strategy for the system, training and outreach.

How Have We Achieved These Four Components?

Just starting our second year of the three year grant, we relied heavily on existing technology. The system would cost too much to build from scratch, and we would duplicate all the mistakes already made by someone else. We collaborated with EPA Region 8 STORET staff to use their existing hardware, software, documentation, tools and expertise. System hardware and software include:

1. **EPA STORET database structure** – STORET has 20 plus years of developing a relational database structure, standardized formats and upload tools to deal with many types of data in many formats. Any data STORET can manage, we can manage—and we didn't have to expend resources to get a functional data storage tool. STORET stores data well,

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CASE STUDY: Colorado Water Quality Monitoring, cont.

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will be around a long time, makes our database compatible with our state health department, and is where nonpoint source (NPS) data need to be. This strategy also has the benefit to allow our system to contain all STORET legacy data in *addition* to other data, and thus our system is the primary Colorado data source, larger than even STORET is for Colorado.

2. **A mechanism to include more function than data storage** – We developed a simple set of user-friendly templates to upload and download data. We will add the ability to conduct simple statistics and graphics. This aspect includes developing an initial minimum set of data elements (fields) for water chemistry, fish/macroinvertebrate data and physical habitat data.
3. **A mechanism for people to get legacy and new data into the system** – People typically will not enter data into two systems, so we will help them do this while building our critical participation mass.
4. **Security** – We have three levels of security, all password protected and all controlled by the data generator. Data can be available to all or not, the user can decide if the data will be uploaded to EPA STORET or not (unless the data is a NPS project).
5. **A method to assess the appropriate use of others' data** – We don't judge the data quality or purpose, but require that entities provide that information so other users can adequately determine the use.
6. **A visual map to assess data gaps** – We are using an ArchIMS map developed in EPA Region 10 and replacing the underlying layers with Colorado information. This map will serve as a directory for all activity in the state, regardless of where the data actually lives,

displaying what data is available, where, when and how collected. If appropriate, the data will be in our system, if not there will be a direct link or information on where to get the data. This also allows people to “privately share.” If trust is their sharing issue, they can tell people about their data, but select who they give it too.

A great database system, however, is useless unless there is a way to get people to use it (outreach), competently and consistently (training and user support), foster a forum for groups to talk about their monitoring priorities and needs (sharing) and trust that the system will be here for a while (sustainability strategy). To address these needs we:

1. **Provided user documentation on our website and developed an outreach training schedule** that will provide a week of training in each of the major basins within two years. Each training session is only one day. We plan to continue these trainings on a rotation schedule beyond the grant cycle. During this funding cycle we have the benefit of literally formatting templates for data sets for groups while teaching them how to do it. This work occurs in-between training sessions. We also provide annual “data calls” to remind people to enter their data into the system, if they are not using it as their routine data manager. One paid staff (during the grant and most likely post grant) and 2-3 volunteers do this work, while a team of 6-10 of us conducts the outreach and marketing for each basin session.
2. **Created Watershed SWAPS.** The morning before each CDSN System training, we host a SWAP where any entity involved watershed management swaps their monitoring priorities, issues and concerns. After each SWAP, we produce a series of fact sheets

documenting and summarizing the discussions. We started in the Colorado Basin and are currently working on the South Platte. Next fall, we will move to the San Juan and Dolores Basins followed by the Arkansas and Rio Grande in the spring. If demand continues, we will continue these SWAPS and trainings after the grant is over. You can download our outreach strategy documentation from the website: www.coloradowatershed.org.

SWAPS are also part of our sustainability strategy. The forum is providing a local voice among local entities that don't always communicate. In addition, SWAPS are providing a voice from the locals to state entities and a mechanism for state entities to reach the local scale. As state, local and NPS funding continues to shrink in comparison to the amount needed to eliminate pollution from nonpoint sources, and as states implement drinking water protection plans, watershed plans and weather patterns create water crises, collaboration is a critical strategy.

Timing is part of successful participation. We plan the training sessions and SWAPS around the Colorado Department of Public Health and Environments monitoring schedule for their Clean Water Act Major Basin Rule Making Hearings. In these hearings, they determine appropriate classifications and standards for each basin, rotating around the state every five years.

3. Prioritized developing and implementing a sustainability strategy as a primary task of the

current grant. We are gathering the financial information to sustain the hardware, software and technical support while, we increase system participation. Concurrently, the Council is developing fiscal capacity and "membership or user" fee based strategy to fund this in the future. We do not want fees to prohibit a group's participation. We are very optimistic we can raise enough funds to assist with any financial challenges. The Council raised \$20,000 when we had no product or service, and we already have key data generating groups stating their financial support, documenting the demand. At this time, it appears there may be a fee for data generators versus users, but the price will be minimal. We also plan to continue using existing resources to help maintain the system.

Our prediction is that Colorado's Department of Public Health and Environment will be using the system to upload their data to STORET and require



CASE STUDY: Colorado Water Quality Monitoring, cont.

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others to use it for data they will use in their Clean Water Act decision processes. As a result, more data will be available and better decisions can be made. However, if the data is not of sufficient quality, the database will not help address that issue.

Funding

We started with a \$15,000 from EPA Region 8 Geographic Initiative and then creatively found 319 Non Point Source Funds of \$100,000. Our timing was impeccable. In the late 1990s, the U.S. EPA began a concerted effort to get states to comply with importing all NPS project data into the National EPA STORET (STOR=Storage and RET=Retrieve) warehouse database. The Council convinced Colorado's NPS Program Leadership to partner and create a system that would benefit all data generators, not just NPS Project data. Thus, the target audience for CDSN became:

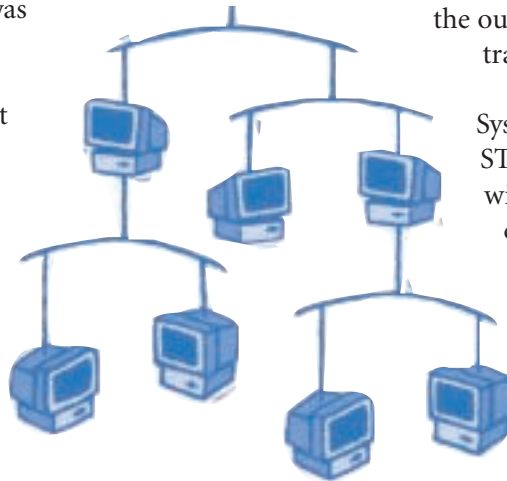
1. Legacy and future NPS project sponsors, and
2. Any other entity collecting watershed data that was either not organized or not being shared beyond the initial project.

An example of an already organized database would be the USGS National Water Information System (NWIS) or a group who already submitted their data to EPA STORET, such as our state health department. These databases are already organized and available.

Cost allocation starts with providing a server to host the ArchIMS map for one year and costs \$15,000. About \$20,000 is allocated to

training, documentation and reporting. Some funds will help implement our sustainability strategy and were used to transform an EPA Region 10 map into an EPA Region 8 map. The bulk of the funds are for transforming existing datasets to get into the CDSN system. CDSN has one primary contractor, Colorado Watershed Network, who serves as the CWQMC fiscal agent and is responsible for all

documentation, reporting and some of the outreach, training and data transformations. They sub contract with Gold Systems (the creator of STORET for EPA) to help with the ArchIMS map, complex data transformations and system documentation. All other tasks and costs are donated by Council members as volunteers.



Tips:

- **Diversify your partnership.** A collaboration that sticks together long enough gains momentum.
- **Leadership** is crucial. Create a core group of people to carry this through to the next level, sharing the responsibilities.
- **Messaging** is a key aspect to success. Develop and document a plan that will get a critical mass to participate, so you can demonstrate success and recruit more participants.
- **Don't reinvent the wheel** – for the system, outreach or training, just modify and tweak to meet your needs.
- **Quantify what people spend** (or should spend) on data collection and management, so you can show them how they are saving money. Many

groups hire others to collect data, so we also are targeting consultants because they can inform their clients about the system and focus on data and gap analyses, etc. Dollars also speak to decision-makers.

- **Use the appropriate scale and scope.** We are starting with water chemistry, macroinvertebrates and physical habitat so that we appeal to a variety of entities; they are the most common data areas and have the most data sets in Colorado. We plan to add fish tissue, periphyton, groundwater and other areas, as we get priorities from conducting basin SWAPS. We are also outreaching and training one basin at a time to complete the state in a three-year period.
- **Include a sustainability strategy** in the effort. If you cannot demonstrate the longevity of the project, people will not invest resources, time or data. We have groups like the Waste Water Utility Council offering \$20,000 to support this effort. The need is there, if you can get beyond the differences.
- **Identify the common set of needs** and prioritize and communicate what you will be addressing.
- **Secure a server** to host the ArchIMS map and data sets. Our strategy is to use an entity that already has that capacity but does not have fire walls that are prohibitive.



- **Hold the data generator responsible** for the upload and quality of data. It becomes an unmanageable task when responsibility is with someone who knows nothing about the data.
- **Make your offer irresistible.** People don't like to change, even if what you have to offer is better. Determine individual needs and sell the system to them from their perspective. For us, the message was they were spending the money for the same thing on a smaller scale and struggling. The solution: join us initially at no cost, see how much more you will get, then help us support it.
- **Be creative.** Will this cost you \$115,000? It depends on your scope, what you re-invent or use and how much collaboration exists. This is not a high price tag for the product and service.



FOR MORE INFORMATION

Visit www.coloradowatershed.org/CWQMC, where you will find the:

- **Work plan**
- **User documentation**
- **SWAP Fact Sheets (as they are completed)**
- **Outreach plan**
- **ArchIMS Map (in development)**

For more detail on components, outreach, costs or other questions, contact Barb Horn. Barb Horn, barb.horn@state.co.us; 970/382.6667.

Decoding Databases: A Glossary of Codes

by Stirling Myles
Program Assistant
River Network
www.rivernetwork.org

Database systems are one of the most crucial and integral elements in the nonprofit world. They provide order to the fluctuating world of filing and maintain a consistent eye on subtle details that are easily forgettable. However, they can also be confusing; the use of complex codes can easily fluster a computer illiterate bloke like myself. For example, do you know what API means? Or how about API and SQL? Or better yet, tell me what HIKNKLSD means. Okay, I made the last one up, but you probably believed me for a second because there are codes like this that you might run into. So, here is a glossary that might put your mind to ease, I created this to help people be able to effectively understand small and large elements in how database systems are run and created.

ATTRIBUTE

A single data item related to a database object. The database schema associates one or more attributes with each database entity. Also known as: field, column.

API

Application Programmer Interfaces (API) offer developers a convenient means to interact with complicated applications in a standardized fashion. Many database platforms support common APIs like Open DataBase Connectivity (ODBC), Java DataBase Connectivity (JDBC) and others.

FIELD

A single unit of data stored as part of a database record. Each record is made up of one or more fields, which correspond to the columns in a database table. Fields are often also referred to as attributes.

FLYING COMPUTER

A direct experience when one becomes so frustrated with the lexicon of database systems that they throw their computers out the window. The farther the fall, the more gratifying the experience is.

CLASSIFICATION

Classification is a data mining (machine learning) technique used to predict group membership for data instances. For example, you may wish to use classification to predict whether the weather on a particular day will be “sunny”, “rainy” or “cloudy”. Popular classification techniques include decision trees and neural networks.

COLUMN

Database tables are composed of individual columns corresponding to the attributes of the object.

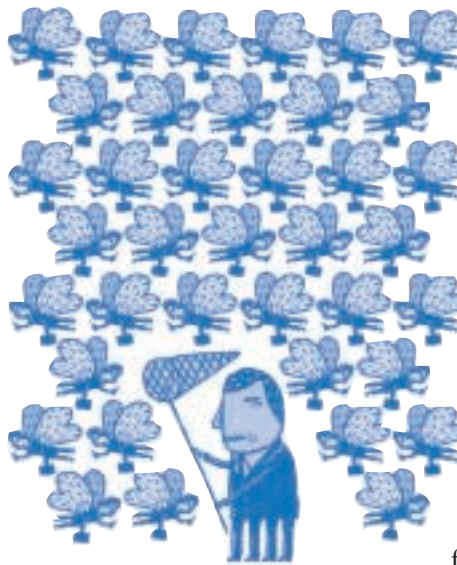
CONCURRENCY

Database concurrency controls ensure that transactions occur in an ordered fashion. The main job of these controls is to protect transactions issued by different users/applications from the effects of each

other. They must preserve the four characteristics of database transactions: atomicity, isolation, consistency and durability.

DATA

Data consists of a series of facts or statements that may have been collected, stored, processed and/or manipulated but have not been organized or placed into context. When data is organized, it becomes information. Information can be processed and used to draw generalized conclusions or knowledge.



DISORIENTATION

Physical and mental effects of working with database systems.

ENCRYPTION

Encryption prevents unauthorized individuals from viewing the contents of a file.

FLAT FILE

Flat files are data files that contain records with no structured relationships. Additional knowledge is required to interpret these files such as the file format properties. Modern database management systems used a more structured approach to file management (such as one defined by the Structured Query Language) and therefore have more complex storage arrangements.

ODBC

Open Database Connectivity (ODBC) is a common framework for accessing and altering the contents of databases. It allows developers to use the same coding conventions regardless of the actual database platform implemented on the backend. When a new database type is installed, administrators merely need to install an ODBC driver that supports that platform and existing ODBC software should function normally.

PRIMARY KEY

The primary key of a relational table uniquely identifies each record in the table. It can either be a normal attribute that is guaranteed to be unique (such as Social Security Number in a table with no more than one record per person)

QUERY

Queries are the primary mechanism for retrieving information from a database and consist of questions presented to the database in a predefined format.

RELATIONAL DATABASE MANAGEMENT SYSTEMS

A database management system (DBMS) is the software that allows a computer to perform database functions of storing, retrieving, adding, deleting and modifying data. Relational database management systems (RDBMS) implement the relational model of tables and relationships.

REPORT

Presents information retrieved from a table or query in a preformatted, organized manner.

SCHEMA

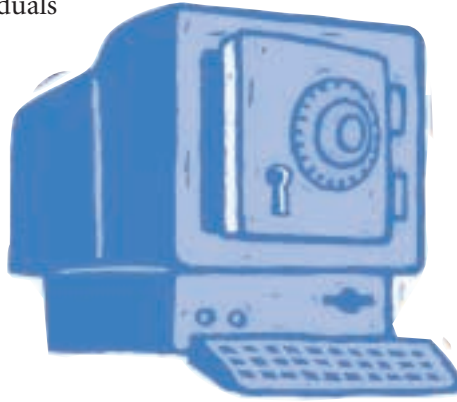
A collection of meta-data that describes the relations in a database. A schema can be simply described as the “layout” of a database or the blueprint that outlines the way data is organized into tables.

SQL

Structured Query Language (SQL) is an industry-standard language used for manipulation of data in a relational database. The major SQL commands of interest to database users are SELECT, INSERT, JOIN and UPDATE.

XML

XML is the eXtensible Markup Language. A system created to define other markup languages. For this reason, it can also be referred to as a metalanguage. XML is commonly used on the Internet to create simple methods for the exchange of data among diverse clients.



DATABASE WARNING SIGNS

You just may want a new database if...

1 All your contact information is kept on 3x5 index cards that are starting to yellow in age.

2 The last person to know the password last volunteered for your organization...about 5 years ago.

3 The database consultant you hired to create a new table ran out the door in the first five minutes of reviewing your database.

4 You've memorized (and continuously disregard) the error messages that pop up daily.

5 The dreaded blue screen of death simply indicates that it is time for a coffee break while your computer reboots.

6 Hand addressing holiday cards to 500 donors is more appealing than trying to pull 3 lists together from your database.

7 You sent an urgent email blast out to the membership in Alaska, but only individuals whose names begin with A-K received the message.

8 Your mailings go to the same person five times but you can't get into the mailing list to fix the problem.

9 You receive a request to update an address, but have no idea which of your 5 databases it came from.

10 You have your tech-consultant's number on speed-dial.

11 All the data entered in May disappears in June.

12 Your \$1,100 donation turns into 1/1/2000.



Do Your Homework:

In-Depth Database Needs Assessment

In the Needs Assessment, you should look for and identify the following types of key issues:

- Replacing an existing database system with a new one is always very costly, but may also bring major benefits. Would it be possible to fix or work around problems or limitations in the current database system, so that it would not be necessary to replace it with a new one?
- Since a problem with a non-software related issue can prevent the successful implementation of a new or improved database, you should look for any non-software related issues which must be resolved wither before or in tandem with changes to new database software.
- Requirements that might force you to build a custom software solution, rather than purchase a software package.
- Database requirements that will be key differentiators among different software packages. For example: Does it have to run on a Mac? Do you require dial-up or web access? Do several users require simultaneous access?
- Surprises: has the organization anticipated all the costs, changes, impacts and risks implied by a database change? Is the organization prepared for them?
- This questionnaire form is extremely detailed. Focus on getting complete information for key areas and less complete information for non-critical areas, and don't try to fill in the entire questionnaire in complete detail, since you will have a limited time budget for performing the data collection and analysis phase of the project.

GENERAL DATA

1. What kinds of computers do you use?
2. What operating systems do you use?
3. What kind of network protocols do you use?
4. What peripherals do you use?
5. What office applications do you use?
6. What telecommunications applications do you use?
7. How many computers are you using/supporting?
8. What is your primary accounting application?
9. What is your primary multimedia/desktop publishing application?
10. How does your organization use its computer labs?
11. What is the skill level of the people who use your computer systems?
12. What are your organization's technical support needs?

PROJECT-SPECIFIC DATA

1. What is your primary database application (product name and release)?
2. What is your most urgent technical support need?
3. Are your current needs part of a bigger project or technology plan?
4. What is the time frame for the completion of this project, if any?
5. Do you have a budget established for dealing with your technical support needs? If yes, please elaborate. Please include hardware, software, training, support, maintenance, personnel and operating costs

CURRENT DATABASE-RELATED ISSUES

Discuss, in detail, any problems or concerns you have about your current database system in the following areas:

1. Organization: do you have cross-department, cross-location or inter-agency problems or issues?
2. Procedures: get copies of any written procedures. Do you have any problems with your current procedures in the any of the following areas:
 - Maintaining the database system and database
 - Inputting data/updating the database
 - Browsing/querying the database
 - Obtaining reports from the database
 - Importing or exporting data to/from the database
3. Integrity: do you have problems related to incorrect or confusing data?
4. Currency: is your software out of date? If so, does this cause problems?
5. Ease of use: does your staff find it hard to use the database?
6. Reliability: is the database down or unusable too often?



Does your organization need a new database?

Resources & References

About.com is a large, mainstream site that chocked full of helpful information. This site can send you in the right direction with links in database training and provide links to other sites that can answer more specific questions.

http://databases.about.com/od/databasetraining/Database_Training.htm

Idealist.org is a meeting place for active and socially aware organizations to engage with active and socially aware people. This site offers information on different aspects of nonprofits ranging from database information to finding a job. www.idealist.org

Idealware provides candid Consumer-Reports-style reviews and articles about software of interest to nonprofits, centralized into a website. Through product comparisons, recommendations, case studies, and software news, Idealware allows nonprofits to make the software decisions that will help them be more effective. www.idealware.org

The Nonprofit Matrix is an online directory and guide to Application Service Providers (ASPs) and portals offering web-based services for nonprofits and charities. www.nonprofitmatrix.com

NPower is a national network of local, nonprofit organizations that provide high-quality, unbiased, affordable and appropriate technology assistance to other organizations. They have compiled informative guides and resources and placed them on their webpage. www.npower.org/



Relevant® Tools offers Online Services including web databases, custom forms and email mailing management with open and click through tracking. www.relevanttools.com/online_database.html

SQL.org's goal is to build a resource that will help those using or wanting to make use of an SQL database find the resources and reference materials they are looking for: an SQL tutorial, manual, introduction, SQL hosting provider or someone to help them out. www.sql.org

TechSoup's online "Learning Center" is organized by subject. Their our how-to's, worksheets, case studies, profiles and product comparisons are written for all budgets and all levels of technical expertise. www.techsoup.org

FOR STILL MORE INFORMATION

Techsoup.com – www.techsoup.org/learningcenter/databases/index.cfm
(particularly the article: www.techsoup.org/learningcenter/databases/page5961.cfm, which contains a detailed listing of various fundraising database applications)

The Grassroots Fundraising Journal – www.grassrootsfundraising.org/howto/software.html

CiviCRM.org – www.civicrm.org

CivicSpace On Demand – <http://civicspacelabs.org>

eBase – www.ebase.org

eTapestry - www.etapestry.com

DonorPerfect – www.donorperfect.com

Raiser's Edge – www.blackbaud.com

Sage Fundraising – www.sagenonprofit.com/products/fundraising/default.aspx

LET RIVER NETWORK HELP YOU KEEP YOUR HEAD ABOVE WATER.

Join the River Network Partnership and connect to the information and resources you need to stay afloat!

- **Access our River Source Information Center with the 1-800 hotline:** Let us help you research a particular issue and put you in touch with the necessary contacts and resources through one-on-one consultations.
- **Log onto our Partner-only website:** Browse the updated postings of funding sources, upcoming events and trainings, and download river clipart.
- **Receive the myriad of Partner benefits,** including subscriptions to *River Voices* and *River Fundraising Alert*, a copy of the *Directory of Funding Sources for River and Watershed Conservation Organizations*, and a copy of either *Starting Up: A Handbook for New River and Watershed Organizations* or *How to Save a River...* and more!



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SIGN ME UP!

Annual Partner Dues are only \$100

Organizational Partner Agency/Tribal Partner Individual Partner

Name _____ Phone () _____

Org/Agency _____ E-mail _____

Address _____

City _____ State _____ Zip _____

My check is enclosed

Please charge my credit card: VISA MasterCard

Card# _____ Exp. Date _____

Signature/Name on card: _____

You will receive your initial set of Partner materials, including your choice of: (check one)

- How to Save a River* *Starting Up: A Handbook for New River and Watershed Organizations*
 River Talk! *Listening to Watersheds* *Testing the Waters*

Please make your check payable to River Network and return this form to:

River Network, 520 SW 6th Ave., Suite 1130, Ptld., OR 97204-1511 Phone: 503/241-3506

River Network works to support you and your needs. We provide training and technical assistance to our Partner groups. River Network does not promote legislation or represent your organization in legal matters.



River Network

Connecting People, Saving Rivers

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Portland, Oregon 97204-1511

ADDRESS SERVICE REQUESTED

New Book Announcement from River Network

Cancer Downstream

A Citizen's Guide
to Investigating Pollution/
Health Connections

and asthma, gastro-intestinal illness, skin problems, learning disabilities . . .



Photo © Earl Dater

Forward by Lois Gibbs

By Steve Dickens
River Network

Pricing is \$20.00 per copy for River Network Partners. Others \$25. Add \$5.75 for shipping and handling per copy. Multiple order discounts are available.

Visit River Network's marketplace at www.rivernetwork.org/marketplace or contact River Network Press, 503- 542-8391, jhamilla@rivernetwork.org.

By Steve Dickens

*Healthy Waters, Healthy Communities Director
at River Network*

Here is a resource that communities have been waiting for: A guide to investigating connections between community health problems and pollution. Whether initial pollution discharges are found in the air, soil or water, that contamination can easily affect human health "downstream."

This guide is inclusive in addressing the myriad of situations that community groups confront, while at the same time limiting options so that the process does not become overwhelming. The guide provides unique solutions for your problems.

Whether you are a concerned neighbor or a veteran activist, you will want a copy of "Cancer Downstream."

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"Why do we have a cancer epidemic and suffer from so many illnesses? With this much needed guide, communities can finally begin to see the link between the illnesses their families are suffering from and the dumping of tons of toxic chemicals by the industries of this country. An indispensable guide for all who want to help Americans to live healthier lives."

Jewel Crawford, MD, Medical Director, Office of Urban Affairs,
Agency for Toxic Substances and Disease Registry (ATSDR)
