

# Water Quality -South Shore-

In Collaboration  
With

University Laval, BIOS, Dept. of Conservation, Dept. of  
Health and Dept. of the Environment and Central Gov.  
laboratory

# Indicators of fecal contamination

- Enterococci and E. coli measured in CFUs (Colonies Forming Units/100ml), dose response relationship:
  - Human health problems (gastroenteritis, ear infections, respiratory illnesses, staph infections)
  - Inadequate management of sewage, also a source of heavy metals, pharmaceutically active compounds, nutrients.
  - Fish feeding? host for human pathogens.

16<sup>th</sup> April 2013  
Elbow beach





# 17<sup>th</sup> April 2013

## Elbow beach

Sewage Balls	Ecoli (/g)	Enterococci (/g)
17 April 2013	24 000	400



# 17-20 April 2013

ENTEROCOCCI counts. Sampling twice/day, on Low and High tides.

Site	Geometric Mean (CFU/100mL)	US EPA GeoMean Standard*
John Smith Beach	77	35 CFU/100mL
Grape Bay Beach East end	70	
Grape Bay Beach West end	45	
Elbow Beach East end	53	
Elbow Beach centre	141	
Elbow Beach West end	44	
Southland Beach	40	
Warwick Beach East end	104	
Warwick Beach West end	73	

Based on the above results, all the beaches are unfit for recreational use based on the USEPA GeoMean standard for recreational waters.

# 28<sup>th</sup> May 2013

ENTEROCOCCI counts. Winds ENE. High tide.

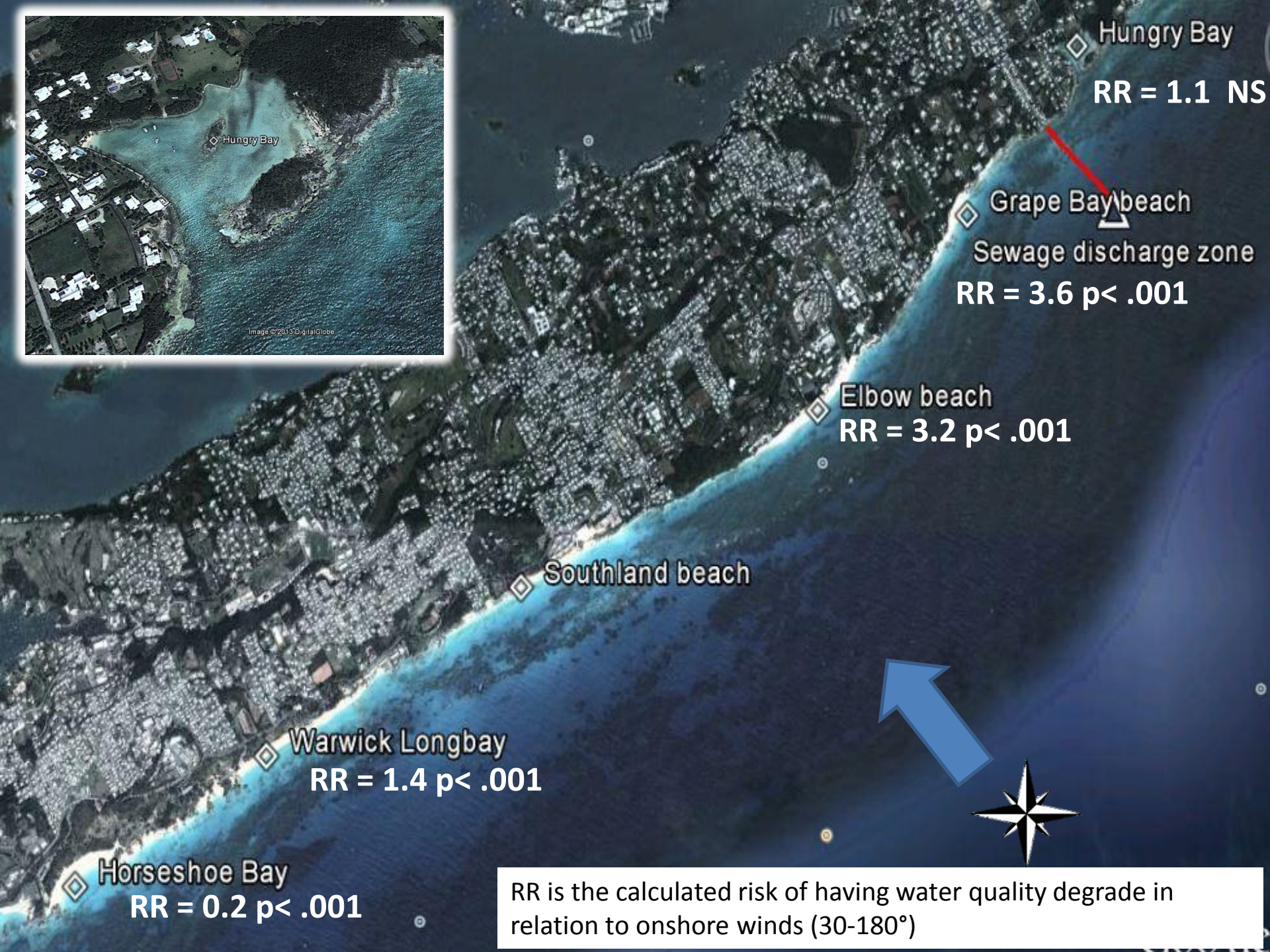
Sites	Enterococci (CFU/100mL)	US EPA single sample limit*
John Smith Beach	<1	104 CFU/100mL
Grape Bay Beach East end	<1	
Grape Bay Beach West end	<1	
Elbow Beach East end	<1	
Elbow Beach centre	1	
Elbow Beach West end	<1	
Hungry Bay	12	
Warwick Beach East end	<1	
Warwick Beach West end	<1	



29<sup>th</sup> May 2013  
Elbow beach









# Offshore sampling 18, 26<sup>th</sup> April 2013

Grape Bay beach





● John Smith

▲ Sewage discharge zone

● Grape Bay

● Elbow Beach

● Southland

● Warwick

● Horseshoe





# Offshore sampling

## 18, 26 April 2013

Sites	Thur, 18April Enterococci (CFU/100mL)	Fri, 26April Enterococci (CFU/100mL)	USEPA Single Sample Limit*
Hungry Bay Outfall	2500	2300	104 CFU/100mL
Hungry Bay 16m depth		140	
Off shore Grape Bay	105	32	
Off shore Elbow Beach (over shipwreck)	143	35	
Off shore Southland	137	<1	
Off shore Horseshoe Bay	161	8	

# In conclusion

- Sewage balls are visual evidence of impaired water quality (e.g. event of 17-20<sup>th</sup> April 2013).
- Water quality on the beaches close to the sewage outfall can rapidly degrade most likely due to rapidly changing climatic conditions (wind, swell, tides, rain).
- Impaired water quality, implications in health, environmental, and tourism sectors.



# Recommendations

- Treatment of effluent
- Management of grease in effluent
- Extension of sewage pipe
- Increased monitoring – water and beaches
- Establish action levels and protocols
- Beach cleanups / warning / closure should occur whenever greaseballs wash ashore
- Public Access to information