

**NATURAL RESOURCES DEPARTMENT
MEMORANDUM**

DATE: July 27, 2011

TO: City Manager Judie Zimomra

FROM: Natural Resources Director Robert K. Loflin Ph.D.

RE: Preliminary analysis of first sampling results from dry season water quality sampling in and adjacent to Tarpon Bay

In 2008 the City installed additional tidal flow culverts under Dixie Beach Blvd to improve tidal connection to a mangrove forest east of the road and to improve fisheries and wildlife habitat. As a follow-up to that project, and to concerns regarding water quality at the Dunes golf course, water quality sampling is being conducted by the City between the Dunes golf course weir outfall and the open waters of Tarpon Bay (see attached aerials for sample site locations). Samples are being taken in both the wet and dry season to monitor the presence of nutrients. Results of the first dry season sampling are attached. Note that these are just the first sampling results and any definitive analysis of what the collected data shows will need to wait for at least a comparison with rainy season sampling results, which will be collected when rainfall amounts trigger flows over the Dunes golf course lake weir (at the Lake adjacent to holes 13 and 14 on the course). A very preliminary analysis of these dry season results seems to indicate that there may be an issue with nutrients immediately waterward of the golf course weir but that any contribution of these nutrients to Tarpon Bay itself does not appear to be significant. A relatively high level of total nitrogen (3.5 milligrams per liter of water) was found just outside of the discharge weir but moderate levels were found both at the culverts at Dixie Beach Rd and on out into Tarpon Bay. Nutrient and Chlorophyll a levels (another indirect measure of nutrients based on algal biomass) actually increased the farther away from the culverts the samples were taken, indicating that at least during the dry season during this one sampling event, no significant adverse impacts from the high nutrient levels near the Dunes golf course were affecting Tarpon Bay via the Dixie Beach culverts.

Clearly the high nutrient levels near the golf course lake is of concern, although the salinity at this location is also elevated considerably above that of pure seawater, which indicates that dry season evaporation has probably concentrated both salts and nutrients. Additional water quality sampling is being planned for this area and improvements to golf course management practices that could reduce nutrient run-off are being coordinated with golf course staff.

Laboratory Results

Lee County Environmental Laboratory

60-2 Danley Drive
Fort Myers, FL 33907
239-533-8600



To: SCCF Marine Lab
Attn: Mark Thompson
900A Tarpon Bay Rd
Sanibel FL 33957
P: (239) 395-4617

Report Date: 7/6/2011

Below are the results of samples submitted to this laboratory on 6/27/2011

Laboratory ID	AC72222	Collection date and time	6/24/2011 1:45 PM
Location Code	NWR11	Sample Collector	MARK THOMPSON
Sample Description	SCCF Marine NWR 11		

Analysis Code	Analyte Name	Result	Qualifier	Units	MDL	Analysis Date	Analysis Time	Analysis Method
NH3	Ammonia, Automated Phenate	0.014	U	mg/L as N	0.014	7/1/2011	2:49 PM	EPA 350.1
NOX	Nitrate + Nitrite	0.010	U	mg/L as N	0.01	6/28/2011	2:22 PM	EPA 353.2
TKN	Nitrogen, Kjeldahl, Total	0.14	I	mg/L as N	0.05	6/29/2011	10:30 AM	EPA 351.2
TN	Nitrogen, Total	0.14	I	mg/L as N	0.05	6/29/2011	10:30 AM	TKN + NOX

Laboratory ID	AC72223	Collection date and time	6/24/2011 1:30 PM
Location Code	NWR12	Sample Collector	MARK THOMPSON
Sample Description	SCCF Marine NWR 12		

Analysis Code	Analyte Name	Result	Qualifier	Units	MDL	Analysis Date	Analysis Time	Analysis Method
NH3	Ammonia, Automated Phenate	0.014	U	mg/L as N	0.014	7/1/2011	2:49 PM	EPA 350.1
NOX	Nitrate + Nitrite	0.010	U	mg/L as N	0.01	6/28/2011	2:22 PM	EPA 353.2
TKN	Nitrogen, Kjeldahl, Total	0.59		mg/L as N	0.05	6/29/2011	10:30 AM	EPA 351.2
TN	Nitrogen, Total	0.59		mg/L as N	0.05	6/29/2011	10:30 AM	TKN + NOX

Laboratory ID	AC72224	Collection date and time	6/24/2011 12:50 PM
Location Code	NWR13	Sample Collector	MARK THOMPSON
Sample Description	SCCF Marine NWR 13		

Analysis Code	Analyte Name	Result	Qualifier	Units	MDL	Analysis Date	Analysis Time	Analysis Method
NH3	Ammonia, Automated Phenate	0.014	U	mg/L as N	0.014	7/1/2011	2:49 PM	EPA 350.1
NOX	Nitrate + Nitrite	0.010	U	mg/L as N	0.01	6/28/2011	2:22 PM	EPA 353.2

Report Format: NELAC

DOH #E45049



Laboratory ID	AC72224	Collection date and time	6/24/2011 12:50 PM
Location Code	NWR13	Sample Collector	MARK THOMPSON
Sample Description	SCCF Marine NWR 13		

Analysis Code	Analyte Name	Result	Qualifier	Units	MDL	Analysis Date	Analysis Time	Analysis Method
TKN	Nitrogen, Kjeldahl, Total	0.52		mg/L as N	0.05	6/29/2011	10:30 AM	EPA 351.2
TN	Nitrogen, Total	0.52		mg/L as N	0.05	6/29/2011	10:30 AM	TKN + NOX

Laboratory ID	AC72225	Collection date and time	6/24/2011 12:35 PM
Location Code	NWR14	Sample Collector	MARK THOMPSON
Sample Description	SCCF Marine NWR 14		

Analysis Code	Analyte Name	Result	Qualifier	Units	MDL	Analysis Date	Analysis Time	Analysis Method
NH3	Ammonia, Automated Phenate	0.0310	I	mg/L as N	0.014	7/1/2011	2:49 PM	EPA 350.1
NOX	Nitrate + Nitrite	0.010	U	mg/L as N	0.01	6/28/2011	2:22 PM	EPA 353.2
TKN	Nitrogen, Kjeldahl, Total	0.40		mg/L as N	0.05	6/29/2011	10:30 AM	EPA 351.2
TN	Nitrogen, Total	0.40		mg/L as N	0.05	6/29/2011	10:30 AM	TKN + NOX

Laboratory ID	AC72226	Collection date and time	6/24/2011 12:10 PM
Location Code	NWR15	Sample Collector	MARK THOMPSON
Sample Description	SCCF Marine NWR 15		

Analysis Code	Analyte Name	Result	Qualifier	Units	MDL	Analysis Date	Analysis Time	Analysis Method
NH3	Ammonia, Automated Phenate	0.121		mg/L as N	0.014	7/1/2011	2:49 PM	EPA 350.1
NOX	Nitrate + Nitrite	0.010	U	mg/L as N	0.01	6/28/2011	2:22 PM	EPA 353.2
TKN	Nitrogen, Kjeldahl, Total	3.6		mg/L as N	0.05	6/29/2011	10:30 AM	EPA 351.2
TN	Nitrogen, Total	3.6		mg/L as N	0.05	6/29/2011	10:30 AM	TKN + NOX

Qualifiers:
 I The value is less than, or equal to, the laboratory's practical quantitation limit (PQL) and greater than the minimum detection limit (MDL).
 U Indicates that the compound was analyzed for but not detected.

Unless noted otherwise, these test results meet all the requirements of the 2003 NELAC Standards. The results provided herein relate only to the samples cited as they were received by the laboratory. All questions regarding this report should be directed to Keith A. Kibbey, Laboratory Director.


 Keith A. Kibbey
 Laboratory Director



Tide_stage	Current_direction	Event_comments	Ammonia	CDOM_Lab	Chlorocor_lab	DO_mg/l	Enterococci_water	NOx	pH	Pheophytin	Salinity_Field	TKN	TN	TP	Turb_field	Water_Temp
ebb	none		0.121	239.2	563.5	1.77	10	0.01	7.02	-12.2	45.2	3.6	3.6		127	28.5
ebb	e-w		0.031	47.2	2.34	1.58	63	0.01	7.49	1	38.9	0.4	0.4		0	30.9
ebb	n-s		0.014	37.6	7.32	3.13	31	0.01	7.57	2.86	38.7	0.52	0.52		80.3	33.1
ebb	se-nw		0.014	24.5	9.32	3.92	1	0.01	7.81	1.88	37.9	0.59	0.59		8	33.3
ebb	se-nw		0.014	11.98	5.92	4.74	1	0.01	7.98	1.86	36.9	0.14	0.14		4.6	32.3

LCEL

Lee County Environmental Laboratory
 60-2 Danley Dr Ft Myers, FL 33907
 Phone: (239) 533-8600
 Fax: (239) 939-4850

Analysis Request & Chain of Custody Record

Lab Certification: E45049

MAKE CHECKS PAYABLE TO: LEE COUNTY B.O.C.C

Report/Result Information				Billing/Invoice Information				Page / of /						
Name: MARK THOMPSON SCCF Marine Lab				Name				Matrix Codes: DW-Drinking water GW- Ground water WW-Waste water SW-Surface water WWS-Wastewater Sludge S-Sediment O-Other						
Email: mtthompson@sccf.org				Address: Same										
Address: 900 A Tarpon Bay Rd.				Address: Same										
Phone/Fax/Cell: (239) 395-4617				Phone/Fax/Cell: ()										
Sample Collector(s) (please print): MARK A THOMPSON				Sample Collector Signature: <i>[Signature]</i>				Test/Analyses Required						
Relinquished By: (signature) <i>[Signature]</i>		Date: 6-27-11		Time: 0820		Received By: (signature) <i>[Signature]</i>						Preservatives (see codes)		
Relinquished By: (signature)		Date		Time		Received By: (signature)								
Relinquished By: (signature)		Date		Time		Received By: (signature)								
Sample(s) on ice <input checked="" type="checkbox"/> Yes or <input type="checkbox"/> No? 15														
Collection		Sample Description & Location				Matrix (see codes)	# of Sample Containers Submitted				LCE Lab #			
Date	Time													
6-24-11	1345	AM	PM	NWR 11				SW	1					AC72222
	1330	AM	PM	NWR 12					1					AC72223
	1250	AM	PM	NWR 13					1					AC72224
	1235	AM	PM	NWR 14					1					AC72225
	1210	AM	PM	NWR 15					1					AC72226
		AM	PM											



NWR11

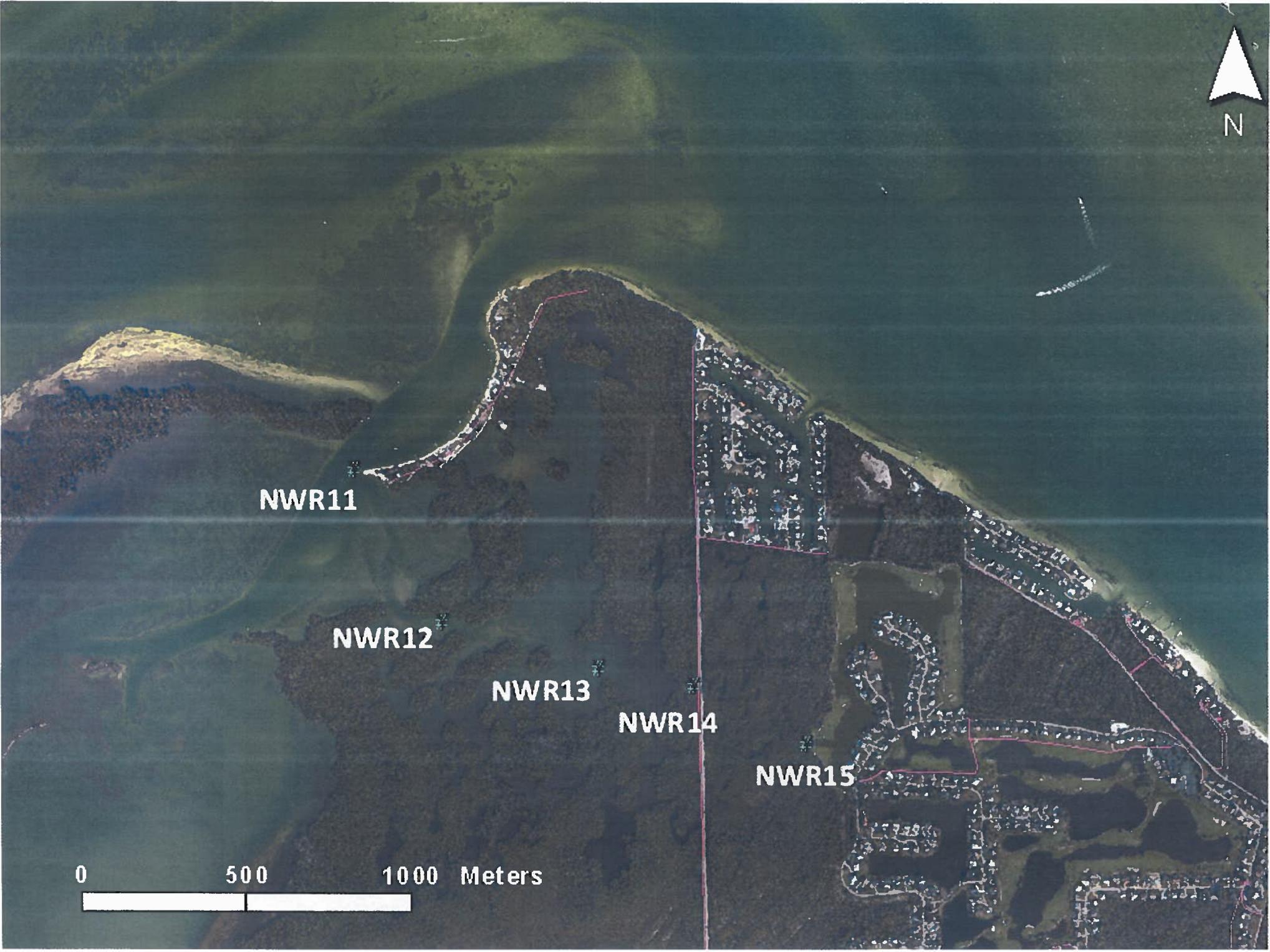
NWR12

NWR13

NWR14

NWR15

0 500 1000 Meters



Project	Station	Distance from Spillway (m)	Latitude	Longitude	Sample_date	Sample_time	Total_depth	Air_Temp	Wind_speed	Wind_direction	Wave_height	Cloud_cover	24hr_precip	48hr_precip
Sanibel_ NPDES	NWR15	19	26.455190	-82.052820	6/24/2011	12:10	0.2	34	5-10	SW	0-0.1	0-25	0	0
Sanibel_ NPDES	NWR14	412	26.456850	-82.056290	6/24/2011	12:35	0.8	33	5-10	SW	0-0.1	26-50	0	0
Sanibel_ NPDES	NWR13	686	26.457280	-82.059050	6/24/2011	12:50	1.1	33	5-10	SW	0-0.1	26-50	0	0
Sanibel_ NPDES	NWR12	1306	26.458990	-82.064990	6/24/2011	13:30	2.1	33	5-10	SW	0.1-0.3	26-50	0	0
Sanibel_ NPDES	NWR11	1655	26.463417	-82.066490	6/24/2011	13:45	2.1	33	5-10	SW	0.1-0.3	26-50	0	0

