

# PROCESSED WASTE WATER: POTENTIAL TOOL FOR PROMOTING OYSTER REEFS IN HIGH-SALINITY WATERS.

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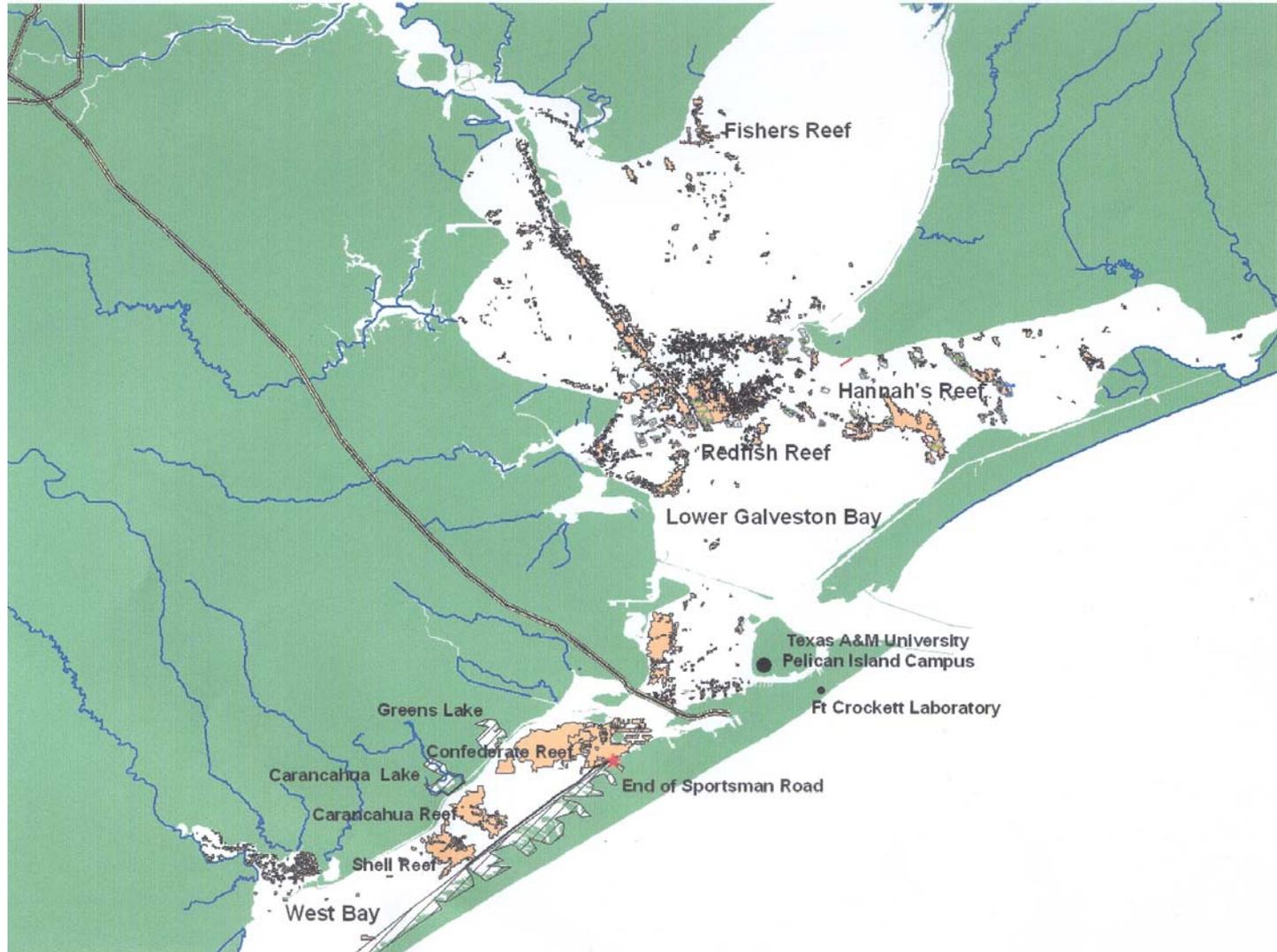
Ayal Anis, Texas A&M University at Galveston, Galveston, TX

Antonietta Quigg, Texas A&M University at Galveston, Galveston, TX

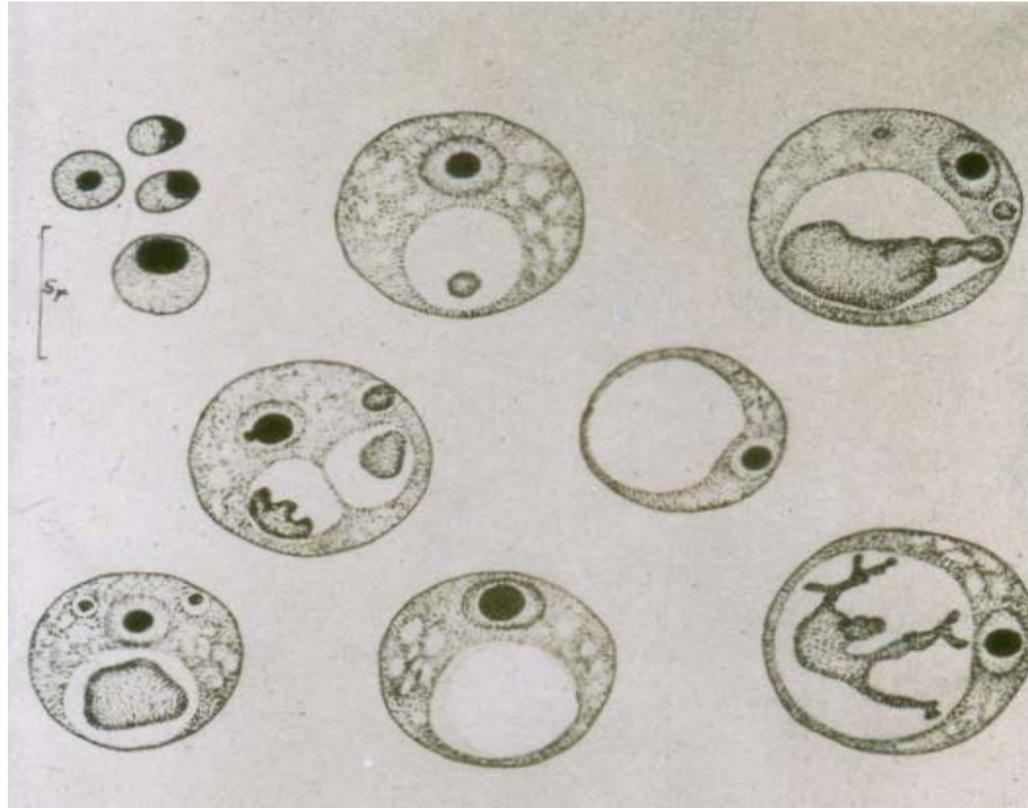
Lalise Mason, Scenic Galveston, Galveston, TX

A pilot study is underway to determine the feasibility of using the daily production of 10 to 12 million gallons of processed industrial waste water to manage (reduce) the ambient salinity in a small embayment (Swan Lake) in lower Galveston Bay, Texas. The oyster population in Swan Lake is heavily impacted by Dermo disease (*Perkinsus marinus*) and the Southern Oyster Drill (*Stramonita (Thais) haemastoma*). This two year study will include hydrographic measurements, oyster recruitment, oyster meat index, Dermo disease level and assessments of phytoplankton population at several sites in and adjacent to Swan Lake (surface area: 630 acres/259 hectares). Comments concerning oyster reef restoration in the Gulf of Mexico will be presented.

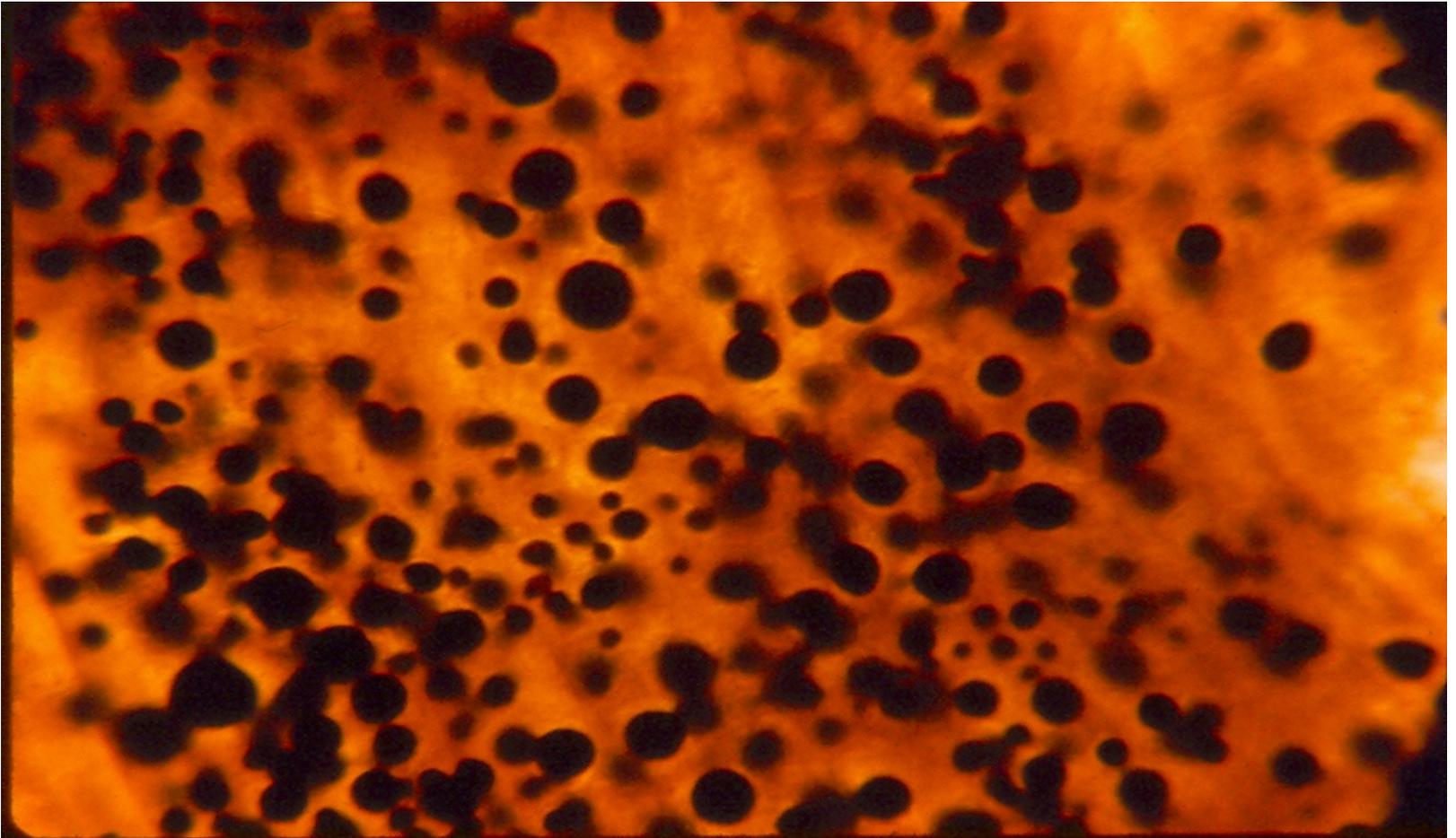
# Galveston Bay System



# Life cycle of perkinsus marinus (Dermo)



# Cultured Dermo, gill (x80)



# Southern Oyster Drill (Stramonita haemastoma)



# Southern Oyster Drill Egg Cases



06/02/2008

# Color coded Dermo intensity of oysters sampled in Swan Lake Area.

11-10-05





Station 2

Station 1

Station 3

Station 9

Station 4

Station 5

Station 6

Station 10

Station 7

Station 8



Image Houston-Galveston Area Council  
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Google

2968 m

Pointer 29° 19.740' N 94° 52.051' W elev. 0 m

Streaming [|||||] 100%

Eye alt. 10.27 km

# Spat Collection Box

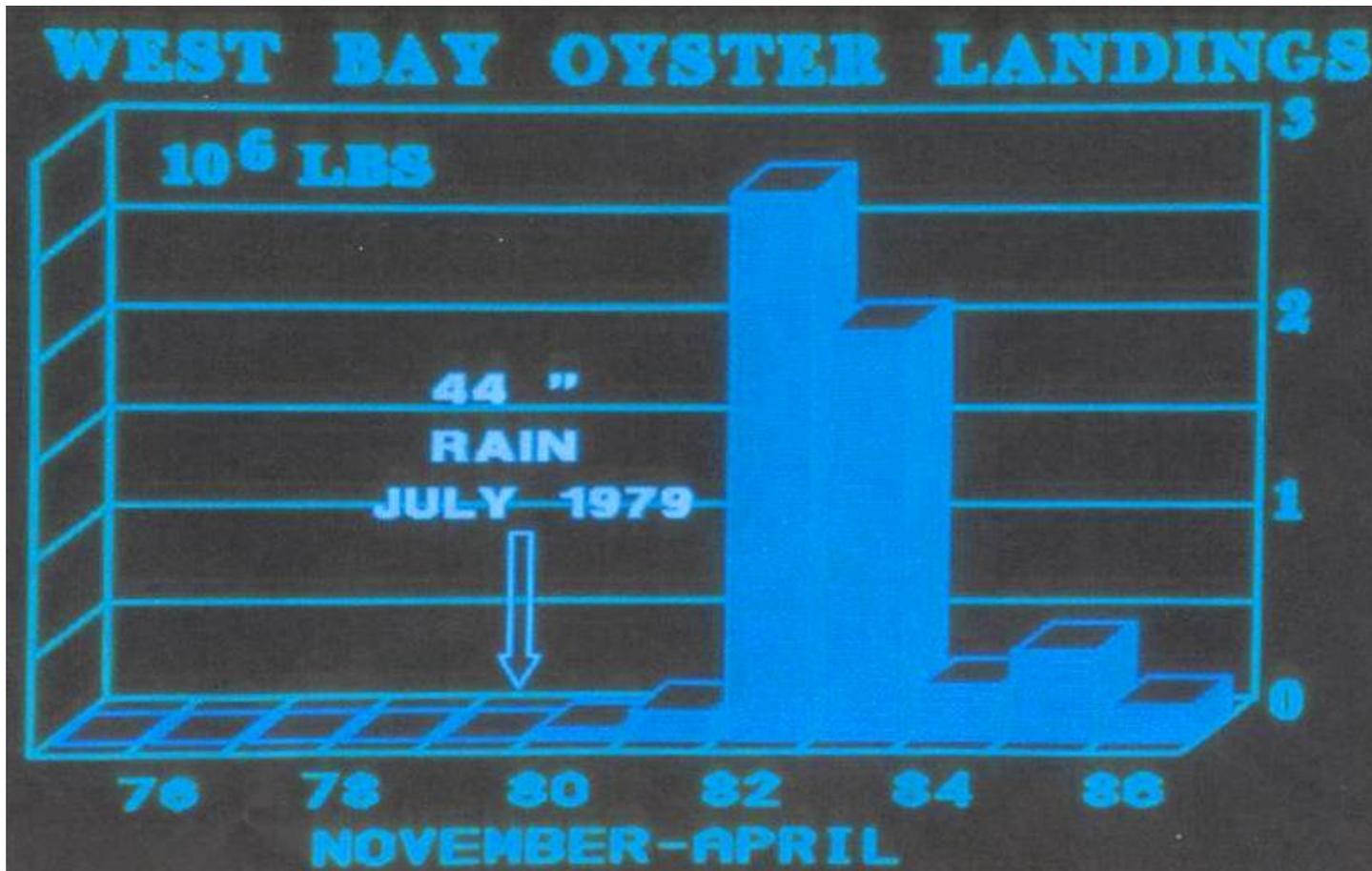


# Biblical confirmation of the value of fresh water inflow to maintain healthy bays

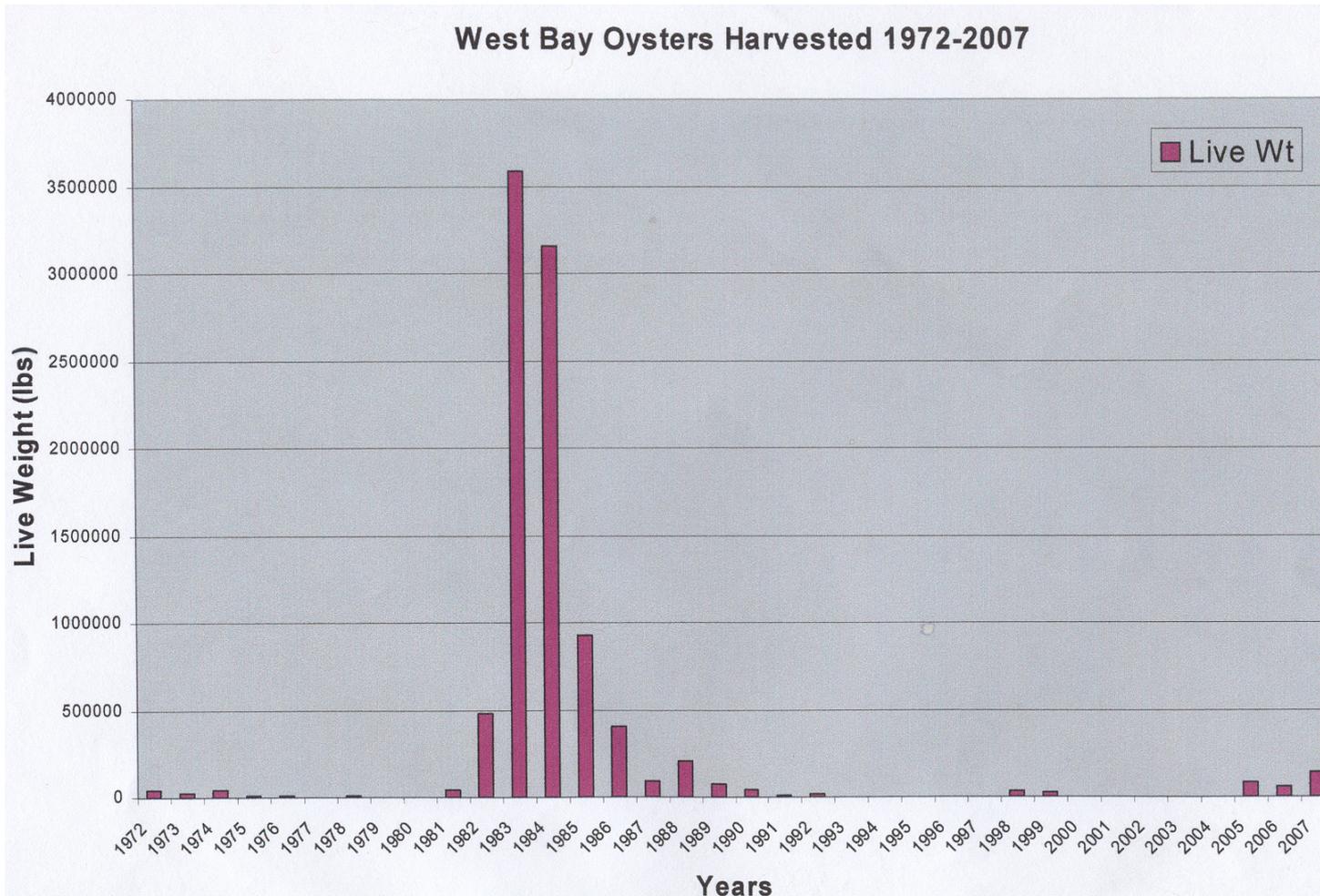
The River From the Temple  
Ezekiel 47 Verses 8-10

- He said to me, "This *water* flows towards the eastern region and goes down into the Arabah, where it enters the Sea. When it empties into the Sea, the water there becomes fresh. Swarms of living creatures will live wherever the *river* flows. There will be large numbers of fish, because this *water* flows there and makes the salt water fresh; so where the *river* flows everything will live. Fishermen will stand along the shore; from En Gedi to En Eglaim there will be places for spreading nets. The fish will be of many kinds--like the fish of the Great Sea.

# West Bay Oyster Landings



# West Bay oysters harvested from 1972-2007



# Spat set, inside of an oyster box



# Oyster wrapped up with spat



# Aransas Bay spat (10-16-08)



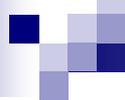
# Oyster Sentinel Gulf Wide Coverage



<http://www.oystersentinel.org>

# Most Recent Dermo Hot Spots

Area	Station	Date Collected	T	S	Juvenile Infection			Commercial Infection		
					Percent	Intensity	Incidence	Percent	Intensity	Incidence
<a href="#">Aransas Bay</a>	<a href="#">Lap Reef</a>	2007-05-14	28.2	11.2	80	2.37	1.9	100	2.13	2.13
<a href="#">Aransas Bay</a>	<a href="#">NW Causeway Reef</a>	2007-05-14	27.6	10.6	100	2.03	2.03	90	2.18	1.97
<a href="#">San Antonio Bay</a>	<a href="#">First Chain Reef</a>	2007-05-28	25.8	25	90	2.45	2.2	90	2.15	1.93
<a href="#">Matagorda Bay</a>	<a href="#">Gallinipper</a>	2008-05-28	29.3	21.8	20	1.84	0.37	90	2.52	2.27
<a href="#">Matagorda Bay</a>	<a href="#">Indian Point</a>	2007-10-30	21	13.5	80	1.71	1.37	100	2.53	2.53
<a href="#">Galveston Bay</a>	<a href="#">Confederate Reef</a>	2008-07-29	32	32	80	1.79	1.43	100	2.47	2.47
<a href="#">Mississippi Sound</a>	<a href="#">Pass Christian Dredging Reef</a>	2008-08-28	27.8	18.2	80	1.25	1	100	2.23	2.23
<a href="#">Corpus Christi Bay</a>	<a href="#">Mid Nueces Bay</a>	2007-05-14	26.3	30.5	100	3.27	3.27	100	3	3
<a href="#">Corpus Christi Bay</a>	<a href="#">North Indian Point</a>	2007-05-14	26.6	29.5	90	3.11	2.8	90	3.33	3
<a href="#">Corpus Christi Bay</a>	<a href="#">Southwest Indian Point</a>	2007-02-05	12.2	30.4	20	2.33	0.47	100	2.66	2.66
<a href="#">Corpus Christi Bay</a>	<a href="#">Port Aransas Harbor</a>	2007-02-04	13.7	34	80	2.46	1.97	100	2	2
<a href="#">Corpus Christi Bay</a>	<a href="#">East Flats</a>	2007-05-12	27.6	33	40	2.5	1	100	2.1	2.1
<a href="#">Corpus Christi Bay</a>	<a href="#">Island Mooring</a>	2007-11-11	24.1	27	90	1.89	1.7	90	2.33	2.1
<a href="#">Charlotte Harbor</a>	<a href="#">Cattle Dock</a>	2007-12-12	29.2	35.8	80	2.75	2.2			
<a href="#">Charlotte Harbor</a>	<a href="#">Bird Island</a>	2008-10-08	29.3	18.4	100	3.87	3.87			
<a href="#">Charlotte Harbor</a>	<a href="#">Kitchel Key</a>	2008-10-08	26.8	25.9	100	2.73	2.73			



# Acknowledgements

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