

COASTAL BEND BAYS & ESTUARIES PROGRAM

Protecting our bays & estuaries



The Coastal Bend Bays & Estuaries Program is a non-profit organization dedicated to protecting and restoring bays and estuaries in the twelve counties of the Texas Coastal Bend.

SUPPORT US. GET INVOLVED. LEARN MORE.

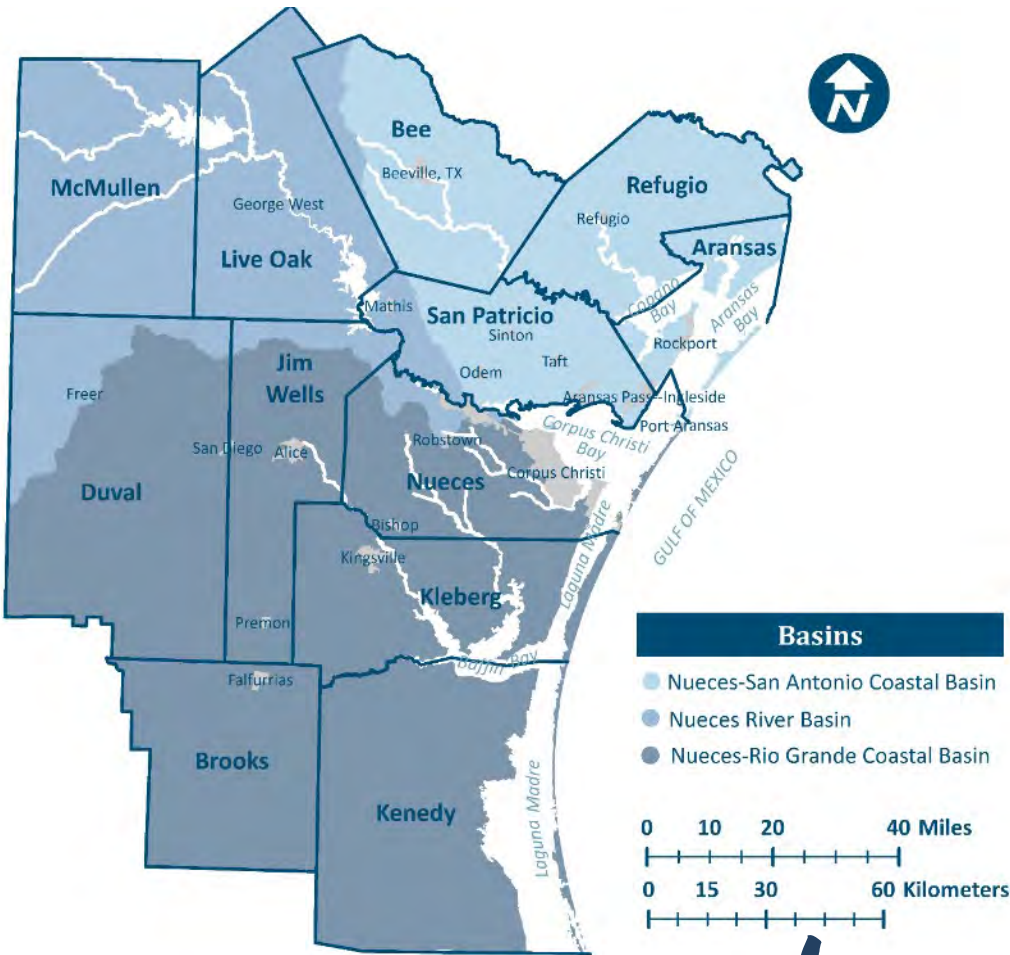


www.cbbep.org

1 of 28 . . . National Estuary
Programs

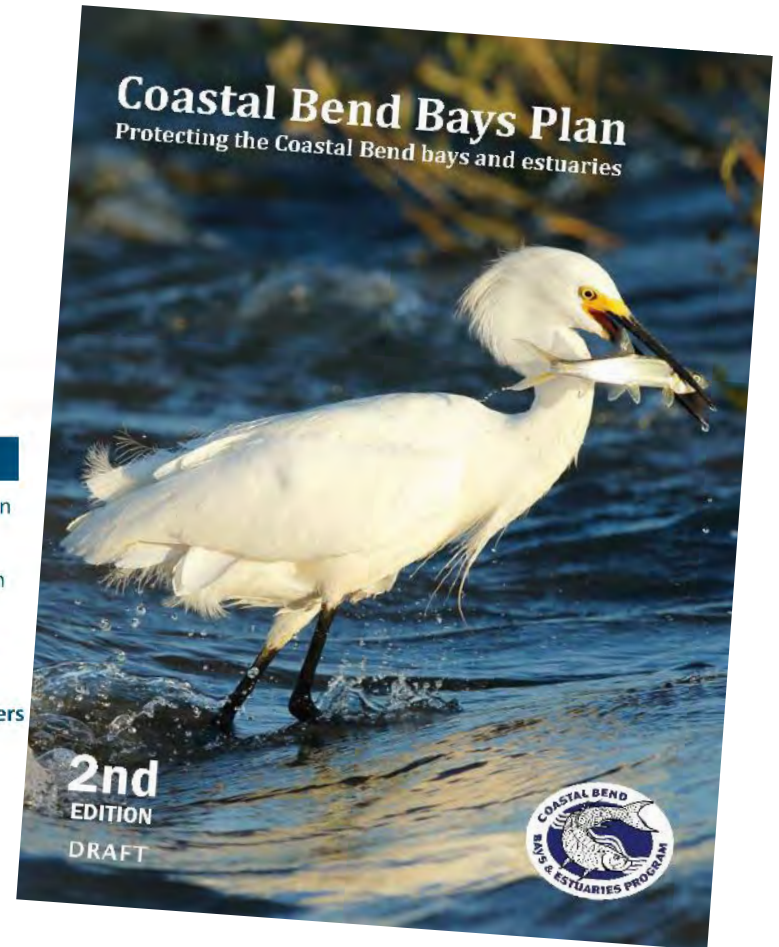


“Bottom - up Approach”



Where we work

What we do



#1
Needs to be
stakeholder
driven



CBBEP BOARD OF DIRECTORS

Nueces County Judge – Judge Barbara Canales
San Patricio County Judge Designee – Tom Bridges
Corpus Christi Mayor – Paulette Guajardo
Port of Corpus Christi Authority Designee – Dr. Bryan Gulley
Coastal Bend Bays Foundation Designee – Joe Christina
Port Industries of Corpus Christi Designee – Kevin Lassahn
CBBEP Bays Council Chair – Jace Tunnell
Member At-Large – Kellie Shipley

DIRECTORS EMERITUS

Chairman Emeritus - Bob Wallace
Treasurer Emeritus - Bob Corrigan

OFFICERS

President: Dr. Bryan Gulley Secretary: Sharon Murphy
Vice President: Judge Barbara Canales Treasurer: Kellie Shipley

Bays Council Chair (or his/her
designee) serves on CBBEP
Board of Directors

STAKEHOLDER COMMITTEES

CBBEP Bays Council

Chair: Jace Tunnell
Vice-Chair: Lauren Williams

Coordination Team recommends projects for inclusion
in the Annual Work Plan and approval by Bays Council

CBBEP Coordination Team

Chair: Scott Holt

Implementation Team chairs serve on the
Coordination Team, along with a Chair

CBBEP Implementation Teams

Human Uses

Chair – Perry Trial, TPWD

Water & Sediment Quality

Co-chairs – Alex Nunez, TPWD and Lee Schroer, GLO

Habitat & Living Resources

Chair – Chad Stinson, USFWS

Maritime Commerce & Dredging

Chair: Beatriz Rivera, PCCCA

Environmental Education & Outreach

Chair – Vacant

#2 *Good science leads to better management*



#3
Must leverage
resources



A photograph of two children, a boy and a girl, observing a pond in a natural setting. The boy, wearing a white t-shirt and a tan bucket hat, is leaning forward. The girl, wearing a pink t-shirt and a colorful striped hat, is crouching down. They are both looking intently at the water, which is covered in green algae. The background features green trees and a blue sky with white clouds. The text "#4 Community engagement is key to success" is overlaid on the left side of the image.

#4

Community
engagement
is key to success

CBBEP is dedicated to protecting and restoring the health and productivity of the bays and estuaries in the Texas Coastal Bend, while supporting continued economic growth and public use of the bays.

FISH & WILDLIFE CONSERVATION



PUBLIC ACCESS & RECREATION



HABITAT PROTECTION & RESTORATION



MONITORING & RESEARCH



ENVIRONMENTAL EDUCATION



WATER QUALITY & FRESHWATER INFLOWS



MARITIME COMMERCE & DREDGING



Habitat *and* Wildlife

Habitat restoration

Invasive species control

Species Management Plans

Algal blooms





Land Conservation

Acquisition/Easements
Prescribed burns
Restoration
Access control

Environmental Education



Field Trips
Teacher Workshops
Community Programs

Coastal Bird Program

Habitat management
Research & monitoring
Education & outreach



A hand holding a fishing rod against a sunset background. The sun is low on the horizon, creating a bright orange glow and a reflection on the water. The fishing rod is silver and black, with a reel. The background is a body of water with ripples.

Public Access *and* **Nature Tourism**

Boat ramps
Trails and boardwalks
Educational signs
Access control

Water Quality *and* Freshwater Inflows

Water quality planning
Nonpoint source pollution
Stormwater runoff
Bay debris
Monitoring



BRINGING BAFFIN BACK

Restoring a Texas Treasure







San Fernando
Creek

Petronila
Creek

Cayo del
Grullo

Alazan Bay

Los Olmos
Creek

Laguna Salada

Baffin Bay



Fun Facts

- Most isolated bay on the Texas coast
- Surrounded by one of the world's largest ranches
- Bordered by world's longest undeveloped barrier island
- Part of the world's largest hypersaline lagoon

A man with a beard and a cap is holding a large fish, likely a black drum, in front of a body of water. The fish is silver with a dark stripe along its side and a large eye. The man is wearing a blue shirt and a watch.

Texas Treasure

- World-renowned fishing; black drum, trout, red drum
- Major contributor to economy of Texas Coastal Bend through commercial/recreational fishing, tourism

BROWN TIDE EVENTS/FISH KILLS

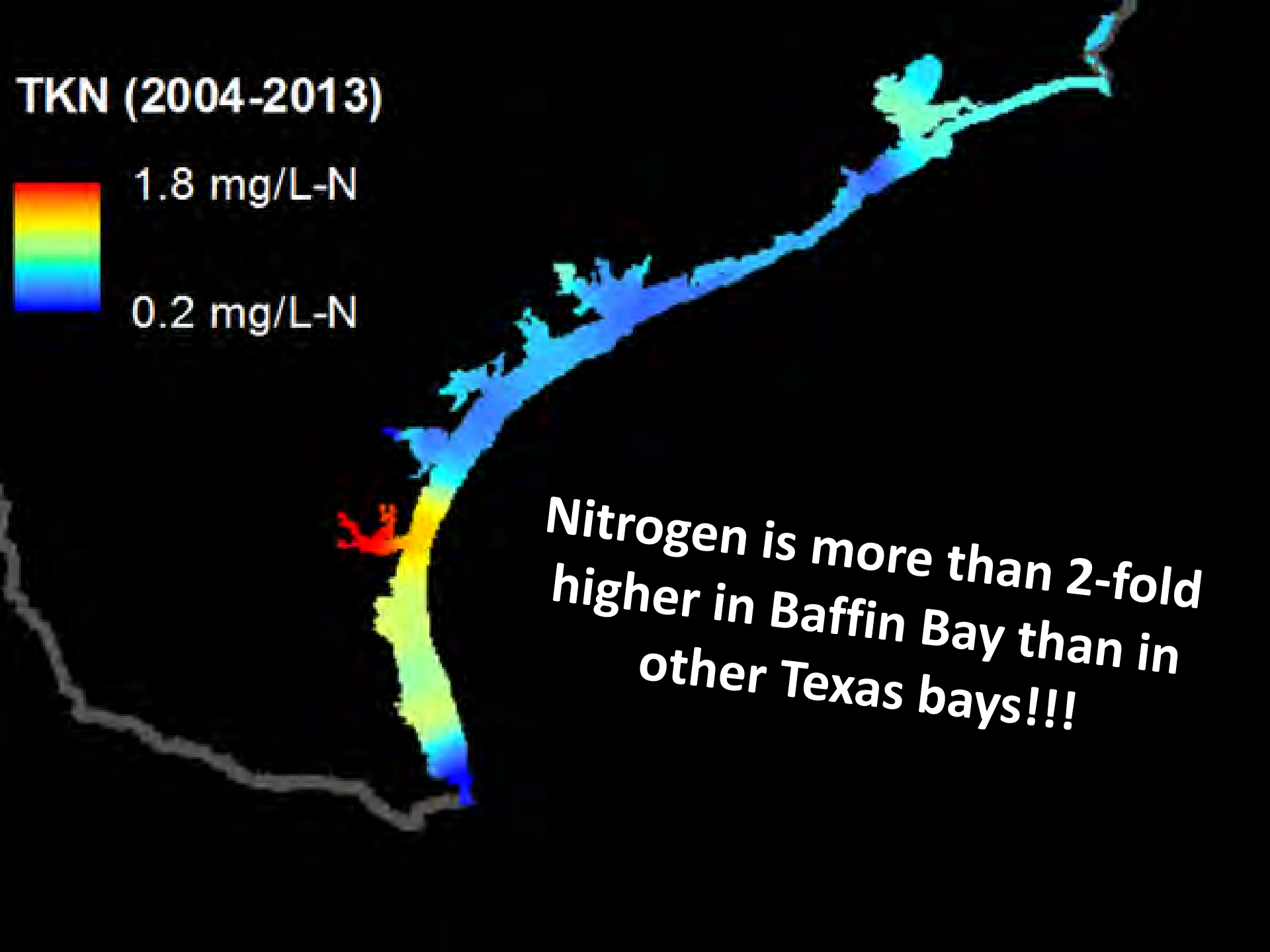


BLACK DRUM EMACIATION

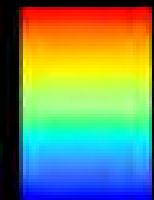


SEAGRASS DIEOFF



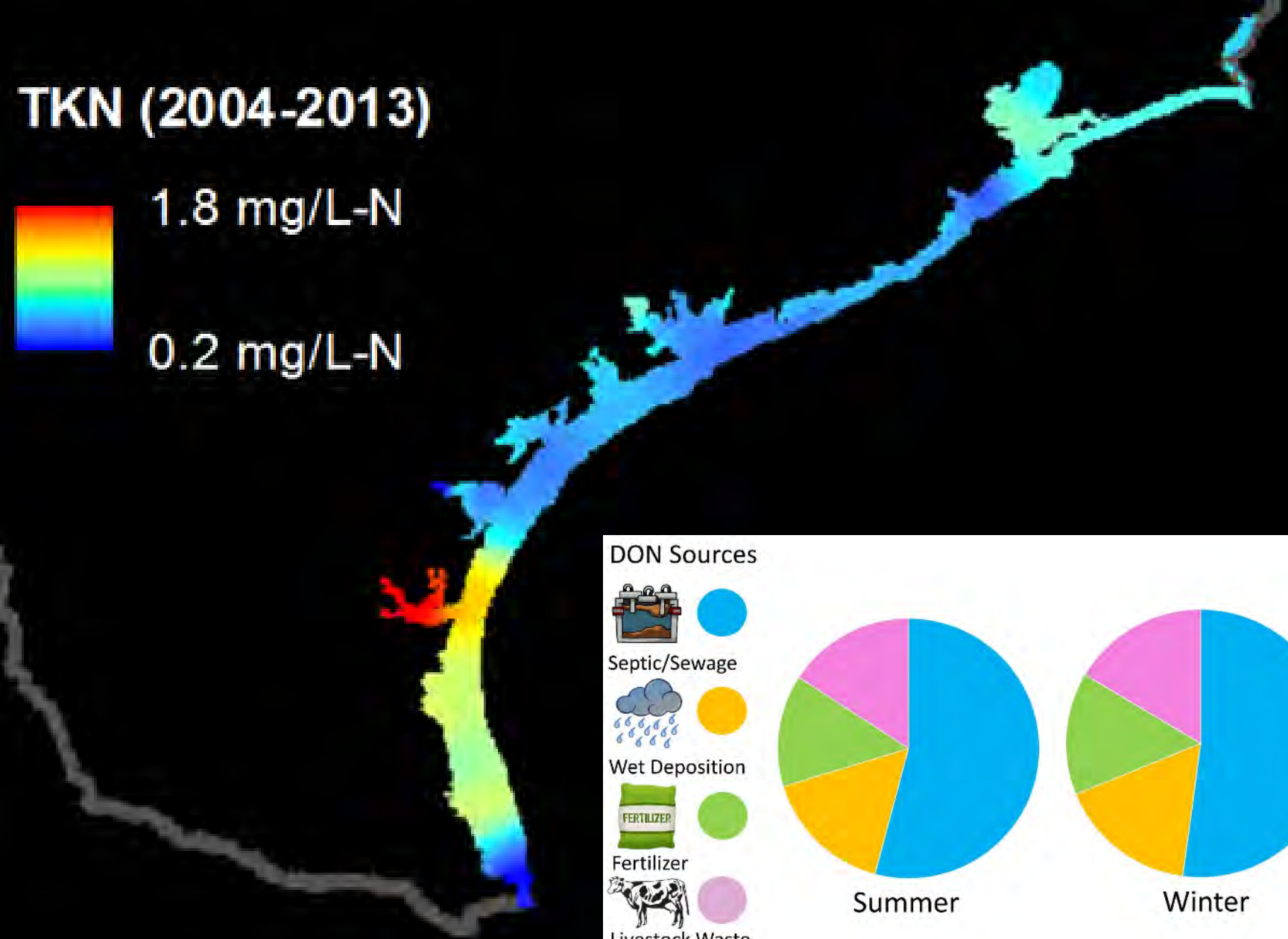


TKN (2004-2013)



1.8 mg/L-N

0.2 mg/L-N



DON Sources



Septic/Sewage



Wet Deposition



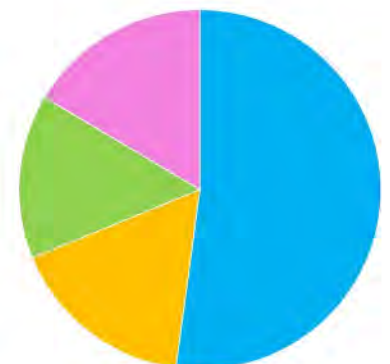
Fertilizer



Livestock Waste



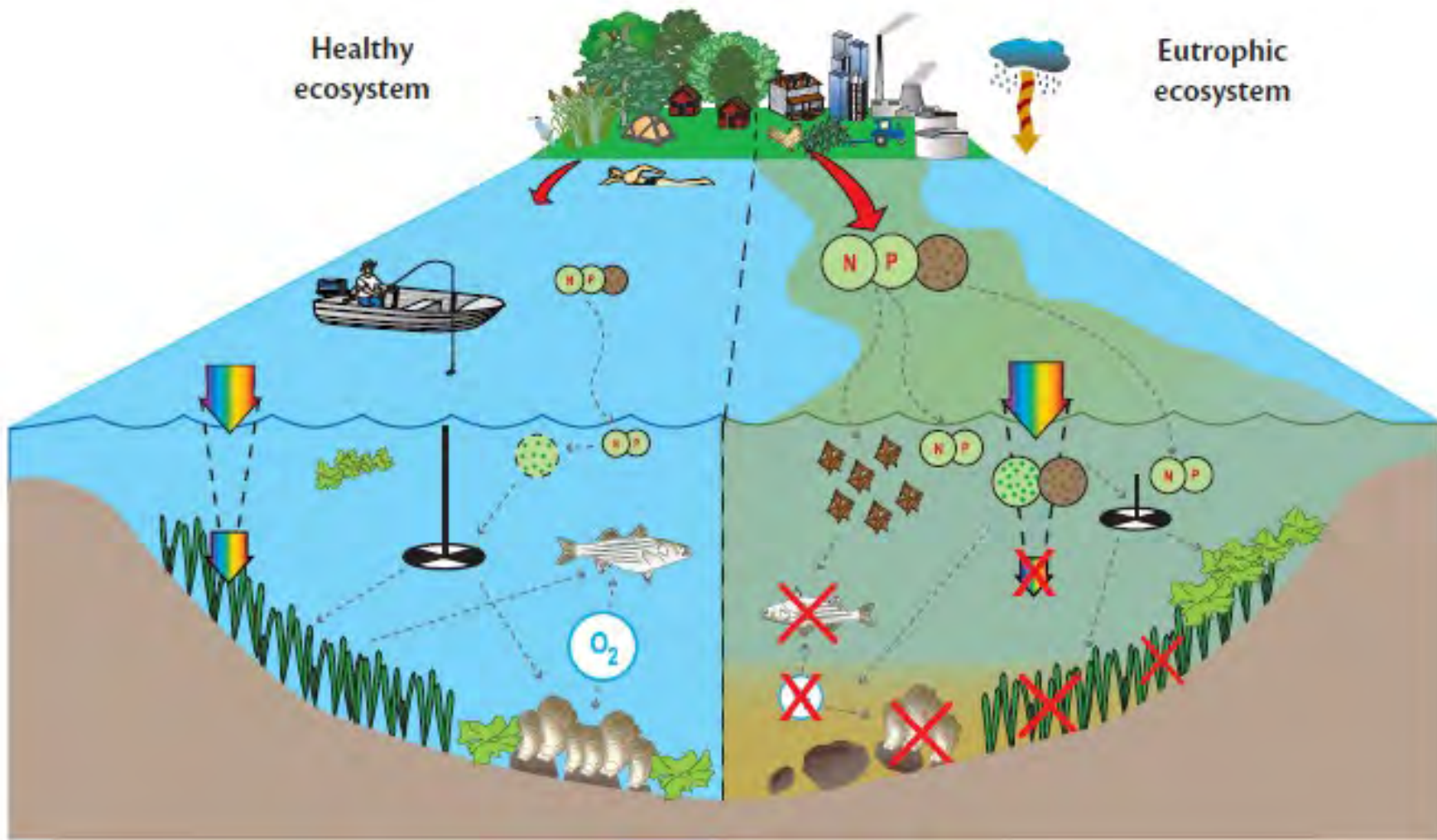
Summer



Winter

Healthy
ecosystem

Eutrophic
ecosystem



What can we do about it?



BAFFIN BAY STAKEHOLDER GROUP



Celanese
City of Kingsville
Coastal Bend Bays & Estuaries Program
Coastal Conservation Association
Environmental Protection Agency
Friends of Baffin Bay
Harte Research Institute for Gulf of
Mexico Studies
Kleberg County

NAS - Kingsville
Natural Resources Conservation Service
Nueces County
Nueces River Authority
Private Landowners
Texas A&M University – Corpus Christi
Texas AgriLife Extension
Texas Commission on Environmental
Quality

Texas General Land Office
Texas Parks and Wildlife Department
Texas Sea Grant
Texas State Soil and Water Conservation
Board
Texas Water Resources Institute
The Nature Conservancy
US Department of Agriculture

Baffin Bay Stakeholder Group

BAFFIN BAY STAKEHOLDER GROUP – MANAGEMENT COMMITTEE

1. **Harte Research Institute**
Chair, Science & Technical Advisory Committee
2. **To Be Determined**
Chair, Citizens Advisory Committee
3. **To Be Determined**
Chair, Local Governments Committee
4. **Coastal Bend Bays & Estuaries Program**
Chair, Watershed Restoration & Management Committee
5. **Nueces County Judge**
6. **Kleberg County Judge**

SCIENCE &
TECHNICAL
ADVISORY
COMMITTEE

CITIZENS
ADVISORY
COMMITTEE

WATERSHED
RESTORATION &
MANAGEMENT
COMMITTEE

LOCAL
GOVERNMENTS
COMMITTEE

BAFFIN BAY STAKEHOLDER GROUP – SUBCOMMITTEES

Not one easy solution!!

OVERVIEW

- 32 projects administered since 2008
- Dedicated more than \$1.3 million to Baffin Bay

SINCE 2019

- 18 projects administered
- 8 ongoing projects
- Dedicated more than \$700k

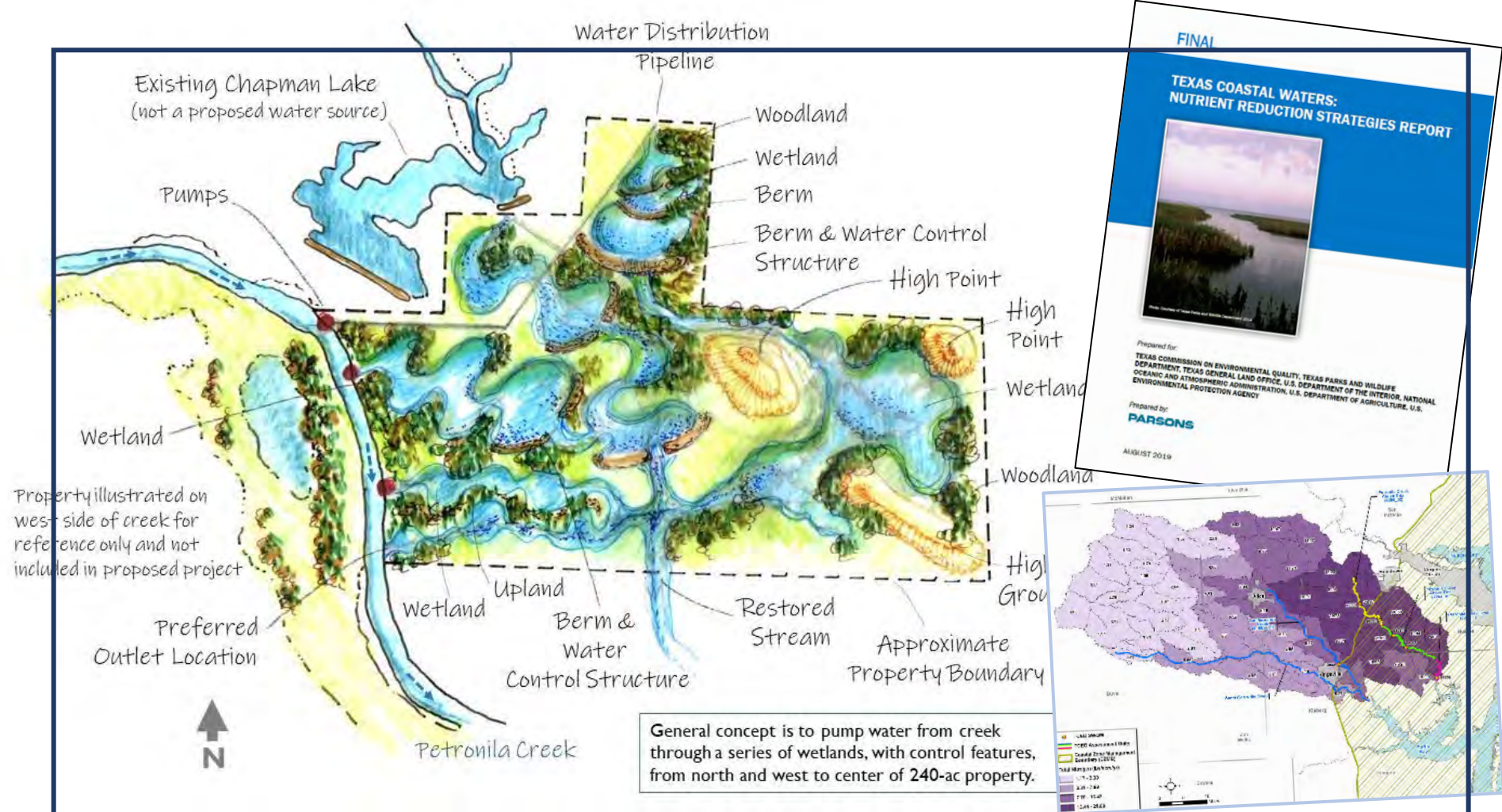
	Project Name	Budget
1	Evaluation of Baffin Bay's Arroyos as Critical Fish Habitat	\$ 45,000.00
2	Baffin Bay Volunteer Water Quality Monitoring	\$ 41,500.00
3	Baffin Bay Volunteer Water Quality Monitoring	\$ 41,500.00
4	Ecosystem-based Approach to Assess Black Drum in Baffin Bay	\$ 60,000.00
5	Baffin Bay Volunteer Water Quality Project	\$ 50,000.00
6	Baffin Bay Sediment Core Project	\$ 75,000.00
7	Black Drum Communities in Baffin Bay: Year 2	\$ 30,000.00
8	Volunteer Water Quality Monitoring Program in Baffin Bay	\$ 50,000.00
9	Continuous Water Quality Monitoring Network in Baffin Bay	\$ 51,000.00
10	Volunteer Water Quality Monitoring Program in Baffin Bay	\$ 50,000.00
11	An Ecosystem-based Approach to Assess Baffin Bay's Black Drum	\$ 30,000.00
12	Mechanistic Modeling of Bottom Water Dissolved Oxygen Dynamics in Baffin Bay	\$ 50,110.00
13	Volunteer Water Quality Monitoring Program in Baffin Bay	\$ 50,000.00
14	Investigating Reactive Nitrogen Sources that Stimulate Algal Blooms in Baffin Bay	\$ 44,400.00
15	Riparian Evaluation for Baffin Bay Tributaries	\$ 40,812.00
16	Volunteer Water Quality Monitoring Program in Baffin Bay	\$ 50,000.00
17	Serpulid Reef Communities in Baffin Bay in Relation to Black Drum Diet	\$ 30,000.00
18	Petronila Property Hydrology Study	\$ 20,000.00
19	Nutrient Sampling in Petronila Creek	\$ 40,722.00
20	Quantifying Septic Effluent Nitrogen Loading in the Baffin Bay	\$ 51,750.00
21	Water Quality Monitoring Program in Baffin Bay	\$ 50,000.00
22	Early Phase Watershed Planning for Baffin Bay	\$ 42,637.00
23	Outreach to Wastewater Treatment Plants in the Baffin Basin	\$ 34,774.00
24	Nutrient Sampling in Petronila Creek	\$ 31,000.00
25	Baffin Bay Water Quality Monitoring Project	\$ 50,000.00
26	Post-Freeze Water Quality Monitoring in Baffin Bay	\$ 23,265.00
27	Baffin Bay Rapid Response Summer 2021 Sampling	\$ 24,060.00
28	Influence of an Extreme Cold Air Outbreak on Food Web Dynamics in Baffin Bay	\$ 60,000.00
29	Construction of Platform for Continuous Water Quality & Weather Monitoring in Baffin Bay	\$ 42,994.00
30	Landowner Engagement to Support Watershed Restoration & Planning in Baffin Bay Watershed	\$ 38,449.00
31	Nutrient Sampling in Petronila Creek	\$ 52,119.00
32	Outreach the WWTP in the Baffin Basin Phase II	\$ 35,652.00
		\$ 1,386,744.00



President Biden's
Bipartisan Infrastructure Deal is a
once-in-a-generation

\$1,050,000

- # 1** WWTP Training Program
- # 2** Support efforts to establish a Regional Wastewater Treatment Facility
- # 3** Establish an On-Site Septic System Assistance Program



Deepwater Horizon Oil Spill, NRDA Restoration Type: 2020 Call for Projects

- The Aguanita Project: Improving Water Quality in Petronila Creek and Baffin Bay Through Conversion of Agricultural Lands to Wetlands
- Petronila Creek Watershed Nutrient Reduction Initiative

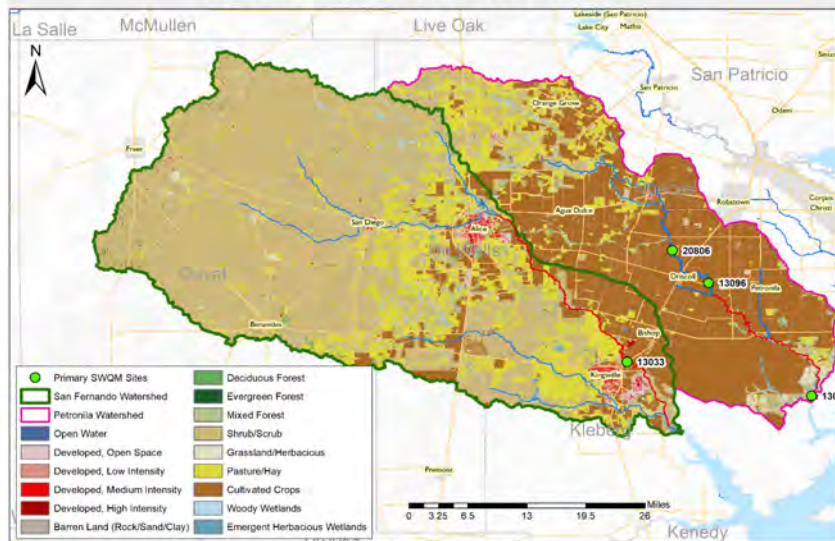
Petronila and San Fernando Creeks Watershed Factsheet

About the Watershed:

The Petronila Creek and San Fernando Creek watersheds encompass approximately 1,183,056 acres that contributes runoff to the creeks and ultimately Baffin Bay. The watershed includes:

- Parts of Duval, Jim Wells, Kleberg and Nueces counties
- Predominantly rural land: rangeland/brush, cropland and pasture are major land covers
- Development near Alice and Kingsville is increasing; growth from Corpus Christi and Robstown is entering the Petronila watershed from the north; produces more stormwater and wastewater

Petronila & San Fernando Creek Land Cover



Issues:

- Elevated bacteria levels in creeks
 - o Does not meet contact recreation water quality standard
- Concerns for high nitrogen, pH, phosphorus and chlorophyll-a
 - o Baffin Bay has periodic algae blooms and fish kills

Causes:

- Bacteria from mammals: animals and humans
- Nutrients from human and natural sources

Watershed Protection Plan (WPP):

The Texas Water Resources Institute (TWRI) is working with local stakeholders and partners to develop a WPP. The WPP will identify:

- potential sources of water quality impairments
- needed bacteria reductions to meet water quality goals and standards
- feasible voluntary management measures to reduce pollutants from entering area waterbodies
- management milestones and schedules
- resources needed to implement the WPP
- how progress will be measured and tracked

WPP implementation is voluntary

Project Website: <https://twri.tamu.edu/baffinwpp>



Lucas Gregory
Texas Water
Resources Institute
Project Leader
LFGregory@agr.tamu.edu
979-676-0231

Project Partners:

TEXAS A&M
AGRI LIFE

Texas Water
Resources Institute
make every drop count



HARTE
RESEARCH INSTITUTE
FOR GULF OF MEXICO STUDIES



TEXAS STATE
Soil & Water
CONSERVATION BOARD

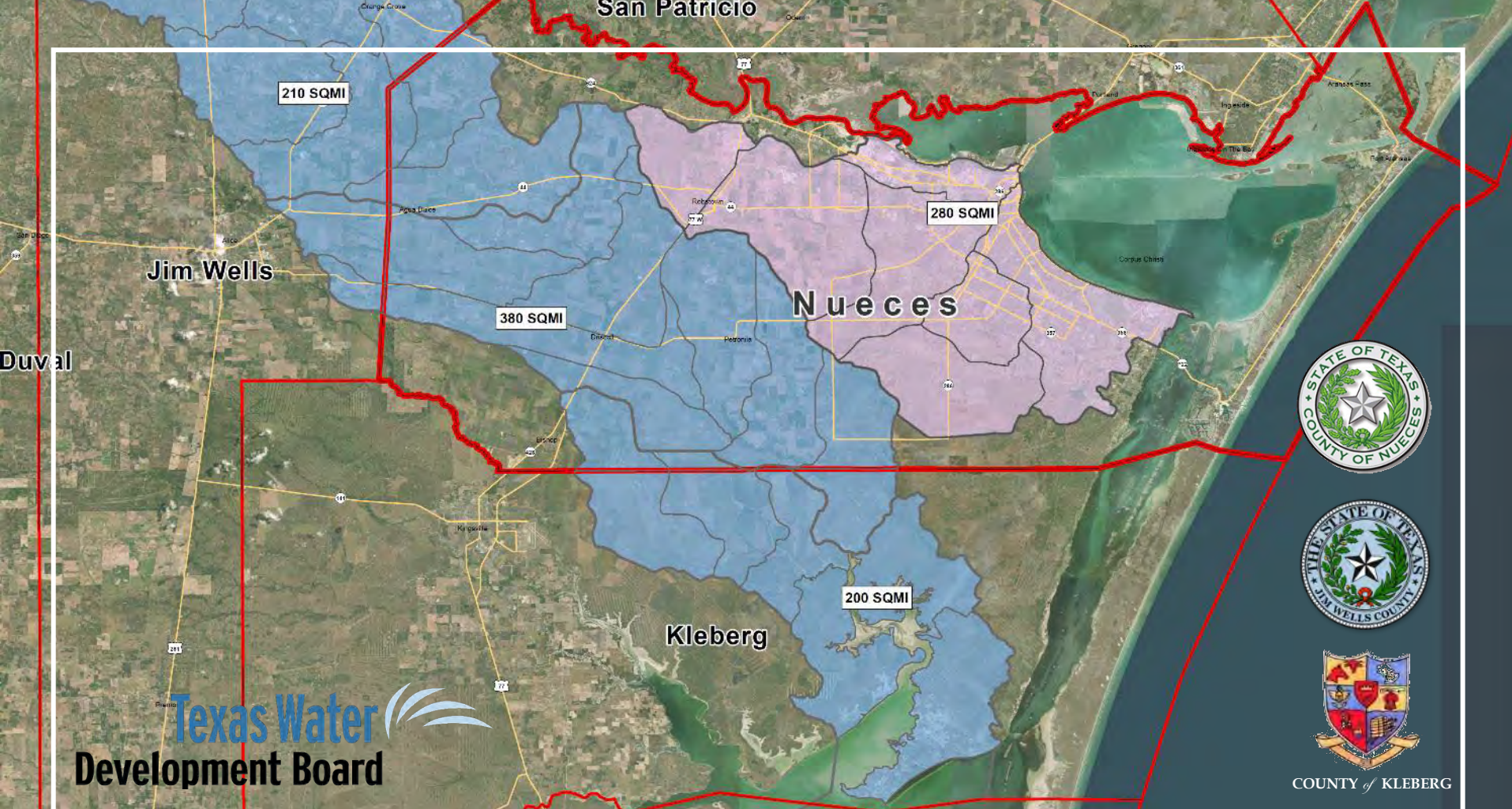
Project Timeline:

- Begin stakeholder meetings in Feb/Mar '21
- Form and conduct focused workgroup meetings in late spring '21
- Stakeholders determine WPP content summer '21
- Draft WPP components approved by stakeholders summer '21
- Full draft WPP to stakeholders early fall '21
- WPP out for agency review mid-fall '21
- Final WPP early '22

Watershed Protection Plan



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Regional Flood Protection Planning – Baffin Bay & South Corpus Christi Watersheds

- Goals: (1) conduct field survey data to develop hydrologic and hydraulic models, (2) identify and evaluate potential solutions to flooding problems, (3) conduct benefit/costs analyses, and (4) provide recommendations for solutions and identify funding options.
- Nueces, Jim Wells, and Kleberg Counties
- 18-month project



Bringing Baffin Back

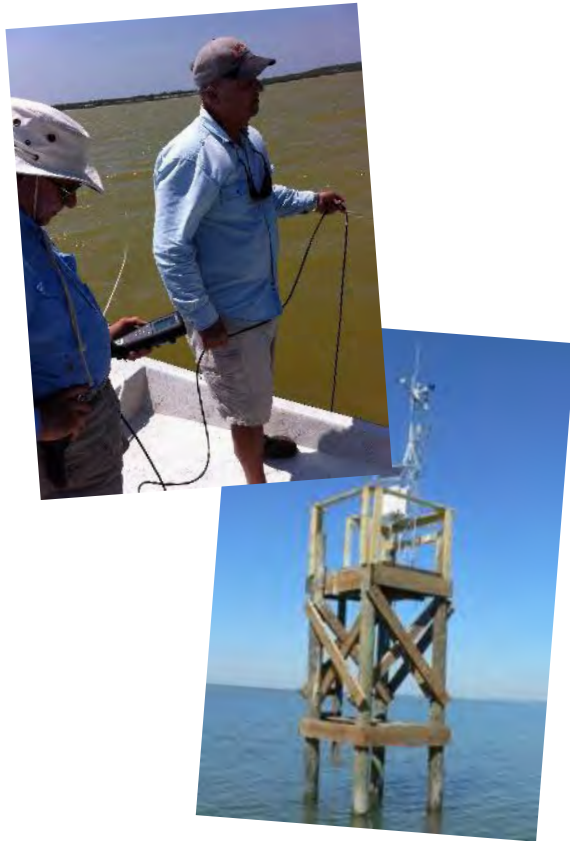
- Sustained commitment to improve the health of Baffin Bay & surrounding economy through partnerships between scientists & stakeholders who want the bay to thrive.

Overarching goals:

- 1) Find solutions to the water quality problems that are contributing to the decline in the health of Baffin Bay,
- 2) Restore key watershed & bay habitat that has been lost,
- 3) Foster a stewardship ethos, especially among younger generations of residents,
- 4) Advance efforts to educate the public on the relationship between watershed & bay health.

PHASE 1:

Watershed & Bay
Research/Data Collection
2013-



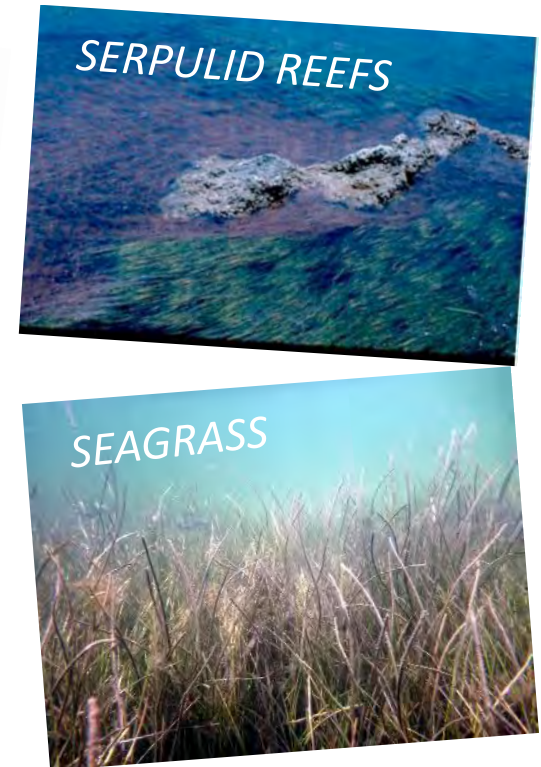
PHASE 2:

Watershed Restoration/Nutrient
Reduction
2022-2037



PHASE 3:

Bay Habitat Restoration &
Conservation
2027-2042



EDUCATION AND OUTREACH

CBBER Approach ...

- Needs to be stakeholder driven
- Good science leads to better management
- Must leverage resources
- Community engagement is key to success



TEXAS A&M
UNIVERSITY
CORPUS
CHRISTI

HARTE
RESEARCH INSTITUTE
FOR GULF OF MEXICO STUDIES

Kleberg

TAMU-CC (Cayo del Grullo)

TAMU-CC (Alazan Bay)

TAMU-CC

TAMU-CC

TAMU-CC

TAMU-CC

TAMU-CC

TAMU-CC

TAMU-CC (Laguna Salada)



COUNTY OF KLEBERG



Celanese



Saltwater Fisheries Enhancement Association



Sea Grant
Texas

AT TEXAS A&M UNIVERSITY

Harte Research Institute Water Quality Monitoring Program

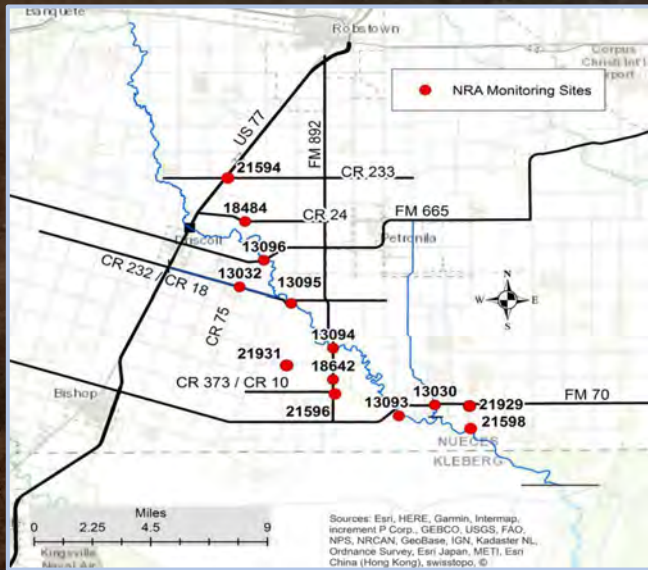
- Goal: Document water quality conditions in Baffin Bay, including location, frequency, and extent of water quality “hot spots” and drivers of water quality degradation
- 6-9 sites, sampled monthly
- Ongoing since May 2013
- Exploring options for TWDB water quality monitoring platform



TEXAS A&M UNIVERSITY
CORPUS CHRISTI

Integrated Assessment of Nutrient Loadings to Baffin Bay

- New Texas A&M University – Corpus Christi study
- Funding provided by the Texas General Land Office, Coastal Management Program
- Goal: Assess nutrient loadings from all sources (including wastewater, groundwater, septic, agriculture, and atmosphere)
- Use results to guide future restoration focus areas



Ammonia
Nitrate nitrogen
Nitrite nitrogen
Total phosphorus
Total kjeldahl nitrogen
Dissolved kjeldahl nitrogen
Chlorophyll-a
Pheophytin

Nutrient Sampling in Petronila Creek

- Effort being led by the Nueces River Authority and funded by Coastal Bend Bays & Estuaries Program
- Goal: Gather baseline data and help identify possible sources of nutrient loading into Petronila Creek and the Baffin Bay system
- Monthly sampling at 13 sites (4 main stem and 9 tributary)
- Sampling has continued in FY21; Proposed for FY22



Wastewater Treatment Plant Outreach & Assistance Program in Baffin Bay Basin

- Effort being led by the Nueces River Authority and funded by Coastal Bend Bays & Estuaries Program
- Working with operators at 13 wastewater treatment plants to assess training/mechanical needs and to acquire funding to upgrade plants & reduce pollutant discharges
- Proposed FY22 project to build on this effort