

Watercraft Inspection Data Collection in Wisconsin Using a Custom Mobile Application

Tim Campbell, Erin McFarlane, Brian Ploeckman



#UMISC2016

CBCW Data Collection

CBCW Data Collection

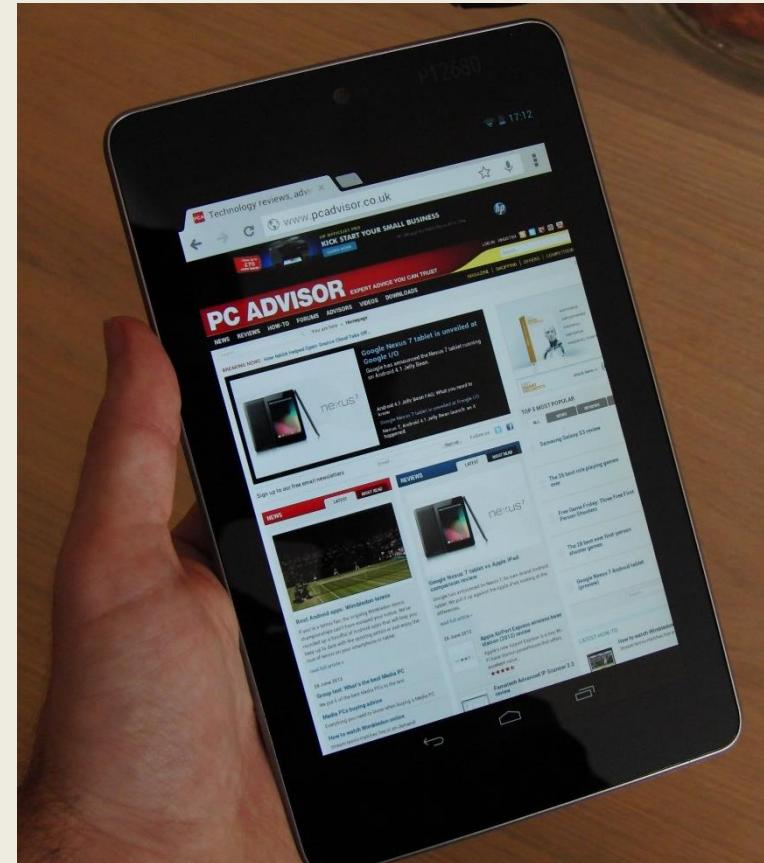
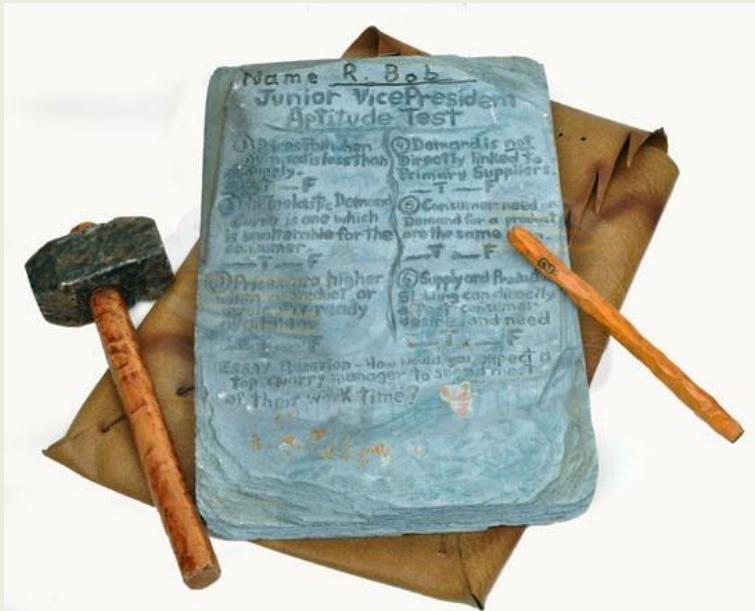
Start Inspecting

View Past Data

Close Application



Let's meet people where they are

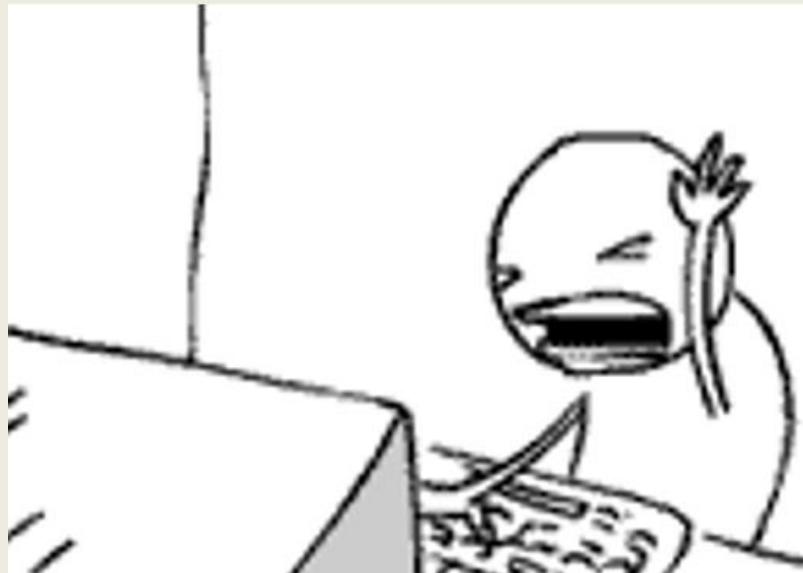


Project Goals

- Make CBCW data collection and reporting easier and more efficient
 - More timely collection of data
- Allow inspectors to spend more time out at the landing
- Better accountability for grantees

Project Goals

- Less time managing data in an office
- More time at the landing talking to boaters



Creating Our Own vs 3rd Party App



- Business
- Licenses & Regulations
- Recreation
- Education
- Contact
- Join DNR
- Search or Keywords

Surface Water Integrated Monitoring System (SWIMS)

Welcome to the Surface Water Integrated Monitoring System (SWIMS), a Wisconsin DNR information system that holds chemistry (water, sediment), physical, and biological (macroinvertebrate, aquatic invasives) data.

SWIMS is the state's repository for water and sediment monitoring data collected for Clean Water Act work and is the source of data sharing through the federal [Water Quality Exchange Network](#) [Exit DNR]. DNR Fisheries and Water Quality Biologists use the system to locate monitoring stations, providing a gateway to final, reviewed fisheries management datasets housed at the U.S. Geological Survey. SWIMS is also the data system that citizen volunteers use to document water monitoring results for our state's lakes, streams and wetlands.



Little St.Germain Lake, L. Helmuth

Access the system

Non-DNR General SWIMS Users log in [here with your WAMS ID and Password](#).

WDNR SWIMS Users log in [here with your WAMS ID and Password](#).

Questions? Email [Jennifer Filbert](#) or [Matt Rehwald](#)

Citizen Based Stream and Lakes Volunteer Monitors used SWIMS to record their data since 2007!! For more information about these outstanding monitoring programs see the links below. A special note: When entering your Citizen Lake Monitoring data online, please use our new address: <http://dnr.wi.gov/lakes/clmn-data>.

SWIMS

- SWIMS help guides**
About the SWIMS database.
- SWIMS data model**
Projects, monitoring stations, fieldwork events, finding data.
- Surface water viewer**
- Great Lakes data**
Beach stations, projects, grants, and data.
- River & stream data**
Stations, projects, results.
- Wetlands data**
Wetlands data in SWIMS.
- Aquatic invasives**
Aquatic invasives in Wisconsin.
- Citizen lake data**
Explore citizen lake monitoring datasets.
- Citizen stream data**
Volunteer stream monitoring.
- Wisconsin Data Exchange**

Contact information

Creating Our Own vs 3rd Party App

- Own App
 - High cost up front
 - Smaller update fees after
 - Data goes directly into database
 - Easier for our volunteers to access
- 3rd Party
 - Yearly subscription fee
 - Support from 3rd party
 - Data would still need added to SWIMS
 - Password for service

CBCW Mobile Application Phase 1

What it does

- Collects and summarizes data
- Keeps records
- Automatically calculates time spent
- Autodetects location and suggests closest locations
- Works offline

What it doesn't do (yet)

- Automatically upload data
- Incorporate pictures into inspections
- Work on iOS devices

Mobile App Flow



CBCW Data Collection

CBCW Data Collection

Start Inspecting

View Past Data

Close Application



Start Screen



Inspector Name	Tim Is Awesome	
Paid or Volunteer	Paid	
Date	10-15-2016	
Time	11:32:38 AM	
Location	- Access at End Of Rocky Lake Rd	
Coordinates	43.0855 -88.9192	<button>UPDATE</button> <button>Start Inspecting</button>

Data Collection

CBCW Data Collection

Watercraft 1

Add Comment

NEXT

FINISH

This boat is... Entering Leaving

Have you been on another body of water in the past 5 days? Yes No

Willing to answer a few questions... Yes No

QUESTIONS

30

Number of people contacted

I feel confident that the people contacted understood the steps necessary to prevent the spread of AIS

No Answer Strongly Agree Agree Disagree Strongly Disagree

CBCW Data Collection

Tim Is Awesome Inspection Summary for 10-15-2016

Inspected: 3

Other waterbodies visited by boaters:

Contacted: 14

Lake Michigan, county

No Answer: 0

Strongly Agree: 3

Agree: 0

Disagree: 0

Session Comments:

Strongly Disagree: 0

it was sunny out

Hours Spent: 0.00

Started: 10/15/16 11:34 AM

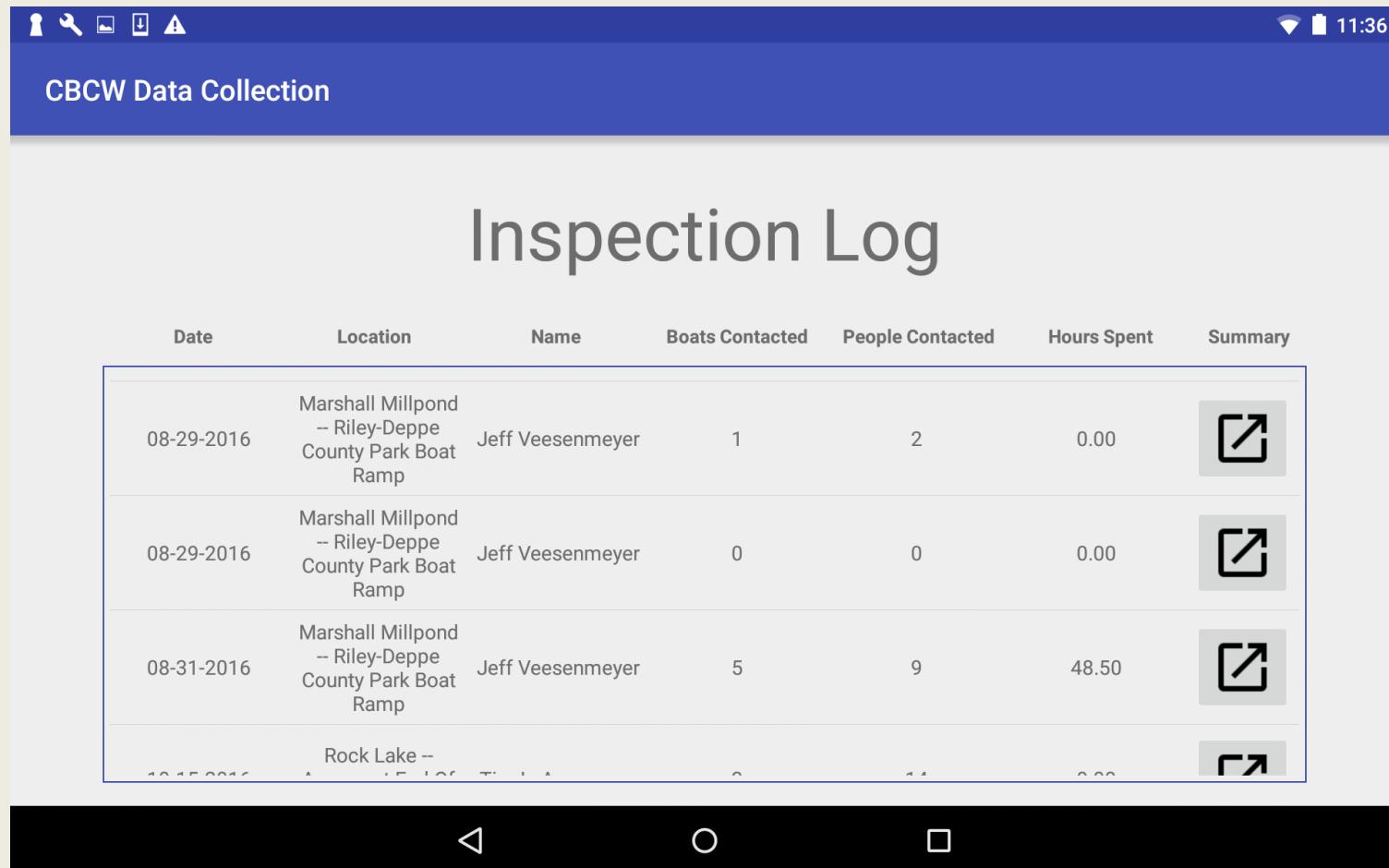
Completed: 10/15/16 11:35 AM

Close Application

Main Menu

Data Summary

Data Collection



CBCW Data Collection

Inspection Log

Date	Location	Name	Boats Contacted	People Contacted	Hours Spent	Summary
08-29-2016	Marshall Millpond -- Riley-Deppe County Park Boat Ramp	Jeff Veesenmeyer	1	2	0.00	
08-29-2016	Marshall Millpond -- Riley-Deppe County Park Boat Ramp	Jeff Veesenmeyer	0	0	0.00	
08-31-2016	Marshall Millpond -- Riley-Deppe County Park Boat Ramp	Jeff Veesenmeyer	5	9	48.50	
	Rock Lake --					

CBCW Data Collection

Tim Is Awesome Inspection Summary for 10-15-2016

Inspected: 3

Other waterbodies visited by boaters:

Contacted: 14

Lake Michigan, county

No Answer: 0

Strongly Agree: 3

Agree: 0

Disagree: 0

Session Comments:

Strongly Disagree: 0

it was sunny out

Hours Spent: 0.00

Started: 10/15/16 11:34 AM

Completed: 10/15/16 11:35 AM

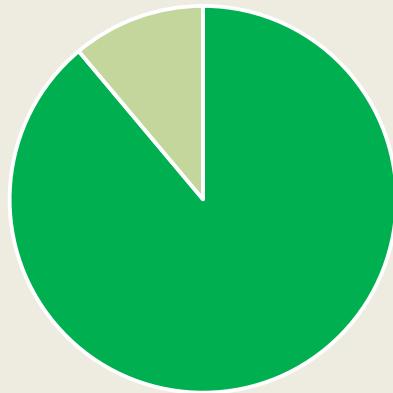
Close Application

Main Menu

Data Summary

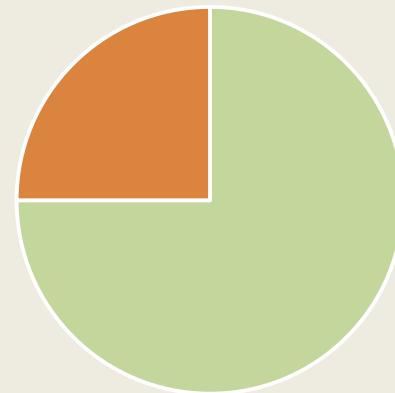
How did people like it?

How easy was the paper form to use?



■ Extremely easy ■ Somewhat easy

How easy was the app to use?



■ Somewhat easy ■ Somewhat difficult

Comments to improve the app included:

- Add ability to automatically upload data
- Make sure all of the questions are there
- Make sure data is safe; make it hard to accidentally back out

How did people like it?

	Paper Form	No Preference	Mobile App
Ease of Use	8	1	1
Enjoyed Using	1	5	2
Ability to Interact with Boaters	3	5	1
Ability to Collect Additional Information	8	1	0
Data Security	6	2	1
Ease of Uploading Data	3	3	2
Ease of Uploading Data (Auto)	0	1	8

Other Things We Heard/Learned

- Data security is important
- Clipboard feels like a survey
- People worried about the tablet
- Brightness/battery life
- Training was easy and hard
 - People know how to use an app
 - Maybe “checked out” & didn’t pick up quirks

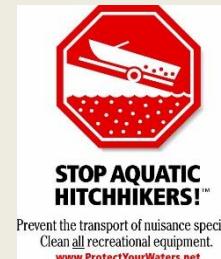
Timeline

- 2016
 - Limited pilot with mostly paid inspectors from UW-Oshkosh and UW-Sea Grant; other interested parties
 - No SWIMS integration
- 2017
 - Expanded WI AIS Partnership usage. Mostly paid inspectors, some volunteer.
 - Possible development of iOS version
 - SWIMS integration and auto-upload once the tablet is connected to internet
- 2018
 - App available for download on Apple app store and Google Play by anyone; SWIMS ID needed to access the app once it is downloaded
 - Online training materials for CBCW volunteers & staff



What are your questions?

Tim.Campbell@wisc.edu
@t_campy
#UMISC2016



Prevent the transport of nuisance species.
Clean all recreational equipment.
www.ProtectYourWaters.net



Nuts & Bolts of the UWEX Tablets

- Google Nexus 7 2013
- GPS sensor
- WiFi only
- microUSB charger
- Auto detect brightness
- You could just set it to the highest setting
- Cases?

Nuts & Bolts of the UWEX Tablets

- Signed in to a shared WisconsinAIS@gmail.com account
- Do not send any emails or communications from the device
- Do not download any additional applications to the device
- Do approve system and app updates
- These will be shared with people statewide
- Don't add personal information unless you want everyone else to have it