

# Creating an Effective Volunteer Monitoring Database

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Data management techniques and lessons learned

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National Water Quality Monitoring Conference | May 4, 2016

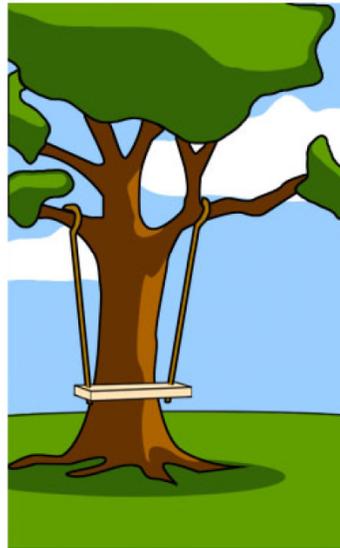
Holden Sparacino | Alliance for Aquatic Resource Monitoring

# So you want to build a database...

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What the customer wanted



How the customer described it



How the developer understood it



What the customer needed

# Take a step back

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Plan your database



Implement your plan



Create the database



Release the database



# ALLARM's timeline

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- June 2010: Shale gas program launched
- January – July 2012: Developed database proposal
- October 2012: Awarded \$65K grant to develop database
- October 2012: Rejected offer, won \$5K for design instead
- 2013: Designed database for proposal
- September 2014: Created revised database proposal
- January 2015: Won \$20K to develop database (citsci.org)



# Planning your database

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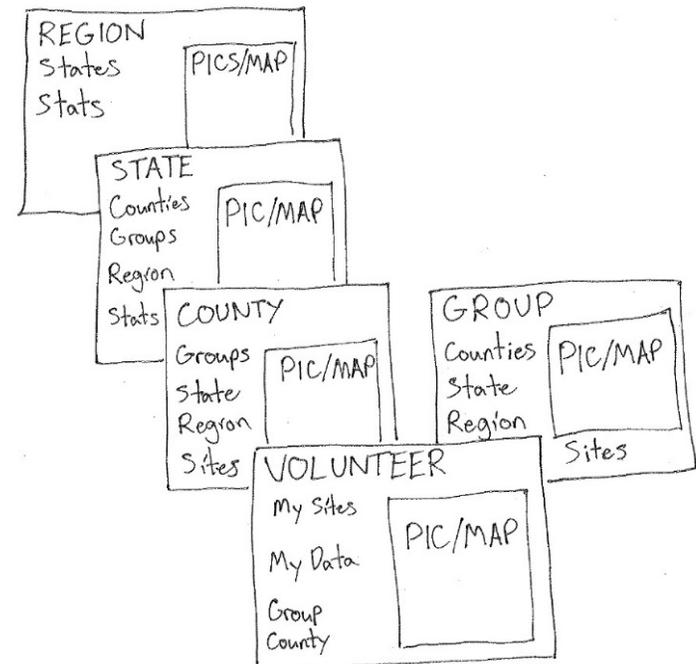
- What is the state of your data and program?
- Talk to experienced stakeholders



# Planning your database

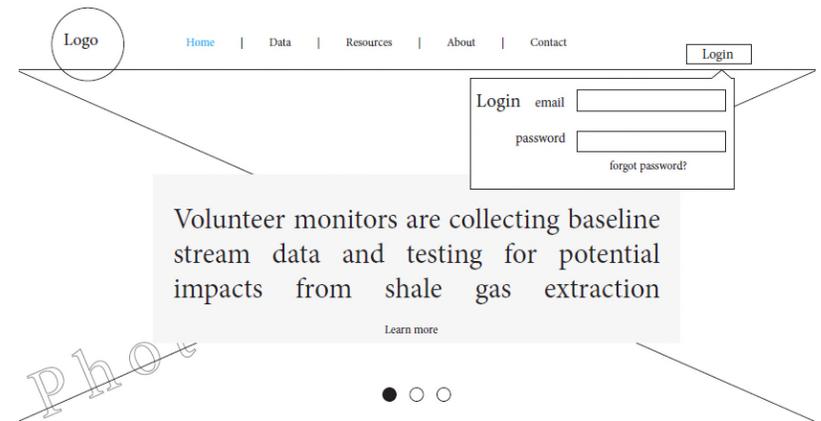
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- What functionality do you want, and what do you need?
- What tools need to be built, what can be leveraged?

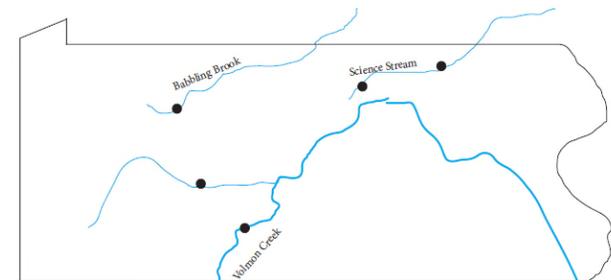


# Implementing your plan

- Communication among the teams is key
- Integrate data cleaning into your plan



This is their database



# Creating the database

- What are your quality assurance measures?
- Lay the groundwork for rolling out the database

Select a county to view its data:  
-- Select County --

**Local Data (Westmoreland County)**

Data

County Name: Westmoreland  
14 Members  
20 Sites  
281 Observations  
1,164 Measurements  
36 QA/QC reports

Resources

QA/QC Form [Submit Data](#)  
Field Data Sheet  
Shale Gas Manual [Download Data](#)  
Workshop Presentations  
Meter Directions  
More Resources

Sites

Show 10 entries

Site ID	Last Observation	# Observations	Latitude/Longitude	Options
STERUN 2.04	April 26, 2016	12	40.449215, -79.629561	
STERUN 2.71	April 26, 2016	26	40.453647, -79.620658	
UNTBUCRE 0.41	March 21, 2016	8	40.37272, -79.73981	
BYERUN 0.89	October 24, 2015	8	40.388202, -79.683093	
UNTTINRUN 1.57	October 21, 2015	21	40.314638, -79.694373	
LITSEWCRE 7.84	October 19, 2015	21	40.26861, -79.661694	
UKW 021	October 19, 2015	21	40.227711, -79.608865	

Showing 1 to 7 of 20 entries

**Data Entry Form**

Select a location: TESTSITE

Sampling date and time: 05/01/2016 4:51 PM

Time spent sampling: minutes

Meter calibrated? --Select--

Conductivity replicate 1: Cond rep 1 replicate 2: Cond rep 2 average:   $\mu\text{S}/\text{cm}$

Total dissolved solids (TDS) replicate 1: TDS rep 1 replicate 2: TDS rep 2 average:   $\text{mg}/\text{L}$

How did you measure stream stage? --Select--  
From the stream  
From a bridge

Weather: --Select--

Precipitation: --Select--

Precipitation last 48 hours: --Select--

Did you look for visual observations? --Select--

Other observations, or details?

Would you like to upload a --Select--



# Creating the database

- What are your quality assurance measures?
- Lay the groundwork for rolling out the database

Sites

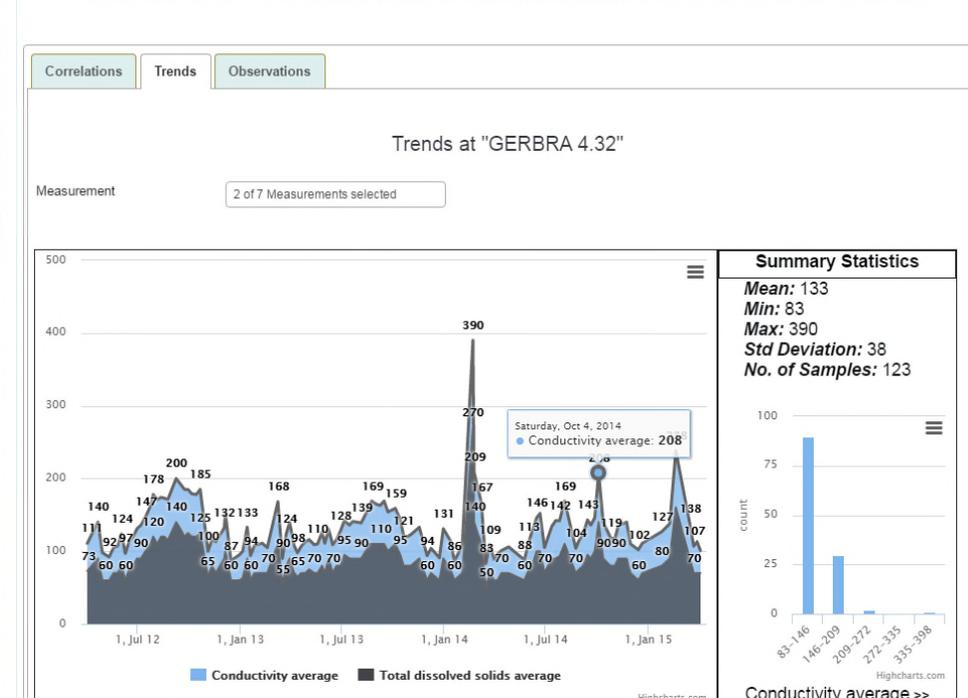
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Search:

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Showing 1 to 7 of 20 entries

Previous 1 2 3 Next



# Releasing your database

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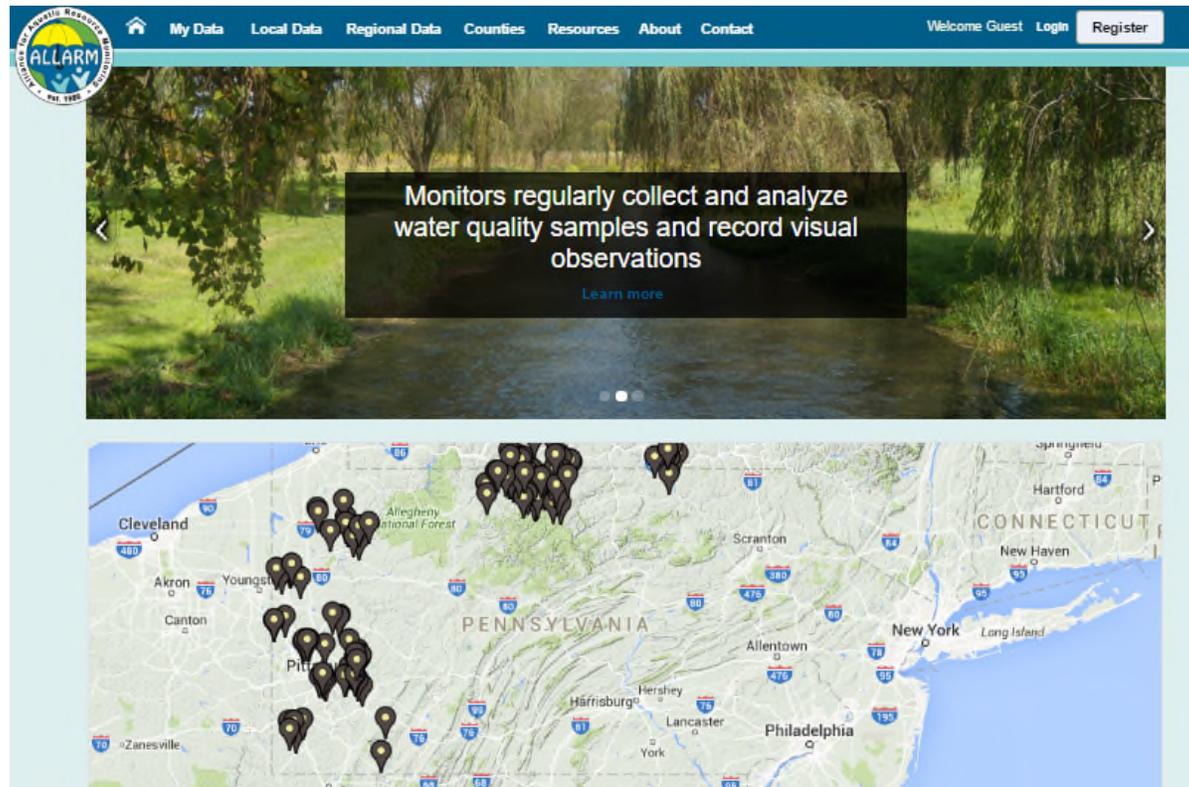
- In-person trainings are ideal
- Consider a slow rollout/testing



# Where are we now

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- Creating online tutorial for all monitors to use
- Fixing bugs and uploading remaining data



allarmwater.org

# Lessons learned

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- Use current knowledge and experience
- Communicate all needs clearly throughout team
- Start planning for your launch early



# Questions?

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Alliance for Aquatic Resource Monitoring (ALLARM)

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