


# **Water Temperature Variability at Clam Leases in Levy County, Florida**

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# The Problem

- Water temperature influences water quality (ie. dissolved oxygen)
  - Water temperature directly affects bodily functions of aquatic organisms
  - The affect on clams in Florida is most evident during summer months
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- The background of the slide features several faint, concentric circular ripples in a lighter shade of blue, resembling water droplets or ripples on a pond, positioned in the lower right and bottom center areas.

# The Problem

- CLAMMRS water quality monitoring stations
  - Continuous readings
  - 5 stations in state
- Stations measure 6 inches above bottom
  - Clams are NOT 6 inches above the bottom
- Limited number of stations
  - Does the spread provide in-depth understanding of the variability within and among lease areas?



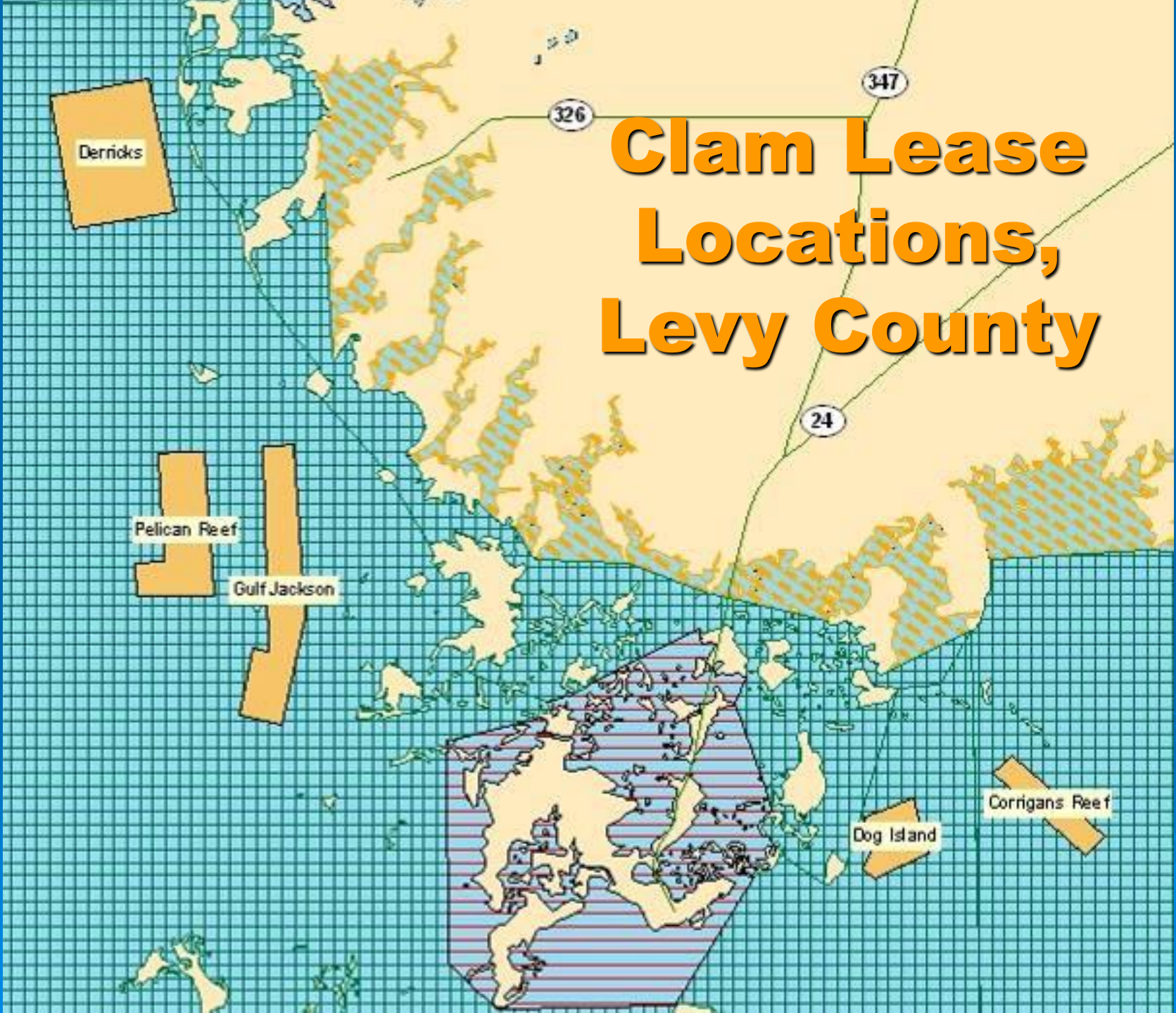
# A Solution

- USDA Hatch funding, 2007-8
- Purchase inexpensive data loggers
- Deploy at multiple clam leases (Levy County) inside the bags
- Adequately describe water temperature variability within high-density lease areas and among high-density lease areas
  - Variability possibly due to water depth, substrate characteristics, currents, or other parameters





# Clam Lease Locations, Levy County



L-952	L-926	L-900
L-953	L-927	L-901
L-954	L-928	L-902
L-955	L-929	L-903
L-956	L-930	L-904
L-957	L-931	L-905
L-958	L-932	L-906
L-959	L-933	L-907
L-960	L-934	L-908
L-961	L-935	L-909
L-962	L-936	L-910
L-963	L-937	L-911
L-964	L-938	L-912
L-965	L-939	L-913
L-966	L-940	L-914
L-967	L-941	L-915
L-968	L-942	L-916
L-969	L-943	L-917
L-970	L-944	L-918
L-971	L-945	L-919
L-972	L-946	L-920
L-973	L-947	L-921
L-974	L-948	L-922
L-975	L-949	L-923
L-976	L-950	L-924
L-977	L-951	L-925

Expansion Area

L-994	L-988
L-995	L-989
L-996	L-990
L-997	L-991
L-998	L-992
L-999	L-993

LAT: 29°10' 3.18"  
 LON: 87°00' 23.1"  
 POR

# Pelican Reef Lease Sites

## July – Nov, 2007



**CLAMMRS  
Monitoring  
Station**

L-645	L-601
L-646	L-602
L-647	L-603
L-648	L-604
L-649	L-605
<b>L-650</b>	L-606
L-651	L-607
L-652	L-608
L-653	L-609
L-654	L-610
L-655	L-611
L-656	L-612
L-657	L-613
L-658	L-614
L-659	L-615
L-660	L-616
L-661	L-617
L-662	<b>L-618</b>
L-663	L-619
L-664	L-620
L-665	L-621
L-666	L-622
L-667	L-623
L-668	L-624
L-669	L-625
L-670	L-626
L-671	L-627
L-672	L-628
L-673	L-629
L-674	L-630
L-675	L-631

# North Gulf Jackson Lease Sites

July – Nov,  
2007

**CLAMMRS  
Monitoring  
Station**



	L-676	L-632
	L-677	L-633
	L-678	L-634
	<b>L-679</b>	L-635
	L-680	L-636
	L-681	L-637
L-6011	L-682	L-638
L-6012	L-683	L-639
L-6013	L-684	L-640
L-6014	L-685	L-641
L-6015	L-686	<b>L-642</b>
<b>L-6016</b>	L-687	L-643
L-6017	L-688	L-644
L-6018	L-6006	L-6001
L-6019	L-6007	L-6002
L-6020	L-6008	L-6003
L-6021	L-6009	<b>L-6004</b>
L-6022	L-6010	L-6005

# South Gulf Jackson Lease Sites

## July – Nov, 2007





# Dog Island Lease Sites

## July – Nov, 2007

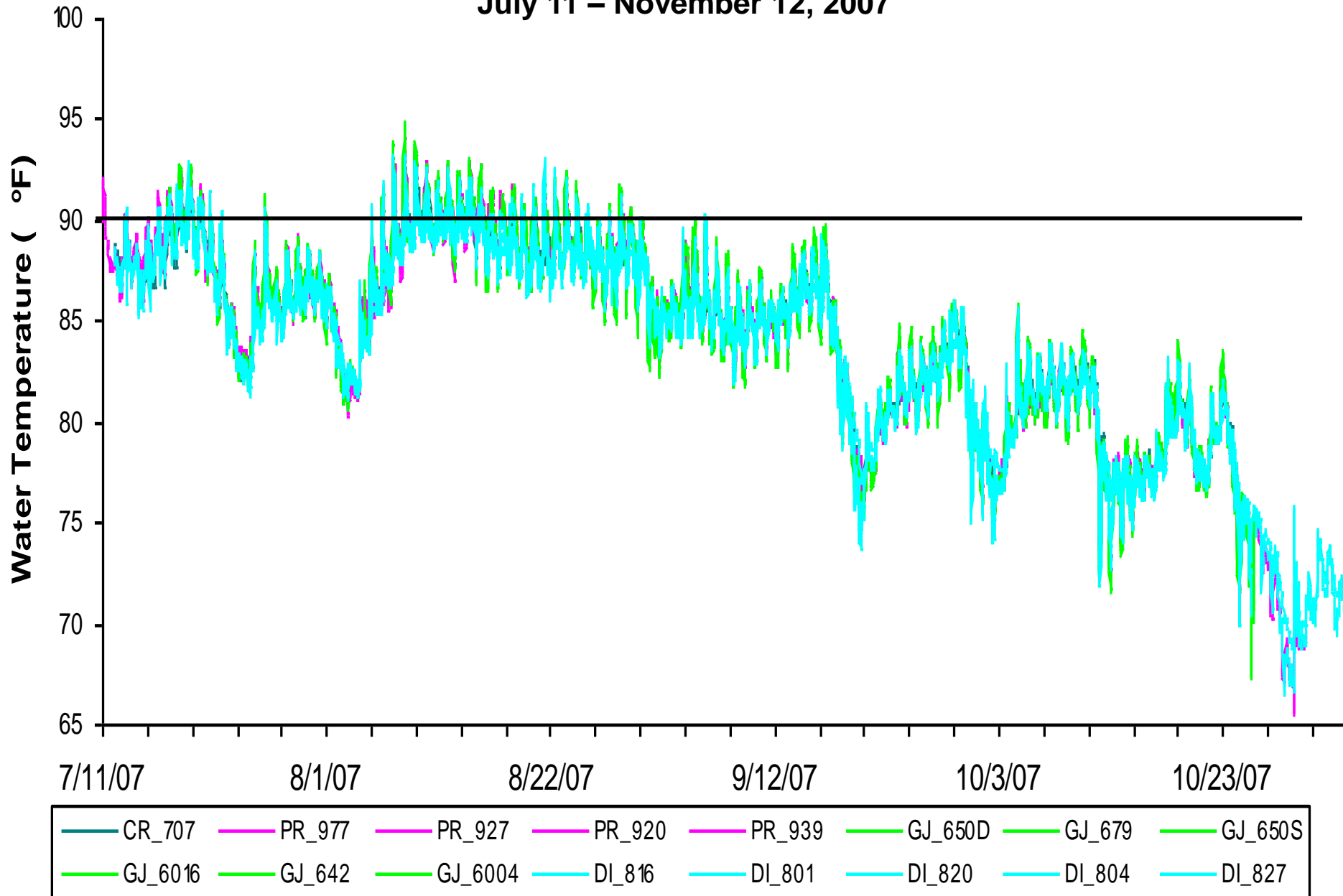
L-701	L 727
L-702	L 728
L-703	L 729
L-704	L 730
L-705	L 731
L-706	L 732
<b>L-707</b>	L 733
L-708	L 734
L-709	L 735
L-710	L 736
L-711	L 737
L-712	L 738
L-713	L 739
L-714	
L-715	
L-716	
L-717	
L-718	
L-719	
L-720	
L-721	
L-722	
L-723	
L-724	
L-725	
L-726	

# Corrigans Reef Lease Areas

July – Nov,  
2007

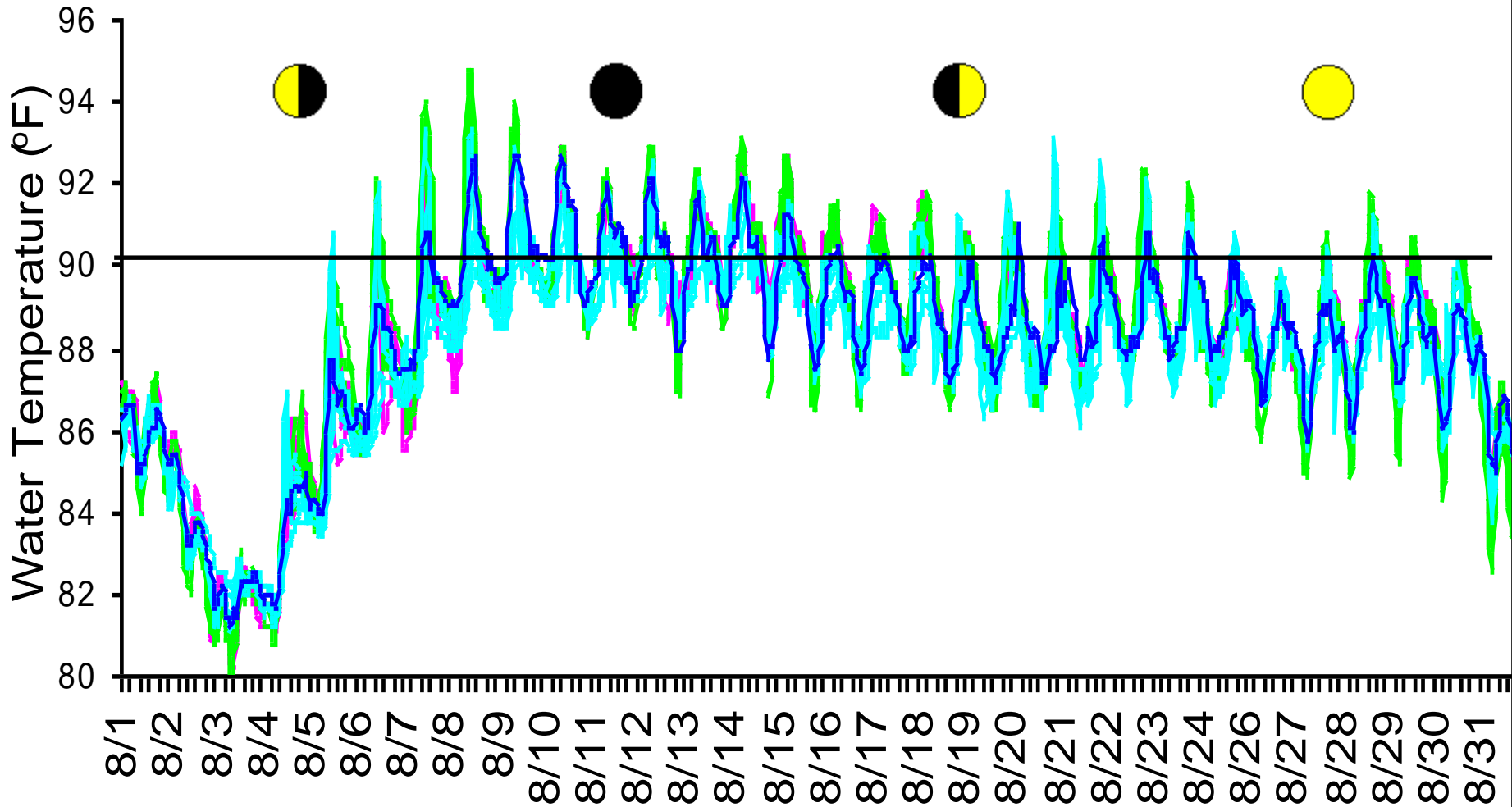
# Comparison of Temperature Data Recorded Hourly From Cedar Key Lease Areas

July 11 – November 12, 2007





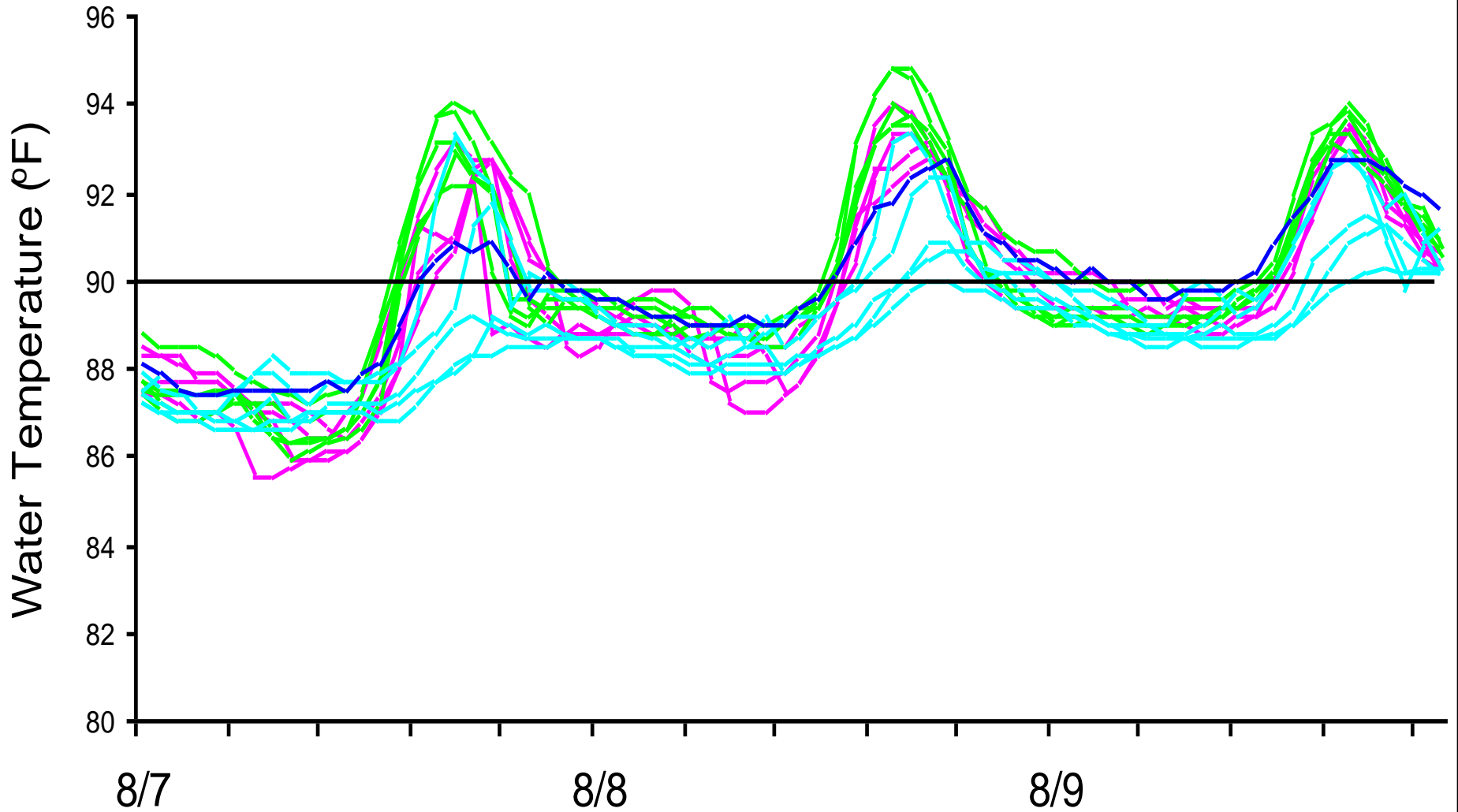
# Water Temperatures Recorded Hourly at 17 Clam Leases Cedar Key Lease Areas August, 2007



PR_920	PR_927	PR_939	PR_977	GJ_618	GJ_642
GJ_650D	GJ_650S	GJ_679	GJ_6004	GJ_6016	DI_801
DI_804	DI_816	DI_820	DI_827	CR_707	

# Water Temperatures Recorded Hourly at 17 Clam Leases

## Cedar Key Lease Areas August 7 - 9, 2007

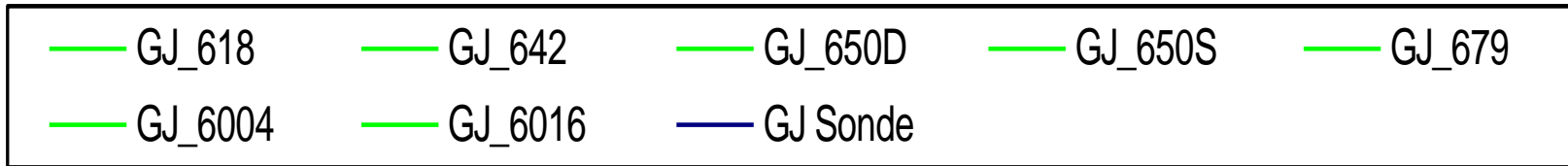
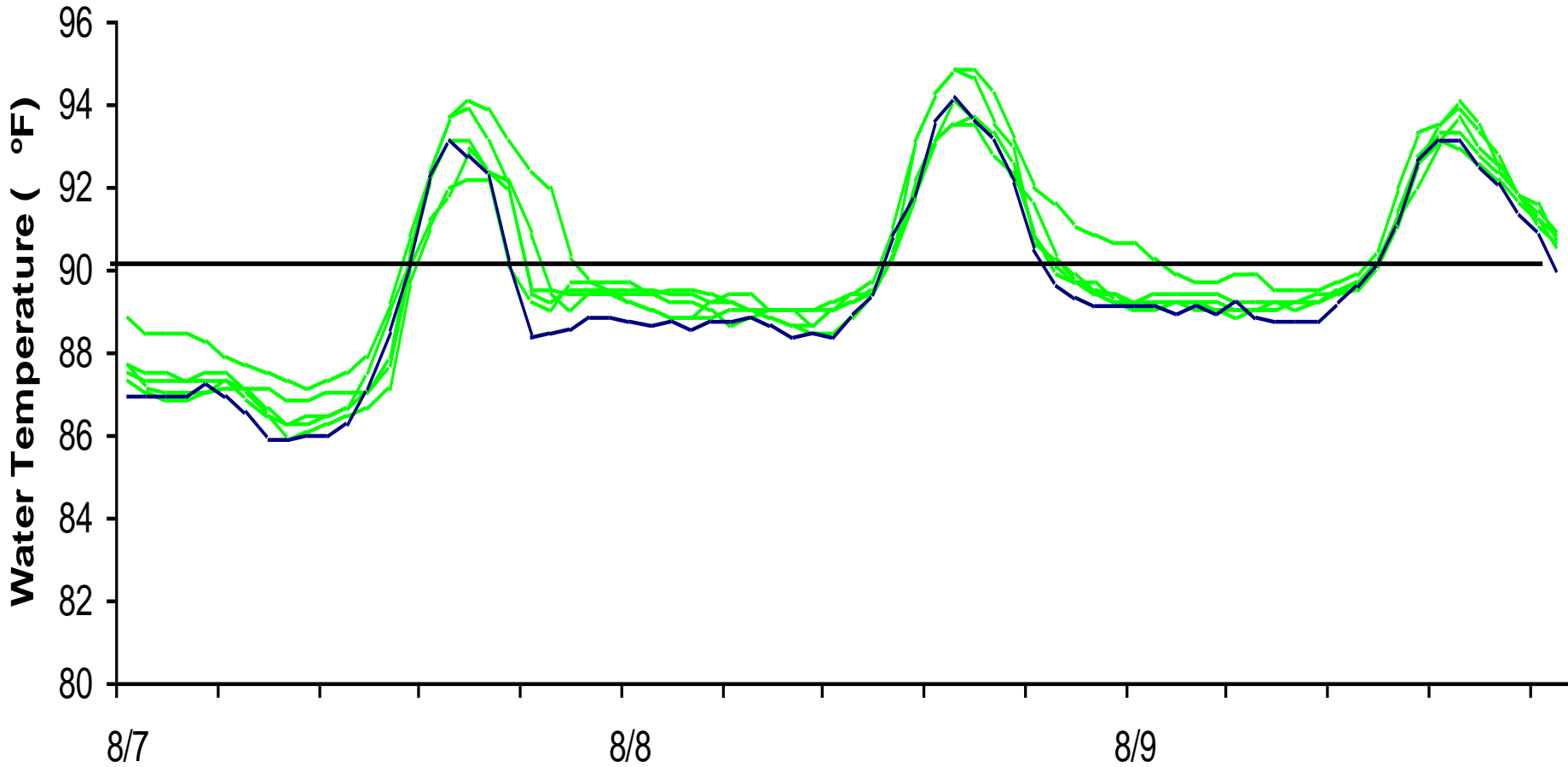


Pelican Reef Leases Gulf Jackson Leases Dog Island Leases Corrigan's Reef Lease

# Water Temperatures Recorded Hourly at 7 Clam Leases

## Gulf Jackson Lease Area, Cedar Key

### August 7-9, 2007

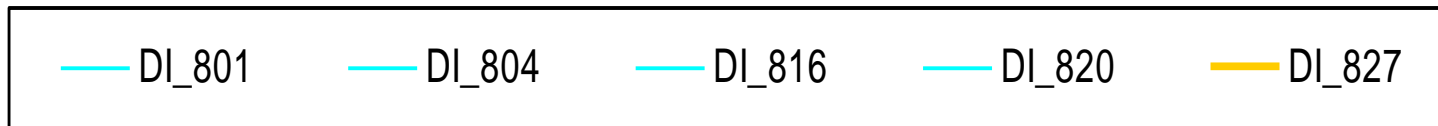
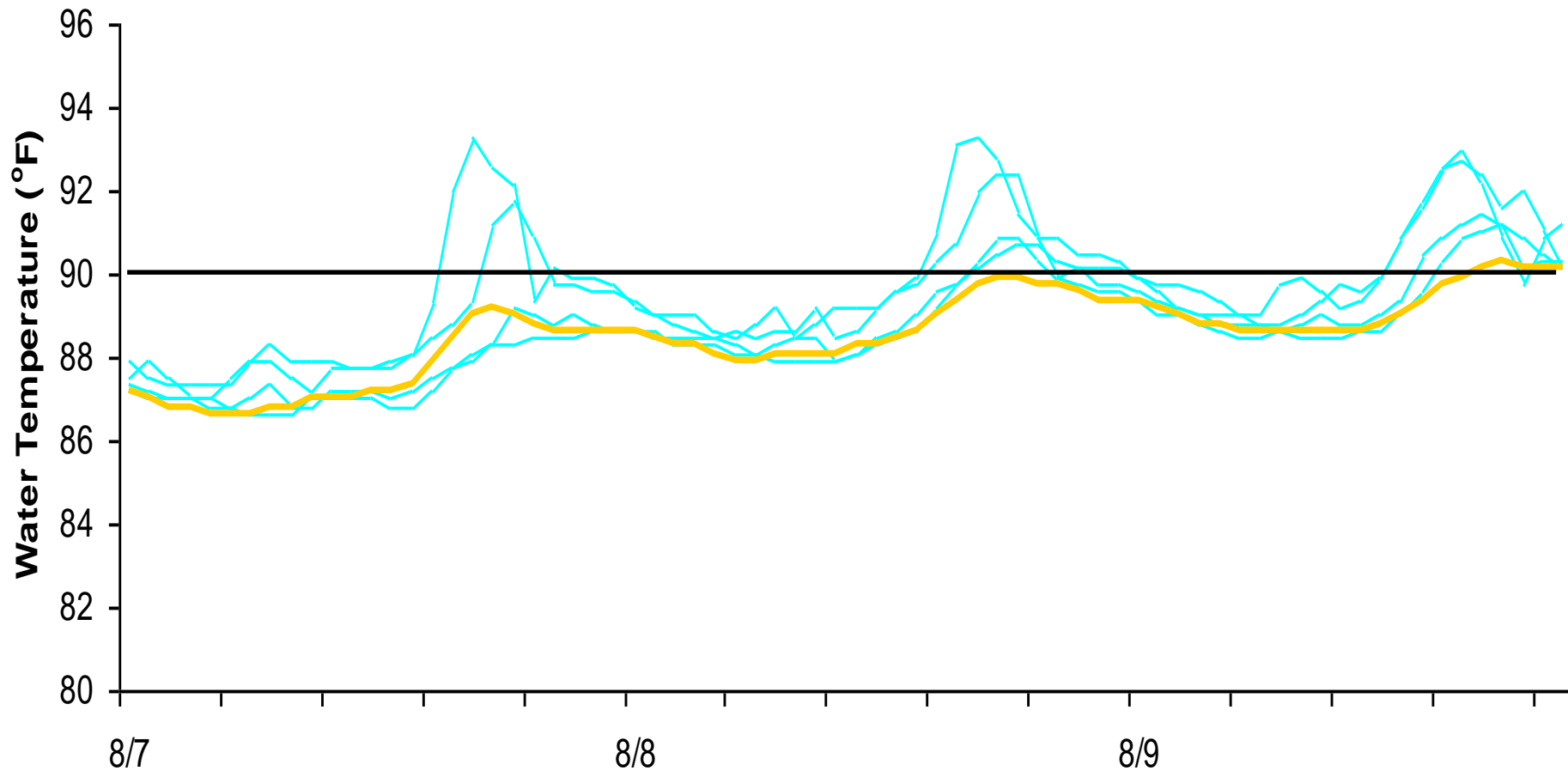




# Water Temperatures Recorded Hourly at 5 Clam Leases

## Dog Island Lease Area, Cedar Key

### August 7-9, 2007



# What's going on in 2008?

- Increased # of data loggers to 39
  - 11 at Pelican Reef for 13% coverage
  - 12 at Gulf Jackson for 11% coverage
  - 8 at Dog Island for 28% coverage
  - 8 at Corrigan's Reef for 21% coverage
- Temperature monitoring from May through September – **RETURN LOGGERS SOON**
- Added “real time” monitoring station at Dog Island Lease Area

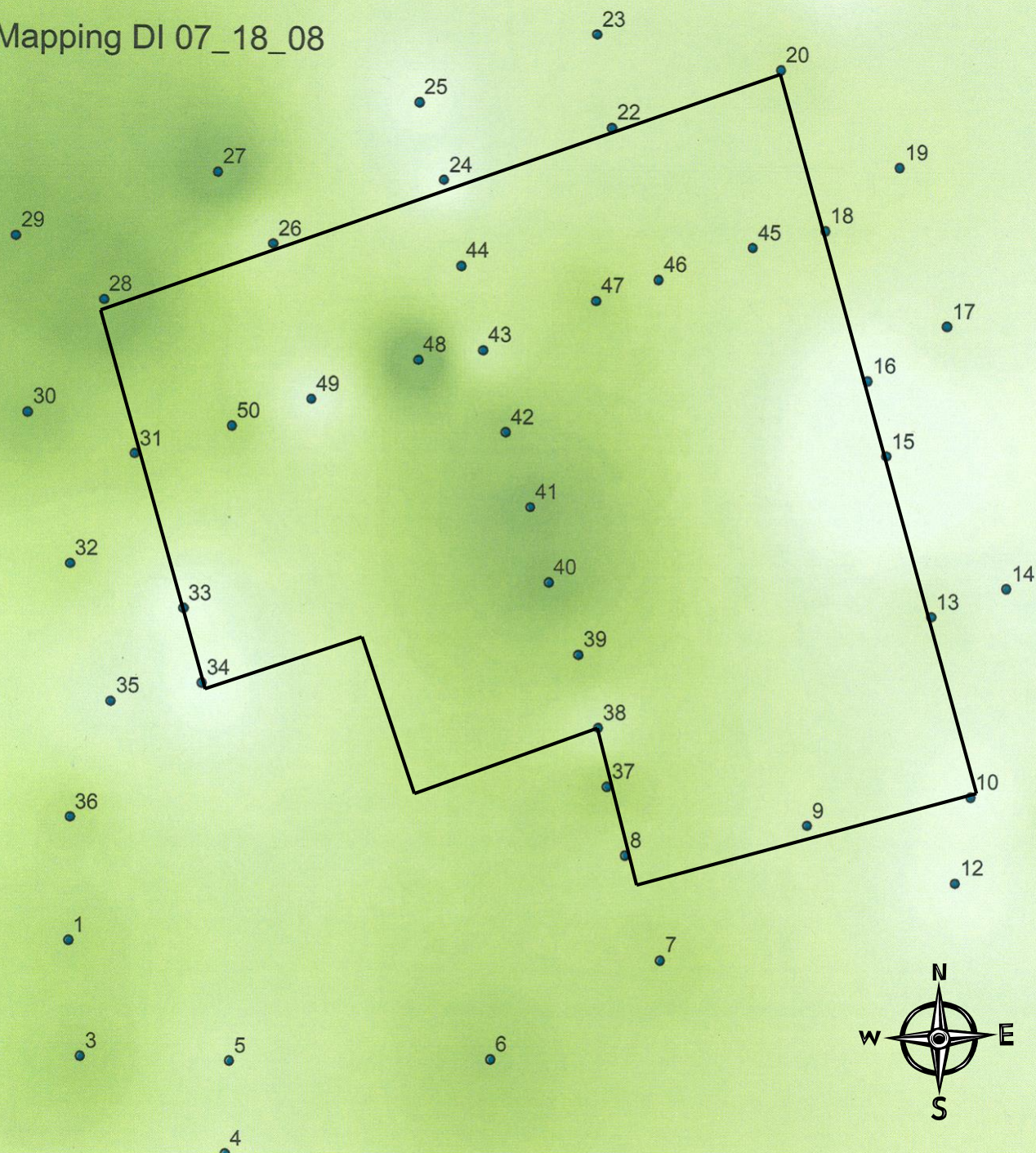
# New Project: Chlorophyll Mapping

- To gain an understanding of the variability of phytoplankton (clam food) within leases over time
- Use field fluorometer-turbidimeter and GPS-GIS to measure and map chlorophyll concentrations
  - Indicator of phytoplankton quantity not quality
  - Values used to define productivity in ecosystems
    - 0-5 mg/l – unproductive, 5-10 mg/l – moderately productive
    - 10-20 mg/l – highly productive, 20-40 mg/l – highly productive
- Established procedures at Dog Island HDLA, Levy County (50 stations) during June-July, 2008
- In 2009 will begin surveys during summer months at several high-density lease areas



# Dog Island HDLA, Levy County

## 07.18.08



### Legend

#### Value

