

Water Quality Problems in 1999

- In 1999, every major beach in Key West was posted with a health advisory for nearshore waters unsafe for swimming.
- Tests at beaches confirmed a high level of fecal coliform and enterococcus bacteria
- Causes include:
 - Leaky sewer pipes on public and private property
 - Fecal bacteria flushed into nearshore waters after heavy rains
 - Sewer discharge directly from vessels directly into outstanding Florida waters

What Was Done – Improve Sewer System

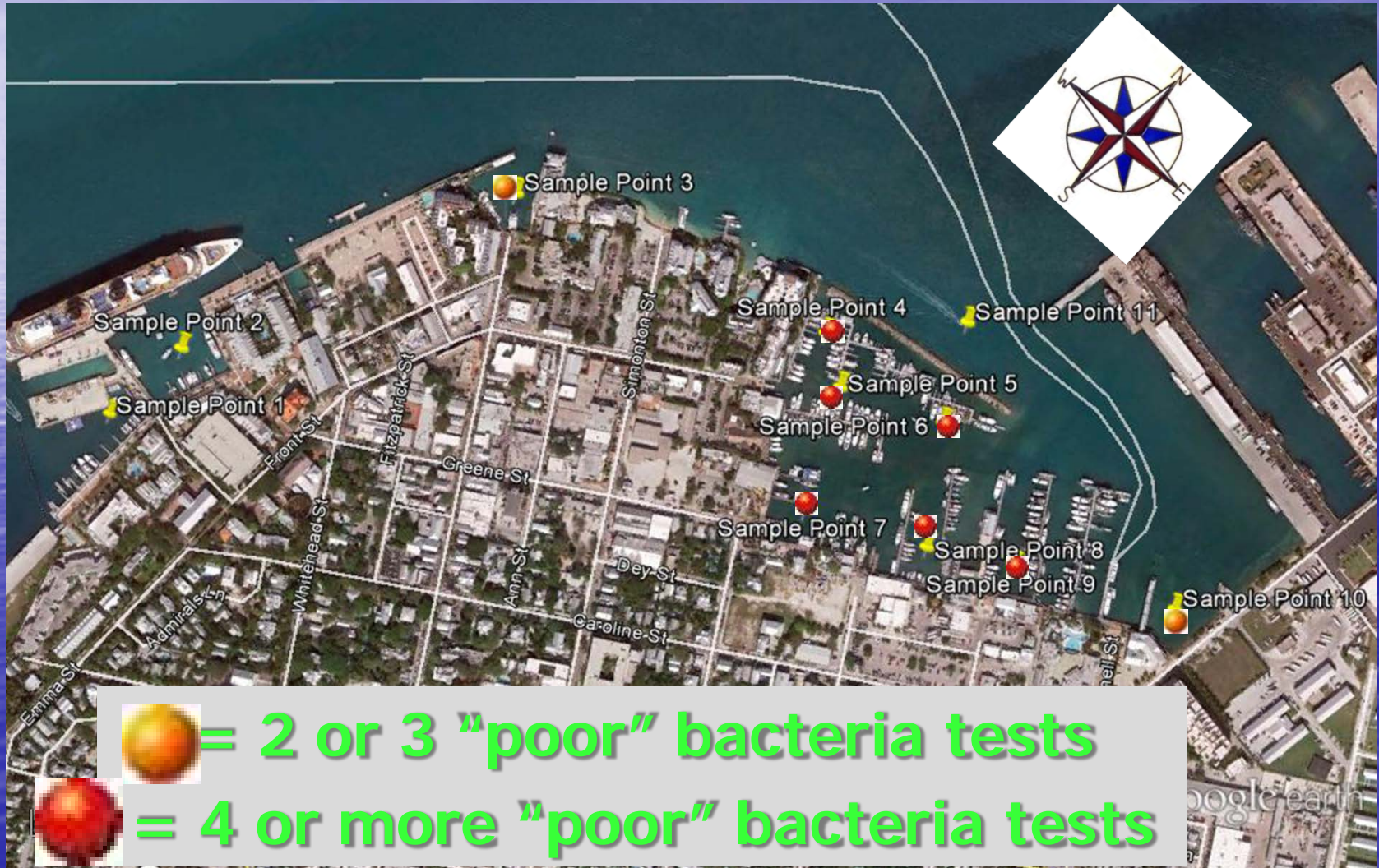
- The City accelerated a \$67.3 million sewer capital improvement program into less than 3 years.
- Wastewater Treatment Plant was upgraded to AWT
- All private property sewer laterals tested
- City sewer lines replaced
- Over 80% of Key West voters approved issuing bonds to help pay for repairs
- Over 8,000 private properties repaired their sewer lines at a cost of over \$17 million.
- New ordinances for sewer pump out at marinas and zero discharge policies established

What Was Done – Improve Stormwater System

- The City created a new stormwater utility in 2002.
- 68 new stormwater wells and 9 outfall retrofits all with pollution control baffle boxes have been constructed since 2006.
- Baffle boxes at all stormwater wells and outfalls are cleaned 2-5 times annually.
- City regularly tests stormwater outfalls at our lab at the WWTP.
- Over 220 trash guards installed at drains and inlets throughout the City.
- The City completed a new Stormwater Master Plan in 2012.

Key West Marina Water Quality Testing

The City of Key West tested for fecal coliform and enterococcus bacteria at 11 locations over 12 days between Nov 19 and Dec 3rd



Water Quality Testing Findings

DATE	DAY	WEATHER						SAMPLE#1			SAMPLE#2			SAMPLE#3			SAMPLE#4			SAMPLE#5			SAMPLE#6			SAMPLE#7			SAMPLE#8			SAMPLE#9			SAMPLE#10			SAMPLE#11			
		COND	AIR TEMP	WIND	RAINFALL	TIDE	TABLE	BP	TIME	mFC	mB	TIME	mFC	mB	TIME	mFC	mB	TIME	mFC	mB	TIME	mFC	mB	TIME	mFC	mB	TIME	mFC	mB	TIME	mFC	mB	TIME	mFC	mB	TIME	mFC	mB			
19-Nov	T	Clear	80	<5 ENE	0	H - Out	H-11:09	1050mb	11:36	<10	<10	11:44	<10	<10	11:47	<10	<10	11:55	<10	<10	11:59	30	10	12:01	10	<10	12:05	30	<10	12:07	50	<10	12:11	10	<10	12:16	20	<10	12:19	10	<10
20-Nov	W	Partly Cldy	80	5 ESE	0	H - Out	H-11:46	1050mb	14:04	<10	<10	14:08	<10	<10	14:11	10	<10	14:20	<10	<10	14:22	<10	<10	14:25	10	<10	14:27	<10	<10	14:31	10	10	14:35	<10	<10	14:40	<10	<10	14:44	<10	<10
21-Nov	R	Partly Cldy	81	10 E	0	M - In	H-12:25	1019mb	9:18	<10	<10	9:21	<10	<10	9:25	10	<10	9:34	30	20	9:36	50	<10	9:37	150	<10	9:40	120	120	9:45	170	10	9:48	110	<10	9:51	80	<10	9:55	10	<10
22-Nov	F	Partly Cldy	78	10 NE	0	High	H-13:08	1012mb	13:08	<10	<10	13:14	<10	<10	13:16	<10	<10	13:21	10	<10	13:25	<10	<10	13:27	<10	<10	13:30	<10	20	13:32	160	10	13:36	10	<10	13:40	<10	<10	13:47	<10	<10
23-Nov	S	Partly Cldy	82	10 NE	0	M - In	L-07:22	1022mb	9:48	<10	<10	9:55	10	<10	10:00	<10	<10	10:10	30	<10	10:14	105	40	10:15	160	10	10:17	140	30	10:20	160	30	10:24	290	60	10:28	160	30	10:30	<10	<10
24-Nov	S	no boat - city needed it for emergency at garrison bight						ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns	ns
25-Nov	M	Partly Cldy	77	20-25NE	0	L	L-08:59	1019mb	10:15	<10	<10	10:09	10	<10	10:20	260	30	10:26	220	50	10:30	200	40	10:31	95	25	10:32	70	130	10:35	40	20	10:40	140	<10	10:43	30	<10	10:45	<10	<10
26-Nov	T	PC - Rain	80	5-10E	0.15	L - out	L- 09:47	1014mb	7:44	60	60	7:48	30	50	7:54	>600	>600	8:02	580	<10	8:04	>600	>600	8:08	>600	500	8:10	>600	>600	8:12	>600	>600	8:15	>600	>600	8:18	>600	>600	8:22	70	60
27-Nov	W	Partly Cldy	77	20-25NW	1.3	L - out	L-10:34	1013mb	10:14	110	50	10:17	70	100	10:22	>600	>600	10:30	>600	>600	10:32	>600	>600	10:33	>600	>600	10:36	>600	>600	10:38	>600	>600	10:42	>600	>600	10:46	>600	>600	10:50	30	20
29-Nov	F	Clear	70	20NE	0	M - Out	H-07:02	1023mb	9:42	<10	<10	9:46	<10	<10	9:51	>600	<10	9:59	<10	150	10:01	270	30	10:03	120	>600	10:05	230	40	10:09	190	80	10:11	75	15	10:15	<10	<10	10:19	10	<10
30-Nov	S	Partly Cldy	69	10NE	0	M - In	H-07:59	1021mb	6:25	<10	<10	6:28	<10	<10	6:32	10	<10	6:40	250	160	6:42	340	140	6:43	150	220	6:45	210	130	6:47	210	110	6:51	230	70	6:55	20	<10	6:58	30	40
1-Dec	S	Clear	71	5NE	0	M - In	H-08:49	1018mb	6:20	10	<10	6:24	10	<10	6:28	<10	<10	6:36	180	390	6:38	370	410	6:39	160	580	6:42	270	320	6:45	280	220	6:48	450	>600	6:52	10	70	6:55	30	45
2-Dec	M	Clear	75	5-10NW	0	M - Out	H-09:37	1011mb	13:00	5	<10	13:04	<10	<10	13:10	150	30	13:16	<10	<10	13:18	20	10	13:20	<10	10	13:23	20	10	13:26	20	10	13:28	<10	20	13:33	<10	<10	13:37	<10	<10
3-Dec	T	Clear	71	Calm	0	M - In	H-10:24	1013mb	6:25	<10	10	6:28	20	<10	6:34	<10	<10	6:43	70	50	6:44	>600	130	6:46	200	260	6:52	190	90	6:58	60	10	7:02	>600	20	7:09	10	<10	7:13	30	<10
DOH Limits		Good	Moderate	Poor																																					
Fecal Coliform		0 - 199	200 - 399	>>400	cfu/100ml																																				
Enterococcus		0 - 35	36 - 104	>>105	cfu/100ml																																				

Yellow = Moderate levels of Bacteria

Red = Poor levels of Bacteria

Water Quality Testing Findings

- Elevated levels of fecal coliform and enterococcus bacteria found on multiple days in the Key West Bight in the two week testing window.
- Bacteria levels were classified as “poor” on six separate days at multiple locations at the Bight, including days when stormwater runoff was not a factor.
- Elevated “poor” levels also found at the north end of Duval St. on three days.
- These test resorts showed bacterial colony levels in many cases over 5 times above the threshold for “poor” under testing guidelines from Florida Healthy Beaches and the EPA.
- No bacteria levels above “moderate” for any day at the marinas at the Westin.