



Belcara View
Las Palmas Dr

Mar Bella Pkwy

Isla Vista Circle

Daroca Dr

Diamante Dr

Centabria Ln

Cadiz Ct

Costa Brava Park

Isla Vista Dr

Shadow Point Dr

Rosemist Dr

Portglen Dr

Rockpoint Circle

Summer Manor Dr

Berling Stream Dr

Alburn Sky Ct

Lake Star Dr

Pebble Brook Dr

Carolyn St
Miles Rd

Charles St

Reppert St

W. May St

Cody Rd

12/1944



Image Texas General Land Office

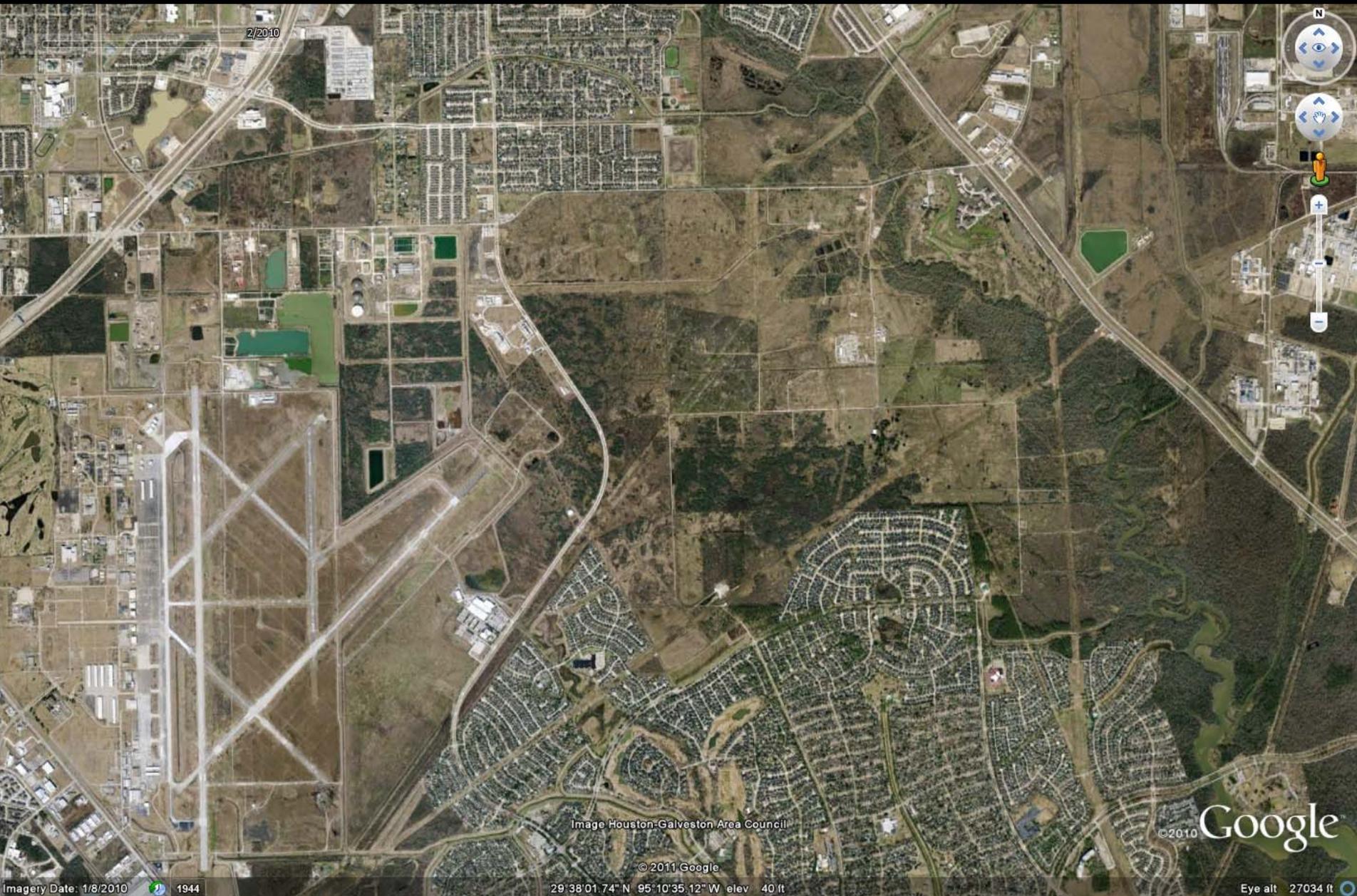
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Imagery Date: 12/31/1943 1944

29°37'01.48" N 95°07'46.51" W elev 29 ft

Eye alt 27034 ft



2/2010



Image Houston-Galveston Area Council

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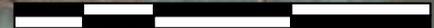
Imagery Date: 1/8/2010 1944

29° 38' 01.74" N 95° 10' 35.12" W elev 40 ft

Eye alt 27034 ft

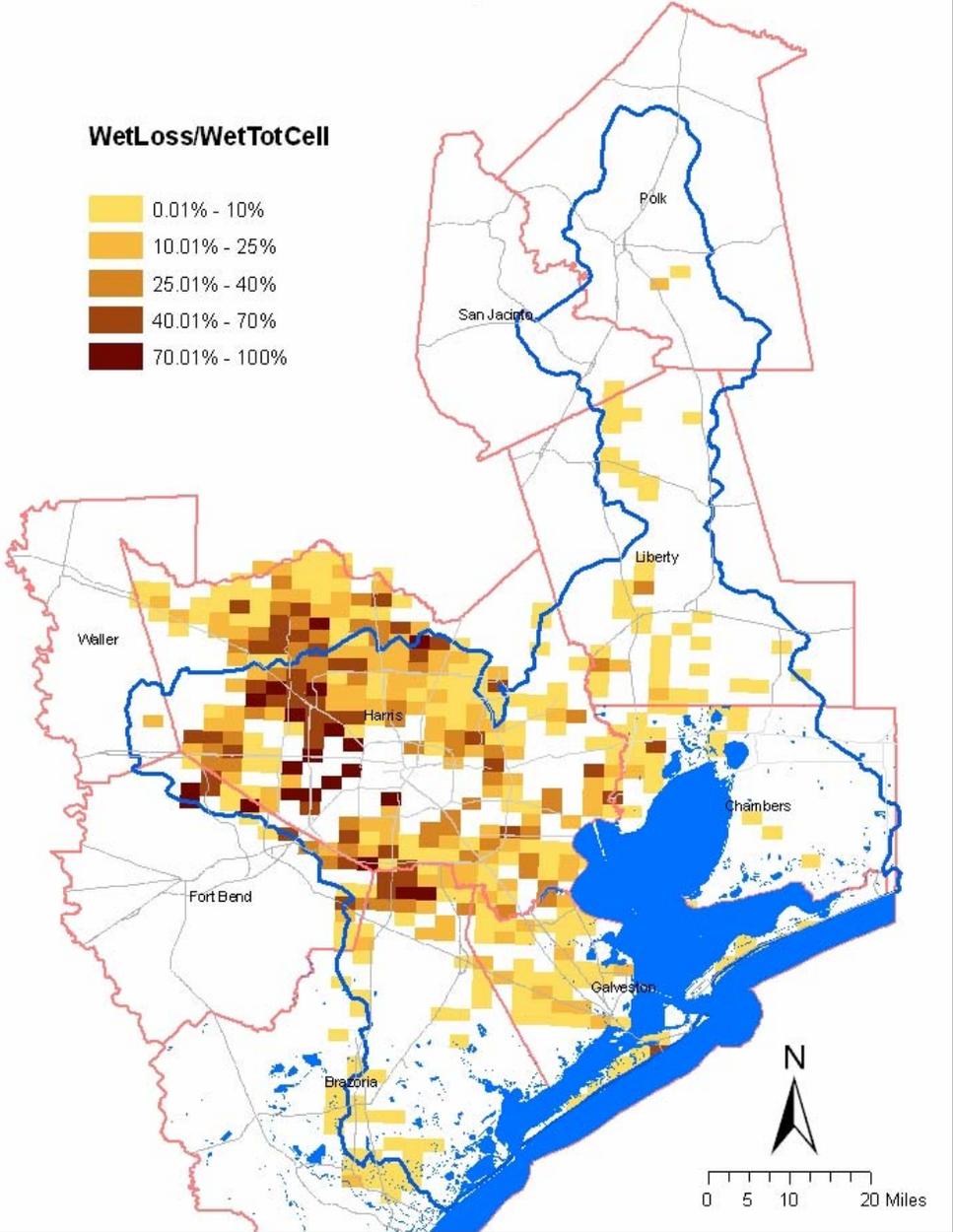


500 0 500 1000 Feet



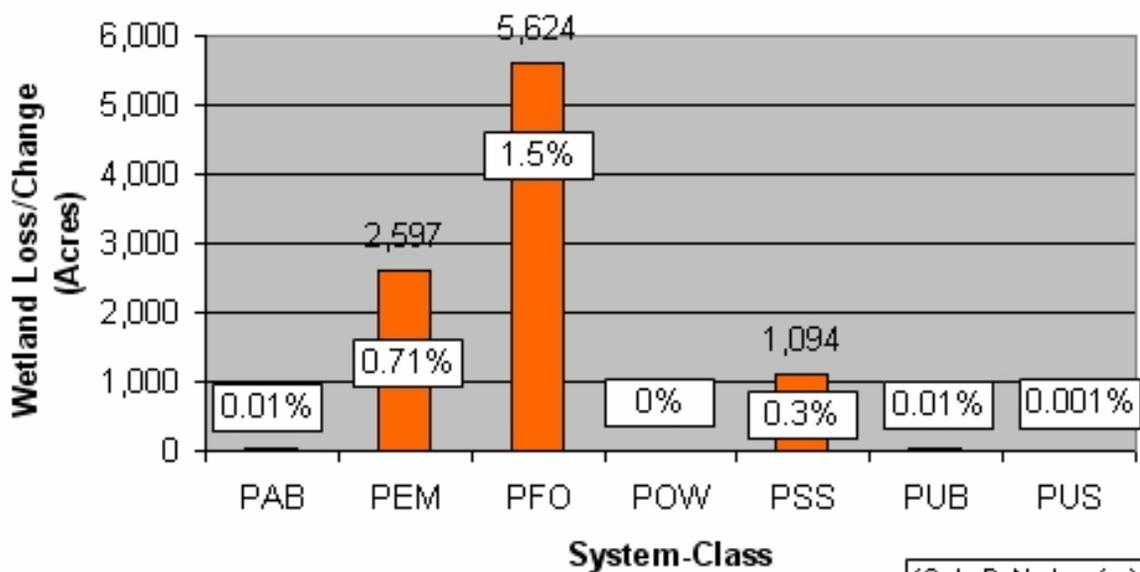
Lower Galveston Bay Watershed Wetland Loss/Change 1992 - 2002

WetLoss/WetTotCell



Lower Galveston Bay Watershed Fresh Water Wetland Loss (1992-2002)

Total Wet: 367,300 Acres
Wet Loss: 9,400 Acres
Perc. Loss: 3 %

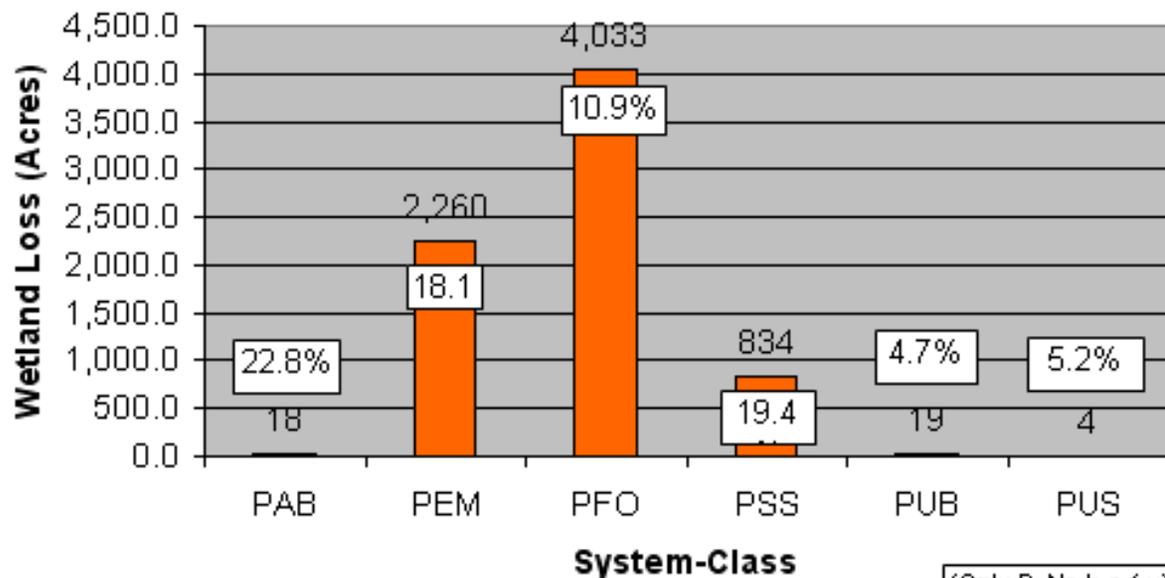


(Only P, No h,s,f,x)

CLASS	DESCRIPTION
AB	Aquatic Bed
EM	Emergent
FO	Forested
OW	Open Water/Unknown Bottom
SS	Scrub-Shrub
UB	Unconsolidated Bottom
US	Unconsolidated Shore

Harris County Fresh Water Wetlands Loss (1992-2002)

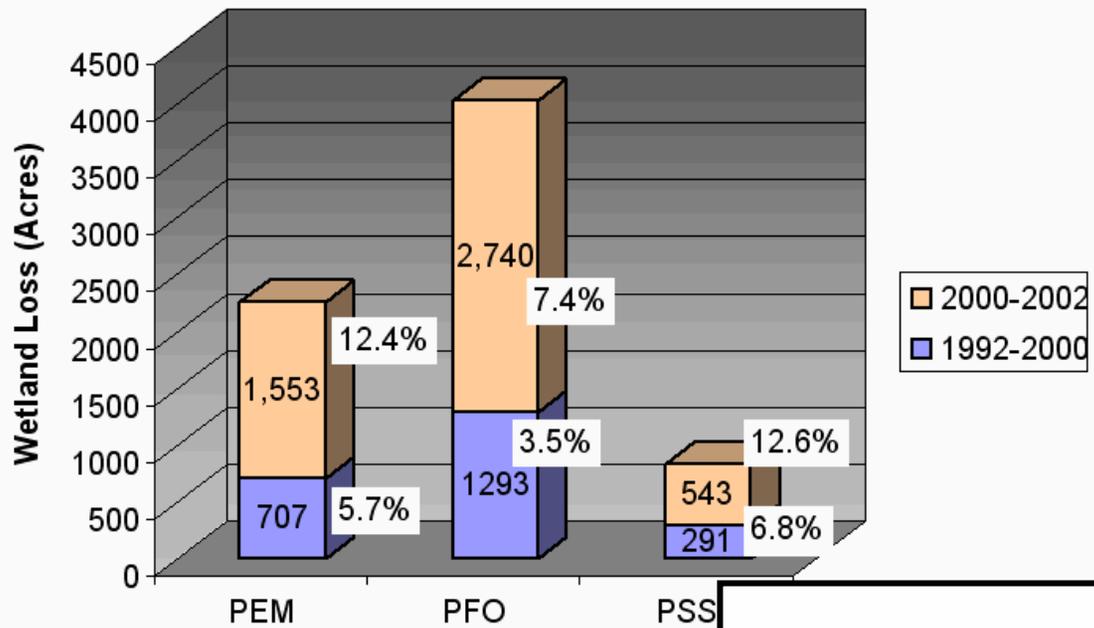
Total Wet: 54,500 Acres
Wet Loss: 7,200 Acres
Perc. Loss: 13 %



(Only P, No h,s,f,x)

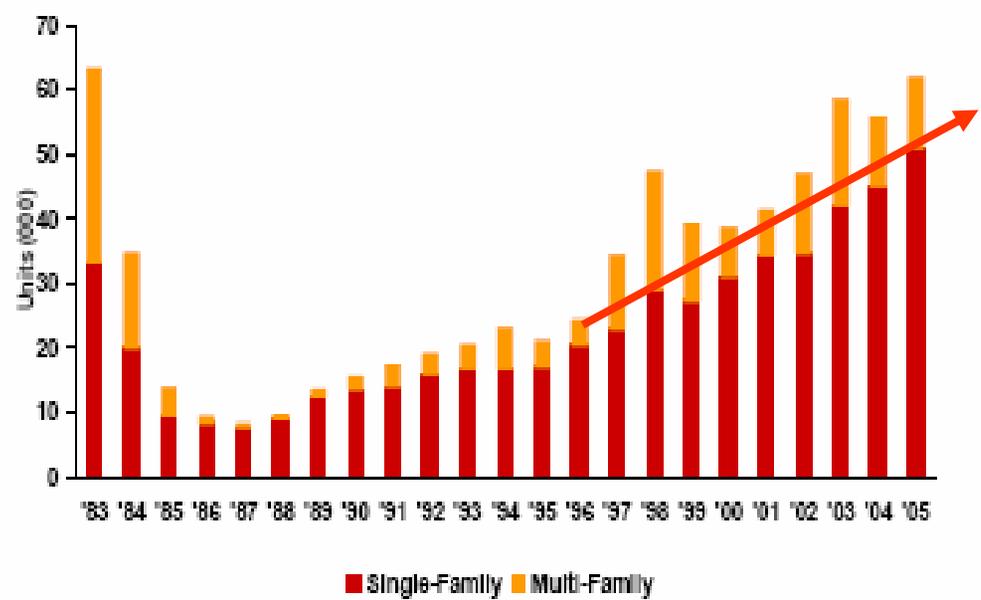
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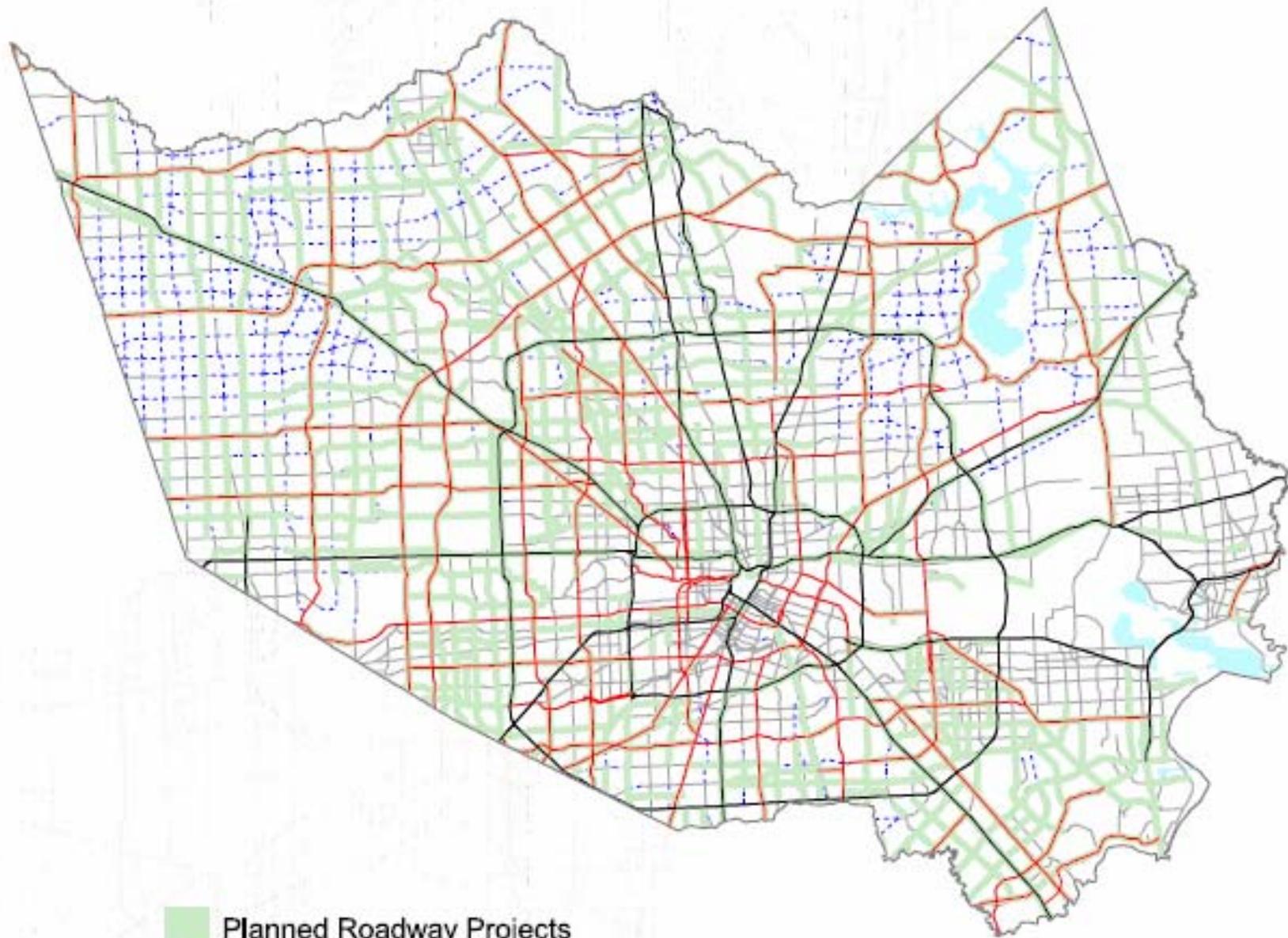
(Only P, No h,s,f,x)



Housing Starts

Houston-Galveston-Brazoria CMSA 1983-2005





-  Planned Roadway Projects
-  Smart Streets
-  Future Thoroughfares
-  Freeways

**But is there a
NEXUS?**



SWANCC 

RAPANOS 

?



Evidence of Surface Connectivity for Texas Gulf Coast Depressional Wetlands

Bradford P. Wilcox · Dex D. Dean · John S. Jacob · Andrew Sipocz

Received: 8 June 2010 / Accepted: 10 February 2011
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Abstract Depressional wetlands are distributed throughout the United States and provide many essential ecosystem services. It is important, from both an ecological and a regulatory perspective, to understand the surface water pathways that connect such wetlands to each other and to surrounding water bodies. For many of these wetlands systems, the amount of surface water discharged is poorly quantified. In this paper we report on a 45-month study quantifying the surface discharge characteristics of a wetland on the Texas Gulf of Mexico Coastal Plain. The results of this study indicate that surface runoff, although intermittent, occurred regularly and accounted for more than 17% of watershed precipitation over the 45 months, with annual runoff ranging from 0% to 27%. Runoff typically occurred in precipitation-driven pulses and coincided with increased runoff in adjacent waterways. The detailed results of this study and similar observations from other locations run contrary to the widespread perception that depressional

wetlands on the Texas Gulf Coast are hydrologically isolated—which calls into question the regulatory policies governing large tracts of coastal plain wetlands (at least 400,000 ha in Texas alone).

Keywords Forested wetlands · Geographically isolated wetlands · Overland flow · Runoff · Wetland hydrology · Water budget

Introduction

Wetlands display a continuum of connectivity to surrounding surface waters. Some are strongly connected, such as wetlands in riparian corridors or along coastal areas, while others, such as playa lakes in the Great Plains, have little if any hydrological connection. Classification schemes have been developed to help determine the extent to which wetlands are connected or isolated. However, this has proved to be a challenge, precisely because wetlands in reality display a “continuum of connectivity” (Leibowitz 2003; Leibowitz and Nadeau 2003). Some are strongly connected to the surrounding landscape and others less so, but in fact few are truly isolated.

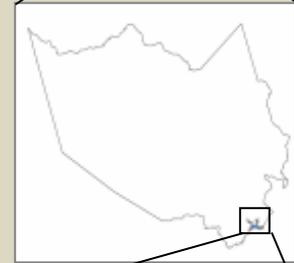
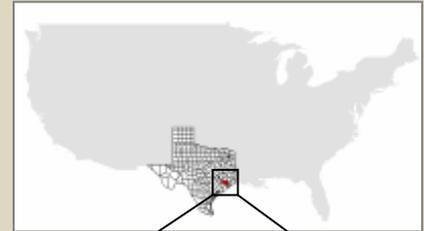
Traditionally, the term “isolated wetland” has been applied to depressional wetlands that are surrounded by uplands. However, as noted by Tiner (2003b), the term is problematic because it is a “relative term that could be defined from geographic, hydrologic, and ecologic perspectives,” and as noted above, few if any wetlands are truly isolated (Leibowitz 2003; Leibowitz and Nadeau 2003). In an effort to achieve more precision, Tiner has proposed the term “*geographically isolated*” as a more useful descriptor of these wetlands. Geographic isolation is much easier to determine than either hydrologic isolation or ecologic

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Study Area in Harris County, Texas (29°35'32"N, 95°04'42"W)















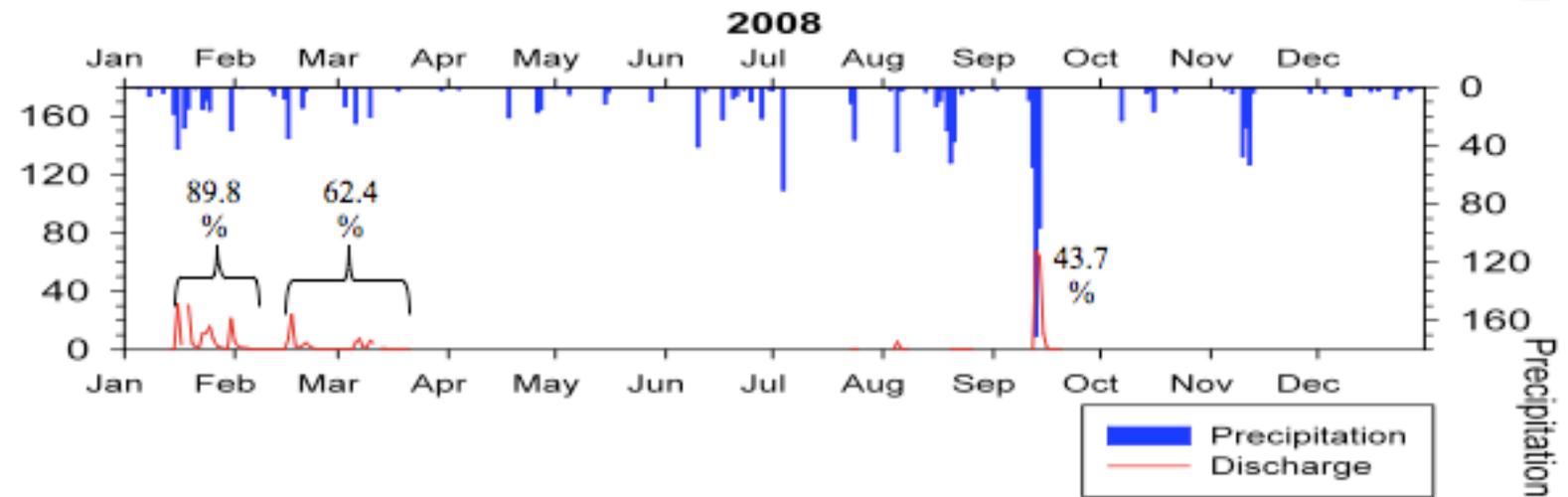
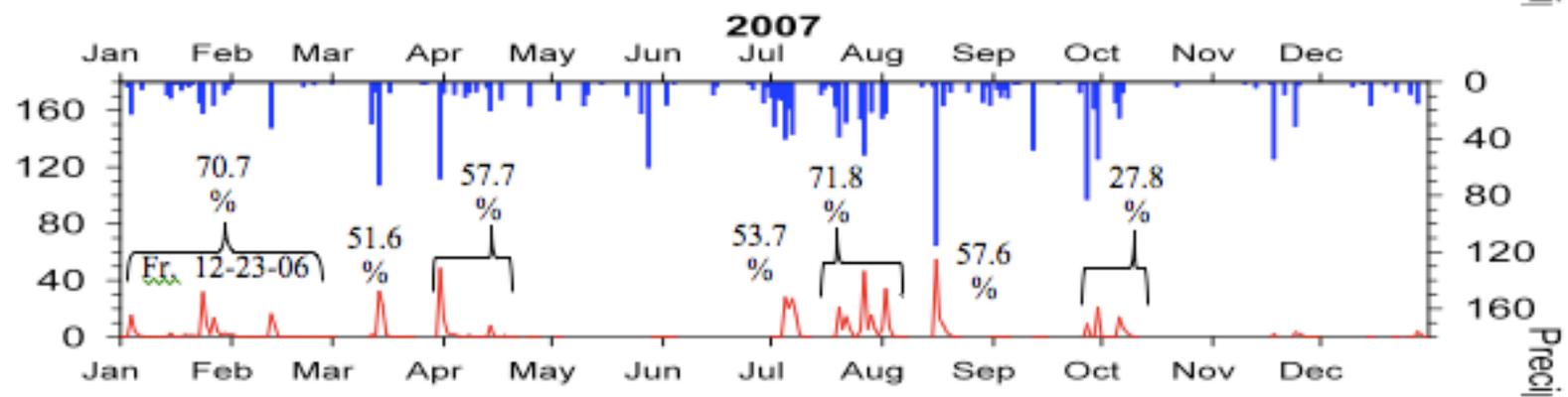
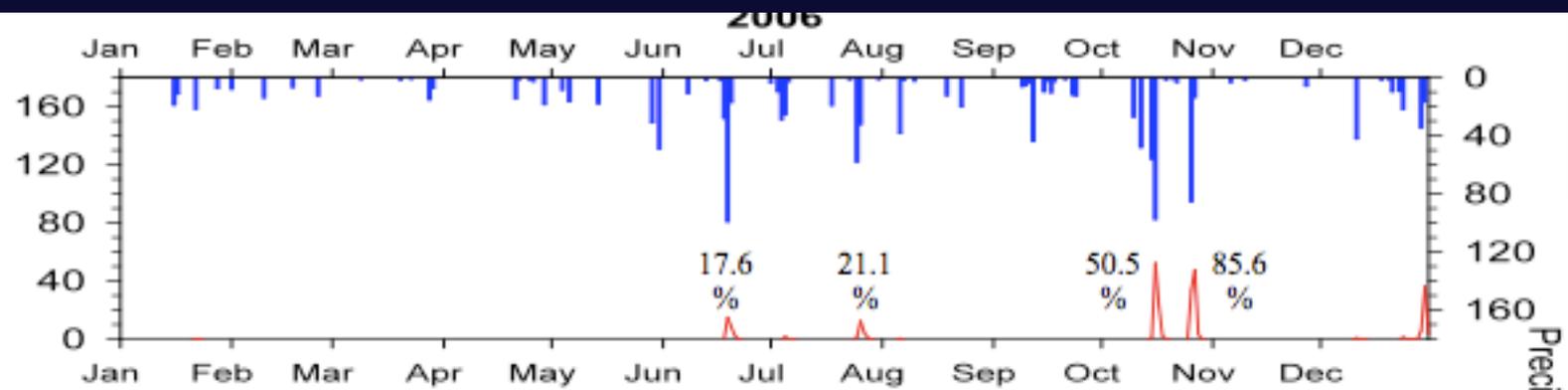


Study Methodology

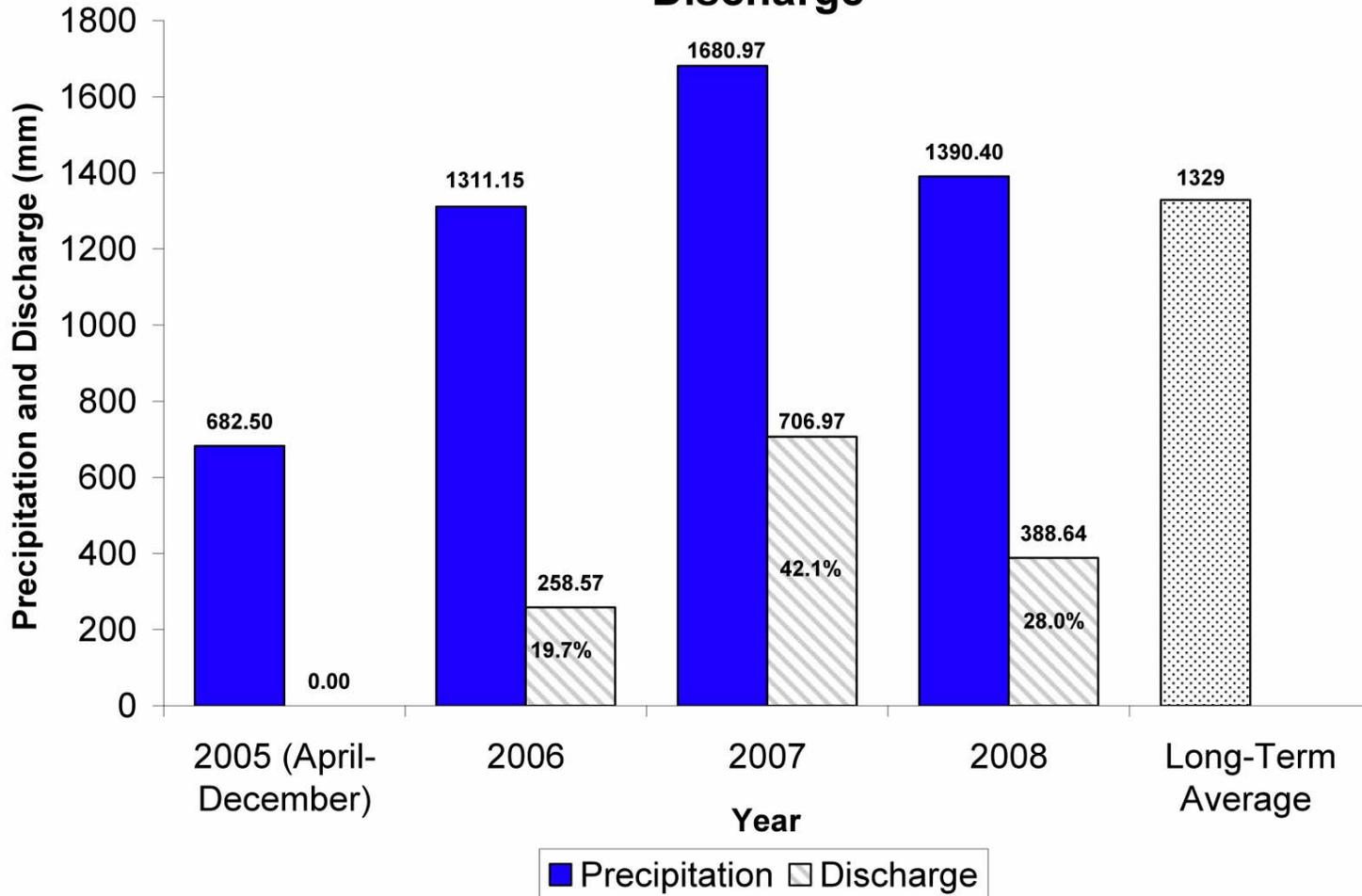
Installation of a weir and water level monitoring equipment at the study site



Photos: Bradford Wilcox



Summary of Annual Precipitation and Surface Discharge



The Next Nexus-

Science  Policy/Regulation

- ✓ Scientific, refereed publications
- ✓ Wetland Watch
- ✓ Workshops?
- ✓ Lawsuits?