**Automatic Notification System**

Updated 5/18/2018

See also, X:\Projects\Flagging\Public Notification\Flagging\_Email\_Web\_Instructions\_2018.doc

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## Change Log

When you make changes to the system please fill in this change log. We started this log 8/30/2016 so previous changes are not consistently included. Line numbers are approximate.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Date | Name | Change Made | Reason | Temporary? |
|  | Lisa Kumpf |  |  |  |
| 7/12/2018 | Elisabeth Cianciola | Replaced “yellow” with “red” 20 times in scripts php. | CRWA flag color policy changed | No |
| 5/21/18 | Alexandra Ash | I updated the links/iframes to the images, map, and last updated to reflect the new https in Hubspot  I fixed some of the links inside the map code https://notification.crwa.org/wqmodel/boathousemap.php to reflect the https urls. | Installed SSL certificate and using https | no |
| 5/18/18 | Theo Collins | Change thresholds in Reaches 3,4 from 0.6 to 0.65. | Reported false positives in those areas in 2017. | No |
| 8/25/2017 | Alexandra and Elisabeth | In archive\_repeatingcode changed lines 308-320 so that the threshold for red flags was at .65 instead of .6 for region 2 | Red flags were being predicted when no precipitation |  |
| July 13 2015 | Alexandra | In archive\_repeatingcode changed lines 308-320 so that the threshold for red flags was at .6 instead of .7 for regions 2, 3, and 4 | Red flags were being under predicted. |  |
| June 2017 |  | Replaced "is\_null($flowset[$x])==FALSE && " from row 340 of archive\_wqmodel .php | Flow returned to normal | No |
| June 2017 |  | Reassigned Harvard Weld Boathouse to reach 3 in archive and map | Flow returned to normal | No |
| February, 2016 | Ben | Changes in how data is retrieved from Hobolink | Hobolink changed their processes | No |
| July, 2016 | Alexandra | Changed the reach for Harvard Weld Boathouse (archive\_wqmodel.php line 416).  changed the reach of Harvard Weld boathouse to ModReach 2, and commented out ModReach 3 | Due to drought and low flow, the model was giving inconsistent results for Harvard Weld (the only boathouse using flow) | Yes, change back when flow returns to normal. |
| 8/10/16 | Alexandra | Changed the column names in archive\_repeatingcode.php.  Fixed some bugs (see emails from Ben for details) | USGS changed their columns | No |
| 8/29/16 | Alexandra | Removed "is\_null($flowset[$x])==FALSE && " from row 340 of archive\_wqmodel .php | Due to drought flow data from USGS gauge was inconsistent. Removing this text allowed website to be updated without flow data. | Yes, replace when flow returns to normal. |
| 8/31/16 | Alexandra | In boathousemap.php line 52-57 changed the reach of Harvard Weld boathouse to ModReach 2, and commented out ModReach 3 | To change the region of Harvard Weld boathouse on the map so that it would be consistent with webpage | Yes, change back when change Harvard Weld reach. |
| 11/9/16 | Alexandra | Updated the weather station page to note that the water temp doesn’t record accurately in the winter. On the hobolink configurations removed the graph of the battery and of the water temperature. | The sensor was removed from the water without being unplugged. | Replace the graph of water temp during the season and move the sensor back up in the list under air temp. |

## Accounts and Passwords – will give to volunteer

**Hubspot**

www.hubspot.com

**Hostgator (cpanel, phpmyadmin, database, FTP)**

[www.crwa.org/cpanel](http://www.crwa.org/cpanel)

**Database**

crwa\_notification

The database can be accessed through the cpanel (see above) or through a user account. Additional user accounts can be created under my sql databases in the database section of the cpanel.

**Backend of notification system**

http://notification.crwa.org/backend/

**Admin Key**

<http://notification.crwa.org/backend/evententry.php>

http://notification.crwa.org/backend/runarchive.php

Change if necessary directly in the keys.txt file (see below)

**Hobolink (weather station)**

Website: <https://www.hobolink.com/>

## Changing passwords

See the [updating code section](#_Updating_Code) for additional information on accessing and updating the keys.txt file.

If the password to the database, weather station, or website changes, you need to update it in the code. To update user names and passwords for scripts (database, admin, weather station):

1. Follow the instructions in the [updating code section](#_Updating_Code) until step 6-b. Open the “keys.txt” file and manually change the user name and password. Then save the file in the same location. Note that the user name and password are automatically encrypted in the file, so you can’t read them. Just replace the encrypted text with normal text. The automatic scripts will automatically encrypt the new values on the next scheduled run. Be sure to place a “,” between each value. Example file:

## Maintenance Tasks

|  |  |  |  |
| --- | --- | --- | --- |
| **Task** | **Frequency** | **Person Assigned** | **Files** |
| Check that all systems are working correctly | Daily | Daily flag checker. Report issues to staff scientist. |  |
| Backup website files | At the beginning and end of each season, and before and after any changes is made to the files. |  | Save here: X:\Projects\Flagging\Automatic Website\Backups and Previous Versions |
| Download and archive data | Weekly | Rita Barron Fellow | \\Ts-xele4a\crwadata\Projects\Flagging\YEAR\Data\Model |
| Delete old model data from online database | Before start of season |  | Save files:  ??? |
| Updates | As needed |  |  |
| Publish and Unpublish **Field Science - Water Quality Notification Program - Live Updates** | Beginning and end of each season |  |  |
| Update models and thresholds | As needed |  |  |

### To check systems:

1. Hobolink: Elisabeth receives alerts when the hobolink has trouble connecting.
2. Check that the archives are being correctly run: <http://notification.crwa.org/backend/archivelog.txt> It should say “Archiving job finished successfully”. The newest entries are at the bottom of the document.
3. Check that the data in the database looks correct
   1. Log into crwa.org/cpanel
   2. Navigate to Databases 🡪 PHP my admin
   3. Click the boxes on the left to navigate to the database and tables
   4. Click on rawdata to load the table and check that it is up to date and that none of the numbers seems way off (for example -85 degrees water temperature)
   5. Do the same with the modeldata table
4. Check <http://www.crwa.org/field-science/water-quality-notification> that the updated date is in the last couple hours and that the flags seem reasonable.

### Backup website files:

1. Use Filezilla or the ftp software of your choice. Filezilla can be downloaded for free from <https://filezilla-project.org/> Below are instructions for Filezilla
2. Host: crwa.org username: crwa password: see above account section. Select quick connect
3. On the left side (your computer) navigate to X:\Projects\Flagging\Automatic Website\Backups and Previous Versions.On the right side, navigate to /public\_html and find the folder called “notification.”
4. Drag folder from the right to the left side and wait for it to copy.
5. On the file server rename the folder Flagging\_Website\_Backup\_mm\_dd\_yyyy

### Download and archive data

See X:\Projects\Flagging\Public Notification\Flagging\_Email\_Web\_Instructions\_2018.docx

### Delete old model data

In order for the scripts to run in a reasonable time, the older model data needs to be removed at the start of each season

1. Log into crwa.org/cpanel
2. Navigate to Databases 🡪 PHP my admin
3. Click the boxes on the left to navigate to the database and tables
4. Download and save all the data tables (see above)
5. In the excel sheet find the first entry for May of the current year and determine the ID number associated with that row. (not the row number, but the ID number)
6. In phpMyAdmin select model data and select SQL along the top.
7. Enter the query: DELETE FROM `modeldata` WHERE `indx` < 13
8. Choose “simulate query” If the results seem reasonable then select GO to delete the data.

### Unpublish Field Science - Water Quality Notification Program - Live Updates

At the end of the season or when the automatic system is not working correctly.

1. Navigate in hubspot to website pages.
2. Edit the page Field Science - Water Quality Notification Program - Live Updates and change the url by adding live-updates at the end of it. Click through the warning messages and update the page.
3. Unpublish the page. On the website pages list click the gear and select unpublish.
4. In the website pages list navigate to the page that you will be replacing it with (**Field Science - Water Quality Notification Program - Off Season** or **Field Science - Water Quality Notification Program – Manual).** Edit this url to be <http://www.crwa.org/field-science/water-quality-notification> (if it isn’t already) and publish the page.
5. Check that the page works correctly. Check that both <http://www.crwa.org/field-science/water-quality-notification> and [www.crwa.org/flagging](http://www.crwa.org/flagging) direct you to the correct page. (If not you may have to edit or delete the redirects)
6. Update the content on the off-season or manual update page as needed.
7. When it is time to republish the live updates page, follow these steps again, but this time unpublishing the off-season or manual page and publishing the live update page.

## Updating Code

Following are basic instructions for accessing and updating the code of the water quality website. You may need to do this to update passwords, to change the model or thresholds, or to make other changes. Note: if you find that you are having to make a lot of changes, you may choose to use a more streamlined method for this such as Adobe’s Dreamweaver or comparable. However, because we only make a few edits a year, I found this manageable. Also, if many changes will be made, consider using version control software such as Git. But again, because the project is mostly static, at this point it probably isn’t worth it.

1. If you don’t already have a code editor installed, download Atom <https://atom.io/> or a similar editor.
2. Create a backup of the existing website following the [backup website files](#_Backup_website_files:) instructions.
3. Navigate to X:\Projects\Flagging\Automatic Website\Backups. Make a copy of the folder you just saved in step 2, and rename the copied version.
4. Open Atom and select File 🡪 Add Project Folder
5. Navigate to the new folder you saved in step 3 and select open. The folders and files will display on the left hand side.
6. Navigate to the file you need to update. Click the folder icon to view what is inside it. Double click the file to open it.
   1. The files that contain the code that runs the model are all saved in the “scripts” folder.
   2. To update [passwords](#_Changing_passwords): open” keys.txt” inside the “scripts” folder.
   3. To update the thresholds above which to display red flags:
      1. Inside the scripts folder open archive\_repeatingcode.php
      2. Find the section that starts with “switch ($ModReach)” (it is probably around line 307).
      3. Inside the switch statement there is a case for each region. For each region there is an if statement that determines when red flags fly. Change the threshold as needed. (For example from 0.6 to 0.65 for each reach)
   4. To update the models/formulas that estimate water quality conditions:
      1. Inside the scripts folder open archive\_wqmodel.php
      2. This document contains accesses the data and calculates the variables and the model.
      3. Update as needed depending on what is changing. The model formulas start around line 378.
7. Once you have made your changes, save your files(s) and quit Atom.
8. Navigate back to Filezilla. Select the refresh button.
9. On the left hand side (where the files on your computer are) navigate to the file(s) that you just updated.
10. On the right hand side (on the website) navigate to the folder with the file you just updated. (See the [backup instructions](#_Backup_website_files:) for more detail)
11. Drag the updated file from the left to the right hand (website) side. It will ask if you would like to overwrite and select OK.
12. If you updated multiple files, repeat with the others. (Alternatively, you could upload the entire folder if you edited many files).

## Troubleshooting

The first step to troubleshooting is to determine where the site is broken and then find the appropriate solution. Follow this guide for finding and fixing problems that we have recently encountered.

1. Check that the archive is running and running correctly. (See step 2 under To Check Systems, above).
   1. Check that the archive is running automatically. There should be a new entry every hour. If there are not, then something may be wrong with the cron job - it may not be running.
   2. Check that the archiving job is running correctly. At the end of each entry it should say “Archiving job finished successfully”. If the job didn’t run correctly it will either provide an error message or be blank.
   3. Possible problems could be a problem with the code or a change in passwords that was not reflected in the keys.txt document (see section on changing passwords below), or missing data (see next step).
2. Check that the data from Hobolink and the Waltham USGS gauge are successfully being downloaded and are correct (see step 3 under To Check Systems, above) If data are missing, the archive job will sometimes still run successfully, but will not update the time or flags.
   1. If data from one of the sources are not being downloaded, there is probably a problem with that source. The Waltham gauge sometimes has gaps in data.
   2. Check that no changes were made to the data source. For example, if the name of a column changed, you will have to change the corresponding name in the code.
   3. If data from Hobolink is missing or inaccurate, check that the Hobolink hardware or software is working correctly.
3. Check that the model is correctly predicting the colors. Check the modeldata table (see To Check Systems step 3 above)
4. Check the prediction is correctly being displayed in Hubspot.

## Disabling Automatic System and Replacing with Manual System

If the automatic system is not working correctly, it may be necessary to replace the automatic updated webpage with a manually updated webpage while the automatic system is being fixed.

In Hubspot the manual page is titled “Field Science - Water Quality Notification Program - Manual Updates”. Unpublish the page titled “Field Science - Water Quality Notification Program - Live Updates” and replace it with the Manual page at the same URL <http://www.crwa.org/field-science/water-quality-notification>. [See above for steps](#unpublish).

The data and flag colors on the manual page are edited by hand, similarly to the email. The static images are saved in Hubspot in the folder Flagging\_Files and are saved as Blue-Flag.jpg, Yellow-Flag.jpg and Red-Flag.jpg. They need to be sized to 75 by 75 px.

## Site Structure

Overview: Php scripts collect data from the weather station and public sources, calculate the predicted flag colors and save both the raw data and processed data to a mysql database. Cyanobacteria blooms and CSO events are entered manually. A php script determines the flag colors and names the correct flag (red, blue, yellow) with the corresponding boathouse name.

***Datasources***

**CRWA’s Weather Station/Hobolink:**

Onset is the company that sells the HOBOlink software that we use to transmit data from HOBO data loggers through a cell phone plan. They produced a guide for operating weather stations: [\\Ts-xele4a\crwadata\Projects\Flagging\Model\Weather\_Stations\_Guide.pdf](file:///\\Ts-xele4a\crwadata\Projects\Flagging\Model\Weather_Stations_Guide.pdf)

Webpage: <https://www.hobolink.com/>

**USGS Waltham Gage**

Stream discharge data are recorded every 15 minutes. Flow is impacted by the number of boards that are in place at the Moody Street Dam. DCR controls this.

Webpage: <http://waterdata.usgs.gov/nwis/uv?site_no=01104500>

***Database***

crwa\_notification is hosted on crwa’s domain (crwa.org) which is hosted on hostgator. See above for account information. It consists of 3 tables.

**Table: rawdata**   
This table stores all of the basic sensor data from the CRWA’s weather station at Community Boating (denoted by CharlesCB in the site column in the table) and the USGS Waltham flow gauge (donated by CharlesWalthamUSGS in the site column).

**Table: eventdata**

This table maintains records of CSOs and cyanobacteria blooms

**Table: modeldata**

This table is an automatically generated table with model calculations and prepared data.

***Hostgator Pages: http://notification.crwa.org/***

The “backend” of the automatic notification website is hosted through our Hostgator account in its own subdomain <http://notification.crwa.org/>

You can access and make changes by loading the site into Adobe Dreamweaver

Or you can log in to the Cpanel with CRWA’s Hostgator credentials

backend

archivelog.txt

eventchange.php

evententry.php

events.html

eventsearch.php

lastupdate.txt

runarchive.php

images

flags, etc.

scripts

archive\_repeatingcode.php

archive\_wqmodel.php

archive\_wqmodeltrigger.php

keys.txt

wqmodel

boathouseflags.php

boathousemap.php

charlesflags.php

charlesWS.html

lastflagupdate.php

**Automatic Notification Backend**

<http://notification.crwa.org/backend/events.html>

This is where interns and CRWA staff will input the information for cyanobacteria blooms and CSO’s

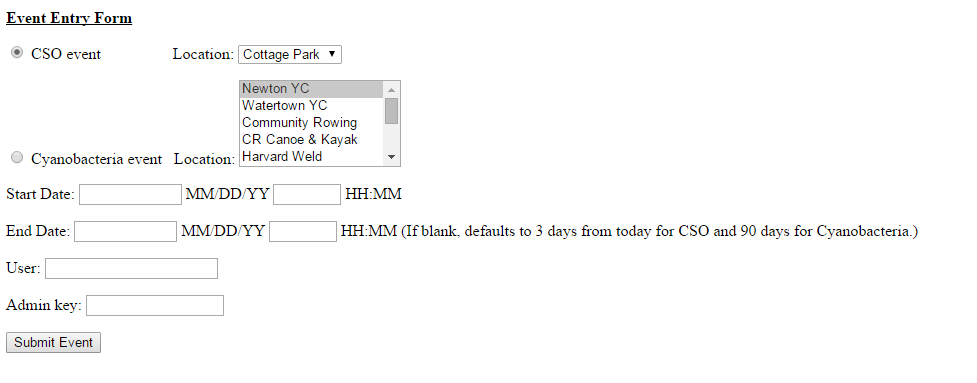
This section will need to be password protected.

*Wish-list item: Automatic CSO updates*

1. Event Entry Form

<http://notification.crwa.org/backend/evententry.php>

This is the form where CRWA Staff or Interns log new cyanobacteria blooms and CSO activations



User: Your name

Admin key: wqmodel

To select several boat houses at once for a cyanobacteria bloom, use the ctrl key.

See the Flagging Email Web Instruction document for instructions of how to fill out this form. X:\Projects\Flagging\Public Notification\Flagging\_Email\_Web\_Instructions\_2016.doc

2. Event Search Form

<http://notification.crwa.org/backend/eventsearch.php>

Use this page to search for events (cyanobacteria and CSOs) to find the index number if you need to make changes

See the Flagging Email Web Instruction document for instructions.

X:\Projects\Flagging\Public Notification\Flagging\_Email\_Web\_Instructions\_2018.doc

3. Event Change Form

<http://notification.crwa.org/backend/eventchange.php>

Use this form to update events (cyanobacteria and CSOs

Have to enter updates for each boathouse.

X:\Projects\Flagging\Public Notification\Flagging\_Email\_Web\_Instructions\_2016.doc

4. <http://notification.crwa.org/backend/archivelog.txt>

Contains the archive of every job ran. You can see if any failed. Every night the USGS flow gage goes down for about an hour so for those times you will see “Flowgauge columns not identified,BM.,Archiving job did not complete”

5. Run Archive  
<http://notification.crwa.org/backend/runarchive.php>

If you need to manually run the archive script, use this page. Leave the Repost Data field with “no repost”. Use the Admin Key listed in the password section and select “Run Archive”

**Automatic Notification Scripts**

<http://notification.crwa.org/scripts/>

These are the php scripts that run the automatic updates. Please don’t edit unless you understand php. [You can find a php tutorial here.](http://www.w3schools.com/php/) The code will not be visible if you open it in a browser. You can view and edit in hostgator, dreamweaver (make sure to use code view) or a text editor such as notepad++.

1. **archive\_repeatingcode.php**

This is the code Ben wrote for reading the USGS gauge data and the weather station data. This script will need to be updated in the following circumstances

* If the USGS or weather station systems change, for example if the names of the columns in the data files change.
* If new variables are added to the model. If we add another variable we will need to create a new array to pull the correct data from the database.
* Red flags are flown when the probability that the bacteria concentration exceeds the water quality standard for boating exceeds a certain threshold. These thresholds are set in the section that begins with the comment “identifies which flag to fly based on model output and events.”

The function reads the data file on the Onset U30 (hobostation/weatherstation) and stores it in the table crwa\_notification.rawdata . (the table rawdata in the database crwa\_notification)

Next the script figures out the appropriate column number for each database. This is customized for our model, if we need to add another variable we will need to create a new array to pull the correct data from the database.

Hourly chunks are used.

2. **archive\_wqmodel.php**

This file holds the model and all of the main functions. Ben has commented the code to allow you to find the different sections.

Functions

**archive\_wqmodel()**

**archive\_boatingmodel**

Prepares data for CRWA's flags - boating limit, and stores in datatable "modeldata"

*Section: query database to get new CSO events*

**$cso\_hold = 48;** This is where you set how long after the “end” date and time you want the CSO advisory to continue.

* When entering a CSO event the “end time” is the time that MWRA indicates that the flow ceased (not the start time plus 48 hours)

*Section: calculate model for full history and update model data in database*

The function recreates the regression functions for the whole history based on the current model. This will retroactively change the color of the flags if you change the model, so before you change the model you need to make a copy of the data in the database and archive it. You can export it as an excel file. Directions for this are located in the document

X:\Projects\Flagging\Public Notification\Flagging\_Email\_Web\_Instructions\_2018.doc

The rest of the fields are updated only 15 days back.

Uses the data and the regression and calculates the prediction

3. **archive\_wqmodel\_trigger.php**

This calls the main script. This is what the cron job calls (see below).

4. **keys.txt**

This document contains the passwords. See password section for info on how to change.

***Cron Jobs***

A cron job is set up in cpanel/hostgator to run the scripts each hour. You can view these in cpanel 🡪 advanced🡪 cron jobs.

This likely never needs to be updated. It is currently set to run at the top of each hours.

***Hubspot Pages***

Automatic Notification webpages visible to the public .These pages are hosted in Hubspot. If we migrate away from hubspot these pages will need to be migrated as well.

1. **Field Science - Water Quality Notification Program - Live Updates**

<http://www.crwa.org/field-science/water-quality-notification>

Publish during flagging season. Unpublish during off season. The flag images are stored in http://notification.crwa.org/images/ (see below) and updated automatically by the script.

This page also contains an iframed map (see below), if you prevent the flag colors from automatically updating you will have to remove the map, since it will no longer match.

1. **Field Science - Water Quality Notification Program - Off Season**

Unpublish during flagging season. Publish during off season: <http://www.crwa.org/field-science/water-quality-notification>.

1. **Field Science - Water Quality Notification Program - Manual**

Publish only when automatic system is not working correctly: <http://www.crwa.org/field-science/water-quality-notification>.

1. **Field Science - Water Quality Notification Program – Data**<http://www.crwa.org/field-science/water-quality-notification-data>

This page needs to be updated weekly. See instructions in X:\Projects\Flagging\Public Notification\Flagging\_Email\_Web\_Instructions\_2016.docx

**Automatic Notification Images**

<http://notification.crwa.org/images/>

**Under normal circumstances you should never need to make any changes to the items in this folder.**

This folder includes image files for the red, blue and yellow flags. They are called blue\_flag.jpg, red\_flag.jpg, yellow\_flag.jpg. **Don’t change or update these files unless absolutely necessary.**

*If the project changes the icon for the flag colors, and you must update the flags, please size the new images to the same size as the current versions and give them the* ***exact same file names*** *as the current versions. Delete the current flags before you upload new ones.*

This folder also includes flag files for each boathouse. These images are automatically updated when the script runs with the correct flag color. **These images should never be changed manually!**

Note: Because Northeastern's Henderson Boathouse was under construction when the automatic website was build, it is not included in the code. Since the flags are usually changed only as a reach and not individually (except for Cyanbacteria) we just used the Charles River Canoe and Kayak Heter Park flag for Northeastern. When there is time Northeastern should be added.

**Iframed Elements**

Hubspot won’t allow custom php code on its site. Therefore any dynamic elements that are viewable on <http://www.crwa.org/field-science/water-quality-notification> are hosted at <http://notification.crwa.org/wqmodel/> on our hostgator servers and added to the webpage with the use of an iframe. Find information about iframes [here](http://www.w3schools.com/tags/tag_iframe.asp)

This folder also includes pages that are not currently in use. The layout of any of these pages can be modified as needed and additional pages can be created as needed.

1. **Boathouse Map**

<http://notification.crwa.org/wqmodel/boathousemap.php>

This map created by Ben is iframed into the page **Field Science - Water Quality Notification Program - Live Updates** at the bottom. It displays a map of the boathouses with the correct flag colors updated using php. The code in this file assigns regions to each boathouse independently from archive\_wqmodel.php, therefore if you change the regions in **archive\_wqmodel.php** you must also change the regions in this file.

2. **Charles River at Community Boating**

<http://notification.crwa.org/wqmodel/charlesWS.html>

This is an iframe of the Hobolink’s weather station display it is displayed on http://www.crwa.org/field-science/weather-station

3. **Last Flag Update**

<http://notification.crwa.org/wqmodel/lastflagupdate.php>

This states the date and time of the last time the model ran and updated the flag colors in the correct font and size for use on the **Field Science - Water Quality Notification Program - Live Updates** page where it is displayed via an iframe. The font and size can be easily changed as needed if the site is redesigned.

The iframe code:

<iframe style="border: none;" xml="lang" src="https://notification.crwa.org/wqmodel/lastflagupdate.php" width="400" height="50" scrolling="no"></iframe>

## The CPanel

Hubspot can only host subdomains (www.crwa.org blog.crwa.org etc.) so we use hostgator to host notification.crwa.org . When we migrate to a new website platform, if that platform can host the notification site and the crwa.org and charlesriver.org domains then we may choose to close the Hostgator account after making the transfer.

To log into CPanel

1. Navigate to https://gator3306.hostgator.com:2083/ or crwa.org/cpanel
2. Log in with the username and password.
3. To create and manage subdomains (for example notification.crwa.org)
   1. In Cpanel under “domains” select “subdomains”
   2. Update as needed
4. Website files
   1. The notification.crwa.org website files are hosted on hostgator.
   2. To access them from the CPanel navigate to Files 🡪 File Manager
   3. Select notification.crwa.org
   4. From here you can edit them directly or download them. My recommendation is to download via FileZilla, edit locally and upload. See sections on Backup Website Files and Updating Code.
5. Databases
   1. The database for the notification site “crwa\_notification” can be accessed through the CPanel. Additional databases may also be created for additional projects as needed. If the website is migrated to another platform, the database will need to be migrated too. There is currently one other database “crwa\_jmln1” I don’t know this is something we need, but didn’t want to risk deleting it. It probably does not have to be migrated when the site is migrated.
   2. In the Database section in Cpanel select MYSQL Databases to rename database, add users or add new databases.
   3. To view, edit or modify data select PHP MyAdmin.
6. Other Cpanel items
   * 1. Passwords can be set in the Preferences section
     2. D. Cron Jobs are located in the “Advanced Section”

## Documentation From Ben

Created 3 databases in mySQL server (crwa\_notification):

1. rawdata - this stores all of the basic sensor data from the Community Boating weather station and the Waltham flow gauge

2. eventdata - this is where you maintain records of CSOs and cyanobacteria blooms

3. modeldata - this is an automatically generated table with model calculations and prepared data

Hostgator structure

backend

archivelog.txt

eventchange.php

evententry.php

events.html

eventsearch.php

lastupdate.txt

runarchive.php

images

flags, etc.

scripts

archive\_repeatingcode.php

archive\_wqmodel.php

archive\_wqmodeltrigger.php

keys.txt

wqmodel

boathouseflags.php

boathousemap.php

charlesflags.php

charlesWS.html

lastflagupdate.php

Links to the various web components:

1. Enter CSO or Algae event <http://notification.crwa.org/backend/evententry.php>

2. Search CSO/algae events <http://notification.crwa.org/backend/eventsearch.php>

3. Update/Delete CSO/algae events <http://notification.crwa.org/backend/eventchange.php>

4. Trigger model update job (will run automatically every hour) <http://notification.crwa.org/backend/runarchive.php>

5. View log of automatic model update jobs <http://notification.crwa.org/backend/archivelog.txt>

6. View weather station live feed <http://notification.crwa.org/wqmodel/charlesWS.html>

7. View model report with graphs <http://notification.crwa.org/wqmodel/charlesflags.php>

8. Flags by boathouse for iframes <http://notification.crwa.org/wqmodel/boathouseflags.php>

9. I have created a page with the date of the most recent update. <http://notification.crwa.org/wqmodel/lastflagupdate.php>

To update user names and passwords for scripts (database, admin, weather station):

Open the “keys.txt” file and manually change the user name and password. Then save the file in the same location. Note that the user name and password are automatically encrypted in the file, so you can’t read them. Just replace the encrypted text with normal text. The automatic scripts will automatically encrypt the new values on the next scheduled run. Be sure to place a “,” between each value. Example file:

Process for archiving data from the RX3000:

1. Originally, the process for archiving data from the RX3000 weather station made use of a custom functionality set up by Onset in August 2015. The ReST functionality was discontinued with the RX3000s, but Onset set up a special ReST capability for us. Custom Data “Export\_to\_ReST” exports 2 days of data to a URL. It is updated every 30 minutes. This data is accessed through the following URL: <https://username:password@www.hobolink.com/apiv2/private/data/Export_to_ReST>
2. However, the above functionality stopped working in November 2016. As of November, a new ReST V2 functionality became available. This is documented in a new Developer’s Guide and described here: <https://webservice.hobolink.com/restv2>. It involves creating a Custom Data Export in Hobolink, and accessing this query with application/json functionality. A special token provided by Onset is required. We created the custom export “ReST\_Query”, which exports the latest 3 days of data.

## Equations and Variables