

# Harte Research Institute

---

## for Gulf of Mexico Studies



## The Value of Inflows

David W. Yoskowitz  
Harte Research Institute for Gulf of Mexico Studies  
Texas A&M University – Corpus Christi

Presented at Freshwater Inflows: 2010 and Beyond,  
Corpus Christi, TX February 8, 2010

*Economics is the painful elaboration of the obvious.*

*An economist is someone who knows the price of everything and the value of nothing.*

*To an economist, real life is a special case.*

*Economists have forecasted 9 out of the last 5 recessions.*

# What is Value?

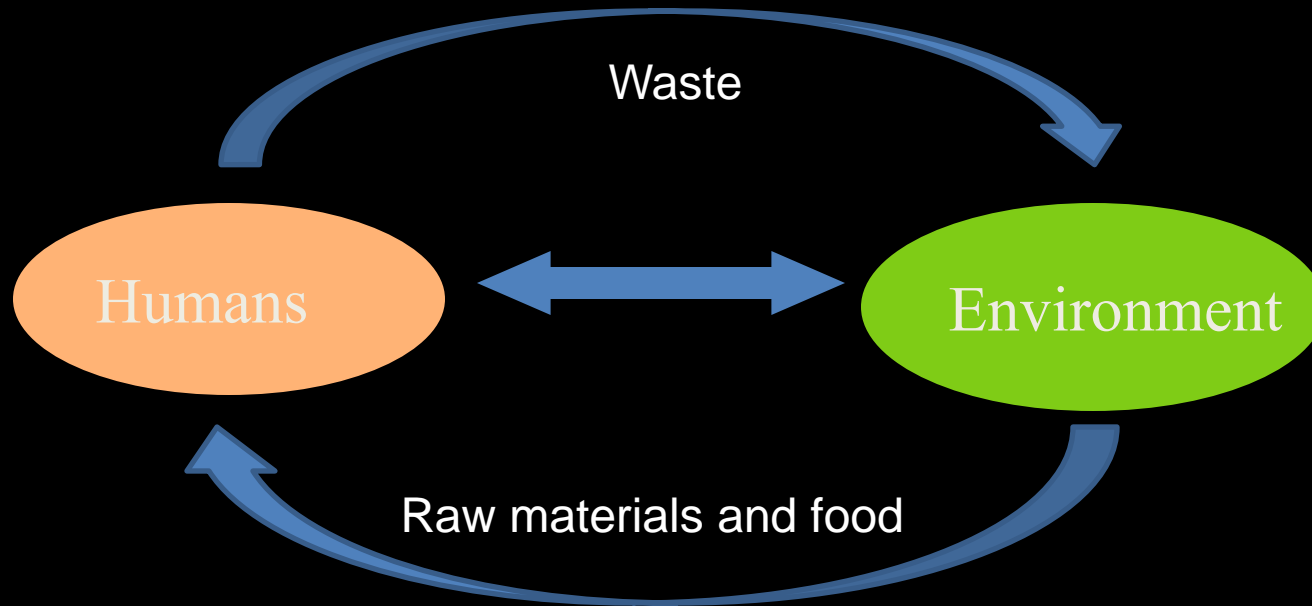
- The
- ut
- P
- Value is pe



sirable;  
(n Buffet)

# Humans and the Environment

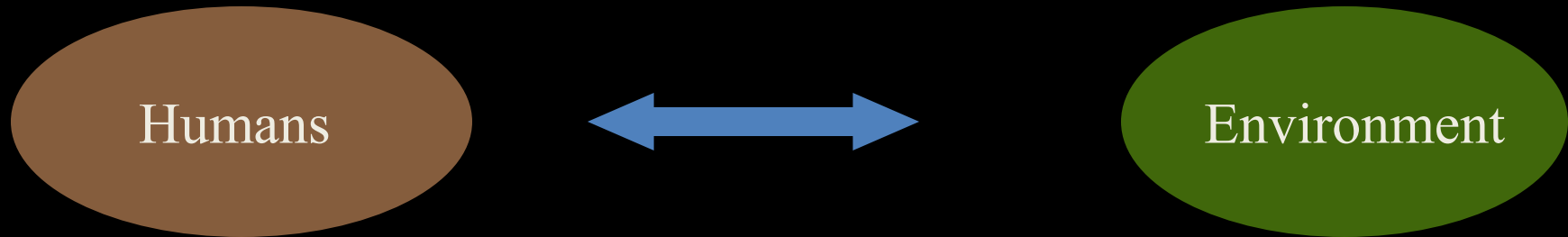
---



- Traditionally, how have we acted and thought about our interaction with the environment?
- It has usually been regarded as an input to some economic process.
- What we return to the environment is usually of lower quality.

# Humans and the Environment

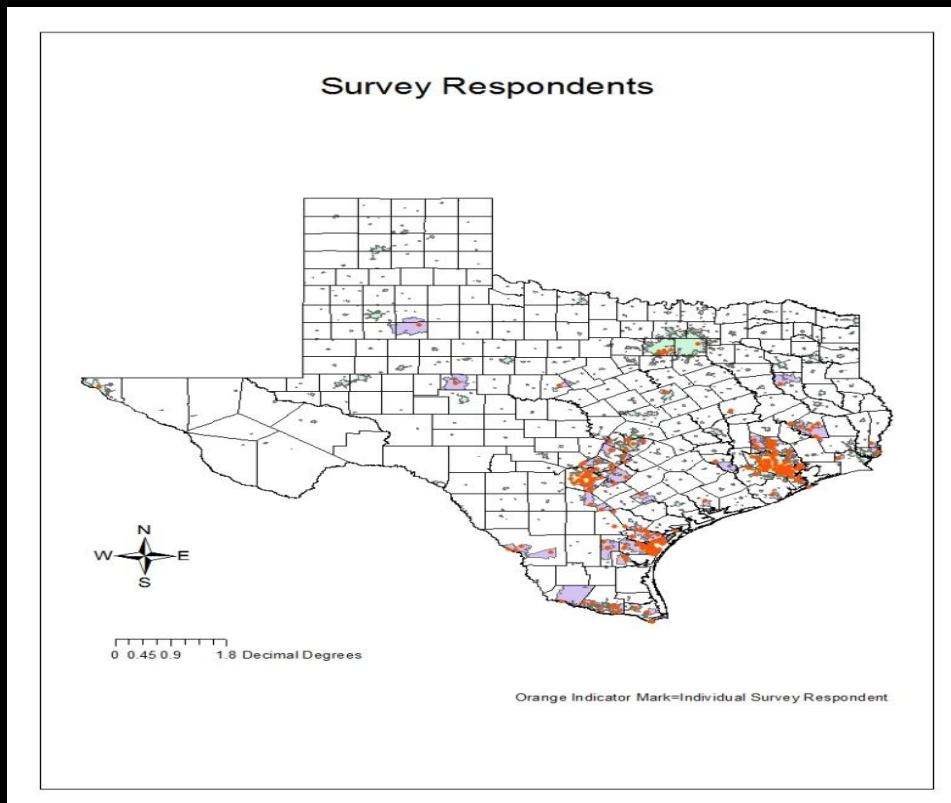
---



- We are not separate from the ecosystem. We are part of the ecosystem.
- We receive numerous services from the environment that are not accounted for through traditional “market” systems.
- The “non-market” services are no less valuable.

# What do Texans' think about inflow?

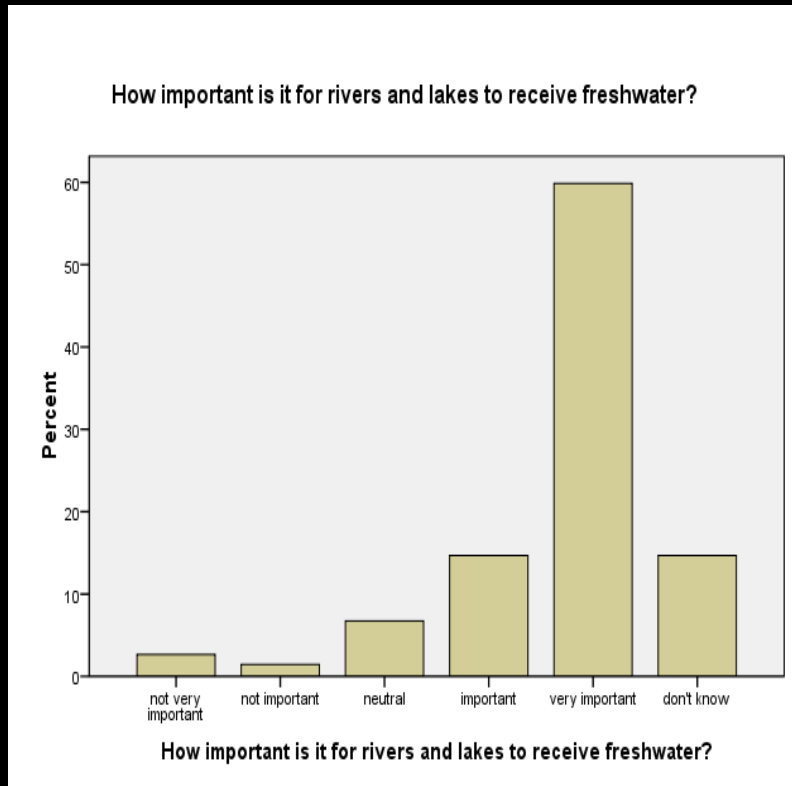
- Surveyed a total of 417 in 2008 and 2009 in coastal counties and up the Trinity River basin.



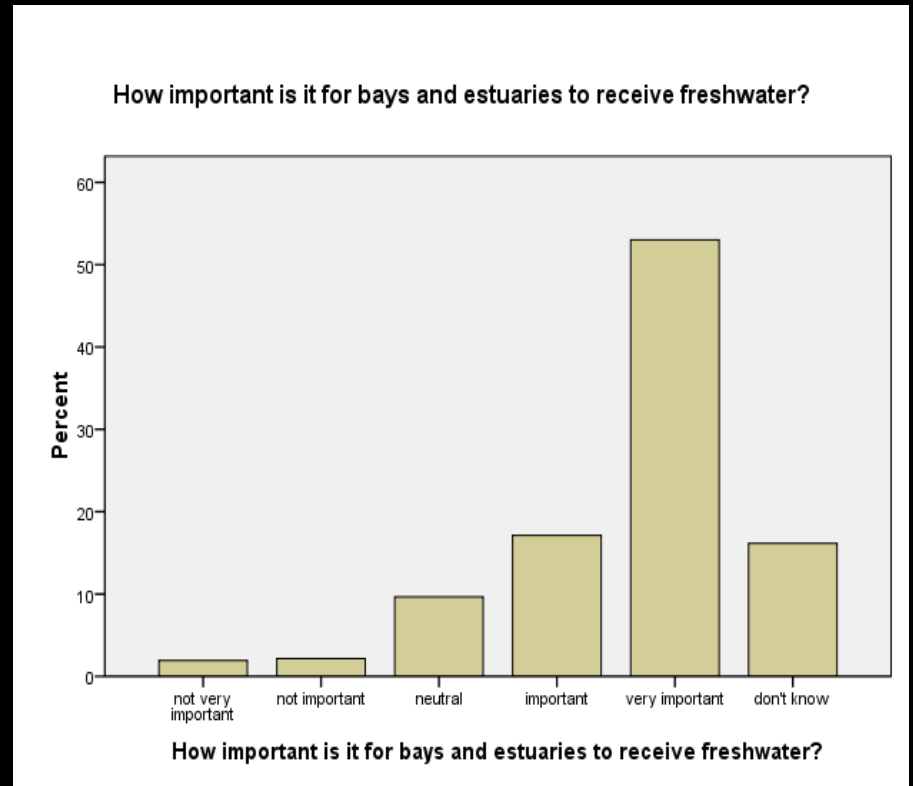
- Respondents not only lived along the coast but inland as well.

# What do Texans' think about inflow?

- Importance of freshwater for rivers and lakes.



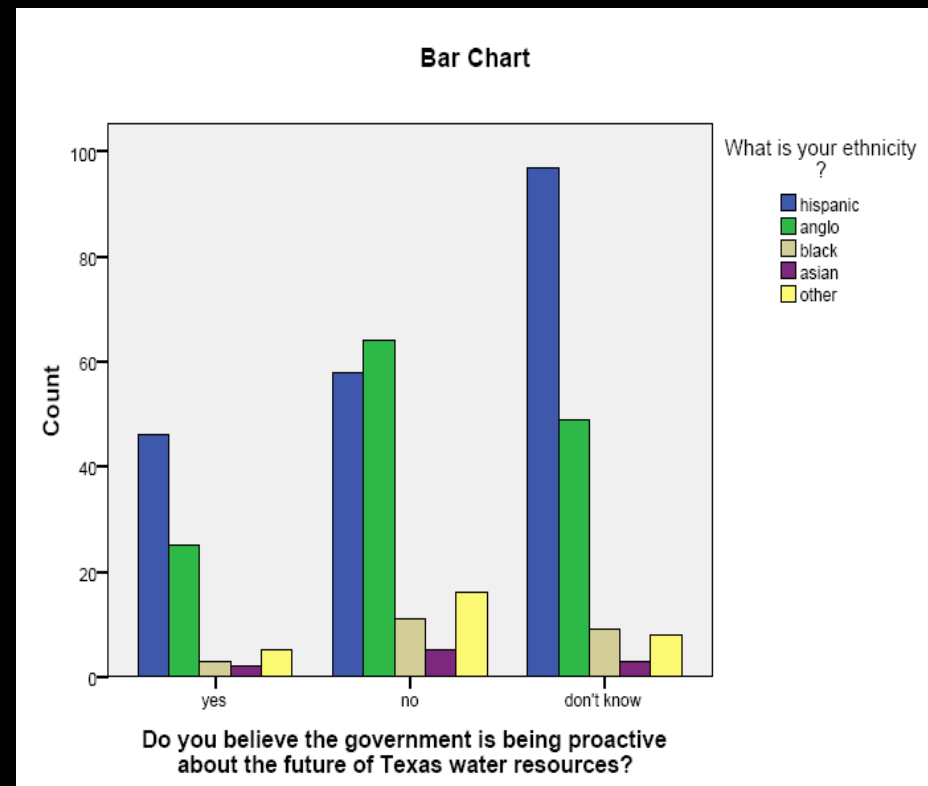
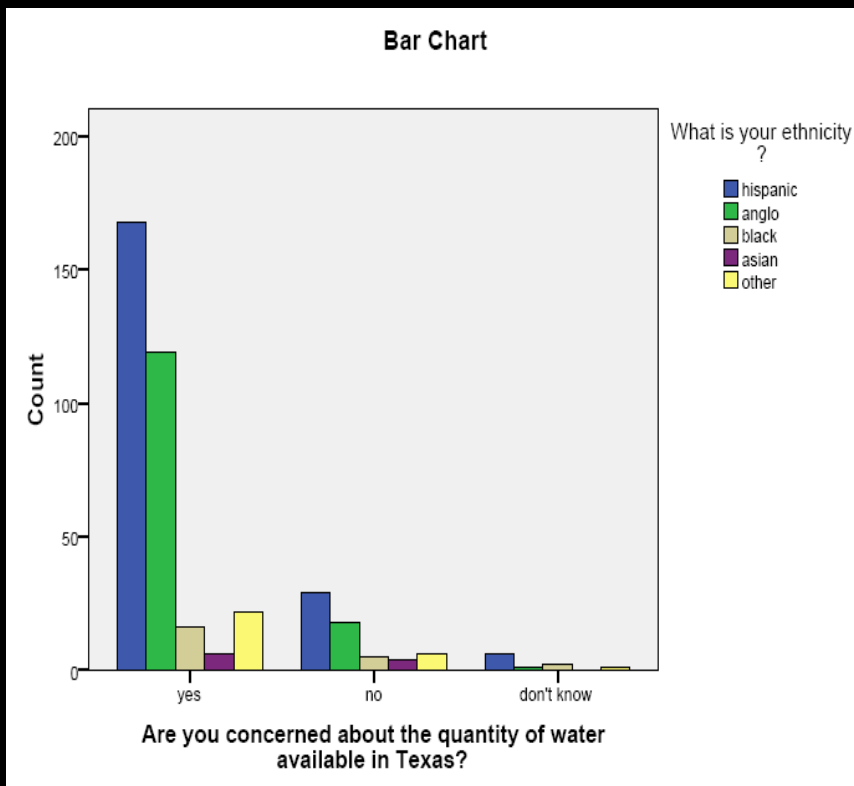
- Importance of freshwater for bays and estuaries.



# What do Texans' think about inflow?

- Concern about the quantity of water.

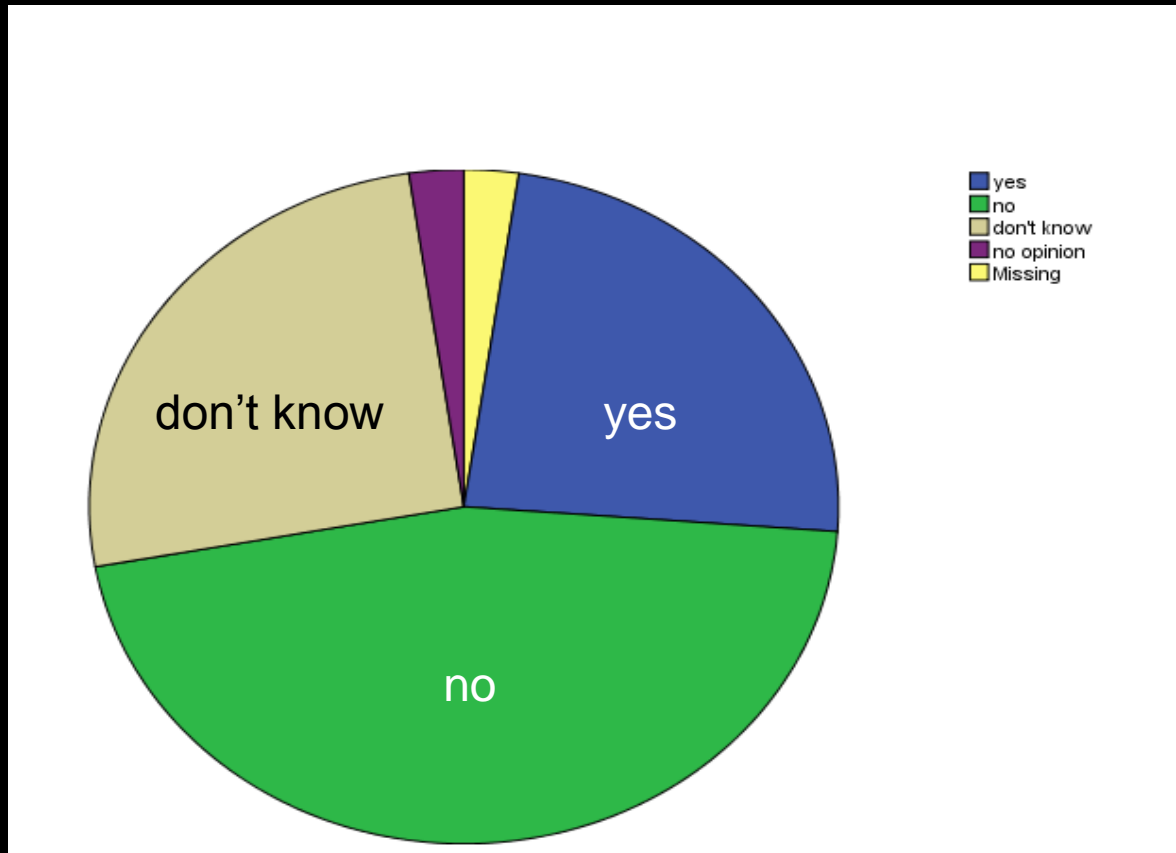
- Do you believe the government is being proactive about the future of Texas water.



# What do Texans' think about inflow?

---

- Are you aware of the Senate Bill 3 process?



# 1. The value of environmental flow: A study

---

- Competing uses threaten the availability of water for environmental flow.
- If environmental flow is reduced then ecosystem services will be negatively impacted.
- **What value does that public place on protecting environmental flow?**

# Non-Market Environmental Amenities

---

Ecosystem Services and Goods Impacted by environmental flows



**Environmental Flow**  
(physical)



**Wetlands & Marsh**  
**Ecosystem Assets**  
(physical)



## **Ecosystem Services**

- Disturbance regulation
- Erosion control
- Habitat
- Biodiversity maintenance
- Food
- Raw Materials
- Recreation & Ecotourism
- Climate Regulation
- Aesthetic Values
- Water Regulation

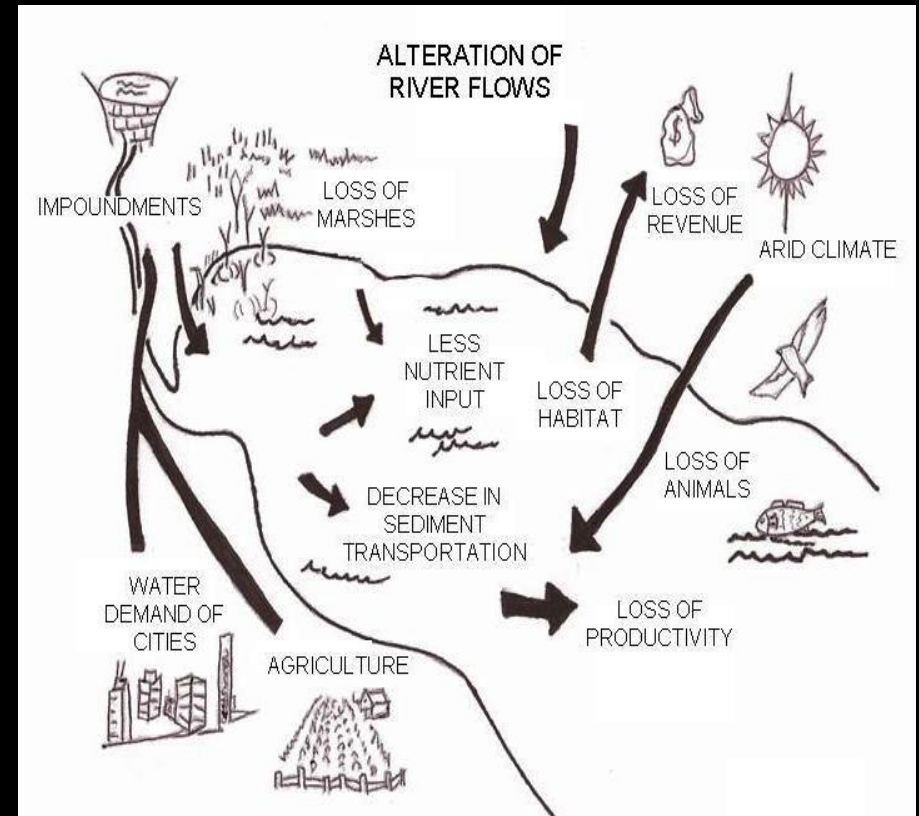
## 2. Methodology – How we did it

---



- Assessing the value that the public places on freshwater inflow
- We utilized a stated preference approach (Hanemann et al., 1991) (more specifically: A double-bounded dichotomous choice contingent valuation method [DBDC-CVM])
- Following the recommendations of the NOAA Panel on contingent valuation (Arrow et al., 1993)

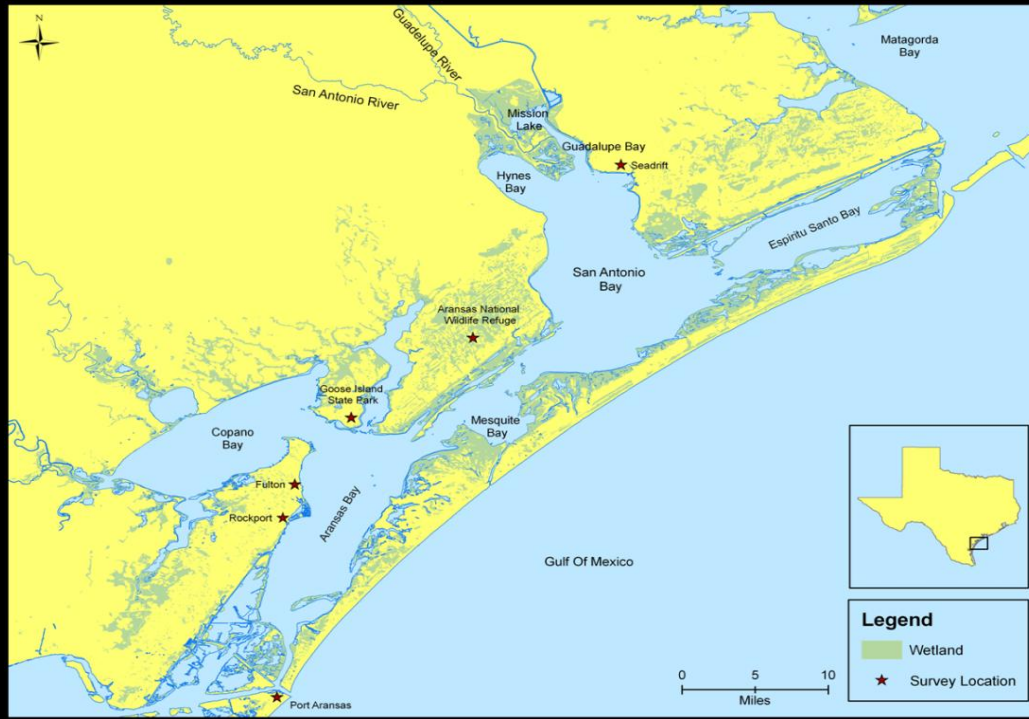
- Trained graduate and undergraduates surveyed individuals.
- Individuals were given graphical and written information.
- Questions to elicit whether or not they would be willing to donate (payment vehicle) and how much willing to pay (WTP).



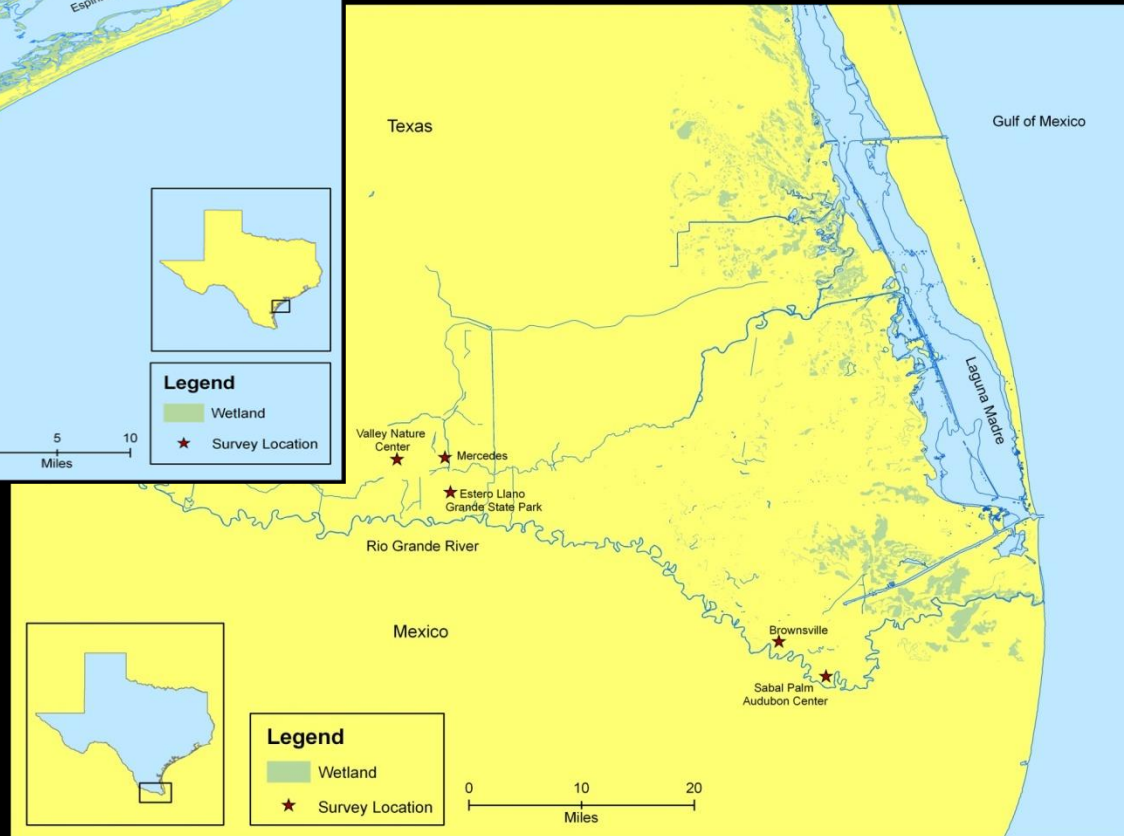
- The DBDC-CVM is a referendum approach to valuation.
- This approach mimics much of our own purchasing behavior. We see a price for a good and we accept that price or reject it.



# Study sites



Interviewed  
417 individuals  
in the RGV region and 499  
in SAB region  
(February - April 2007)



### 3. Descriptive Socio-Economic Statistics

---

		<u>RGV</u>	<u>SAB</u>
1. Knowledge of regions wetlands and marshes:	a lot	15%	13%
	Some	22%	29%
	A little	30%	38%
	Nothing	33%	20%
2. Member of conservation/environmental organization:	Yes	36%	30%
	No	64%	70%
3. Texas resident	Yes	63%	62%
	No	37%	38%
4. Recreate in the area	Yes	82%	90%
	No	18%	10%

		<b><u>RGV</u></b>	<b><u>SAB</u></b>
1. Willing to make a one-time donation:	Yes	64%	58%
	No	27%	31%
	I don't know	9%	11%
2. How sure are they that <u>they</u> would make a donation in the amount of \$P. Scale of 1 to 10, with 10 as definitely sure:	Average	7.9	7.9
	Median	8.0	8.0
3. Likelihood that 1% of all Texas households will make a one time donation of \$P:	Very likely	11%	11%
	Somewhat likely	40%	36%
	Somewhat not likely	29%	27%
	Not likely at all	20%	26%

## 4. Valuation

---

	<u>RGV</u>	<u>SAB</u>
<b>Mean WTP</b> (per household)	<b>\$129</b>	<b>\$124</b>
<b>Aggregate WTP</b> (relevant households)	<b>\$9.9 mill.</b>	<b>\$5.4 mill.</b>

**NOW WHAT?**

# Water Market

---

- If *freshwater inflows* are deemed to be important, how can they be protected?
- Will the State be setting aside resources to acquire water rights in fully appropriated systems?
- Will the citizen be required to take this up?
- What are the mechanisms to get this done?

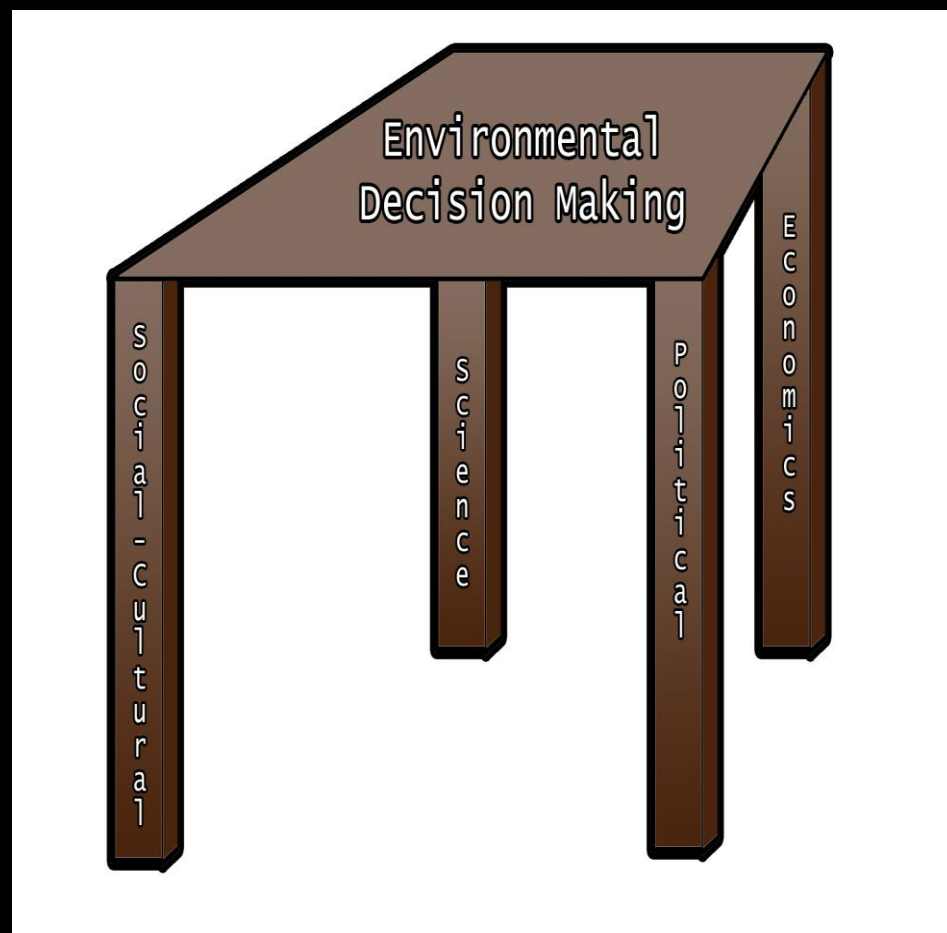
# Water Market

---

- We just showed that the public was willing to separate themselves from part of their income in order to protect inflows.
- If the public is willing-to-pay to protect inflow then why aren't we asking them to do so?
- Who will be responsible once inflow recommendations are made?
  - The river authorities?
  - The general public of the basin?
  - Some newly formed quasi public agency?
- Australia is dealing with a very similar situation for many of its rivers.
- They have looked at water markets to protect environmental flow.
- Developing markets for permanent rights, leases, and options.

# Relevance and integration of value

- Policymakers and the public understand the monetary (\$) value of something.
- Decisions are incomplete if they do not include all the benefits and costs.
- Right now, the value of the benefits of environmental flow are not taken into account, because they are not known.
- The results of this study became a marketing study to all the NGOs that want to protect environmental flow.



---

*Thanks to:*

Anne Evans and Phillip Levasseur for research support