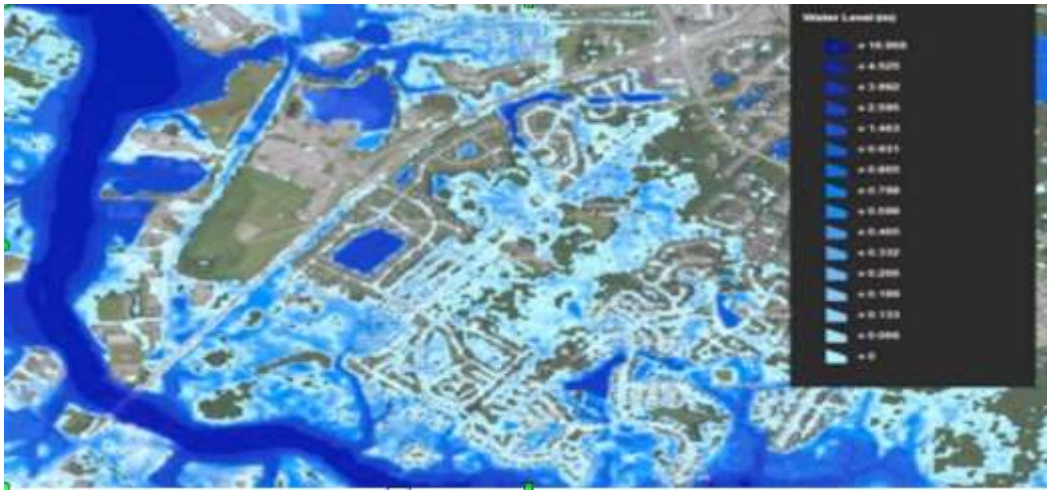
Flood Mapping



Building Resilience in Our Communities

Thursday 11/15/2018

CATCH THE KING 2018

CITIZEN-SCIENCE AND FLOOD MONITORING

Flood Mapping – Building Resilience in Our Communities

Flood Mapping in Our Schools an Overview –

- During the 2018-19 school year approximately fifty high school classrooms across WHRO's nineteen member school divisions will participate in an initiative to map flooding on school campuses and throughout neighborhoods.
- We are identifying "**Trouble Spots**" through the Sea Level Rise app that flood, cause traffic to be impeded or cause standing water to collect resulting in a variety of flooding hazards.
- You drop a pin and take a picture using your hand-held device with a data plan through the Sea Level Rise app.
- Pictures can also be annotated to "tell the story" of the flooding that is observed.

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School Flood Mapping – 2018/2019

128 Classrooms in 29 Schools within 9 School Divisions are participating in a combination of Flood Mapping and Catch The King data mapping initiatives.

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Flood Mapping – Building Resilience in Our Communities

Students in classrooms that are selected and perform the following steps/submit **Deliverables to WHRO** - will qualify for a five hundred dollar per classroom grant:

1. Have students in your classroom take measurements / Marking **Trouble Spots** through the Sea Level Rise app quarterly - Capture and submit data to WHRO (for 3 of 4 quarters)
   Catch The King data can be used for one of the quarterly submissions!
1. Develop a presentation of students' findings and present it to internal or external audiences - Send file to WHRO
2. Sign the pledge to be part of the solution to become a community that is resilient to the effects of flooding - Send pledge to WHRO

Note: Special consideration will be given to Title I schools.

Example Classroom Screenshot Submission

Teacher Name: Mr. Spencer

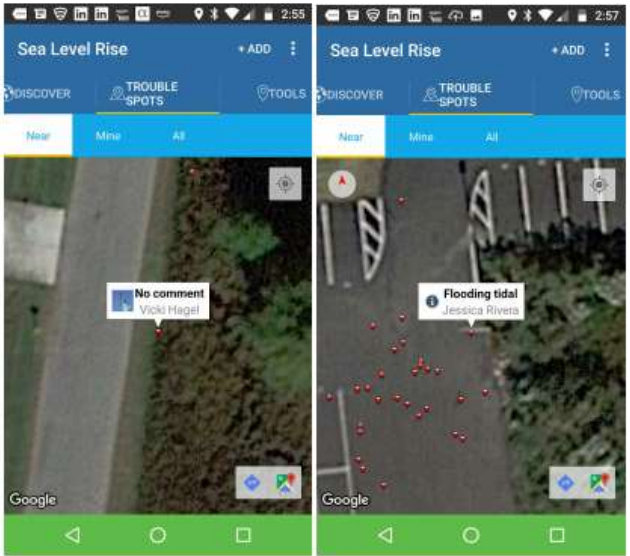
Teacher Email: showmeteachme@gmail.com

Name of Course: Flood Mapping Workshops

Number of students: 15

Event Recording Date: 10/13/2018

Include a screenshot per student / Displaying student name:



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Flood Mapping – Building Resilience in Our Communities

Partnering for Excellence -

Schools are *strongly encouraged* to partner with local experts such as:

- Emergency managers, community emergency response team leaders, transportation managers, resilience managers, floodplain managers, transportation and logistics engineers.
- These professionals can give your students valuable information on areas of need around your specific school and community and lend credibility to your instruction on climate effects and resilience.

Flood Mapping – Building Resilience in Our Communities
Student Pledge

"The future belongs to those who prepare for it."
-- Ralph Waldo Emerson, American essayist, lecturer, and poet

I pledge to do my part to create a community that is resilient to the effects of flooding by committing to at least three of the following activities in the coming year (please check all that you intend to do, sign, date, and return to your teacher):

- ❑ *I will reduce flooding by capturing and re-using storm water.*
- ❑ *I will restore native trees, plants, wetlands, and oysters to create more resilient shores.*
- ❑ *I will explore innovations that help schools, homes, and communities adapt to more frequent flooding and rising sea levels.*
- ❑ *I will reduce my carbon footprint, at home and at school, to reduce greenhouse gases linked to warmer temperatures.*
- ❑ *I will talk about flooding and sea level rise to help people make better choices.*
- ❑ *I will protect Virginia's coastal resources including the beaches, wetlands, and barrier islands, which are vital to our survival from storms and hurricanes.*
- ❑ *I will encourage and help city planners to become better educated on sea level rise so that they can develop strategies that will help mitigate the problem.*
- ❑ *I will support efforts to make homes more resilient to floods.*

kingtide.whro.org/schools

FLOOD MAPPING

Building Resilience in Our Communities

For Schools | Training Calendar | Resources | In the News

Welcome Educators!

Please note that the official deadline for applying for stipends has passed but we still urge you to consider participating in the project by completing an official application below.

Classes that are selected to receive $500.00 stipends for participating in the Flood Mapping — Building Resilience in Our Communities project this year are strongly encouraged to participate in the 2018 Catch the King event but it is not mandatory. If your class is not selected to receive a $500.00 stipend or if you're in a school that is not eligible to submit an application, you are still free to participate in both activities. You can also attend any of the training sessions, free-of-charge. Please see the FAQ for more information.

Flood Mapping: Building Resilience in Our Communities Projects Grants Available

WHRO is offering $500.00 stipends to as many as 50 classes, to participate in the Flood Mapping – Building Resilience in Our Communities project — an initiative to map flooding on school campuses and neighborhoods-during the 2018-2019 school year.

How-To Videos for Users

Flood Mapping - Building Resilience in Our Communities - Lesson Plans

Flood Mapping - Building Resilience in Our Communities - Presentation

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Learning Goals

• Examine the potential effects of climate change on Sea Level Rise.
• Examine the impacts of high-water / flooding events on ecosystems in affected areas.
• Identify the impacts of high-water / flooding events on infrastructure and the economy of affected regions.
• Develop an understanding of Earth systems and interactions which produce our weather.
• Record high-water / flooding data to benchmark the potential future effects of sea level rise which are the baseline for severe weather events and their impacts.
• Reflect on the specific area mapped and hypothesize the causes for the tidal or non-tidal flooding observed.

Notes

Safety Rules for Data Collection
• We will map only on public property unless you hold title or lease to the private property being mapped.
• Carefully follow your region manager's instructions. This is essential to collecting valid data that can be used.

Digital Package
2018-2019 Flood Mapping – Building Resilience in Our Communities Project

Additional details on how the Sea Level Rise app works to submit the students' Quarterly Measurements and specific instructions for submitting the Student Presentations and Signed Student Pledges.

Click below on the area of interest and you will be guided to that section of the document.

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Flood Mapping – Building Resilience in Our Communities

Steps to Getting Started Continued:

7. Cover the “Safety When Mapping Guide” with your students prior to mapping.
8. Map Trouble Spots where flooding occurs at your school or in your community with your students.
9. Present your results to internal and/or external audiences
10. Document your work, sign pledges and submit your projects to WHRO by **June 5th, 2018**
    Note: Be sure to only add true Trouble Spots. **NO SELFIES!** Trouble spots cannot be deleted. Use the app appropriately as these data points are permanent until the app developer deletes unnecessary data. Names are associated with each trouble spot documented.

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Mapping Trouble Spots

A great exercise to learn about resilience is mapping trouble spots in your community. Do you remember a flooding event that has happened near you in the past? Just go out with the Sea Level Rise app and map it!

From the Sea Level Rise app manual:

"**Trouble** – this mode allows the user to indicate locations where flooding occurs, provide some information about the type of flooding (rain, tidal, both), and take photos of the location. Red pins are dropped at flood locations and are displayed along with descriptive information."

Using the Phone to Map Using Trouble Function

From any screen, find the “Trouble Spot” icon on the bottom ribbon (iPhone) / top command ribbon (Android) and that will take you to the right screen. After you tap the icon, you should see a screen like this:

iPhone

Android

This is the data entry screen for “Trouble Spots.” These are spots that you know flood frequently - either with rain, during tidal events, or both. Once you are logged on, the blue “+ Add” will be in the upper right corner for iPhones and a circle target is displayed on Android.

+ Add

+ Add

(If “+ Add” function is not present, log off and on again and/or get in touch with the administrator.)

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Capturing Evidence of Trouble Spot Data

- Only mapping points can be exported in excel format. Trouble spots cannot be exported but screenshots can be taken by individual users to prove that their point was saved.
- Screenshots on Android / iPhone

- Note: Be sure to only add true trouble spots. NO SELFIES! Trouble spots cannot be deleted. Use the app appropriately as these data points are permanent until the app developer deletes unnecessary data. Names are associated with each trouble spot documented.
- Mapping **Trouble Spots** (red icons) is NOT the same as "**Mapping points**" (blue icons) in an "Event" such as Catch the King. These are two different processes.
- "Florence was the second wettest storm in half a century, behind Harvey" - CNN

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CITIZEN-SCIENCE AND FLOOD MONITORING

Appendix 1 – App Terminology for “Trouble Spot” Reporting

Floods Frequently – Tidal

These are the chronic areas that flood when we get a spring tide on a new or full moon or a little more. Does not require a wind event/rain event, it does it on its own. Floods more than a few times a year – street or curbs often wet, salt cake on ground, discolored sidewalks (rusty colored), grass and trees dying/gone.

Floods Frequently – Rain

These are areas that flood when we get those big rainstorms during the summer, 1 or 2 inches in an hour or two and intersections are flooded. Does not need a high tide to do this. Happens more than a few times a year.

Floods Frequently – Rain/Tide

These are areas that flood when we get wind/tide/rain at the same time, flooding more than a few times a year or flooding more frequently over time.

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Appendix 1 – App Terminology for “Trouble Spot” Reporting

Floods Occasionally – Tidal

These are areas that take a higher than usual event to flood – maybe flood on its own only a few times a year during those higher high tide events in the fall, etc.

Floods Occasionally – Rain

Flood from rainfall, but not more than a few times a year.

Floods Occasionally – Rain/Tide

A few times a year, with high tides and a rain event, these areas flood, but only one cause will not put it under water.

Storm Water Problem

These are areas that flood when water runs UP storm water lines and flows out from storm water drains and curb cuts – often some distance from the shoreline.

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CITIZEN-SCIENCE AND FLOOD MONITORING

Appendix 1 – App Terminology for “Trouble Spot” Reporting

Wetlands Instead of Lawns

These are areas where wetlands plants are starting to pop up – where there should be lawns and dry land shrubs and plants. In notes be sure to explain if this is something that has been noticed as happening only recently.

Broken Bulkhead or Barrier

If the barriers to storm surge are failing – breaks in walls, water undercutting bulkheads, etc.

Adaptation Examples

Show where homes and businesses have taken steps to prevent flooding. Note in text what they have done that is special – build berms around their homes, installed flood walls, etc.

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Flood Mapping - Building Resilience in our Communities

8-3-2018 Virginian Pilot article on Resilience - Ryan Murphy

showmeteachme@gmail.com

whro EDUCATION

Hampton Roads Community Foundation

BATTEN ENVIRONMENTAL EDUCATION INITIATIVE by whro PUBLIC MEDIA

WETLANDS WATCH

Flood Mapping and Resilience Lesson Plans

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