

Southeast Florida Sea Level Awareness Project Poles

(S.L.A.P. Poles)



*A Science - Based Community Service Project
for
Students in Southeast Florida*

- To alert citizens to the effects of climate change related sea level rise on Southeast Florida's infrastructure and coastal lands
- To inform the public that the bipartisan Southeast Florida Regional Climate Change Action Plan addresses sea level rise
- To create awareness about the causes of Global Climate Change, and the actions individuals can take to help address the problem



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The Sea Level Awareness Project

The Sea Level Awareness Project (SLAP) was initiated by Alec Loorz in Ventura, California to make the public aware that climate change related sea level rise poses a threat to our public infrastructure. The core message of the poles is that by working together, we may be able to avoid the worst effects of global climate change. Alec founded kids-vs-global-warming.com, and initiated the SLAP pole program when he was 14 years old. He spoke to students at many schools, and inspired them to form action groups, each of which created SLAP poles. The students presented the poles to public officials, who agreed to place the poles near the beaches in Ventura. Since its inception, kids-vs-global-warming.com has helped groups in San Diego and Washington, DC to create Sea Level Awareness Projects, resulting in installations of SLAP poles in coastal areas, where public awareness is needed to urge local officials to reduce carbon emissions and to make the area more resilient to sea level rise. The kids vs global warming website is available at <http://kids-vs-global-warming.com/Home.html>

The SE Florida Regional Climate Change Action Plan

In January of 2010 county governments comprising the four county area of SE Florida, which includes Palm Beach County, Broward County, Miami-Dade County, and Monroe County, formed the SE Florida Regional Climate Compact to address the regional effects of Global Climate Change. Information about the Compact is available at <http://www.broward.org/NATURALRESOURCES/CLIMATECHANGE/Pages/SoutheastFloridaRegionalClimateCompact.aspx>

Initial objectives of the Compact included: adopting a shared legislative agenda, agreeing to use the same data to predict sea level rise in the region, conducting a regional inventory of greenhouse gas emissions, and identifying existing resources and initiatives in each of the member counties. The Compact agreed to create a plan for SE Florida to address the threat of global climate change. The objective of the plan was, “to integrate climate adaptation and mitigation into existing systems and to develop a plan that can be implemented through existing local and regional organizations.” The Draft of the SE Florida Regional Climate Action Plan is available at this link:

http://www.southeastfloridaclimatecompact.org/index_files/Page648.htm

The Unified Sea Level Rise White Paper, containing the data upon which the predictions for sea level rise are based, appears in Appendix E at this link:

<http://www.southeastfloridaclimatecompact.org/documents/SLR.pdf>

The Unified Sea Level Rise Predictions for SE Florida indicate that by 2060 sea level will have risen between 9 and 24 inches in SE Florida. The graph that appears on page iv of the Unified Sea Level Rise Prediction Report showing the range of possible SLR by 2060, has been excerpted to appear on the following page. Consult the document at the link above for the discussion of factors influencing the possible range of sea level rise.

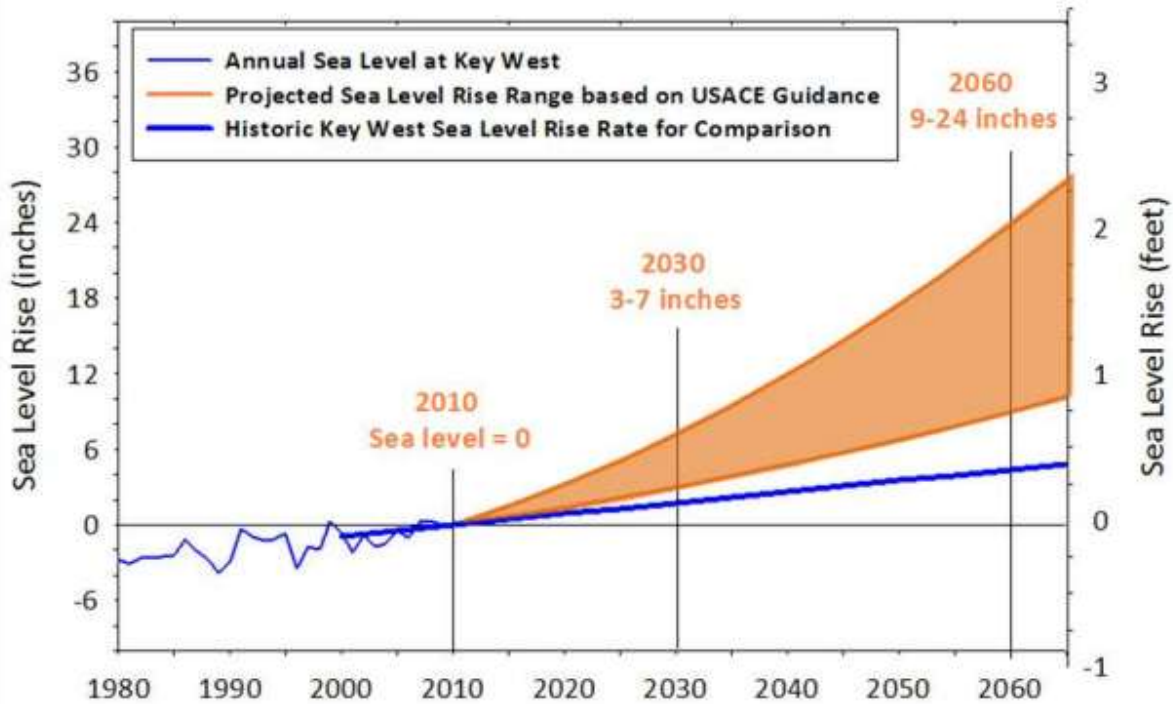
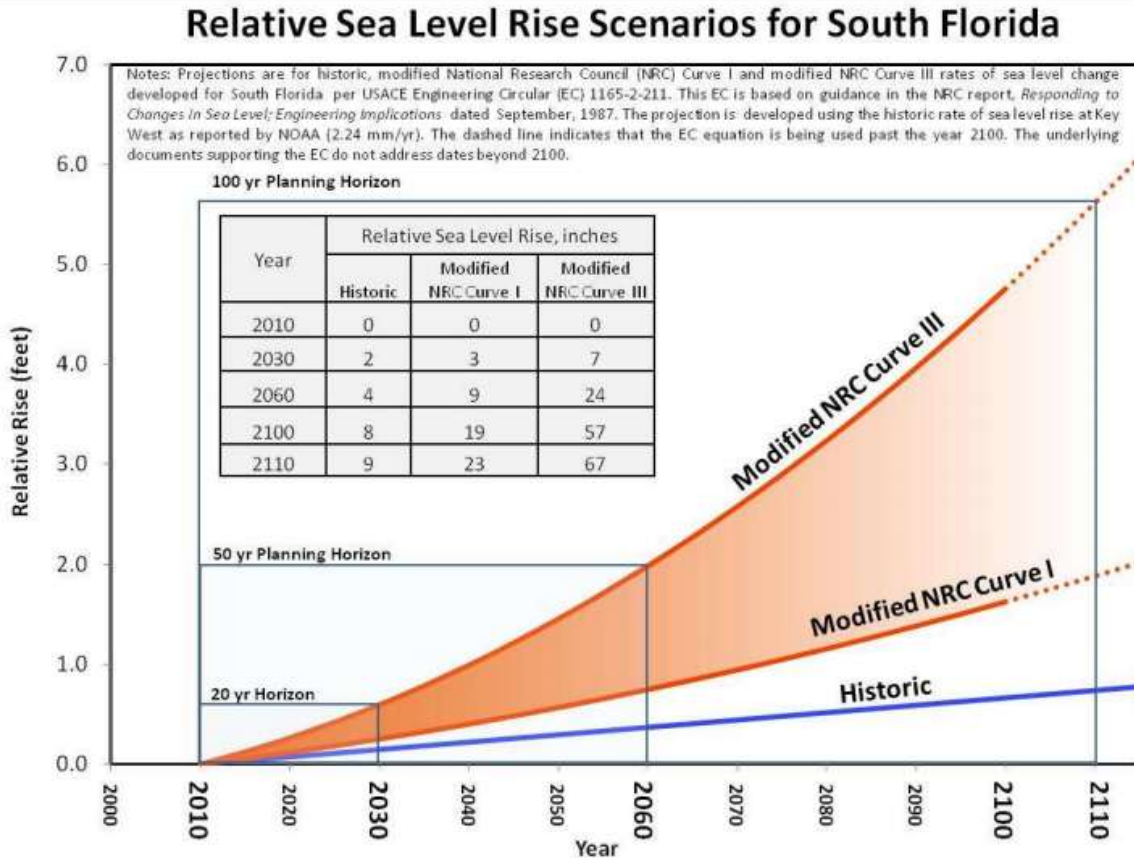


Figure E-1. Unified Southeast Florida Sea Level Rise Projection for Regional Planning Purposes. This projection uses historic tidal information from Key West and was calculated by Kristopher Esterson from the United States Army Corps of Engineers using USACE Guidance (USACE 2009) intermediate and high curves to represent the lower and upper bound for projected sea level rise in Southeast Florida. Sea level measured in Key West over the past several decades is shown. The rate of sea level rise from Key West over the period of 1913 to 1999 is extrapolated to show how the historic rate compares to projected rates.

Planning scenarios after 2060 are presented graphically on page 13 of the report, which is included below. Consult the document at the above link for the discussion of factors affecting the SLR predictions over this time frame.

Figure 3. USACE Sea Level Rise Projection for the South Florida Region through 2110. Unlike the SE FL unified sea level rise projection developed by the Work Group shown in Figure 2, this graphic is developed directly according to the USACE Guidance document and illustrates the projection beyond 2100. With time, the projection increasingly diverges from the historic rate of rise.



The Vulnerability of SE Florida to Sea Level Rise study is in Appendix F. It contains the 1 ft, 2 ft and 3 ft inundation data for SE Florida that is on the Data Set Decals that appear in the SLAP pole decal data sets (pages 29 – 40).

Support from Florida Atlantic University's Center for Environmental Studies

The Florida Center for Environmental Studies at Florida Atlantic University has a website that you can consult for background on Climate Science and resources for educators: <http://www.ces.fau.edu/>

Information on the Risk and Response: Sea Level Rise Summit (June 21-22, 2012) is available at <http://www.ces.fau.edu/SLR2012>

The information regarding the Summit Proceedings will continue to be available at that site after the Summit has concluded as well.

When you know the gps coordinates of the installation location for your pole, (see Procedure on p. for protocol to determine coordinates) contact the Center for Environmental Studies to obtain your data for sea level at that location now, and the projected sea level in a future year.

Support from kids-vs-global-warming.com

The California Sea Level Awareness Project Press Kit has many usable images as well as a great deal of background information on the project. The Press Kit is available at http://kids-vs-global-warming.com/Press_files/SLAP%20PressKit.pdf

Information about global climate change, and what youth can do about it is available at their main website. As is a link to the iMatter iPhone app that youth can download to connect with the broader Youth effort to address global climate change: <http://www.kids-vs-global-warming.com/Home.html>

How to Make a S.L.A.P. pole in SE Florida

MATERIALS

To make the pole, you will need:

1. One white vinyl fence post sheath (8 ft tall, 4in x 4 in)
2. One 4in x 4in fence post cap
3. Vinyl decals to affix to the pole (3.5" wide) – image files provided
 - decal images of inundation data in SE FL
 - decal images for the Sea Level Awareness Program
 - decal images of the story of Global Climate Change
 - decal images of sustainable lifestyle habits that reduce carbon emissions

To make a sign in the shape of a wave, you will need:

1. One 30" long 1"x6" pressure treated pine board (actual dimensions 3/4" thick by 5.5" wide)
2. 1 quart exterior white paint
3. 1 quart exterior blue paint
4. Drill with 1.5" hole saw or drill bit
5. Circular or Miter Saw
6. Jig saw or scroll saw
7. A one inch paint brush
8. A small paint brush for writing words on the sign
9. T-shirt or other cloth rag
10. Drop cloth
11. A yard stick

To attach the sign to the top of the pole, you will need:

1. Minimum 3-#10 Machine bolts and nuts 2.5" long with washers (galvanized)
2. 6" long piece of 1"x4" pressure treated wood
3. Drill with 1/4" bit
4. Screw driver
5. Wrench or pliers

For outdoor installation, you will need:

1. Post hole digger
2. Level
3. Measuring tape
4. One 8 ft 4" x 4" fence post (pressure treated)

For indoor installation, you will need:

1. plastic trash can or similar tub shape with approximately an 18" diameter
2. 80 lb bag quickcrete concrete mix (use crack resistant if you can find it)
3. Knife or case cutting tool
4. One 3 ft tall 4" x 4" fence post
5. Four 2"x2" steel angle corner brackets
6. White paint
7. Paint brush

PROCEDURE

To make the pole:

1. There are 4 sides of the pole. You should decide what you want to place on each side. Be creative.

One possible layout is:

- Information about the Sea Level Awareness Program on one side, together with information about the Southeast Florida Regional Climate Change Action Plan.
- The story of Global Climate Change and Sustainable Lifestyle changes that can reduce carbon emissions on another side.
- Infrastructure inundation decals for 1ft, 2 ft, or 3ft of sea level rise on the other two sides. Decal images are provided for: Ports, Airports, Railroads, Roads, Power plants, Schools, Landfills, Water or Wastewater Treatment Plants, Emergency shelters, Evacuation Routes, and Acres of habitat

Another possible layout is to use three sides of the pole for 1 ft, 2ft, and 3ft inundation data decals, and the fourth for information about the SE Florida Regional Climate Change Compact and The Florida Center for Environmental Sciences at Florida Atlantic University.

2. Print out the decals that you are going to use on paper & tape them to the pole to see if you like the arrangement. If you are going to attach a sign that says, " What will be UNDERWATER?" to the top of the pole, make sure that the side of the pole you attach it to displays inundation decals.
3. Find someone who can print out vinyl decals & email them the files of decal images you want to print, or place your files on a flash drive & take them to a printer who can print weatherproof vinyl decals for you. Have an extra set printed for each pole,

so you can leave them at the installations site in the event that the original decals are damaged.

4. Affix the decals, making sure to allow room for the sign at the top, if you choose to have one. Take care not to create bubbles in the decals.



To make the sign:

1. Start with a 30" long piece of 1"x6" pressure treated wood. (note: the actual dimension of a 1"x6" is actually $\frac{3}{4}$ "x5 $\frac{1}{2}$ "")
2. Cut 45 degree angle off of each end with your choice of saw (circular or miter saw best)
3. Cut eight 1 $\frac{1}{2}$ " holes with a drill and hole saw or bit
4. Use jig saw or scroll saw to cut out the wave shapes. Perfection is not necessary because the variations actually enhance the wave shape.

To paint the sign:

1. Cover work space with a drop cloth.
2. Apply 3 coats of exterior white latex paint to the sign, allowing for appropriate drying time between coats.
3. On the front of the sign (as shown in photograph above) Measure 3 $\frac{1}{4}$ " inches from the bottom left side of the sign, and mark a point on the bottom of the sign. Mark off a rectangle that has that point as its lower left corner, and is 24 in. wide x 3 in tall.
4. Wet the brush with blue paint, and dry it by rubbing it on a dry T-shirt or rag.

5. Dab the dry brush on the area outside the white rectangle, being sure to hit the upper and under sides of the waves and the sides of the sign.
6. Allow to dry thoroughly, then repeat steps 3 - 5 on the reverse side, this time allowing 2 ½" inches between the left bottom point of the sign and the lower left corner of the rectangle, and creating a rectangle that is 18 in wide x 2 ¾ in tall.
7. Use blue paint and a very thin paint brush to paint the words onto the sign either free hand or stenciled: "What will be UNDERWATER?"
8. Allow to dry, and repeat on the reverse side of the sign.

Attaching the sign to the pole:

1. Place the wave with the blank area (on the side with the shorter writing) against the face of the pole.
2. Use a carpenters square to insure a 90 degree angle.
3. Drill three holes through the wave and the wall of the PVC post.
4. Use the holes in the wave to drill matching holes in the 6" long block of 1"x4"
5. The 1"x4" goes inside the post and sandwiches the thin wall PVC
6. Thread the machine screws through the wave, post and block and place a nut and washer on the inside.
7. Finger tighten then check for square. Tighten nuts when square.
8. Touch-up screw heads with white paint to blend.

Determining the Latitude and Longitude of your Pole Installation Site

You may use gps on a smart device to determine your gps coordinates.

Another way to determine the location of your pole installation is to use Google Maps using the following protocol:

1. Enter the address of the location where you will be installing the pole into Google Maps.
2. Use the right click mouse button to select "center map here" from the drop down menu.
3. Paste this javascript code into your browser's URL address window:
javascript:void(prompt(",gApplication.getMap().getCenter()));
4. Click the "go to the address in the location bar" button usually to the right of the address
5. When a pop-up appears showing the coordinates of the center of the map, it will look like this (43.60336, -110.7362)
6. Right click on the coordinates, then copy them, then click OK.

7. Paste the coordinates into google's "search maps" text box, remove the parentheses and click "Search Maps"
8. A popup appears with a marker for the centered spot. This popup has the coordinates in both decimal degrees and in Degrees, Minutes, Seconds.
9. Contact Nicole.hammer@fau.edu at The Florida Center for Environmental Studies at Florida Atlantic University to get the current sea level at this location.
10. If you wish to include a decal with site specific sea level prediction information on your pole, to determine the range of possible sea level predictions in 2100, subtract 19 inches and 57 inches from the current sea level.

Preparing for Outdoor Installation:

1. Dig a 3 ft deep hole with a post hole digger
2. Use a level to assure that the post is vertical
3. Refill the hole, packing the soil firmly around the pole
4. Slide the vinyl fence post sheath over the installed fence post

Preparing for Indoor Installation:

1. Place a 3 ft tall 4" x 4" fence post in the center of the trash can or tub. (diameter of base should be approximately 18")
2. Spray a thin layer of machine oil or wd-40 in the base of can. This will make it easier to remove the form later.
3. Mix the Quickcrete per package instructions.
4. Attach brackets to bottom four inches of 4x4. The configuration isn't really important. The point is to have pieces of metal protruding from the side of the post to lock into the concrete.
5. Use a level to assure that the fence post remains vertical, and cast cement around the post using the tub/trash can as a form. It will be about 5" thick. Work the concrete well to get out air bubbles. Smooth the surface.
6. Allow to cure overnight
7. Remove trash can by tilting it over and pulling out the post and base
8. Paint cement if desired
9. Slide the vinyl fence post sheath over the fence post that is protruding from the cement.

Decal Images

**Data Source, QR Codes, Florida Center for Environmental Studies,
and
SE Florida Regional Climate Change Compact**

Data from:

The Analysis of the Vulnerability of Southeast Florida to Sea Level Rise (Dec 2011)

Prepared by the Southeast Florida Regional Climate Change Compact Inundation Mapping and Vulnerability Assessment Work Group

Expert assessment says to prepare for 4 feet of sea level rise by the end of the century. Conservatively, even 1 or 2 feet, has serious impacts for South Florida.

On Dec. 9, 2011 representatives from Monroe, Broward, Miami-Dade, and Palm Beach counties met to approve a far-reaching, bipartisan Climate Action Plan that lays out the steps local governments need to take, working together, to make sure the region's water supplies, transportation networks, buildings and other infrastructure can withstand the coming changes.

***-Michael D. Lemonick,
Environment 360***

This pole was DONATED by students living in SE Florida who will be between 60 and 70 years old when the sea level has risen 1 ft.

In the hope that

By working together, we can avoid the worst effects of Global Climate Change.

**AFTER 1 FT
SEA LEVEL RISE**

**AFTER 3 FT
SEA LEVEL RISE**

**AFTER 2 FT
SEA LEVEL RISE**

BY

2

1

0

0

**The sea level at
this site is**

in 2012.

**Sea level at this
site is projected
to be between**

and

in 2100.

See instructions on p. 11 for
determining the information to
be entered in the above decal.

**SCAN THIS FOR
INFORMATION FROM
THE FLORIDA CENTER
FOR ENVIRONMENTAL
STUDIES AT FLORIDA
ATLANTIC UNIVERSITY.**



**SCAN THIS FOR
INFORMATION ON THE
SEA LEVEL RISE SUMMIT.**



**SCAN THIS FOR
INFORMATION ON
HOW TO MAKE A
SLAP POLE LIKE
THIS ONE.**



SE Florida Sea Level Awareness Project Images





iMatter
kids-vs-global-warming.com



The first SE Florida SLAP pole is installed at The Unitarian Universalist Fellowship of Boca Raton on May 13, 2012.

SLAP team installing prototype pole for documentary film crew



The SLAP pole prototype

California SLAP pole originator, Alec Lorz, with the Ventura Youth who originated the Sea Level Awareness Project can be seen in these images, and the image on the following page.



Alec Loorz explaining pole message to Ventura City Manager, Rick Cole

**THE STORY OF GLOBAL CLIMATE CHANGE
DECAL SET
(RED IMAGES)**



i Emit



i Emit



i Flood



i Gone



i Melt



i Warm

**INDIVIDUALS CAN REDUCE THEIR CARBON FOOTPRINTS
DECAL SET
(GREEN IMAGES)**



i Bike



i Hang



i Plant



i Pledge



i Power



i Reduce

**SE FLORIDA
1 FT INUNDATION
DECAL SET**

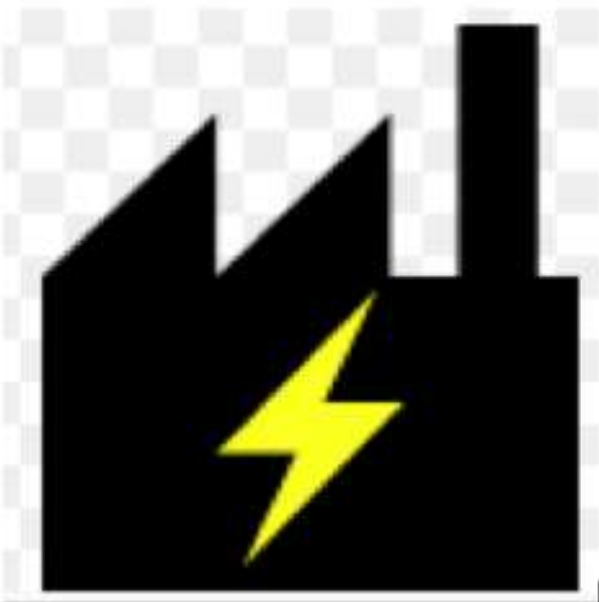
**2 AIRPORTS WITH >20% OF
PROPERTY BELOW SEA LEVEL
IN SE FL**



**0.1% OF RR TRACK MILES BELOW
SEA LEVEL IN SE FL**



**3 POWER PLANTS WITH >20%
OF PROPERTY BELOW SEA
LEVEL IN SE FL**



**>81 MILES OF ROADS BELOW
SEA LEVEL IN SE FL**



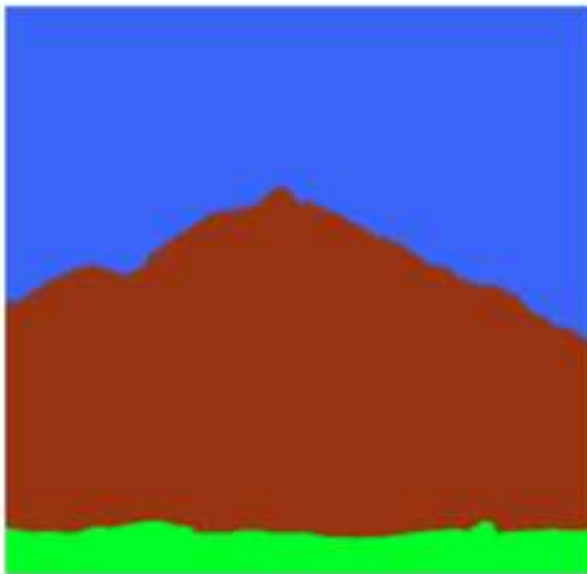
**2- WATER OR WASTEWATER
TREATMENT PLANTS WITH >20%
OF PROPERTY BELOW SEA
LEVEL IN SE FL**



**3 HOSPITALS WITH PROPERTY
BELOW SEA LEVEL IN SE FL**



**2 LANDFILLS WITH > 20% OF
PROPERTY BELOW SEA LEVEL
IN SE FL**



**11 SCHOOLS WITH PROPERTY
BELOW SEA LEVEL IN SE FL**



**5 EMERGENCY SHELTERS
IN SE FL**



**55,686 ACRES OF HABITAT
IN SE FL**



**SE FLORIDA
2 FT INUNDATION
DECAL SET**

**5 AIRPORTS WITH >20% OF
PROPERTY BELOW SEA LEVEL
IN SE FL**



**0.42% OF RR TRACK MILES
BELOW SEA LEVEL IN SE FL**



**6 POWER PLANTS WITH >20%
OF PROPERTY BELOW SEA
LEVEL IN SE FL**



**>346 MILES OF ROADS BELOW
SEA LEVEL IN SE FL**



**3- WATER OR WASTEWATER
TREATMENT PLANTS WITH >20%
OF PROPERTY BELOW SEA
LEVEL IN SE FL**



**5 HOSPITALS WITH PROPERTY
BELOW SEA LEVEL IN SE FL**



**3 LANDFILLS WITH > 20% OF
PROPERTY BELOW SEA LEVEL
IN SE FL**



**14 SCHOOLS WITH PROPERTY
BELOW SEA LEVEL IN SE FL**



**5 EMERGENCY SHELTERS
IN SE FL**



**69,714 ACRES OF HABITAT
IN SE FL**



**SE FLORIDA
3 FT INUNDATION
DECAL SET**

**2 PORTS WITH >10% BELOW
SEA LEVEL IN SE FL**



**8 POWER PLANTS >20%
BELOW SEA LEVEL IN SE FL**



**9 AIRPORTS >20% BELOW SEA
LEVEL IN SE FL**



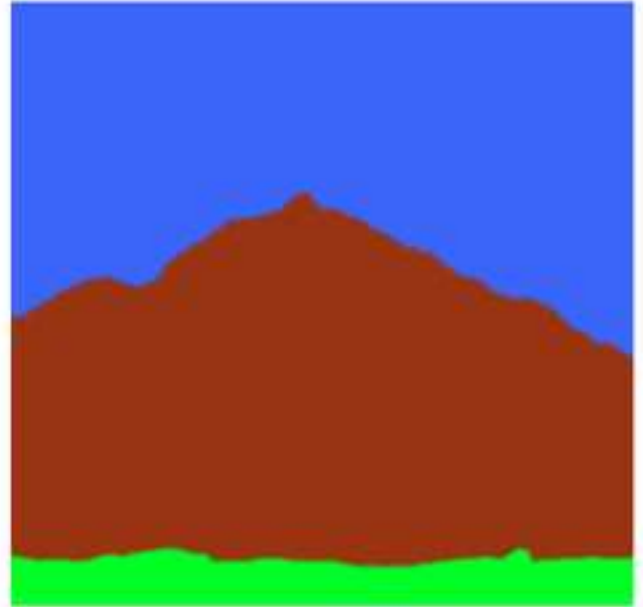
**1% OF RR TRACK MILES BELOW
SEA LEVEL IN SE FL**



**>893 MILES OF ROADS BELOW
SEA LEVEL IN SE FL**



**4 LANDFILLS WITH > 20% OF
PROPERTY BELOW SEA LEVEL
IN SE FL**



**8- WATER OR WASTEWATER
TREATMENT PLANTS WITH >20%
OF PROPERTY BELOW SEA
LEVEL IN SE FL**



**10 HOSPITALS WITH PROPERTY
BELOW SEA LEVEL IN SE FL**



**19 SCHOOLS WITH PROPERTY
BELOW SEA LEVEL IN SE FL**



**89,757 ACRES OF HABITAT
IN SE FL**



**6 EMERGENCY SHELTERS
IN SE FL**



Arranging to Install the Poles in Public Spaces

**First Follow Up Communication containing Background
Information and Description of your Pole**

SE Florida Sea Level Awareness Program

S.L.A.P. Pole

Core Message: SE Florida has a plan to combat the effects of climate change induced sea level rise. If we work together to implement the plan, we may be able to avoid the worst scenarios.



San Diego, CA SLAP pole

BACKGROUND: _____YOUR SCHOOL _____has been working on a science-based community service project to create public awareness of the effects of climate change related sea level rise in SE Florida, and the bipartisan SE Florida Regional Climate Change Compact's Action Plan to protect our land and infrastructure from sea level rise. The culmination of this community service project is the creation of a Sea Level Awareness Program Pole (S.L.A.P. pole). The SE Florida Sea Level Awareness Program is modeled after the program used in California that was developed by Kids vs Global Warming. Students have constructed a pole that presents data about what land and public infrastructure will be underwater in the coming years. It is their hope that by raising awareness about sea level rise in Southeast Florida, people will come together to support the SE Florida Regional Climate Change Action Plan, so that the worst predicted effects can be avoided.

The pole will have a QR code on it, that when scanned by a smart device, will direct the viewer to Florida Atlantic University's Center for Environmental Studies. The website has further information and resources on the effects of sea level rise on SE Florida.

What information will be on the SLAP pole?

Describe or include images of the decals that you have decided to include on the pole. You can describe each side of the pole separately.

What will be under water? (Sign at top of pole)



Detail of a sign attached to the top of a Ventura, CA SLAP pole designed by Alec Loorz, the 14 year old founder of Kids vs Global Warming

Ours will say, "What will be underwater?"

SIDES 1 & 3: (example only – substitute your decal images for these)

SIDE 1: 1 ft sea level rise



THIS POLE WILL BE (DISTANCE) FROM THE ATLANTIC OCEAN:

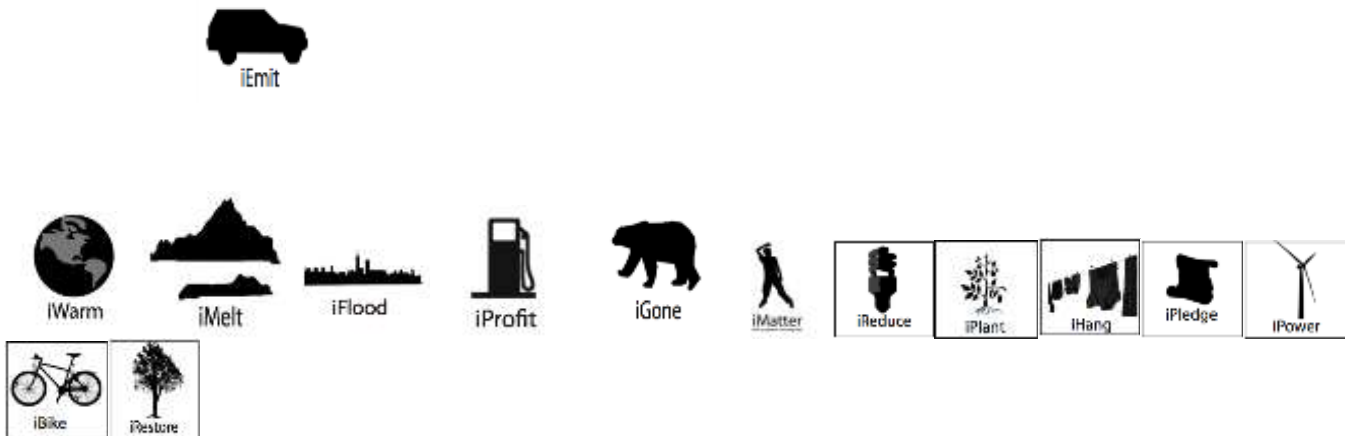
Data from:
The Analysis of the Vulnerability of Southeast Florida to Sea Level Rise (Dec 2011)
 Prepared by the Southeast Florida Regional Climate Change Compact Inundation Mapping and Vulnerability Assessment Work Group

SIDE 3: 2 ft sea level rise (example only – substitute your decal images for these)



Data from:
The Analysis of the Vulnerability of Southeast Florida to Sea Level Rise (Dec 2011)
 Prepared by the Southeast Florida Regional Climate Change Compact Inundation Mapping and Vulnerability Assessment Work Group

SIDE 2: The story of global climate change & what individuals can do about it (example only – substitute your decal images for these)



SIDE 4: QUOTES (example only – substitute your decal images for these)

We have forgotten
how to be good
guests, how to
walk lightly on the
earth as its other
creatures do.

-Barbara Ward

On Dec. 9, 2011
representatives from Monroe,
Broward, Miami-Dade, and
Palm Beach counties met to
approve a far-reaching,
bipartisan Climate Action
Plan that lays out the steps
local governments need to
take, working together, to
make sure the region's water
supplies, transportation
networks, buildings and other
infrastructure can withstand
the coming changes.

-Michael D. Lemonick, Environment 360

THIS POLE WAS
DONATED BY STUDENTS
WHO WILL BE BETWEEN
60 AND 70 YEARS OLD
WHEN THE SEA LEVEL
HAS RISEN 1 FT

In the Hope That

BY WORKING TOGETHER
WE CAN AVOID THE
WORST EFFECTS OF
GLOBAL CLIMATE
CHANGE.

How will the pole be constructed?

The SLAP pole is a thin walled square PVC tube that is made to slip over a 4"x4" wood post. An 8' 4x4 wood post will be buried 3' into the ground and secured with quick setting cement, leaving 5' of it above ground. The 8 ft tall PVC tube will be slipped over it so that the SLAP pole will be standing 8' into the air. 5' of it will have the underlying wood post, while ~3' will stick up beyond.



*Installation of a Ventura, CA
SLAP pole*

Formal Exhibit Request Letter

<Person Responsible at the installation site>

<Organizational Affiliation>

<Full Address>

<Date>

Dear <person responsible for installation site>,

Please accept this letter and appended documentation as a formal exhibit request for two new exhibit items from <name of your school>. Contact information for <your school> appears on the letterhead. <name of contact person at school>, who is managing this community service project, can be reached at <phone number> <email address>.

The SE Florida S.L.A.P. Pole is designed to create awareness about:

- climate change related sea level rise in Southeast Florida;
- the Southeast Florida Regional Climate Action Plan, and
- sustainable lifestyle habits.

This exhibit is a white 8 ft tall vinyl fence post sheath with a sign cut in the shape of breaking waves attached to the top of it. The sign reads, "What will be UNDERWATER?" Details of the vinyl decals affixed to the 4 sides of the post, together with source citations and documentation are attached.

The S.L.A.P. pole can be displayed outdoors or indoors in high traffic areas to maximize public awareness.

The sea level awareness pole would be donated to <name of organization you are applying to>, to be exhibited for a duration of time at the discretion of the <name of organization you are applying to>.

One possible target date for installation is <suggest one or more dates when your students will be available for the installation>.

The fabrication of the pole is donated together with the pole itself. If the pole is installed outdoors, installation expense will include an 8 ft fence post and the cost of digging a 3 ft deep hole in which to place it. If the pole is installed indoors, a base such appears in the appended photograph will be required. <name of your school, unless you are not willing to provide the base> will provide such a base upon request. If the pole is displayed outdoors, possible annual or semi-annual decal replacement will be required. <name of your school> will provide an extra set of decals and the electronic files of decal images, so that additional decals could be reproduced if needed.

Projections of sea level rise in SE Florida represented on the pole are from: Southeast Florida Regional Climate Change Compact Technical Ad hoc Work Group. April 2011. A Unified Sea Level Rise Projection for Southeast Florida. A document prepared for the Southeast Florida Regional Climate Change Compact Steering Committee. Page ii. (pdf page 4).

Data that appears on the pole citing the effects of inundation on infrastructure in SE Florida came from: Review Draft: Southeast Florida Regional Climate Change Compact Inundation Mapping and Vulnerability Assessment Work Group. January 2012. Analysis of the Vulnerability of Southeast Florida to Sea Level Rise. pp. 7-8.

These documents appear as Appendix D and Appendix E respectively to the Draft Southeast Florida Regional Climate Change Action Plan available at this link:

http://www.southeastfloridaclimatecompact.org/index_files/Page648.htm

When the gps coordinates of the pole are made available, the FAU Center for Environmental Sciences Climate Change Initiative will generate the sea level projection for the precise location of the pole, and a specific citation will be submitted for that data when it is prepared.

Thank you for considering the inclusion of the SE Florida S.L.A.P. Pole at <name of organization to which you are applying>.

Sincerely,

<typed name of school contact>

Attach a copy of the first follow-up communication with the complete description of your pole. Add in any details that may have been agreed upon with the people at the installation site when your students presented the pole to them. You may also wish to include the Explanation of Data Source that appears on the following page.

Appendix A

Explanation of Data Source

Data that appears on the decals citing the effects of inundation on infrastructure in SE Florida comes from:

Review Draft: Southeast Florida Regional Climate Change Compact Inundation Mapping and Vulnerability Assessment Work Group. January 2012. Analysis of the Vulnerability of Southeast Florida to Sea Level Rise. pp. 7-8.

This document appear as Appendix E of the Draft Southeast Florida Regional Climate Change Action Plan available at this link:

http://www.southeastfloridaclimatecompact.org/index_files/Page648.htm

All three decal sets representing infrastructure under sea level at 1 ft, 2 ft, and 3 ft of sea level rise are given for SE Florida totals: Monroe County, Miami Dade County, Broward County and Palm Beach County combined. If you wish to make decals for your specific county, that data is detailed in the two pages below.

Review Draft - Analysis of the Vulnerability of Southeast Florida to Sea Level Rise



TABLE 2: Major Infrastructure in Southeast Florida Vulnerable to Impacts from Sea Level Rise at 1, 2 and 3 foot Scenarios. This table summarizes potential impacts to critical infrastructure for each of the four Counties in the Southeast Florida region caused by sea level rise for three scenarios based on inundation maps generated by the South Florida Water Management District using 2007-2008 LIDAR data from the Florida Division of Emergency Management. Methods used for Inundation Mapping and Vulnerability Analysis are described in Appendix 2 and 3 of this document. Please note that inundation, especially in the 1 and 2 foot scenarios, is often confined to marginal areas of the properties or impacting existing drainage infrastructure on site. The actual structures often, but not always, remain unimpacted. Please see the chapters for each County for a more thorough description of impacts.

Facility Type	Sea Level Rise Scenario	Monroe County	Miami-Dade County	Broward County	Palm Beach County	Southeast Florida Region
Ports		2	2	1	1	6
# Ports with > 10% property below sea level	1 foot	IND	0	0	0	-
	2 foot	IND	0	0	0	-
	3 foot	IND	1	1	0	22
Airports		6	6	4	12	28
# Airports with > 20% property below sea level	1 foot	2	0	0	0	2
	2 foot	3	2	0	0	5
	3 foot	6	2	1	0	9
Power plants		13*	1	2	4	7
# Power Plants with > 20% property below sea level	1 foot	1	1	1	0	3
	2 foot	4	1	1	0	6
	3 foot	6	1	1	0	8
Railroads (RR)		No RRs				
percent of miles inundated	1 foot	N/A	0.1%	0	0	0.10%
	2 foot	N/A	0.4%	0.02%	0	0.42%
	3 foot	N/A	0.7%	0.25%	0.05%	1%
Roads by FDOT Category						
number of miles (percent of total miles)	1 foot	ND	72 m (<1%)	9.5 m (<1%)	0 m	<81 miles
	2 foot	ND	257 m (3%)	76 m (1%)	13 m	>346 miles
	3 foot	ND	556 m (6%)	296 m (4%)	41 m (<0.01%)	>893 miles
Water/Wastewater Treatment Plants**		14	6	40	38	102
# WTP and WWTP with > 20% property below sea level	1 foot	2	0	0	0	2
	2 foot	3	0	0	0	3
	3 foot	7	0	1	0	8
Landfills		4	3	7	3	17
# Landfills with > 20% property below sea level	1 foot	1	ND	1	0	22
	2 foot	1	ND	2	0	23
	3 foot	2	ND	2	0	24
Hospitals		4	34	26	14	78
# Hospitals with property below sea level	1 foot	3	0	0	0	3
	2 foot	3	0	2	0	5
	3 foot	4	3	2	1	10
Schools		17	897	239	187	1340
# Schools with property below sea level	1 foot	11 (3>10%)	0	0	0	11
	2 foot	14 (5>20%)	0	0	0	14
	3 foot	14 (8>20%)	3	1	1	19
Emergency Shelters		7	69	36	17	129
# Shelters with property below sea level	1 foot	(5/7) 71%	0	0	0	(5/129) 4%
	2 foot	(5/7) 71%	0	0	0	(5/129) 4%
	3 foot	(6/7) 86%	0	0	0	(6/129) 5%
Evacuation Routes						
	1 foot	6.16%	0	ND	ND	ND
	2 foot	12.66%	0	ND	ND	ND
	3 foot	24%	4 m	ND	ND	ND
Marinas						
number of acres impacted	1 foot	IND	21 acres	IND	IND	IND
	2 foot	IND	44 acres	IND	IND	IND
	3 foot	IND	81 acres	IND	IND	IND

IND -- indeterminate ND - not determined by county staff N/A - not applicable to this county
 * Monroe has no power plants - Their analysis was limited to energy facilities and was not included in the SE FL Region Total
 **Total WTP and WWTP facilities was not available from all Counties. Value shown reflects an estimate of # facilities reviewed.

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TABLE 3: Land Use and Property Values in Southeast Florida Vulnerable to Impacts from Sea Level Rise at 1, 2 and 3 Feet Scenarios. This table summarizes potential impacts to land uses and taxable property values for each of the four counties in the Southeast Florida region covered by sea level rise for three scenarios based on inundation maps generated by the South Florida Water Management District using 2007-2008 LIDAR data from the Florida Division of Emergency Management. Methods used for Inundation Mapping and Vulnerability Analysis are described in Appendix 2 and 3 of this document.

Results of Analysis		Miami-Dade County		Broward County		Palm Beach County		S.F. Region			
Sea Level Rise Scenario		Miami-Dade County		Broward County		Palm Beach County		S.F. Region			
Acres of Future Land Use	1 foot	Commercial (24,434 acres)	Commercial (107,288 acres)	Commercial (1,294 acres)	Low Residential 1 (282 acres)	Low Residential 1 (282 acres)	Miami and Palm Beach County - unincorporated only				
		Residential Commercial (14,342 acres)	Electrical Generation (2,332 acres)	Recreation and Open Space (264 acres)	Low Residential 2 (211 acres)	Low Residential 2 (211 acres)					
		Military (2,332 acres)	Agricultural (2994 acres)	Reservoirs in Irregular Areas (263 acres)	Low Residential 3 (85 acres)	Low Residential 3 (85 acres)					
		Commercial (26,894 acres)	Commercial (126,809 acres)	Commercial (1,140 acres)	Low Residential 1 (282 acres)	Low Residential 1 (282 acres)					
		Residential Commercial (11,432 acres)	Electrical Generation (2,999 acres)	Agricultural (254 acres)	Low Residential 2 (229 acres)	Low Residential 2 (229 acres)					
		Military (1,294 acres)	Agricultural (2746 acres)	Recreation and Open Space (223 acres)	Low Residential 3 (223 acres)	Low Residential 3 (223 acres)					
	2 foot	Commercial (27,948 acres)	Commercial (131,088 acres)	Commercial (1,124 acres)	Low Residential 1 (282 acres)	Low Residential 1 (282 acres)	Miami and Palm Beach County - unincorporated only				
		Residential Commercial (11,737 acres)	Electrical Generation (2,088 acres)	Agricultural (2198 acres)	Low Residential 2 (284 acres)	Low Residential 2 (284 acres)					
		Residential Medium (1,221 acres)	Agricultural (33,288 acres)	Right of Way (218 acres)	Low Residential 3 (283 acres)	Low Residential 3 (283 acres)					
		number of acres (percent of total acres)	1 foot	44,885 (58.19%)	33,648 (32%)	3,732 (3.31%)				596 (0.72%)	80,861 acres (53.24%)
		2 foot	33,266 (78.85%)	138,347 (34%)	8,508 (7.98%)	489 (0.81%)				253,245 acres (66.76%)	
		3 foot	36,638 (98.84%)	148,895 (38%)	26,484 (23.3%)	868 (0.93%)				248,795 acres (66.76%)	
Acres of Habitat Type / Land Use / Land Cover	1 foot	Mangrove (11,708 acres)	Not Analyzed	Wetland Hardwood Forest (1,781 acres)	Natural Shores (212 acres)	Miami and Palm Beach County - unincorporated only					
		Scrub Mangrove (2917 acres)	Not Analyzed	Vegetated Non-Forested Wetland (208 acres)	Mangrove Swamps (212 acres)						
		Enhanced (1,528 acres)	Not Analyzed	Upland Hardwood Forest (126 acres)	Beachrock (29 acres)						
		Mangrove (21,293 acres)	Not Analyzed	Wetland Hardwood Forest (2291 acres)	Natural Shores (212 acres)						
		Scrub Mangrove (1,818 acres)	Not Analyzed	Vegetated Non-Forested Wetland (2,712 acres)	Mangrove Swamps (372 acres)						
		Enhanced (1,398 acres)	Not Analyzed	Residential, Medium Density (212 acres)	Beachrock (29 acres)						
	2 foot	Mangrove (11,588 acres)	Not Analyzed	Wetland Hardwood Forest (1,552 acres)	Natural Shores (216 acres)	Miami and Palm Beach County - unincorporated only					
		Scrub Mangrove (1,803 acres)	Not Analyzed	Vegetated Non-Forested Wetland (188 acres)	Mangrove Swamps (282 acres)						
		Development Land (1,218 acres)	Not Analyzed	Wetlands Dry Ponds (223 acres)	Beachrock (29 acres)						
		number of acres (percent of total acres)	1 foot	38,827 (53%)	Not Analyzed				3,736 (5.37%)	3,861 (5.3%)	53,888 acres impacted
		2 foot	38,362 (71.9%)	Not Analyzed	8,639 (13.7%)				4381 (6.37%)	48,782 acres impacted	
		3 foot	44,381 (89%)	Not Analyzed	26,625 (41.6%)				5729 (8.57%)	69,735 acres impacted	
Feasible Value of Property	Upper estimate of taxable property value impacted	1 foot	\$1,762,294,796	Not Analyzed	\$826,132,856	\$156,635,867	Does not include Miami-Dade				
		2 foot	\$8,388,138,229	Not Analyzed	\$1,775,685,858	\$1,821,267,463					
		3 foot	\$11,847,753,847	Not Analyzed	\$1,889,837,236	\$4,495,511,757					

Appendix B STUDENT INTRODUCTORY PROJECT OVERVIEW HANDOUT



Deciding if we want to make signs



Creating pole(s) and voting to see if we want waves on top



No wave sign vs with wave sign pics

Deciding if we want to create a banner to carry when we install our pole(s)



Meeting with public officials to arrange pole sites & creating a press packet to get the word out so people come to the pole installation



Appendix C

TEACHER CHECKLIST

1. Student Group Identified
2. Informational Meeting Scheduled
3. Consult FAU CES or Kids vs Global Warming with any questions
4. Determine pole decals to be used
5. Decide if sign will be included on top
6. Layout design on paper
7. Obtain Materials
8. Create mock-up pole with all paper versions of decals attached
9. You may make first contacts at potential installation sites at this time, typically by phone so that you can make an appointment with the appropriate contact
10. Send out first Follow up Communication and verify appointment (pp. 42-45)
11. Student presentations of the mock-up pole at potential installation sites
12. Personal email follow-up with your contact information
13. Complete pole construction, being sure to maintain your decal files in a way that can be emailed to the installation site as well as communicated to the printer who will print out the vinyl decals for you
14. Continue to follow up with your contacts at the potential installation sites
15. Send the Formal Exhibit Request Letter on your letterhead if requested, or fill out an exhibit request form if one is provided for you
16. Schedule installation
17. Mobilize student groups to attend the installation & to work with the installation site staff to install the pole
18. Contact the press regarding the installation
19. Give the extra decal set to the supervisor at the installation
20. Follow up email to installation site with the data files of the decals on the pole
21. Follow up with a school newsletter article