



## Rising Together: West Palm Beach

### Results of Climate Resilience Outreach Survey



In  
Partnership  
with



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- This is a project of Unitarian Universalist Justice Florida, led in West Palm Beach by First UU Congregation of the Palm Beaches in partnership with Mothers Against Murderers Association.
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## Findings

1. **Residents' Strongest Concerns:** The future impacts of sea level rise that respondents reported to be of greatest concern were Property Value (35%), Insurance (24%) and Water Quality (18%).
2. **Health:** The prevalence of asthma among residents responding to the survey (26%) was slightly more than two and a half times the county prevalence (10.4%).<sup>1</sup> Mold is an asthma trigger, and 28% of households reported experiencing mold.<sup>2</sup>
3. **Water and Flooding:** Experience with flooding was reported by 24% of respondents, and experience with water contamination was reported by 25% of households. Comments on the experience with flooding ranged from observation of flooding in low lying areas to flooding in the home causing mold (see p. 19). Drainage problems were reported on Snead Circle, Canterbury Drive S, 21<sup>st</sup> St., 6<sup>th</sup> St., and on Palm Beach Lakes Blvd, all of which are east of I-95.
4. **Code Red Registration:** West Palm Beach needs clear instructions on how to register for Code Red, and a link to an active registration module. One of the objectives of this outreach to build community resilience is to register residents of vulnerable communities with the emergency notification Code Red system. This outreach effort had the potential to register 100 residents. Outreach teams are trained to assist residents to complete registration on smart phones when residents are educated and surveyed. This outreach effort in West Palm Beach was unable to register any residents to receive emergency notifications, initially due to a non-functioning link on the West Palm Beach website, and subsequently, to the inability to find any link on the West Palm Beach website. Further phone calls to the Emergency Services Department established that the link to use to register for CodeRed in West Palm Beach is <https://public.coderedweb.com/cne/en-US/BFB7CC4C6C0A>
5. **Perception of Sea Level Rise:** There is a need for further outreach and education on sea level rise in this community, together with basic topographical information. Although 83% of residents believe that sea level rise is happening in Palm Beach County, 39% of residents report that they are not at all familiar with it. Most residents had a medium level of concern about sea level rise.
6. **Risk Perception:** Most respondents underestimated their risk from a rising water table and overestimated their risk from sea level rise. Residents' estimates of their elevation were between 0 ft. and 5,000 ft.
7. **Extreme Weather:** Fully 83% of respondents had a medium level of concern or higher about extreme weather.

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<sup>1</sup> "2015 County Chronic Disease Profile." FloridaCHARTS.com. Florida Department of Health, n.d. Web. 03 Nov. 2016. <<http://www.floridacharts.com/charts/default.aspx>>

<sup>2</sup> "Common Asthma Triggers." *Centers for Disease Control and Prevention*. Centers for Disease Control and Prevention, 20 Aug. 2012. Web. 16 Feb. 2017. <https://www.cdc.gov/asthma/triggers.html>

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## Executive Summary

*Rising Together: West Palm Beach* is part of a broader environmental justice initiative led by Unitarian Universalist Justice Florida in coastal Florida. *Rising Together* partners Unitarian Universalist congregations with existing leadership in vulnerable coastal communities to train residents to survey and educate their neighbors about preparation for and response to the health effects of extreme weather and climate hazards.

**Funding:** The pilot project on which these efforts are based was undertaken in Boca Raton and Delray Beach, Florida. It was funded with an EPA Environmental Justice Small Project Grant, and was used to create the training and outreach materials being used in this project, which are available on [www.ReACTToolKit.net](http://www.ReACTToolKit.net). The current replication phase of *Rising Together* is funded by the Unitarian Universalist Fund for Social Responsibility, the UUFBR Endowment Fund, and a crowd-sourcing campaign. Four additional communities on Florida's west coast are engaged in building coastal resilience in vulnerable communities using the *Rising Together* materials and methods.

**Study Area:** The Mothers for Murderers Association reached 100 residents, 96 of whom resided in the West Palm Beach zip codes of 33407 (44 respondents), 33401 (18 respondents), 33409 (9 respondents), 33417 (7), 33404 (7), 33405 (5), 33411 (2), 33413 (2), 33415 (1), and 33406 (1). The remaining 4 respondents were single households in each of Lake Worth, Boynton Beach, North Palm Beach and Palm Beach Gardens.

**Table 1.** 2010 Census data is reported by zip code respondents' residences.<sup>3</sup>

Zip code	Number of Respondents in the Zip Code	Avg. Household Income	% Black Population	% Hispanic Population	Avg. House Value In 2010
33407	44	\$32,869	62.8	15.7	\$132,100
33401	18	\$44,473	39.3	14.2	\$169,800
33409	9	\$41,256	36.3	27.7	\$116,900
33417	7	\$31,159	27.8	22.9	\$62,300
33404	7	\$37,978	68.7	5.1	\$110,600
33405	5	\$39,174	6.3	52.6	\$175,300
33411	2	\$62,118	22.0	19.5	\$206,600
33413	2	\$54,021	27.7	32.4	\$191,600
33408	1-(N Palm Beach)	\$62,518	2.3%	6.1%	\$269,600
33410	1-(Palm Beach Gardens)	\$61,828	7.2%	11.0%	\$258,700
33415	1	\$36,591	19.8%	45.9%	\$78,100
33435	1-(Boynton Beach)	\$40,324	41.4%	11.8%	\$115,900
33461	1-(Lake Worth)	\$32,689	16.7%	47.8%	\$89,700
33406	1	\$45,490	12.5%	45.6%	\$141,800

<sup>3</sup> < <https://www.zip-codes.com/zip-code/33435/zip-code-33435.asp>>

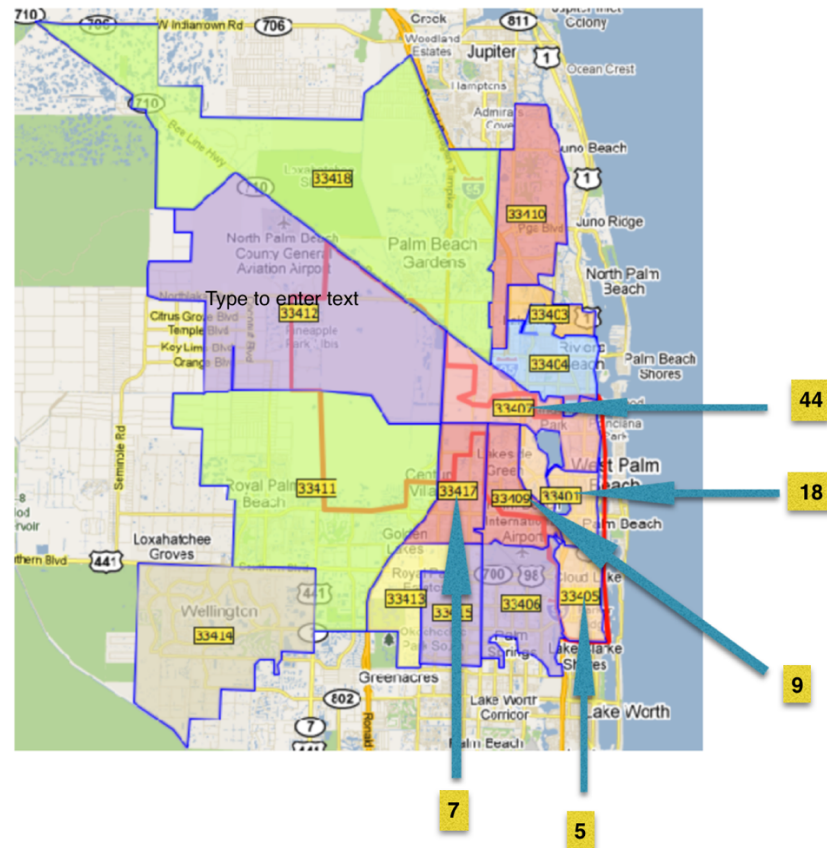
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**Figure 1.** The zip codes in which most of the respondents resided are indicated in the map to the right. 44 respondents resided in 33407. 18 respondents resided in 33401. 9 respondents resided in 33409. 7 respondents were in 33417, and 5 respondents were in 33405. Zip codes with one or two respondents are referenced in Table 1 above.



## Resident Engagement

First Unitarian Universalist Congregation of the Palm Beaches partnered with Mothers Against Murderers Association in West Palm Beach (MAMA). MAMA provides meaningful support to victims of violence, and therefore has deep connections within the community. The Outreach Team was well prepared both to identify residents to contact through their extensive support network, and to speak with others effectively. The skill set in this partnering organization was exceptional. Eleven members of MAMA received training about the public health effects of extreme weather and climate hazards. Six of those trained served as the Outreach Team.

## Languages Spoken in Surveyed Households

English was the primary language in all surveyed households. All surveys were conducted in English.

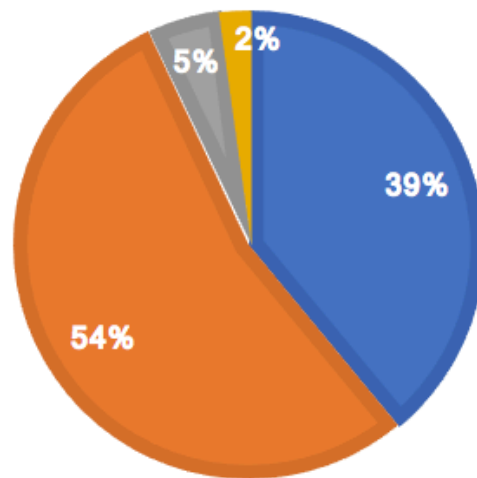
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## Respondents' Self-Reported Familiarity with Sea Level Rise

Residents completed the survey prior to hearing information about the public health effects of climate change. The first survey question was, "How would you rate your existing knowledge about sea level rise?"

## RESIDENTS' KNOWLEDGE OF SEA LEVEL RISE

■ Not at all familiar ■ somewhat familiar ■ very familiar ■ extremely familiar

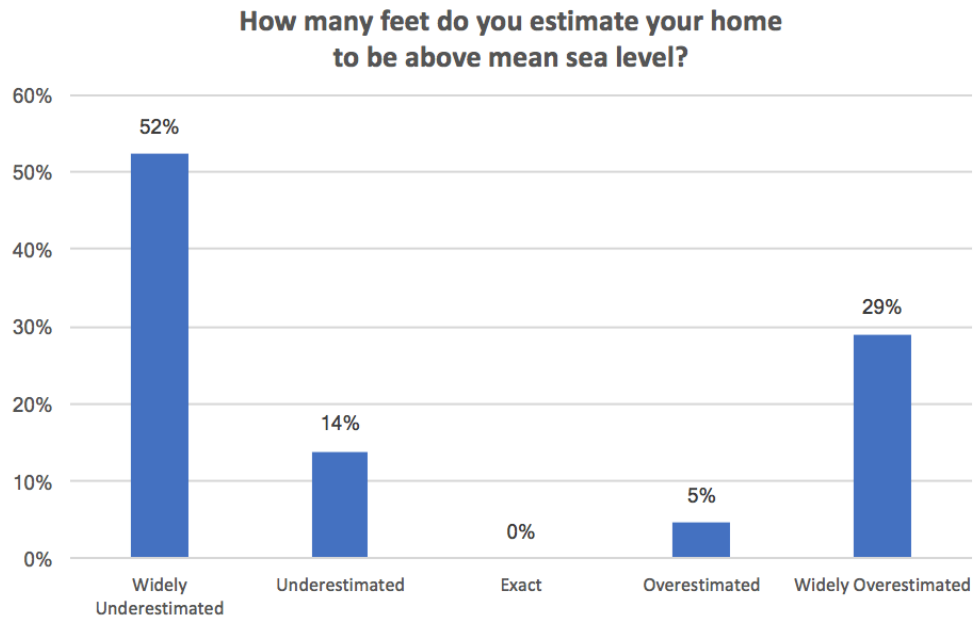


**Figure 2.** More than half of West Palm Beach residents (54%) reported that they were somewhat familiar with sea level rise, an additional 2% reported that they were extremely familiar with sea level rise, and 5% reported that they were very familiar with sea level rise. However, 39% of residents reported that they were not at all familiar with sea level rise, so there is a need for further outreach and education.

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## How Many Feet do you Estimate Your Home to be Above Mean Sea Level?

Respondents' responses to the question, "How many feet do you estimate your home to be above mean sea level?" were compared against the actual elevations of their homes. The actual elevation was obtained by entering the address into the Eyes on the Rise "Find your location" dialogue box at this link (<http://www.eyesontherise.org/app/#tab1>) The difference between the actual elevation and the elevation entered by the respondent was calculated. Respondents who reported an estimated elevation more than twice as high as their actual elevation were found to widely underestimate their risk. Respondents who reported an estimated elevation more than twice as low as the actual for their address were found to have widely overestimated their risk. Respondents who reported an estimated elevation greater than their actual elevation, but less than double their actual elevation were found to underestimate their risk. Respondents who reported an estimated elevation less than their actual elevation, but less than twice as low as the actual for their address were found to have overestimated their risk.



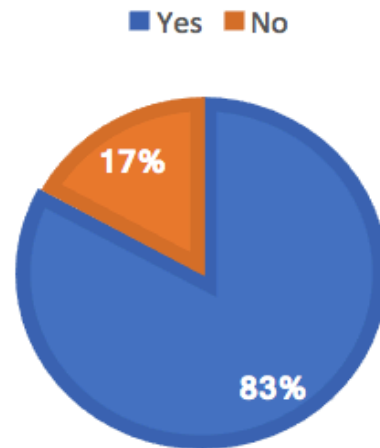
**Figure 3.** Most residents (66%) overestimated their risk to sea level rise by either underestimating their elevation above mean sea level (14%) or widely underestimating it (52%). The range of reported estimates of elevation was from 0 ft to 5,000ft. Education about sea level rise should therefore include basic information about local topography. Only 34% of respondents underestimated their risk from sea level rise by overestimating or widely overestimating their elevation.

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## Do you think that Sea Level Rise is Occurring in Palm Beach County Today?

Canvassers were instructed to give the survey to residents prior to educating them about the health effects of sea level rise. Therefore, this result documents residents' perceptions prior to outreach education.

### DO YOU THINK THAT SEA LEVEL RISE IS OCCURRING IN PALM BEACH COUNTY TODAY?



**Figure 4.** Fully 83% of residents surveyed stated that they believed that sea level rise is occurring in Palm Beach County, with only 17% stating that they did not believe sea level rise is occurring in Palm Beach County.

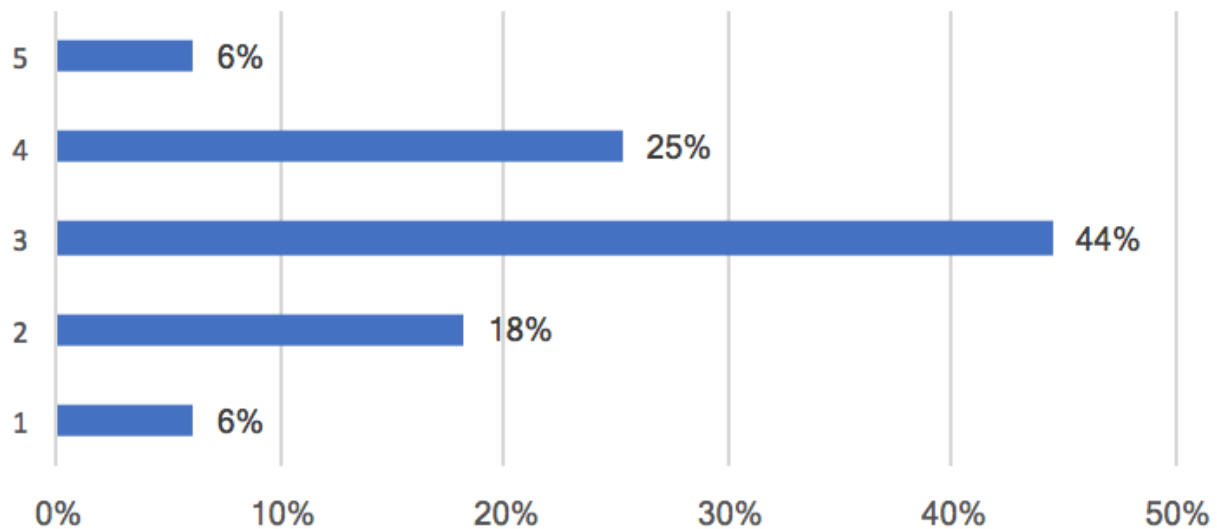
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## What is Your Overall Level of Concern with the Future Impacts of Sea Level Rise for Palm Beach County?

Respondents were asked to rate their overall level of concern with the future impacts of sea level rise in Palm Beach County. They chose from the following responses: 1-None, 2-Low, 3- Medium, 4-High and 5-Very High.

### Overall Level of Concern with Future Impacts of Sea Level Rise in Palm Beach County



**Figure 5.** Most residents surveyed (44%) had a medium level of concern with future impacts of sea level rise. On the low end of concern, 6% of residents had no concern with future impact of sea level rise in Palm Beach County, and 18% reported a low level of concern. At the high end, 6% of residents reported a very high level of concern and 25% had a high level of concern.

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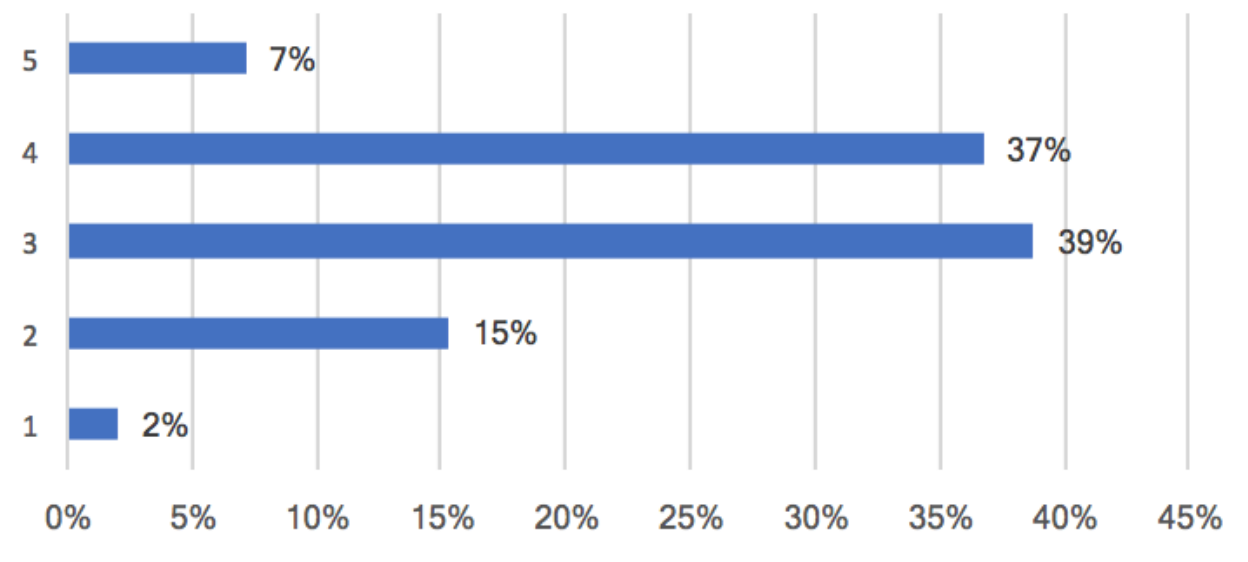
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## What is Your Overall Level of Concern with Extreme Weather for Palm Beach County?

Respondents were asked to rate their overall level of concern with extreme weather for Palm Beach County. They chose from the following responses: 1-None, 2-Low, 3-Medium, 4-High and 5-Very High.

### Overall Level of Concern with Future Impacts of Extreme Weather in Palm Beach County



**Figure 6.** Extreme weather was of no concern to only 2% of the residents, and of low concern to 15% of residents. Medium concern was expressed by 39% of residents, with 37% reporting a high level of concern and 7% with a very high level of concern.

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**Where you live, how many feet deep into the ground do you think that you would have to dig before you got to water (either freshwater or saltwater)?**

The difference between the actual depth to groundwater and the depth to groundwater entered by the respondent was calculated. Responses with a depth to groundwater greater than their actual depth to groundwater were found to underestimate their risk.

**Table 2.** Criteria for characterizing residents' estimates:

Widely underestimated	Twice the actual depth or more
Underestimated	From the actual depth to twice the actual depth
Exact	10 ft <sup>4</sup> taken as an average USGS measure
Overestimated	Half actual depth to actual depth
Widely Overestimated	Less than half of actual depth

Respondents who entered a depth to groundwater that was less than the actual for their address were found to have overestimated their risk. Respondents who reported an estimated depth to groundwater less than twice their actual depth to groundwater were found to overestimate their risk. Respondents who reported an estimated depth to groundwater more than twice the actual for their address were found to have widely underestimated their risk. Respondents who reported an estimated depth to groundwater between their actual depth and twice their actual depth to groundwater, were found to underestimate their risk. Respondents who reported an estimated depth to groundwater between the actual depth and half the actual depth were found to have overestimated their risk. Respondents who reported an estimated depth to groundwater less than half of the actual depth for their address were found to have widely overestimated their risk.

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<sup>4</sup> USA. USGS. South Florida. *WATER RESOURCES DATA - FLORIDA, 2005*. Vol. 2B. N.p.: n.p., n.d. Print. < <https://pubs.usgs.gov/wdr/2005/wdr-fl-05-2b/pdf/pp509-550-Palm-Beach-County.pdf>>

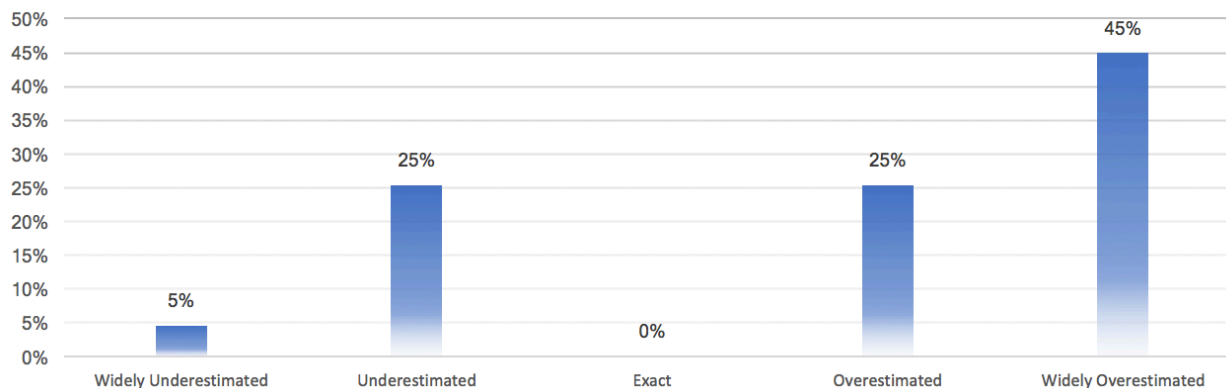
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**WHERE YOU LIVE, HOW MANY FEET DEEP INTO THE GROUND DO YOU THINK THAT YOU WOULD HAVE TO DIG BEFORE YOU GOT TO WATER (EITHER FRESHWATER OR SALTWATER)?**

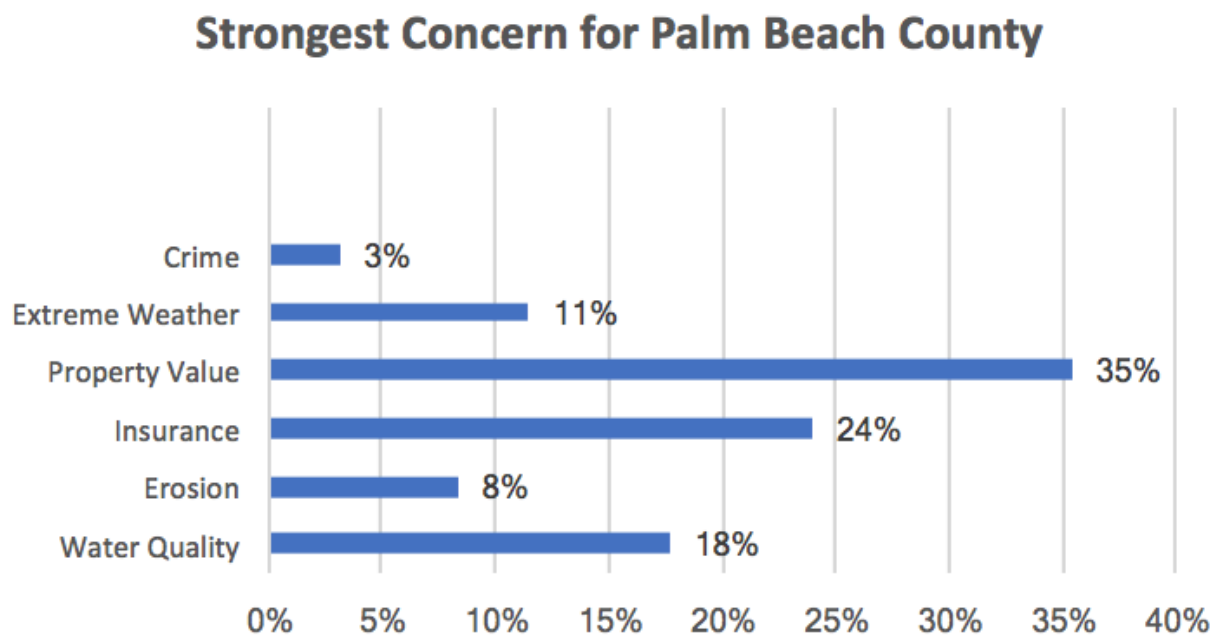


**Figure 7.** The depth that a resident would have to dig in order to reach water was overestimated by 25% of respondents and widely overestimated by 45% of respondents. No respondents correctly estimated the depth to the water table. Depth to the water table was underestimated by 25% of respondents and widely underestimated by 5% of respondents. This means that 70% of respondents are underestimating or greatly underestimating their risk from a rising water table.

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### Residents' Strongest Concern for Palm Beach County

The Sea Level Rise Risk Perception Survey asked respondents to choose their strongest concern for Palm Beach County from six multiple choice options: Water Quality, Insurance, Erosion, Property Value, Extreme Weather and Other, with a blank to record Other concerns. Some residents indicated more than one strong concern. Because there is no way to determine which of the multiple concerns was the strongest on any given survey, the percentages below reflect all selections of each concern as a percentage of the 96 responding households.



**Figure 8.** Residents' strongest concern was property value (35%), followed by insurance (24%) and water quality (18%).

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## Comments Explaining Residents' Strongest Concerns

### Water Quality Comments

- **El Claro Circle:** We need clean non-polluted water
- **Rosegate Blvd, Riviera Beach:** Hearing about all the water issues in Palm Beach County. I have a concern about water quality.
- **Canterbury Dr. S, Riviera Beach:** My concern is always having clean drinkable water.
- **38<sup>th</sup> Way:** Drinking water - safety and contamination
- **38<sup>th</sup> Way:** Water contamination - health.
- **High Street:** We need quality water to drink. We need clean water in our shorelines for fish/plant life.
- **Palm Beach Lakes Blvd:** There are not enough drainage for the water to flow.

### Extreme Weather Comments

- **Georgia Ave:** My overall concern deals with flooding in so many areas in Palm Beach County. Mainly because of drainage in many areas.
- **N Australian Ave:** Weather is a great concern in Palm Beach County for me. Poor draining system, concern for safety in certain areas.
- **Caribbean Blvd:** Extreme weather is a great concern for many people because of the flooding in so many areas of the county.

### Property Value Comments

- **W 34<sup>th</sup> St, Riviera Beach:** Homes are valued at a low view now. It's hard to sell your home if you are interested in selling.
- **W 36<sup>th</sup> St, Riviera Beach:** Homes are too expensive. It's so hard to find somewhere to live at reasonable price.
- **2<sup>nd</sup> St:** When their [are] floods, major damage. Property value goes down.
- **Snead Cir:** My concern is with dwelling & flooding in Palm Beach County.
- **80th St:** Property value goes down due to flooding & high tide in many areas throughout Palm Beach County.
- **2285 Shoma Dr:** Very concerned about value of property in PBC due to high tide flooding.
- **AE Isaacs Ave:** Low lying areas with lots of flooding and in many areas drainage system is awful
- **Foxhall Dr. S:** Rising cost of property and taxes.
- **42<sup>nd</sup> Way:** Homes expensive and taxes too high
- **47<sup>th</sup> Way:** Property taxes too high.
- **S Mangonia Cir:** Flooded street when it rains and flooded on Australian Ave.
- **Palm Beach Lakes Blvd:** Over time, property value will go up in Palm Beach County, and that concerns me & my family.

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### Insurance Comments

- **Pinewood Ave:** More drainage for the water to go when raining
- **W 23<sup>rd</sup> St:** Price of insurance will rise.
- **3<sup>rd</sup> Way:** Insurance for PBC is very high. Something needs to be done to lower it.
- **Alder Dr:** Insurance too high.
- **Quail Lake Dr:** My main concern is insurance and the high amounts being charged yearly.
- **Australian Ave:** Losing property to street flooding.
- **6<sup>th</sup> St:** Rise in cost [of insurance].
- **3<sup>rd</sup> Way:** Insurance rates too high.
- **7<sup>th</sup> Way:** Rates too high.

### Erosion Comments

- **N Ware Dr:** Environment change
- **W 16<sup>th</sup> Way:** I live approx 5 mins driving distance from the beach and rising sea levels make me nervous.
- **Glenmoor Dr:** Erosion is going to affect the other items on the list, and is more important overall.
- **21<sup>st</sup> St:** Erosion & mold comes from severe weather, and stays around causing harm in the area throughout Palm Beach County.
- **3<sup>rd</sup> Way:** Beach erosion is bad.

### Other:

- **Shelly Rd. N:** Gentrification: Western communities (Belle Glade, Pahokee & South Bay) being taken away.
- **7<sup>th</sup> Way:** Crime: Unnecessary killing
- **Amalfi Dr:** Trump

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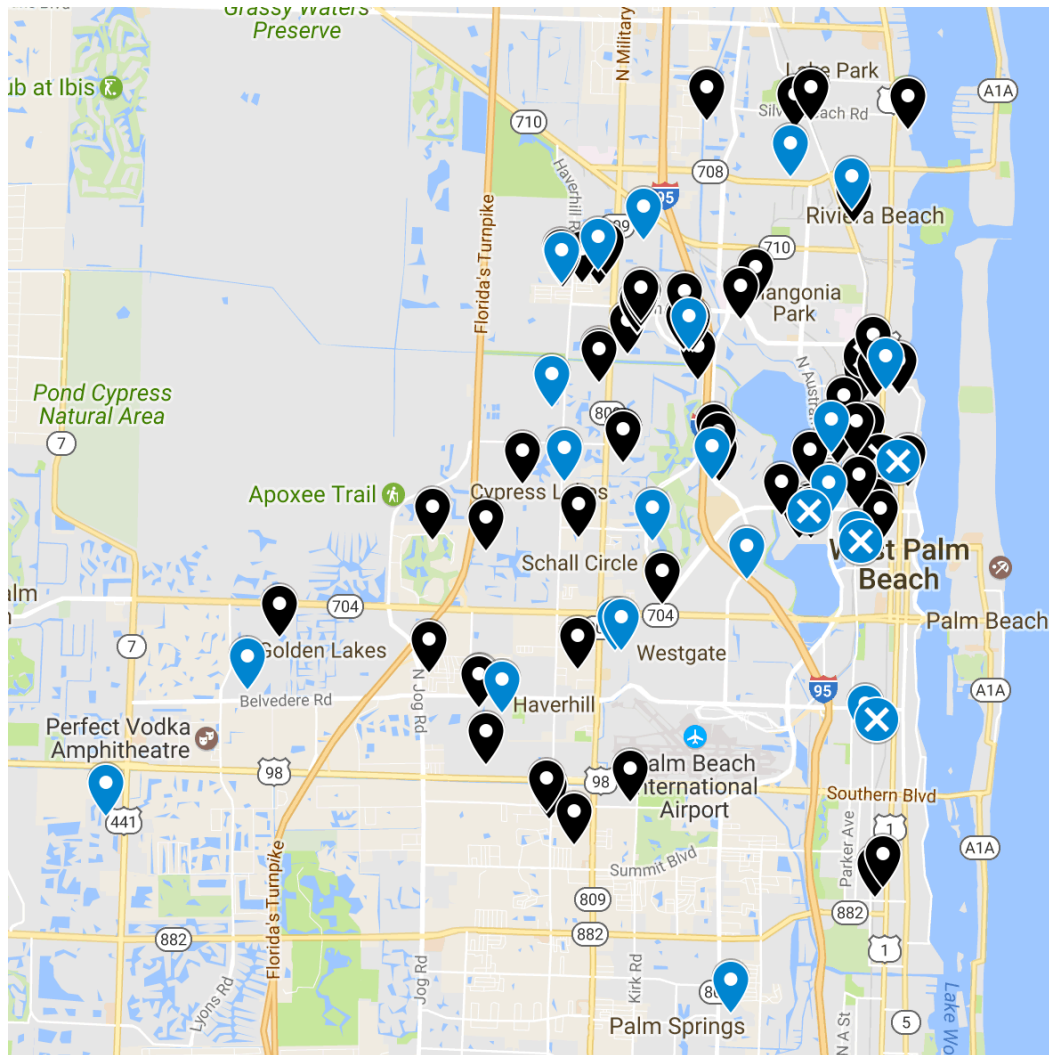
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## Interactive Map of Responding Households

All responding households were mapped in Google Maps, with all comments from Surveys within the study area related to flooding recorded. Contact Janice T. Booher at [JJLBooher@comcast.net](mailto:JJLBooher@comcast.net) for the link and password. Comments regarding flooding are available by clicking the icons when the password is entered.

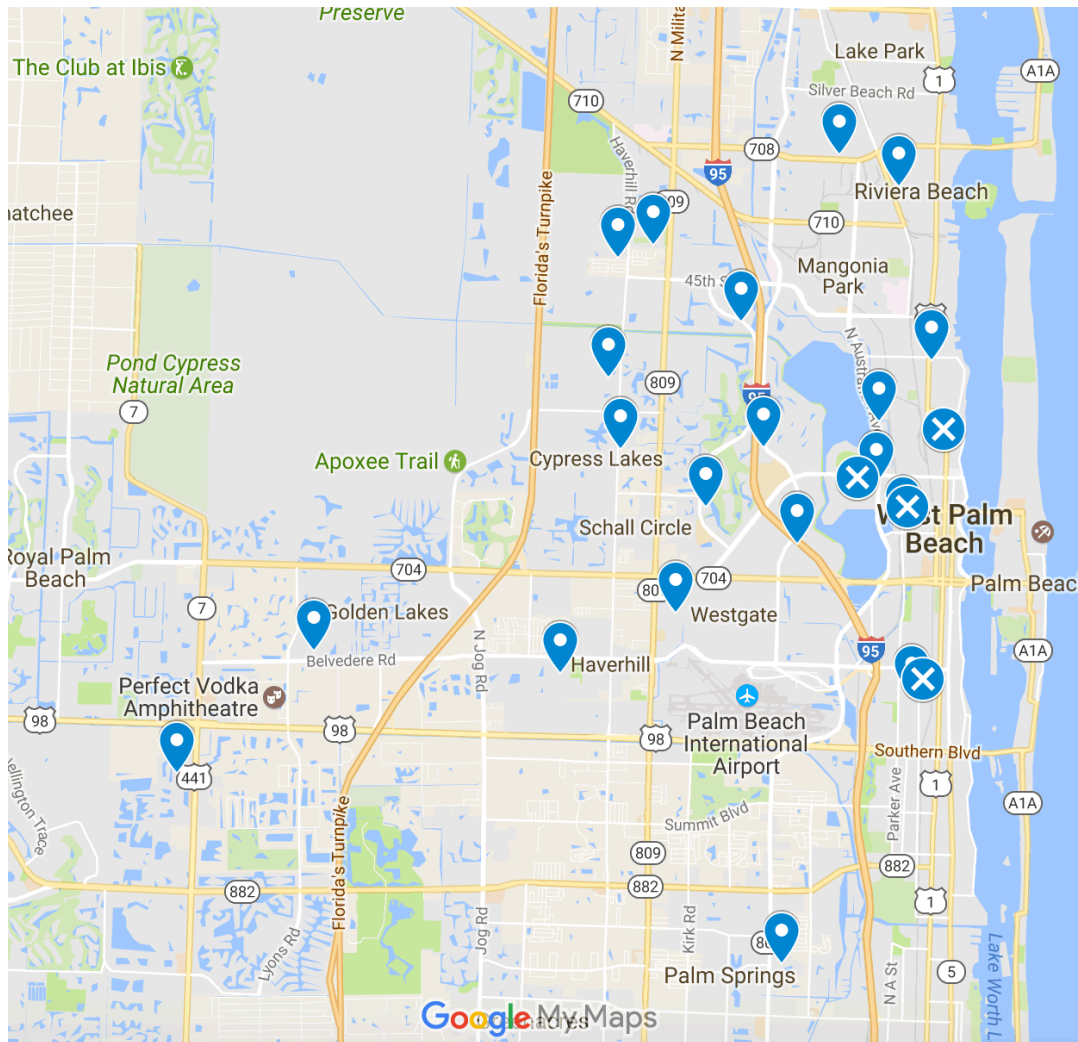


**Black-**Households that did not report experience with flooding  
**Blue-** Households that reported experience with flooding  
**Icons with an X-**Households that mentioned drainage in their comments

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## Map of Households Making Comments about Flooding



**Figure 9.** This is a still shot of an interactive Google map that documents survey responses related to flooding. 24% of residents reported experience with flooding in West Palm Beach and environs. There were 4 comments on poor drainage in West Palm Beach: Snead Circle, 21<sup>st</sup> St., 6<sup>th</sup> St., West Dr., and Palm Beach Lakes Blvd. There was also a flooding comment in Riviera Beach on Canterbury Dr. S. A resident reporting a need for more drainage on Pinewood Ave. did not report flooding. Flooding on Australian Ave. was mentioned in comments as well.

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## Flooding Comments

### What flood related impacts have you experienced in your neighborhood?

(Comments that mention drainage are highlighted.)

#### **Residents' Comments Regarding Flooding**

- **Pinewood Ave:** Haven't experienced any of the above, have not been here that long. More drainage for the water to go when raining
- **Eadie Pl.:** flooding
- **N Ware Dr:** Mold. Flood in home
- **2<sup>nd</sup> St, :** Flood from Rain, Damage
- **W 16<sup>th</sup> Way:** Light flooding.
- **W 23<sup>rd</sup> St:** Flooding.
- **Canterbury Dr. S, Riviera Beach:** High tide flooding - poor draining system.
- **Lake Arbor Dr, Palm Springs:** 2013 Flooding due to rain for 2 days.
- **3<sup>rd</sup> Way:** Street flooding.
- **Handy Oak Cir:** Flooding from rain.
- **Alder Dr:** Flood after a hard rain.
- **Glenmoor Dr:** Flooding with little rain.
- **Quail Lake Dr:** I've experienced flooding when the weather is severe.
- **Snead Cir:** Draining problems in low land areas.
- **Georgia Ave:** Flooding and problems in areas where low land is a great concern.
- **21<sup>st</sup> St:** High tide flooding, with or without severe rain, due to low land and poor drainage system.
- **N. Australian Ave:** Bad weather brings on a lot of flooding, especially in some areas.
- **Caribbean Blvd:** With asthma as a sickness in the household, there is great concern when the weather is severe.
- **80<sup>th</sup> St:** Impact is sometimes severe in so many areas throughout Palm Beach County.
- **Shoma Dr:** Retention ponds result from high tide severe flooding in so many areas throughout PBC.
- **AE Isaacs Ave:** Mold is a very high concern due to severe weather in PBC.
- **Australian Ave:** Street flooding
- **6<sup>th</sup> St:** Drainage.
- **Foxhall Dr. S:** Flooding from retention pond.
- **High St:** Flood at the bottom of our hill. Trees uprooted.
- **Palm Beach Lakes Blvd:** It rains and floods and the drainage is backed up.
- **N. Congress Ave.:** High tide flooding in some areas.
- **S Mangonia Cir:** Flooded street when it rains and flooded on Australian Ave.

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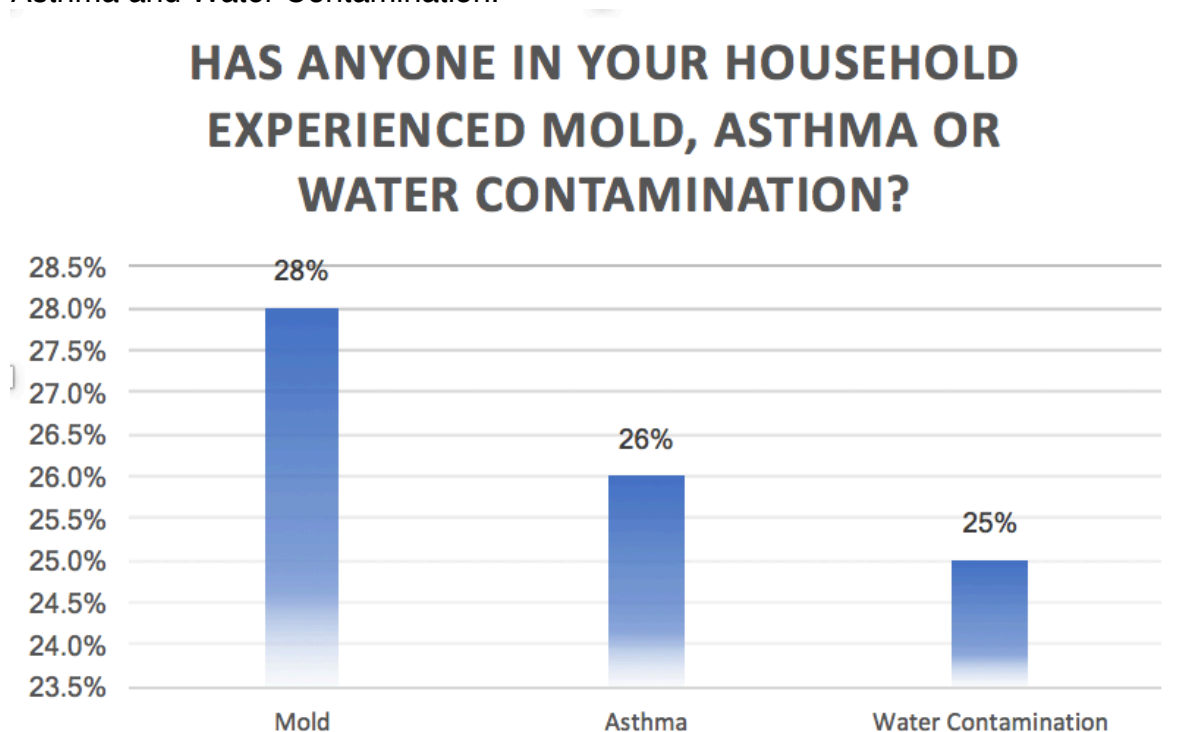
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## Mold, Asthma and Water Contamination

Residents were asked, "Have you or anyone in your household experienced any of the following at your current address?" Respondents circled Yes or No in response to Mold, Asthma and Water Contamination.



**Figure 10.** Asthma was experienced by 26% of respondents, which is approximately two and a half times the county lifetime asthma prevalence. Slightly more than a quarter (28%) of residents surveyed reported experiencing mold at their current address. Water contamination was experienced by 25% of responding households. Florida CHARTS reports the Palm Beach County lifetime asthma prevalence is 10.4%.<sup>5</sup> This means that the prevalence of asthma among residents responding to the survey is slightly more than twice the county prevalence. It is therefore important that 57% of the residents sampled also experienced mold, because mold is a common asthma trigger.<sup>6</sup>

<sup>5</sup> "2015 County Chronic Disease Profile." FloridaCHARTS.com. Florida Department of Health, n.d. Web. 03 Nov. 2016. <<http://www.floridacharts.com/charts/default.aspx>>

<sup>6</sup> "Common Asthma Triggers." *Centers for Disease Control and Prevention*. Centers for Disease Control and Prevention, 20 Aug. 2012. Web. 16 Feb. 2017. <https://www.cdc.gov/asthma/triggers.html>

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**Appendix A**  
Health and Climate Outreach Sheet (English)

Developed by Dr. Ana Puszkin-Chevlin

Adapted for  
The City of West Palm Beach  
by  
First Unitarian Universalist Congregation of the Palm Beaches

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# Rising Together: Temperature, Water, Health and Strength

2017

Developed by Dr. Ana Puszkín-Chevlín

Green Sanctuary Committee of UUFBR

EPA Grant #EQ-00D35415-0

## West Palm Beach Contacts

Fire Rescue (non-emergency) 561 712-4700  
 Police Department (non-emergency) 561 338-1234  
 Public Safety 561 712-6400  
 Report FPL Power Outages 561 697-8000  
 Human Services/Senior Helpline – Dial 211



Sign Up for telephone alerts  
<https://public.coderedweb.com/cne/en-US/BFB7CC4C6C0A>

## Palm Beach County Contacts

PBC Emergency Management\* (561) 712-6400  
 Get PBC DART free app with information to prepare for storm emergencies.

- Pre-register for emergency needs shelter at 561 712-6400
- Pre-register for Emergency Disabled Transportation Assistance at and Palm Tran Connection (561) 649-9848

PBC Emergency Mgmt. Flood Mitigation Assistance (561) 712-6325  
 PBC Water Utilities Emergency (561) 740-4600 Option 1  
 Report Disease to PBC Dept. of Health (561) 671-4184

### Report Mosquito Infestations to

Mosquito Control Division (561) 967-6480  
 Air Spray HOTLINE (561) 641-8775  
 FPL Florida Power & Light (800) 226-3545 or (561) 994-8227

## State of Florida Contacts

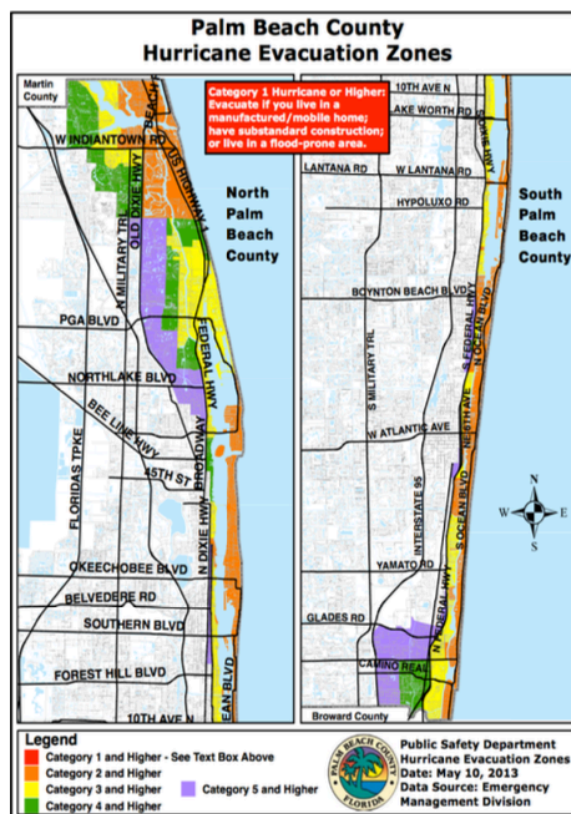
Florida Emergency Information Line (800) 342 3557  
 Florida Department of Emergency Management (850) 413-9969 Hearing Impaired (800) 226-4329  
 Florida Dept. of Public Health –water testing (850) 245-4240

**Report ALGAE Blooms to** Dept. Environmental Protection, Bureau of Labs (850) 245-8159 or Dept. of Health, Aquatic Toxins Program (850) 245-4250 (850) 245-4250

## Radio Stations with Emergency Information

**Homeland Security Emergency Radio Station**  
 Palm Beach International Airport 1630 AM

NOAA Weather Radio KEC50 162.475 MHz  
 Coverage North Broward, Palm Beach and Martin County



A UUFJ Project in West Palm Beach led by 1<sup>st</sup> UU Congregation of the Palm Beaches in partnership with Mothers Against Murderers Association  
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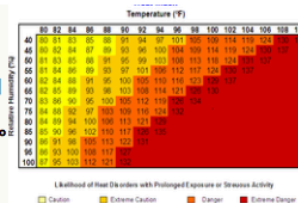
Modified for West Palm Beach by 1<sup>st</sup>UUPB

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### Watch for Heat Index and Air Quality Alerts

- Information about the heat index can be found at [www.nws.noaa.gov/om/heat/heat-illness.shtml](http://www.nws.noaa.gov/om/heat/heat-illness.shtml)
- Get air quality reports from [www.aimow.gov](http://www.aimow.gov), or call 561 837-5092 to hear report.
- Heat Index over 103°, be cautious! Vulnerable populations are at risk with a the heat index of 91°
- Remain indoors in air-conditioned places during heat waves and poor air quality days.
- If outdoors, avoid strenuous activity, stay hydrated .
- If you shelter in place, stock 1 gallon of water, per person, per day, 3-day supply, plus food.



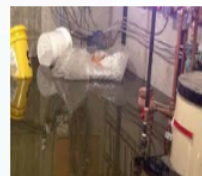
### Be Safe During Storms and Floods

- Keep storm drains, canals and gutters clear of debris to prevent floods and water damage.
- Stay Informed. Create a plan with your family and an emergency kit prepared, before an emergency .
- Communicate with family, friends and neighbors about your emergency plan.
- If you shelter in place, stock 1 gallon of water per person, per day; a 4-5 day supply, plus food.
- **STAY OUT** of floodwaters. 6" of moving water can sweep you off your feet. Water depth is difficult to gauge and hazards could be submerged.



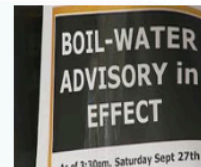
### Assume Standing Floodwater is Contaminated

- Floodwaters are often contaminated with fuel, chemicals, sewage and bacteria.
- Avoid ALL contact with floodwaters, and avoid inhaling evaporating fumes.
- Clean all hard surfaces with a solution of 1.5 cup bleach to 1 gallon of water.
- Wear rubber boots and gloves and a mask during cleanup.
- Do not expose open wounds to flood waters.



### Heed the Boil Water Alert Guidelines

- Don't drink, make ice, prepare food or brush teeth with tap water. Use bottled water if possible.
- Don't wash dishes, glasses, or cutlery in tap water. Use boiled water.
- Don't wash hands, expose open wounds or bathe babies in tap water.
- Bringing water to a rolling boil for a minimum of 1 minute, or disinfect with 8 drops of unscented bleach per
- After a boil water alert is finished, run the water from all faucets for 5 minutes and change filters of water and ice systems.



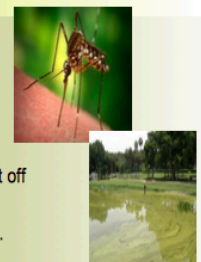
### Minimize Mold Growth

- Molds are allergens; some produce toxins or release volatile compounds from materials.
- Active mold is black, green or pink. Inactive mold is powdery and often white, but will reactivate with moisture.
- To prevent mold, dry things as quickly as possible.
- Throw out items that have been wet for more than 48 hours. Freezing deactivates mold.
- Homeowners can clean moldy areas less than 10 square feet with a solution of 1 cup bleach per 1 gallon of water. Wear gloves and a mask. Professionals should address larger mold areas and clean air-conditioning systems.



### Limit Exposure to Mosquitos and Algae

- Eliminate mosquito-breeding areas. Drain items that collect water outdoors including flowerpots, birdbaths, buckets, drums, child pools, etc.
- Minimize mosquito bites. Wear long sleeves, long pants and socks outdoors, especial around dawn and dusk..
- Use insect repellent with DEET or oil of lemon eucalyptus. Limit DEET exposure in young children by washing it off before bed.
- Report algae blooms to Florida DEP, Bureau of Labs (850) 245-8159. Algae can be toxic and must be tested.



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## **Appendix B**

Sea Level Rise Risk Perception Survey (English)  
Developed by Dr. Keren Bolter

Adapted for The City of West Palm Beach  
by  
First Unitarian Universalist Congregation of the Palm Beaches

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# Sea Level Rise Risk Perception in Palm Beach County

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Investigators: Jan Booher and Ramsay Laing

Thank you for your interest in taking this brief 13 question survey (only 6 required responses\*). It may take about 5-10 minutes to answer the questions below. Your participation in this survey is completely voluntary and your responses will remain confidential.

The purpose of the survey is to measure perceived risk to sea level rise in Palm Beach County, FL. A potential benefit that you may receive from participation is consideration of how you evaluate your risk to sea level rise. The results will give Palm Beach County educators information about demographics and locations where risk is underestimated or overestimated.

If you have questions about the study, you should contact the investigator: Ramsay Laing [ramsay.laing@gmail.com](mailto:ramsay.laing@gmail.com). By completing the survey, you give consent to participate in this study.

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\* Required

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## Section A - Background Information

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*1) What is your zip-code \**

*2) What city do you live in? \**

*3) What is the first line of your address?*

(ex. 235 NW 5 St)

*4) How would you rate your existing knowledge about sea level rise?*

- Not at all familiar
- Somewhat familiar
- Very familiar
- Extremely familiar

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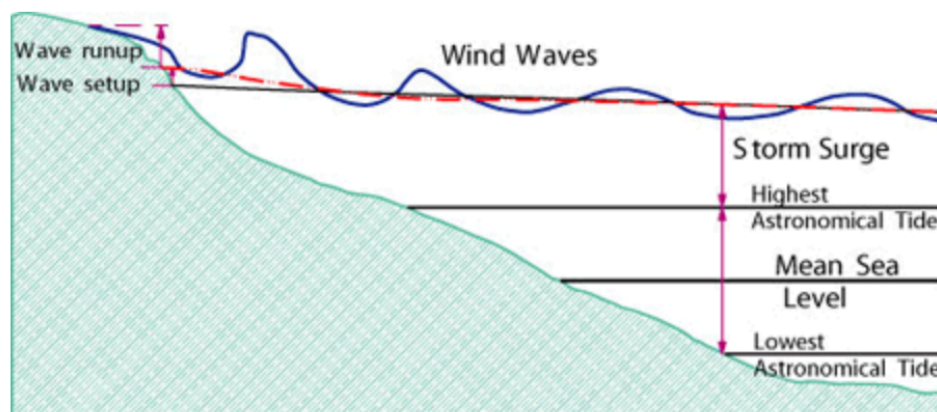
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## Section B - Land Elevation, Water Levels, and Storms

Sea level rise is an increase in height of the sea's surface relative to land.

Mean Sea Level (MSL) is the average surface height of the ocean, about halfway between low and high tide. Land elevation is measured as a height above MSL.



**1) How many feet do you estimate your home to be above mean sea level? \***

(If you don't know, please guess a number that seems reasonable to you.)

**2) Do you think that sea level rise is occurring in Palm Beach County today? \***

- Yes  
 No

**3) Where you live, how many feet deep into the ground do you think that you would have to dig before you got to water (either freshwater or saltwater)?**

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## Section C - Focusing on Risks Associated with Sea Level Rise and Extreme Weather

*1) What is your overall level of concern with the future impacts of sea level rise for Palm Beach County?*

1 = none / 2 = low / 3 = medium / 4 = high / 5 = very high

1 2 3 4 5

none      very high

*2) What is your overall level of extreme weather for Palm Beach County?*

1 = none / 2 = low / 3 = medium / 4 = high / 5 = very high

1 2 3 4 5

none      very high

*3) Please choose your strongest concern for Palm Beach County:*

- Water Quality
- Erosion
- Insurance
- Property Value
- Extreme Weather
- Other:

*4) Please briefly explain your chosen concern:*

(optional)

---

**5) What flood-related impacts have you experienced in your neighborhood? \***

These may include high tide flooding, flooding with rain, or saltwater in retention ponds. (optional)

---

**6) Have you or anyone in your household experienced any of the following at your current address?\***

Check those items that have been experienced in your household.

- Mold
- Asthma
- Water Contamination

**Submit**

Never submit passwords through Google Forms.

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