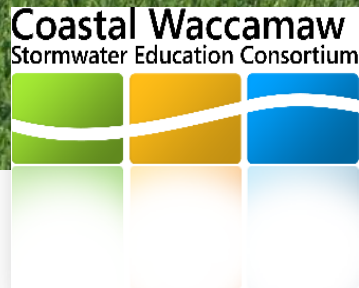




# Surfside Beach Volunteer Water Quality Monitoring Program 2<sup>nd</sup> Annual Data Conference



# Volunteer Monitoring Program Goals

- Identify land-based sources of pollutants
- Detect illicit discharges
- Detect trends over time
- Document improvements
  - Regulatory stormwater program
  - Restorations



**Promote environmental stewardship**  
***Neighborhood Watch & Advocacy***

# Agenda

- Brief review of data trends to date
- Feedback from the volunteers on any technical concerns
- 2014 sampling dates
- Formal training on the new Orion multimeters
- Oct 22 Town Council Workshop on Pond Ordinance
  - Draft agenda
  - VM data will be presented

## What do we know about our ponds and can we boat in them?

A PROGRAM FOR THE TOWN OF SURFSIDE BEACH

Tuesday, October 22nd 2013 5:00 - 6:00 pm

Surfside Beach Town Hall

115 Highway 17 North

Surfside Beach, SC

Featured Speakers:

Ben Powell, Natural Resource Extension Agent  
Clemson University

Dr. Erik Smith, Research Coordinator  
North Inlet-Winyah Bay National Estuarine Research Reserve

Dr. Susan Libes, Professor of Marine Science and Chemistry  
Coastal Carolina University

Facilitated by: Michelle LaRocco  
Coastal Training Program Coordinator  
North Inlet-Winyah Bay National Estuarine Research Reserve

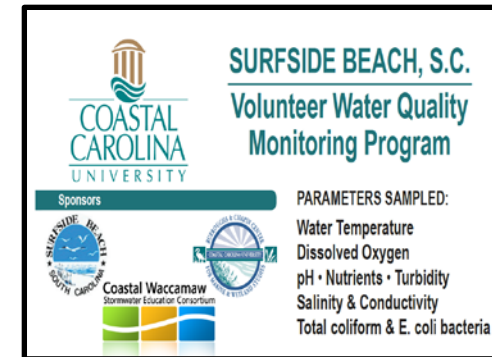
Learn about the purpose of and proper maintenance for functioning stormwater ponds and what the current research says about potential human health risks from recreational use.





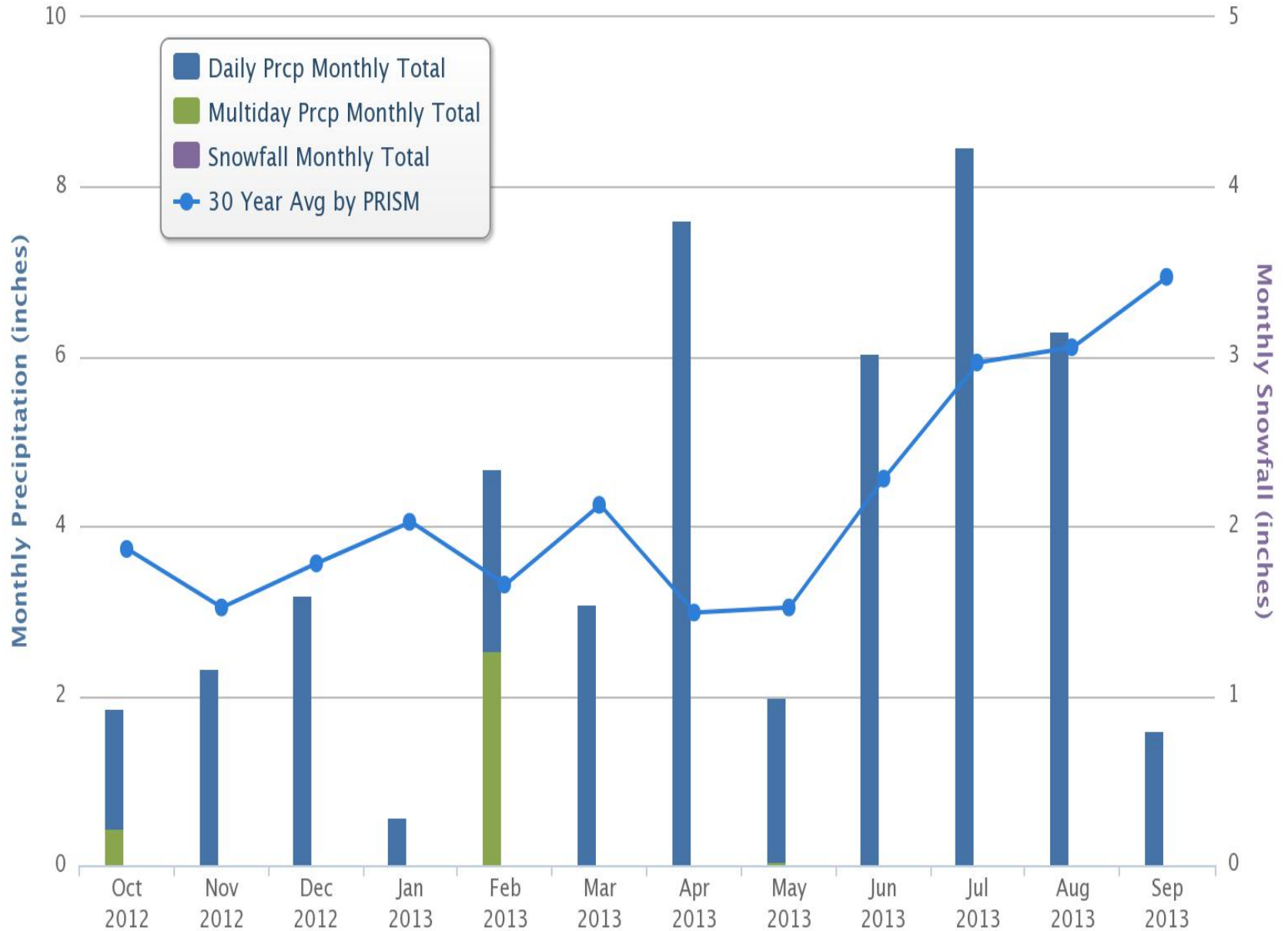
# Data review

- VM data
- Rain data – Cocorahs summary
- SC DHEC Beach Monitoring data
- Status report on other science projects
  - NOAA NERRS Swash cycle handout
  - SC Sea Grant Stormwater Pond Project
  - SC Sea Grant Stormwater Pond Aeration Project
- Updated web pages
  - Visit your data!
  - Presentations are posted



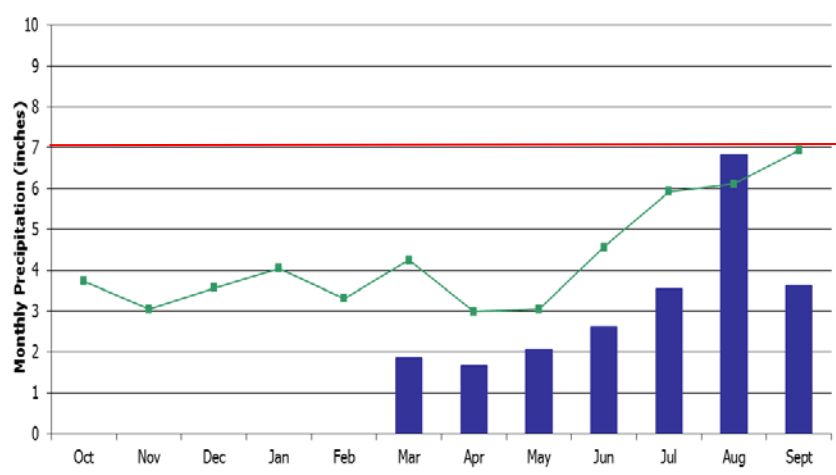
# Monthly Precipitation for the 2013 Water Year (Oct 2012 - Sept 2013)

Station: SC-HR-39 Surfside Beach 1.0 NE

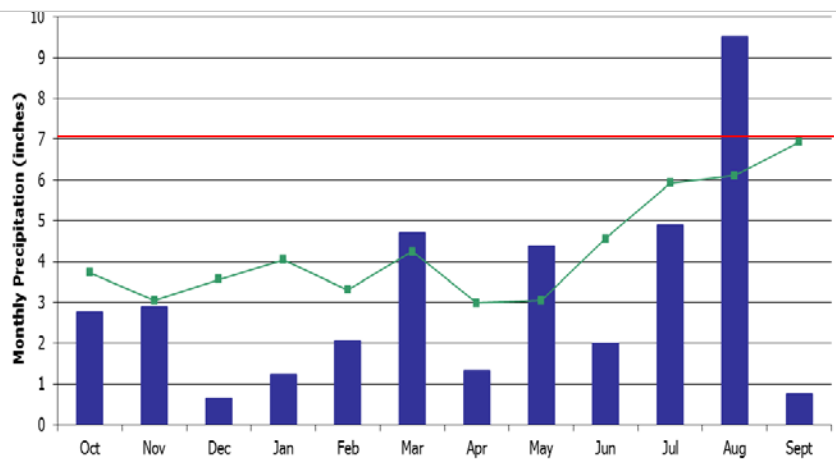




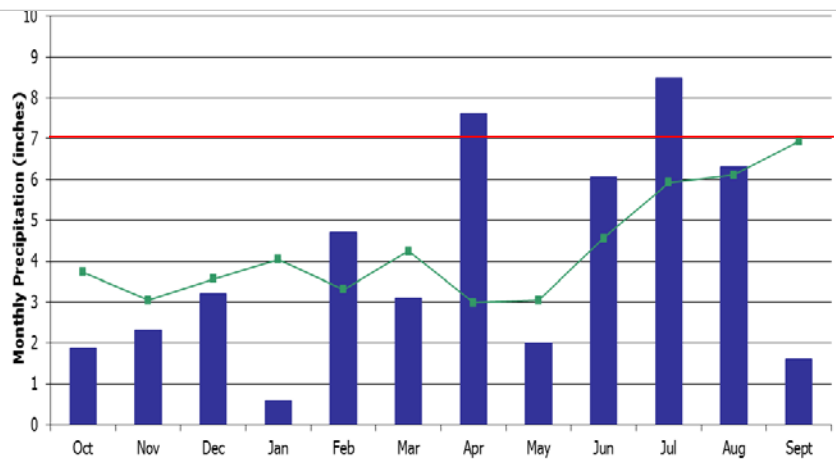
Water Year	Total Inches
2011	Incomplete
2012	37.09
2013	47.74
Prism 30-yr AVG	51.50



Oct 2010 –  
Oct 2011



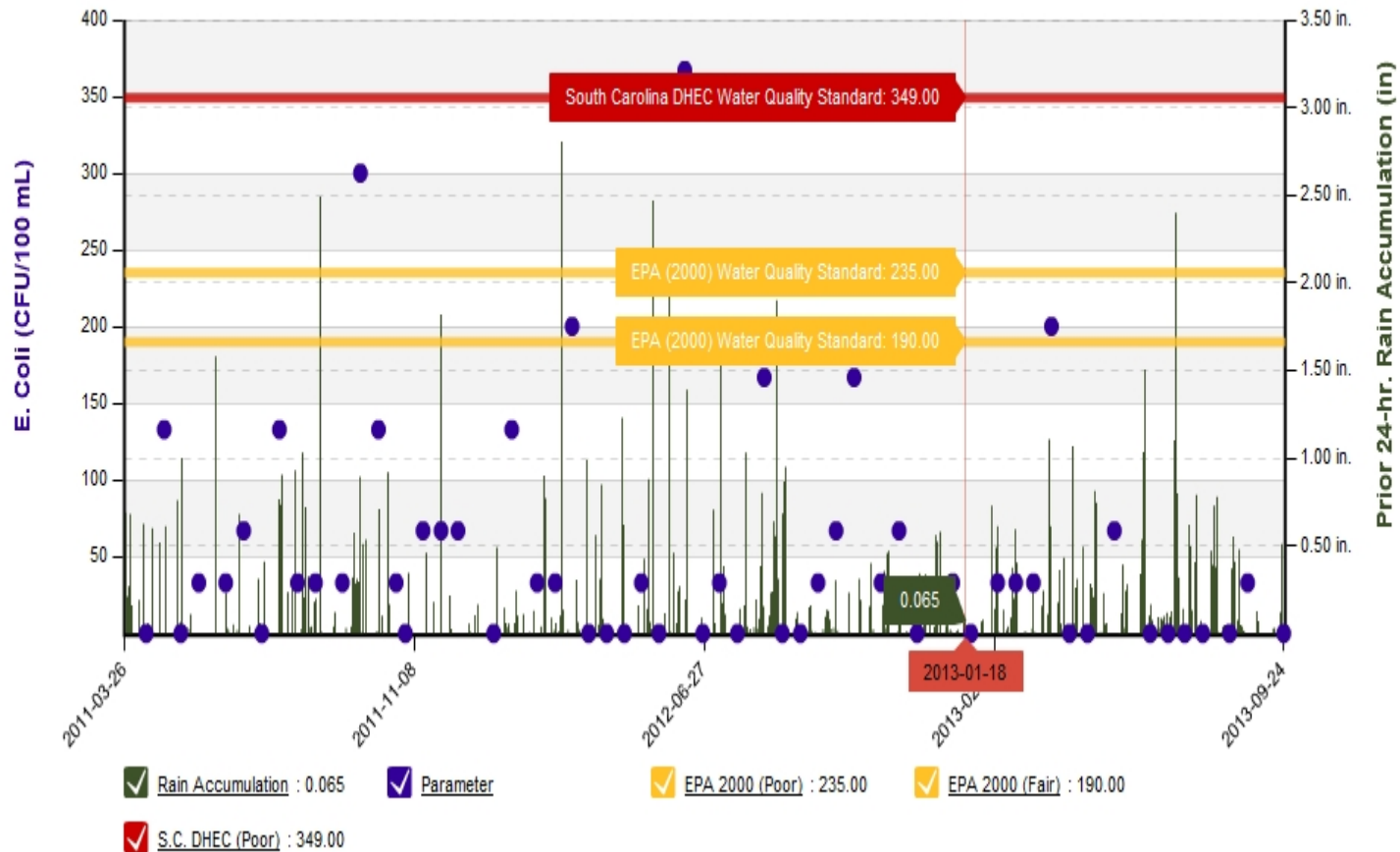
Oct 2011 –  
Oct 2012



Oct 2012 –  
Oct 2013

# Rain data are integrated with online VM data

chart by amCharts.com

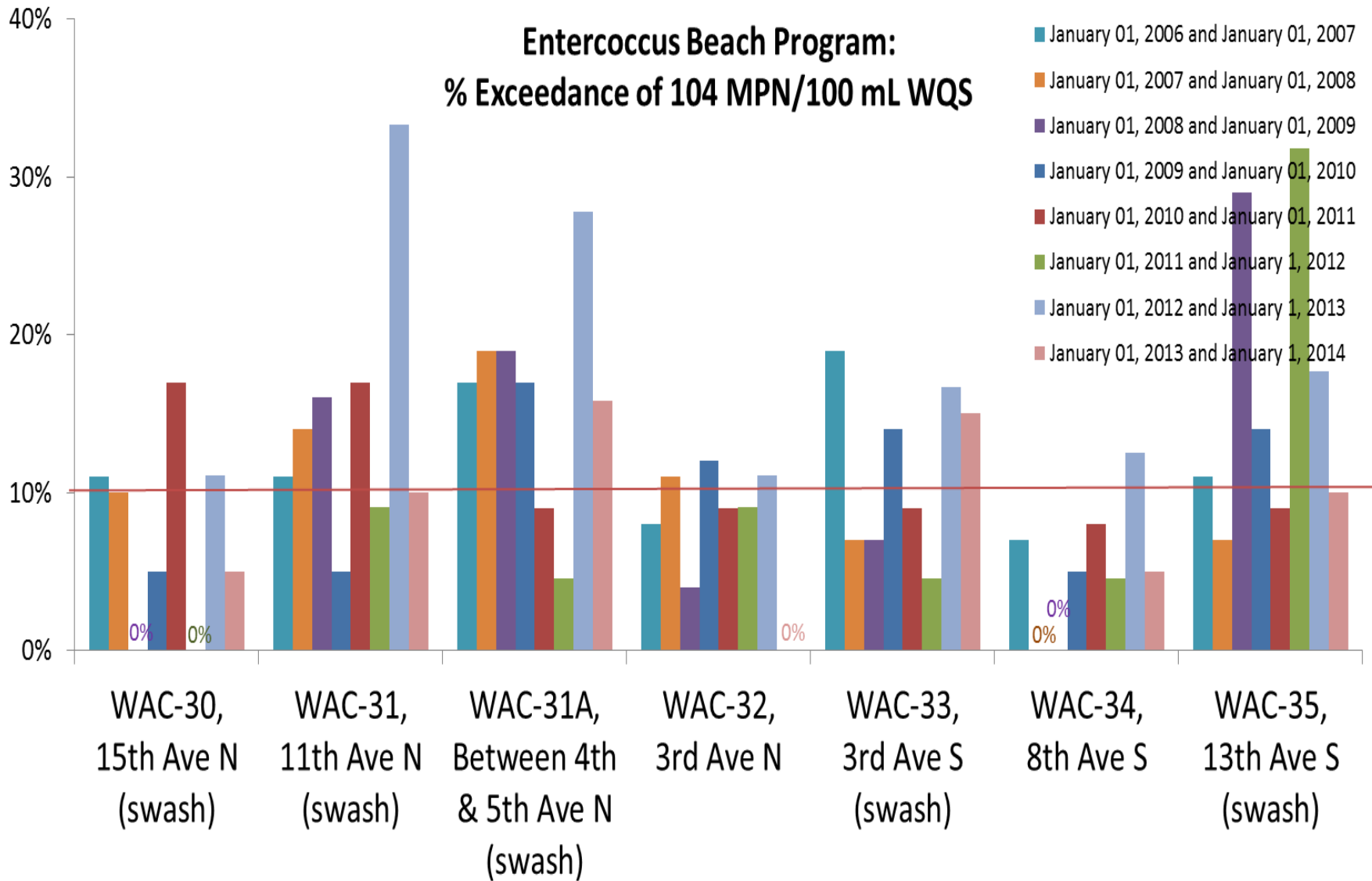




# Change in bacteria water quality standard

- Freshwater fecal indicator bacteria is now E. coli as per SC DHEC.
- SC DHEC for Class FW: Not to exceed a geometric mean of 126/100 ml based on at least four samples collected from a given sampling site over a 30 day period, nor shall a single sample maximum exceed **349 CFU/100 ml**.
- EPA (2012) For estimated illness rate of 32 per 1000 bathers, EPA recommends a Beach Action value of 190 CFU/100 mL. For estimated illness rate of 36 per 1000 bathers, EPA recommends a Beach Action value of **235 CFU/100 mL**.

## Enterococcus Beach Program: % Exceedance of 104 MPN/100 mL WQS



2012 303(d) list: data from 2006 to 2010

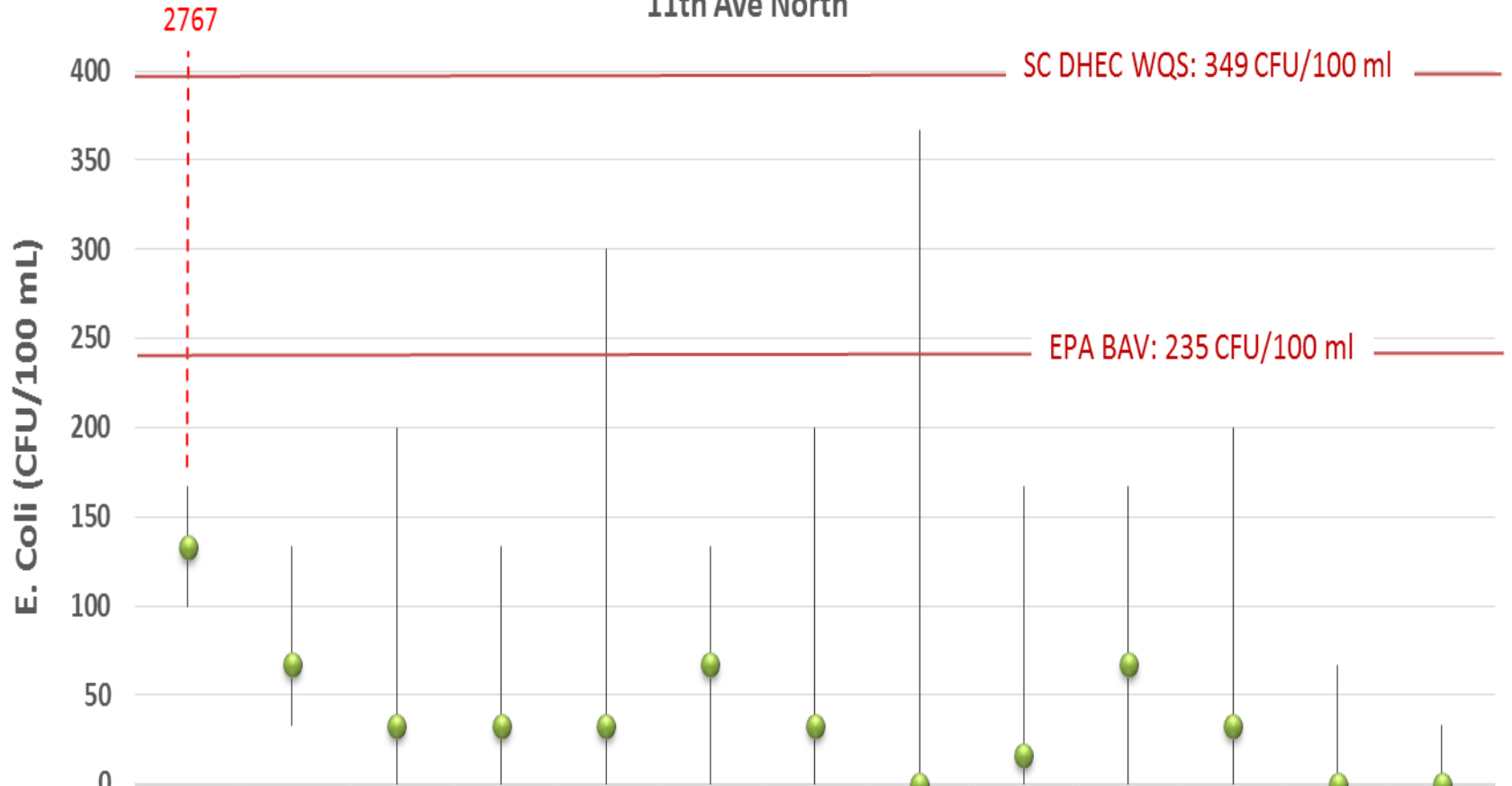
2014 303(d) list: data from 2008 to 2012

## Surfside SC DHEC Ocean Monitoring 2013 (as of 10/16/13)

\* Swimming advisory not permanently posted at this site

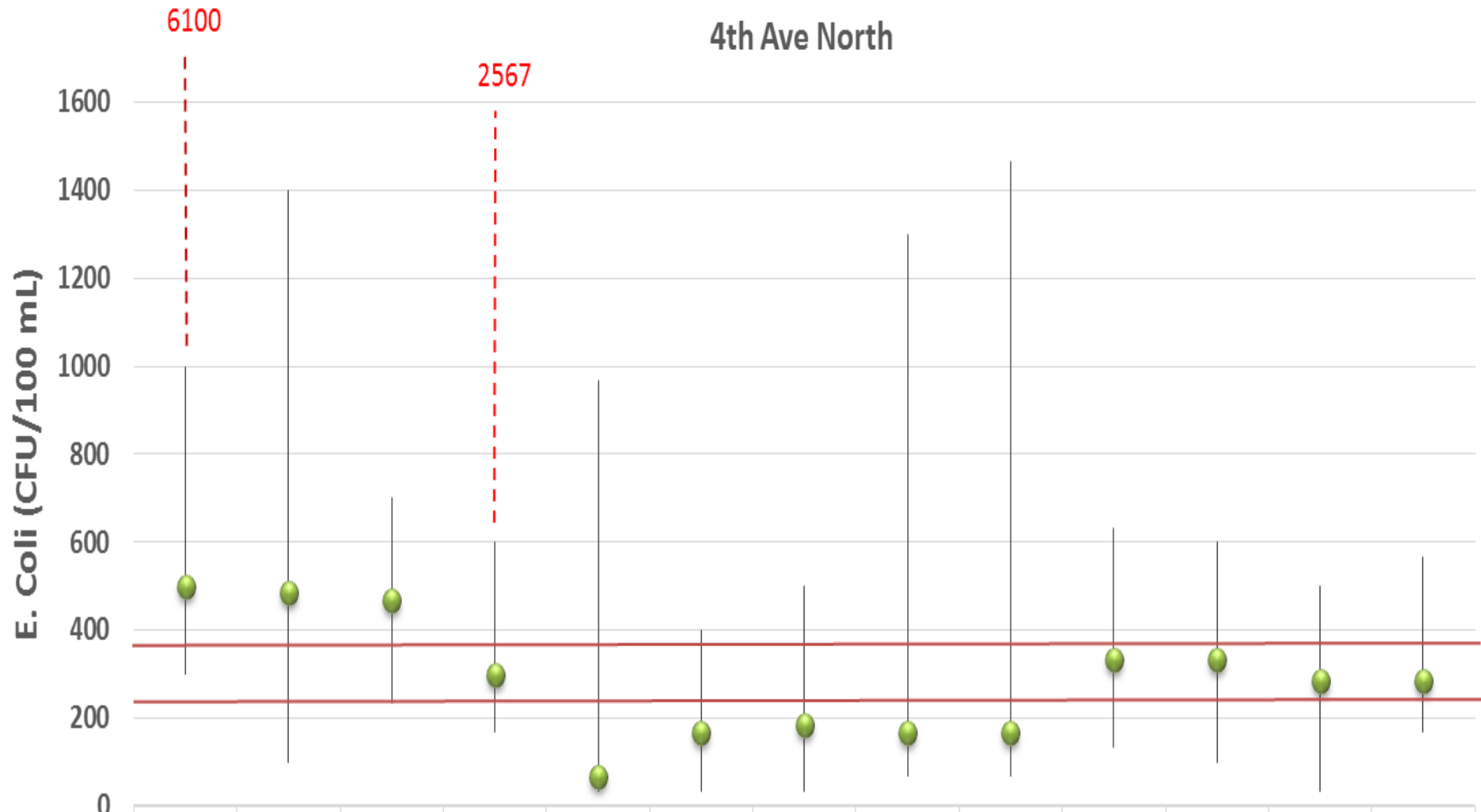
Date	3-d prior rain accumulation (in)	WAC-30*, 15th Ave N	WAC-31, 11th Ave N	WAC-31A, 4/5th Ave N	WAC-32, 3rd Ave N	WAC-33, 3rd Ave S	WAC-34*, 8th Ave S	WAC-35, 13th Ave S	Number > 104
5/22/13	0.8	10	63	30	9	52	10	52	0
5/28/13	0.0	10	31	9	41	480	10	41	1
6/4/13	1.1	20	10	20	9	9	9	9	0
6/11/13	0.3	9	20	156	10	9	107	63	2
6/18/13	0.2	9	10	10	9	9	10	30	0
6/25/13	0.2	10	31	9	9	10	9	10	0
7/2/13	3.5	933	5175	2909	20	189	10	63	4
7/9/13	0.1	20	20	30	10	10	9	116	1
7/16/13	0.0	90	20	NR	31	9	9	9	0
7/23/13	0.0	10	10	63	10	63	20	10	0
7/30/13	0.8	10	10	10	10	10	9	161	1
8/6/13	0.0	20	121	72	9	10	9	10	1
8/13/13	0.0	9	9	10	10	10	9	10	0
8/20/13	0.9	10	9	987	10	31	31	10	1
8/27/13	0.0	20	10	41	20	9	9	10	0
9/3/13	0.0	10	9	9	9	9	9	9	0
9/10/13	0.0	9	9	9	9	9	9	9	0
9/17/13	0.1	52	31	52	10	318	20	41	1
9/24/13	1.0	9	9	20	9	10	9	20	0
10/1/13	0.0	20	20	41	10	9	20	9	0
Geomean		17	23	36	12	21	12	22	
Median		10	10	25	10	10	9	10	
>104		1	2	3	0	3	1	2	
>501		1	1	2	0	0	0	0	
Count		19	19	18	19	19	19	19	
%>104		5%	11%	17%	0%	16%	5%	11%	
%>501		5%	5%	11%	0%	0%	0%	0%	
MAX		933	5175	2909	41	480	107	161	
MIN		9	9	9	9	9	9	9	
MEAN		67	295	247	13	66	17	36	
sd		211	1182	702	9	128	23	42	

# 11th Ave North



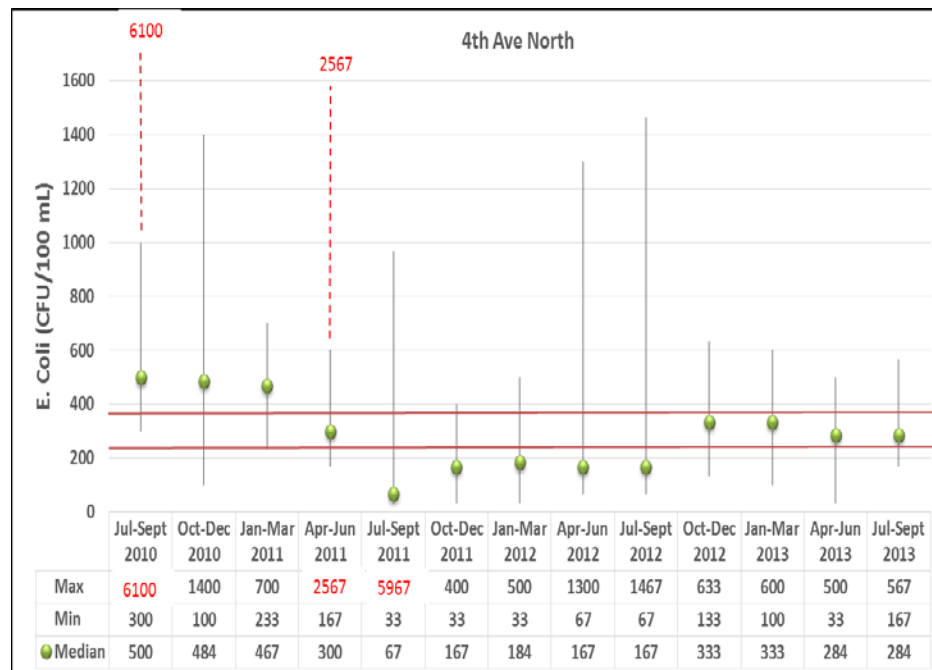
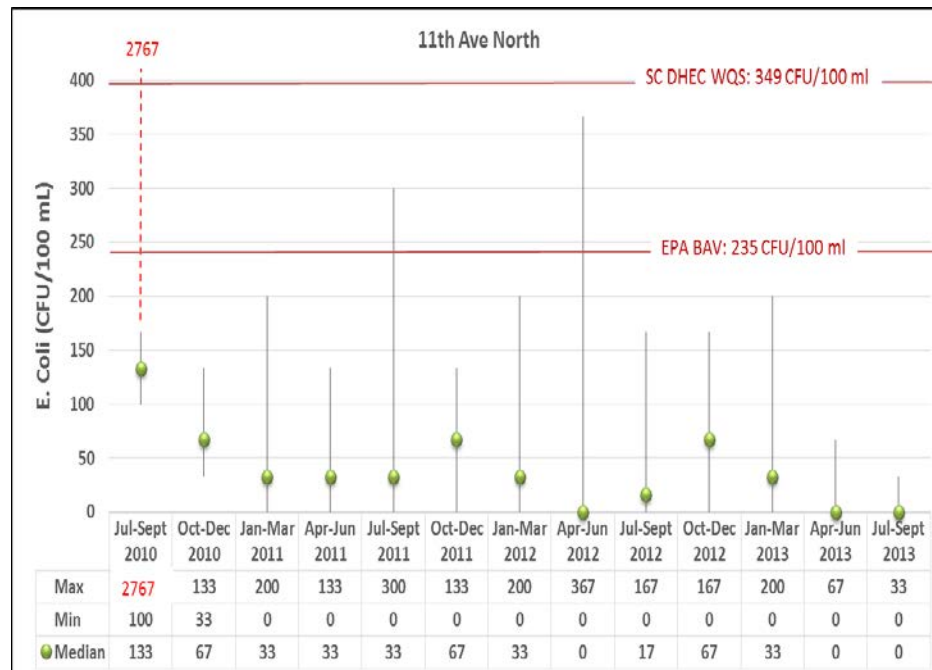
	Jul-Sept 2010	Oct-Dec 2010	Jan-Mar 2011	Apr-Jun 2011	Jul-Sept 2011	Oct-Dec 2011	Jan-Mar 2012	Apr-Jun 2012	Jul-Sept 2012	Oct-Dec 2012	Jan-Mar 2013	Apr-Jun 2013	Jul-Sept 2013
Max	2767	133	200	133	300	133	200	367	167	167	200	67	33
Min	100	33	0	0	0	0	0	0	0	0	0	0	0
● Median	133	67	33	33	33	67	33	0	17	67	33	0	0

## 4th Ave North

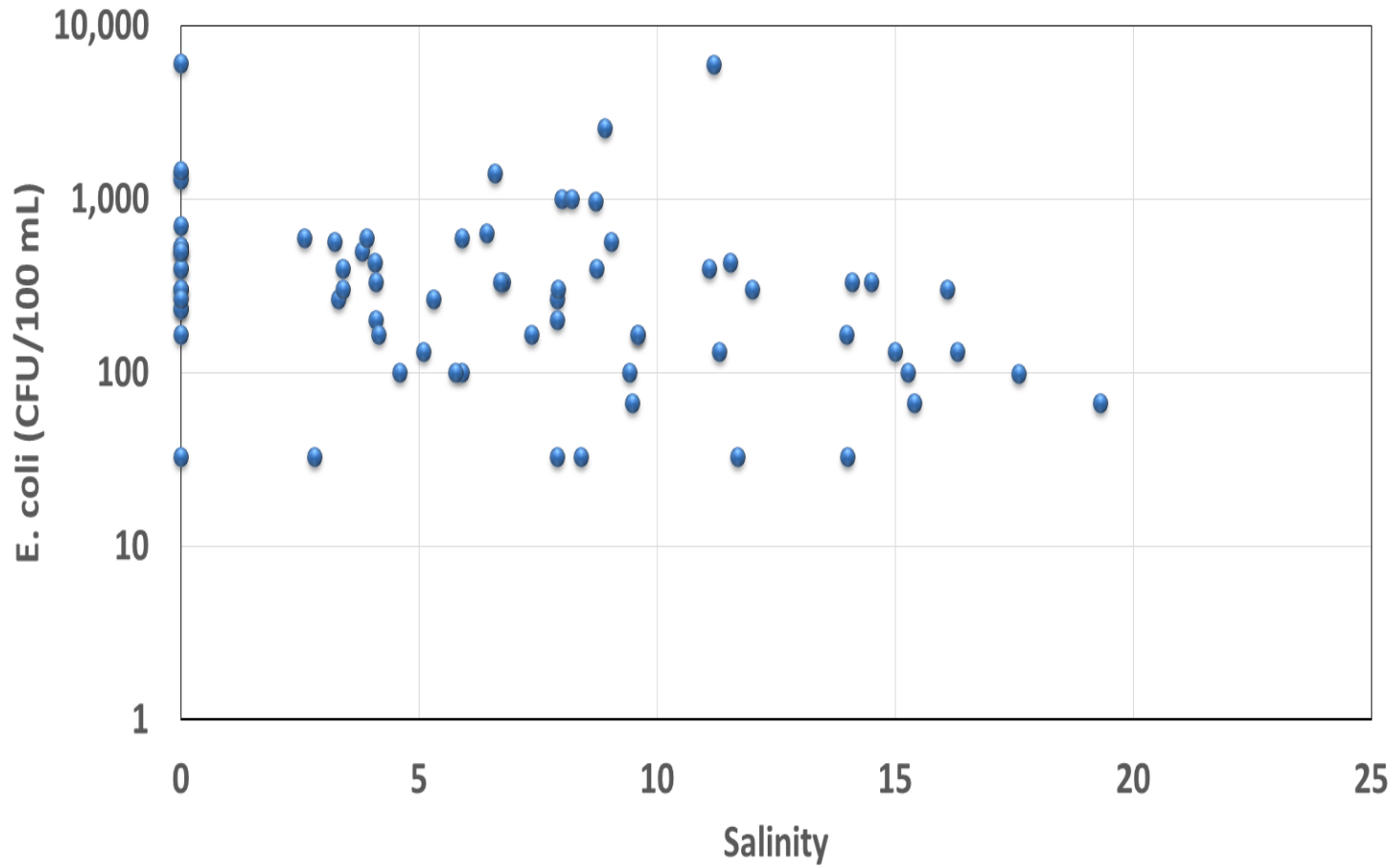


	Jul-Sept 2010	Oct-Dec 2010	Jan-Mar 2011	Apr-Jun 2011	Jul-Sept 2011	Oct-Dec 2011	Jan-Mar 2012	Apr-Jun 2012	Jul-Sept 2012	Oct-Dec 2012	Jan-Mar 2013	Apr-Jun 2013	Jul-Sept 2013
Max	6100	1400	700	2567	5967	400	500	1300	1467	633	600	500	567
Min	300	100	233	167	33	33	33	67	67	133	100	33	167
● Median	500	484	467	300	67	167	184	167	167	333	333	284	284





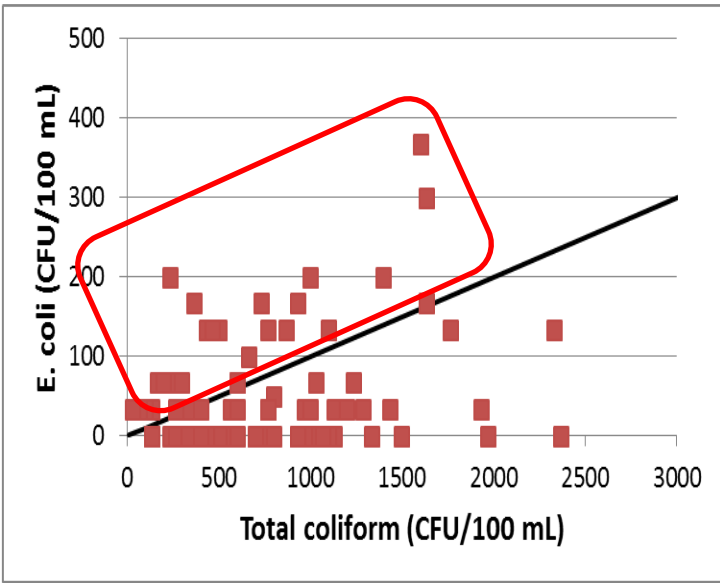
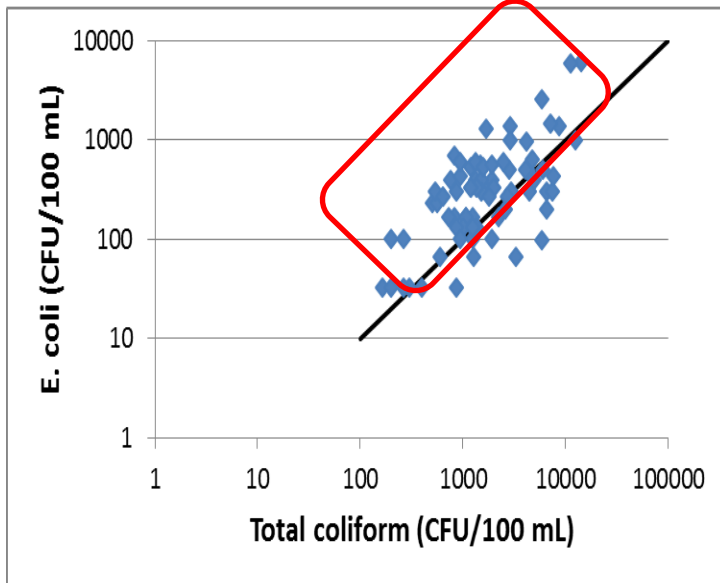
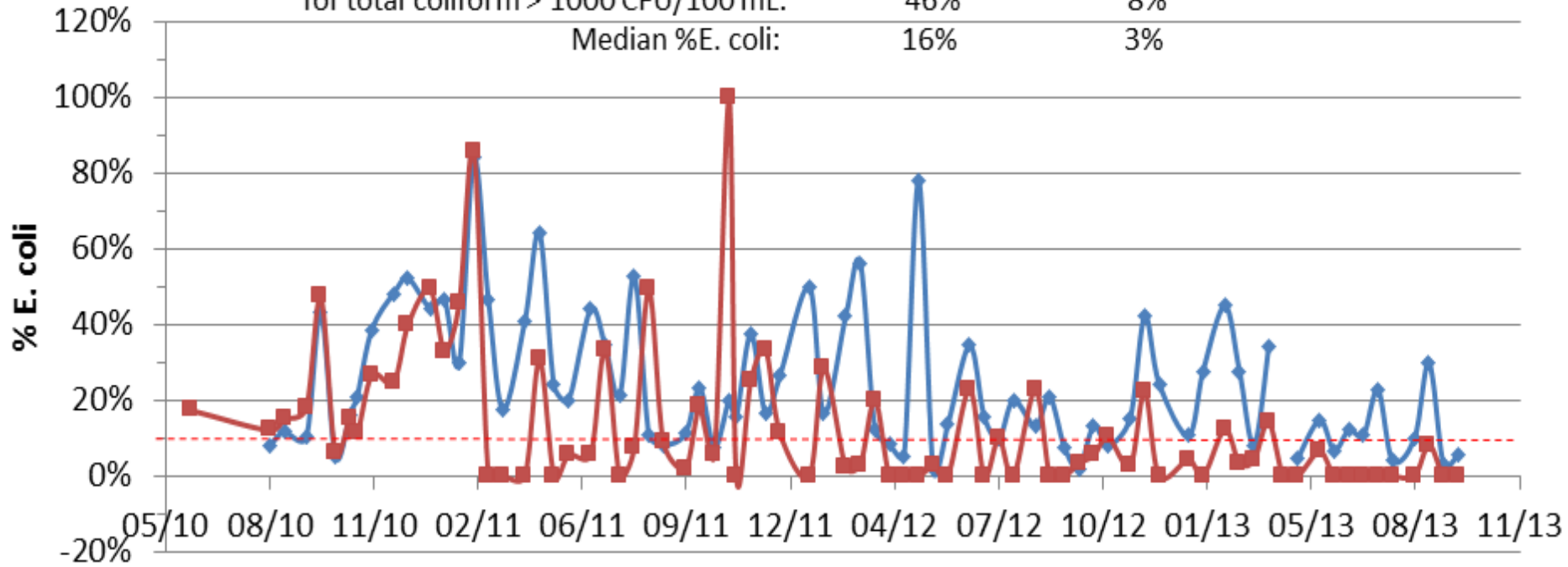
### 4th Ave North



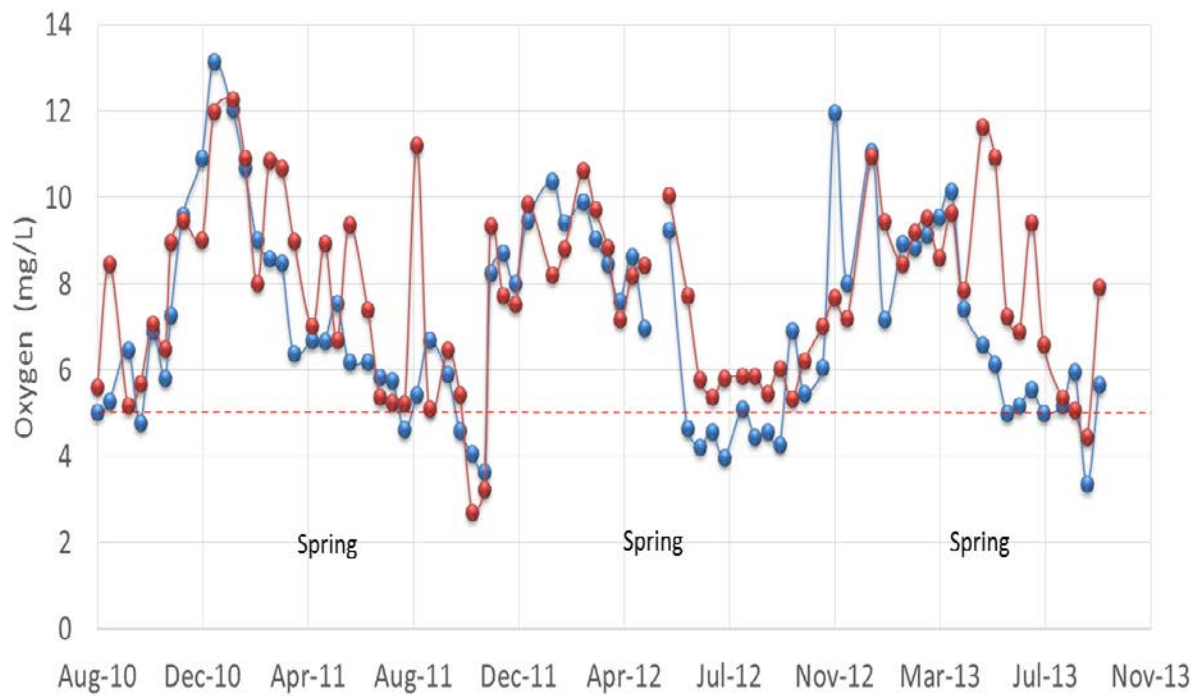
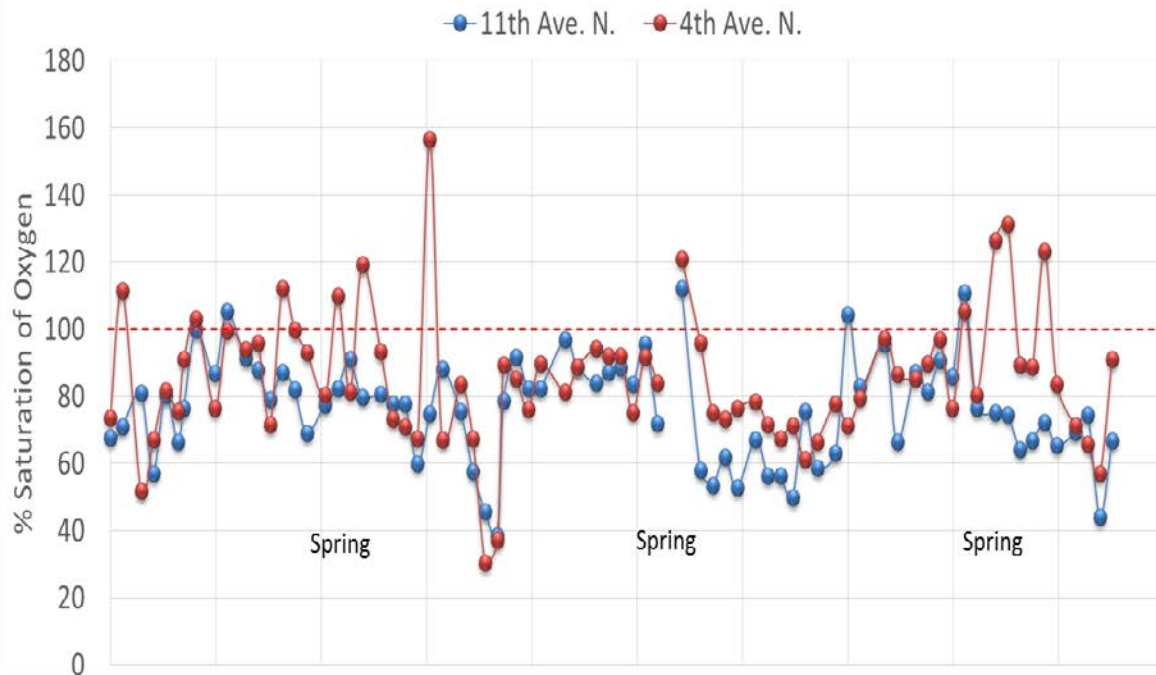
Exceedance frequency of 10% E. coli threshold  
for total coliform > 1000 CFU/100 mL:

4th Ave N 46%  
11th Ave N 8%

Median %E. coli: 16% 3%









# Recommendations/Actions based on data collected thus far:

- **Dogwood (sampled since 2010)**
  - Posted No Feed Signs (Surfside Ordinance)
  - Source tracking downstream of lake
- **Myrtle Lake (sampled since 2010)**
  - Posted No Feed Signs (Surfside Ordinance)
  - Remove waterfowl

www.cwsec-sc.org'."/>

**Surfside's Myrtle Lake Watershed**

*You live in the Myrtle Lake Watershed. Its waters flow from Holly Lake to Myrtle Lake and then into the ocean at the 4<sup>th</sup> Ave N swash.*

*A team of volunteer water quality monitors are detecting high levels of fecal bacteria in Myrtle Lake which can lead to beach advisories and unhealthy swimming conditions.*

**You can help protect our waters and keep them clean.**

- ⇒ Don't feed waterfowl. ⇐
- ⇒ Pick up after your pets – Scoop the Poop! ⇐
- ⇒ Plant a rain garden in a low spot in your yard. ⇐
- ⇒ Keep the lids on your garbage cans and dumpsters. ⇐
- ⇒ Wash your car on the lawn or best – at the car wash. ⇐
- ⇒ Don't throw anything down storm drains other than rain water ⇐
- ⇒ Plant a vegetative buffer around part of your pond or lake frontage. ⇐

To report polluted stormwater runoff, contact Surfside's Department of Public Works at: (843) 913-6360

To read more about watersheds and what you can do to improve and protect water quality, go to: [www.cwsec-sc.org](http://www.cwsec-sc.org)

# More recommendations/actions taken

- Develop site specific standards to establish “normal” conditions
- Enhance IDDE program
  - Rapid provisional reporting to stormwater manager and field leader
- Vegetated buffers
  - Discourages water fowl
  - Removes pollutants including contaminant bacteria
- Storm drain marking
- Pet waste stations
- Clean out sediment
  - (Lake)
  - Pipes
  - Street sweeping



- More education

