Galveston Bay Estuary Program
17041 El Camino Real, Suite 210
Houston, TX 77058-2646
Telephone: (281) 218-6461

April 7, 2021

Dear Galveston Bay Council Members:

The next quarterly meeting of the Galveston Bay Council is scheduled for:

Wednesday, April 21, 2021
9:30 a.m. – 12:30 p.m.

Virtual Meeting
WebEx

Information for the **April 21, 2021** meeting is attached as noted below.

1. Galveston Bay Council Agenda for April 21, 2021
2. Draft January 20, 2020 Galveston Bay Council Meeting Minutes
3. Galveston Bay Council Feedback Results
4. FY 22 Work Plan Revisions Budget Table
5. H-GAC's Regional Conservation Framework

Sincerely,

Lisa M. Marshall
Program Manager
Galveston Bay Estuary Program (GBEP)

GALVESTON BAY COUNCIL (GBC) QUARTERLY MEETING

Location: Virtual – WebEx

AGENDA: Wednesday, April 21, 2021

9:30 a.m.: **Call to Order:** Introduction of Members and Delegates

Action Item: Approval of January 20, 2021 Meeting Minutes

Report of the Chair (Glenn Clingenpeel)

Report of the Program (Lisa M. Marshall)
- GBC Feedback Results
- FY 22 Work Plan Revisions

10:00 a.m.: **Presentation:** *Regional Conservation Framework* – Jeff Taebel, Houston-Galveston Area Council

10:20 a.m.: **Presentation:** *Storage Tank Vulnerability in Flood-Prone Areas* – Jamie Padgett, Ph.D, Rice University and Leticia Ablaza and Corey Williams, Air Alliance

11:00 a.m.: **Presentation:** *Buffalo Bayou & Tributaries Resiliency Study and Interim Report Alternative* – Augustus (Auggie) Campbell JD, ENV SP, Association of Water Board Directors and Mary Anne Piacentini, Katy Prairie Conservancy

11:45 a.m.: **Subcommittee Updates**
1. Monitoring and Research
2. Natural Resource Uses
3. Public Participation and Education
4. Water and Sediment Quality

12:00 p.m.: **Council Member Roundtable:** News, Announcements and Discussion

12:15 p.m.: **Public comments**

12:30 p.m.: **Adjourn**

Upcoming Galveston Bay Council Meeting Dates: July 21, 2021, October 20, 2021; January 19, 2022, April 20, 2022. Meetings are held on the third Wednesday of the quarter from 9:30 a.m.-12:30 p.m. If there are known conflicts, GBC members are welcome to propose alternate dates to the Council.

GALVESTON BAY ESTUARY PROGRAM (GBEP)

DRAFT - Galveston Bay Council (GBC) Meeting Minutes – January 20, 2021

Attendees:

Galveston Bay Council Chair: Glenn Clingenpeel (Trinity River Authority)

Galveston Bay Council Vice-Chair: Albert Gonzales (Low Income Communities)

Estuary Program Staff Lead: Lisa Marshall (GBEP)

Due to issues with COVID-19, the January 20, 2021 quarterly GBC meeting was held through the WebEx conferencing service.

Members Present: Scott Alford, Glenn Clingenpeel, Winfred Colbert, Jeff DallaRosa, Vance Darr, Bryan Eastham, Elizabeth Fazio Hale, Lori Hamilton, Cruz Hinojosa, John Huffman, Brian Koch, Audrey Kuklenz, Kristen Lambrecht, Mike Lee, Helen Paige, Nancy Parra, Pamela Plotkin, Lisa Rickards, Caimee Schoenbaechler, Ronnie Schultz, Rusty Senac, Linda Shead, Shane Simpson, Charrish Stevens, Bob Stokes, Sue Theiss, Jeff Taebel, Matthew Tilimon, Maria Valdez, Kirk Wiles, Tracy Woody

Members Not Present/Delegates: Albert Gonzales, Garry McMahan*, Ana Partin, Russ Poppe*, Melissa Porter, Taylor Rieck, Mary Beth Stengler,

(*=Member designated a proxy)

Proxies Present (GBC member absent/designated proxy): Garry McMahan/Mollie Powell, Russ Poppe/Glenn Laird, Melissa Porter/Joshua Oyer

Current Vacancies: None

Other Attendees: George Guillen, Amanda Hackney, Marc Hanke, Amin Kiaghadi, Kerry Niemann, Dianna Ramirez, Carion Taylor,

Additional GBEP Staff Present: Cynthia Clevenger, Kristen McGovern, Christian Rines, Doretta Thomas, Patricia Thompson

Call to Order: Introduction of Members and Delegates

Glenn Clingenpeel brought the meeting to order.

Action Item: Approval of October 21, 2020 Meeting Minutes

Mr. Clingenpeel opened the meeting with approval of the minutes. A motion was requested for approval. Rusty Senac moved to approve the minutes, and a second was made by Nancy Parra.

Report of the Chair

Mr. Clingenpeel indicated the GBC will likely not be meeting in person in April due to COVID-19 numbers and reminded Council members they are encouraged to attend subcommittee meetings, especially now with the meetings being virtual.

Report of the Program (Lisa Marshall)

Ms. Marshall made two announcements:

- GBEP will be going to Commissioners' Agenda on February 10, 2021, to get the GBC members' new terms approved.

- The GBEP staff would like GBC members to provide feedback on the GBC and the GBC meetings; to determine if GBC members are satisfied with the GBC meetings and if GBEP is meeting their expectations. A questionnaire will be sent out in the next couple of weeks and we would appreciate everyone's participation.

Presentation and Discussion: *Pelican Island Bridge Replacement – Seeking Reef Enhancement/Mitigation/Re-purpose Opportunities* – Sue Theiss, Texas Department of Transportation (TxDOT)

The speaker reviewed the causeway's history connecting Galveston Island to Pelican Island and plans for the new bridge. The proposed new bridge/causeway alignment by TxDOT was designed based on input from stakeholder meetings. The alignment would reroute the road to wrap around the back of a dormitory at Texas A&M Galveston (TAMUG) to avoid the center of campus and a future turtle research facility. The estimated total project cost is $115 million, but since the bridge is off system, TxDOT has limited funds for the project. TxDOT has agreed to cover design costs and construction management for approximately $14 million. There was a discussion at the end of the presentation regarding mitigation opportunities. A suggestion was made to install a breakwater structure at TAMUG to protect the shoreline, which may present a good opportunity to reuse suitable material from the demolition.

A PDF of the Pelican Island Causeway Update presentation is available on GBEP's website.

Presentation: *Galveston Bay Intertidal Oyster Reef Mapping and Analysis* – Marc Hanke, Ph.D., University of Houston (UH) and Amanda Hackney, Black Cat GIS and Biological Services

This presentation summarized the results of the Galveston Bay Intertidal Oyster Reef Mapping and Analysis project, which used aerial photos and GIS software to map potential intertidal oyster reefs in West Galveston Bay. A subset of the potential intertidal oyster reefs were ground-truthed to determine reef characteristics, oyster population demographics, associated benthic macrofauna community composition, and avian utilization. 14.8 acres of intertidal oyster reef were confirmed by ground-truthing, and there were an additional 187 acres of presumed intertidal reef. Reefs were mainly concentrated in the far northern extreme of West Bay, in Bastrop Bay, and in southern Christmas Bay into Drum Bay. The associated benthic macrofaunal community had low richness and diversity. Avian use of the habitat appeared to be mainly self-maintenance, with little foraging observed. An overview of the project's ArcGIS storymap was given (https://arcg.is/1XHKGS0, only loads in some web browsers).

A PDF of the Galveston Bay Intertidal Oyster Reef Mapping and Analysis presentation is available on GBEP's website.

Presentation: *Diamondback Terrapin: A Gem in Galveston Bay's Marshes* – George Guillen, Ph.D., Environmental Institute of Houston (EIH), University of Houston, Clear Lake (UHCL)

The presentation reviewed the Texas Diamond-backed Terrapin's (*Malaclemys terrapin littoralis*) life history and research along the north and central Texas Gulf Coast. Terrapins are the only turtles that live exclusively in the brackish waters of estuaries. Various subspecies can be found along the coast from Massachusetts to Texas. EIH with UHCL has been researching the Texas subspecies for many years. Some of their research projects include critical life-history parameters, crab trap bycatch, population status, distribution and demographics, and terrapin ecology. EIH also has an "Adopt a Terrapin" program to help raise funds for student research.

Subcommittee Updates

1. *Monitoring and Research (M&R):* The M&R subcommittee has been holding meetings virtually via Microsoft Teams on a quarterly basis throughout the pandemic. Since the projects are generally multi-year projects, there are currently seven projects either in progress or about to be in progress this fiscal year.

   A major project planning priority for the past several years has been contaminant fate and transport and the effects of contaminants on species populations. There are currently several M&R projects that are researching this general topic, including projects at UH on heavy metals in sediment and oysters and on polychlorinated biphenyls (PCBs) and dioxins in water, sediment, fish, and blue crabs; a project at Texas A&M University studying per- and polyfluoroalkylated substances (PFAS) and pharmaceutical and personal care products (PPCPs) in water and sediment; and projects at TAMUG looking at microplastics in oysters and in filter-feeding fish. In fiscal year 2022, GBEP will also be initiating a project at TAMUG to study the fate of PFAS in fish and shellfish and the effects of PFAS exposure on the health of these organisms.

   Another subcommittee-identified information gap and project planning priority is research on physical stressors such as coastal erosion and changes to freshwater inflows. One project with the United State Geological Survey (USGS) that will be closing this spring has installed an index-velocity meter on the lower San Jacinto River to measure discharge at various flow conditions and is also collecting data to better understand the variability of nutrient and sediment concentrations in freshwater inflows from the river into the bay. Another project addressing this information gap will be initiated in fiscal year 2022 at TAMUG will look at the effects of erosion control structures, or breakwaters and sills, on shoreline marsh species populations.

   Other information gaps and priorities the subcommittee hopes to fill in upcoming project funding cycles include research on larval transport, the estimation of spatial and temporal trends in point and/or nonpoint source loading and compliance with effluent standards, and research on the success of green infrastructure projects at improving water quality and managing water quantity.

2. *Natural Resource Uses (NRU)*: The NRU subcommittee held their quarterly meeting on January 8, 2021, in which they had a presentation from the Houston Advanced Research Center (HARC) on the new State of the Bay website and an open member roundtable to discuss partner projects and get feedback from members. The Oyster Restoration and Invasive Species Work Groups will be planning meetings over the next few months. A Conservation Assistance Program (CAP) Work Group meeting was held in November 2020, and one CAP property closed, the Dollar Bay Acquisition. Over 100 acres in Texas City was permanently conserved through a partnership with Galveston Bay Foundation and the City of Texas City. Several other CAP projects should close within the next calendar year.

   In addition, the Kemah Living Shoreline Project was completed this fall/winter, protecting 900 feet of vulnerable shoreline on Galveston Bay with the potential to provide education and outreach opportunities in the future.

3. *Public Participation and Education (PPE):* The PPE subcommittee met on January 14, 2021 and heard a presentation about program evaluations from Noelle Whyman Roth with Duke University. This discussion looked at what it means to evaluate a program and why it is important. Program evaluation is a process that starts in the initial planning phase to set goals and assessments and to help demonstrate a program's impact. Evaluations also help communicate experiences with stakeholders and partners and can provide support for evidence-based decision-making. A program evaluation is not meant to decide a program's worthiness, rather goals, outputs, and activities to help support the impact of the program. Members discussed developing a theory of change and logic models in program development, and some PPE members shared specific models that had been developed as examples. PPE members expressed a desire to have a workshop on program evaluation to explore this area further.

   PPE continues to prioritize filling gaps in outreach and education for underrepresented and underserved communities. Two projects getting started in fiscal year 2021 are incorporating in-classroom, citizen science education for students in underserved communities: Texas Estuarine Resource Network (TERN) Program with Harris County Department of Education and Audubon Texas, and Microplastics in Galveston Bay: Big Impact of Tiny Pollution with UHCL's EIH and Turtle Island Restoration Network. These projects will train students on collecting and assessing data in the field and will demonstrate how they can make an impact in their community with science and communication.

   The public perception assessment has been completed, and the report will be available in late spring.

4. *Water and Sediment Quality (WSQ)*: The WSQ subcommittee will meet next on March 10, 2021, to begin identifying the needs and gaps of the group. This will help steer the discussion in June when subcommittee priorities are selected. The implementation of the Double Bayou watershed protection plan with HARC has adapted well to the challenges of COVID-19. Water quality monitoring has continued, and virtual resources are available to stakeholders on the partnership website. The team is also working to create an online workshop for

on-site sewer facility owners in the watershed. The Targeted Bacteria Monitoring project with Houston Galveston Area Council (H-GAC) and Bayou Preservation Association continues. There was an issue with faulty sampling media in the fall, but the interns were still able to collect samples and develop outreach materials. Another group of interns will continue sampling later this year. The Occurrence of Microplastics in Tributaries to Galveston Bay project with the USGS continues to sample. The initial laboratory for sample processing was changed, so the team is awaiting an amendment to reflect that change before processing. A quality assurance project plan for the second phase of that project, the Baseline Assessment of Microplastics in Galveston Bay is currently under review. A coordinated meeting between WSQ and M&R subcommittees will be held Friday, January 29, 2021, from 9:00 a.m. –11:30 a.m. to select sampling sites for that project. Members were asked to put contact information in the chat if interested in attending the meeting. The fiscal year 2021 contract for the Outreach Implementation for Galveston Bay Water Quality Projects with H-GAC is close to execution. Fiscal year 2022 projects, Townwood Park Green Stormwater Infrastructure and Supporting the Use of Green Infrastructure in the Lower Galveston Bay Watershed are beginning the contract initiation process. Members were reminded, if they are interested in attending WSQ subcommittee meetings, email Christian or Lisa to be added to the email distribution list.

Council Members Roundtable: News and Announcements

Kerry Niemann (TCEQ WQPD) – Regarding the Total Maximum Daily Load (TMDL) Program:

- Two TMDLs for indicator bacteria in Caney Creek are scheduled to go to Agenda to release for public comment on January 27, 2021.
- One TMDL and one Implementation Plan for indicator bacteria in Arenosa Creek are scheduled to go to Agenda to release for public comment on January 27, 2021.
- One TMDL for indicator bacteria in Hillebrandt Bayou is scheduled to go to Agenda to release for public comment on February 10, 2021.

Regarding the Nonpoint Source Pollution Program: Joint development of the 2020 Nonpoint Source Annual Report is underway and scheduled to be submitted to the Environmental Protection Agency (EPA) for approval by the end of this month.

Regarding the 2020 Integrated Report: The EPA approved the report on May 12, 2020.

Regarding Water Quality Standards: The Surface Water Quality Standards Advisory Work Group held two half-day meetings on June 29 and June 30, 2020. The agenda and handouts are available on the TCEQ website.

Regarding the Clean Rivers Program: The calendar of Steering Committee Meeting dates may be accessed from the statewide Coordinated Monitoring Schedule. Meetings occur throughout the year and help to establish monitoring priorities.

Caimee Schoenbaechler (TWDB) – The Texas General Land Office (GLO), through their administration of the Community Development Block Grant Disaster Recovery

Program, has funded the Texas Water Development Board (TWDB) to serve as the lead agency to coordinate a project to decrease flood risk along with the USGS and US Army Corps of Engineers (USACE). The project involves developing guidelines and processes for a comprehensive, integrated framework to model, visualize, and plan for the risk of flooding from Hurricane Harvey and other similar compounding flood events in coastal counties. Ms. Schoenbaechler offered to give a presentation on the topic at a future council meeting.

Jeff Taebel (H-GAC) – A Clean Rivers Program Steering Committee Meeting is being held on January 28, 2021, from 1:30 p.m. – 2:30 p.m. to discuss the work plan and budget for the next biennial cycle (fiscal year 2022–2023). The meeting is open to anyone and you can register online. The next watershed planning effort is in Clear Creek. Mr. Taebel thanked the council and project partners for continued support.

Joshua Oyer (GLO) – Mr. Oyer is the proxy for Melissa Porter. The Coastal Management Program has made funding announcements for cycle 26. The Living Shorelines in Texas Guide is posted on GLO's website with materials and comprehensive guidance. The public comment period is closed for the Coastal Texas Study with USACE and GLO. The final report is expected in late spring/early summer.

Matthew Tilimon (USCG) – The next Central Texas Coastal Area Committee meeting will be held on February 4, 2021. It is a hybrid meeting with in-person and virtual attendance.

Public Comment: None

Adjourn: The meeting was adjourned at 12:17 p.m.

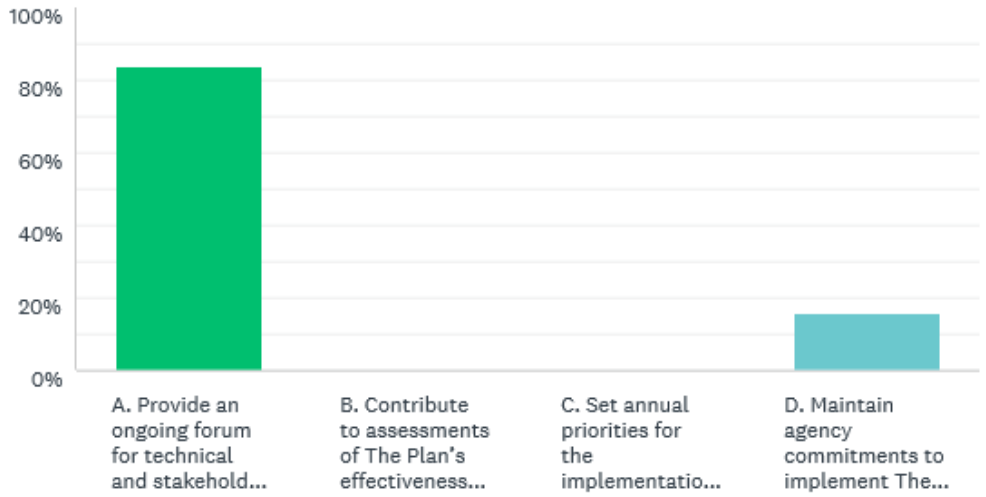
Upcoming Galveston Bay Council Meeting Dates: April 21, 2021; July 21, 2021; October 20, 2021; and January 19, 2022. Meetings are held on the third Wednesday of the quarter from 9:30 a.m.–12:30 p.m.

A PROGRAM OF TCEQ

Galveston Bay Council (GBC) Member Feedback Survey Results

Winter 2021

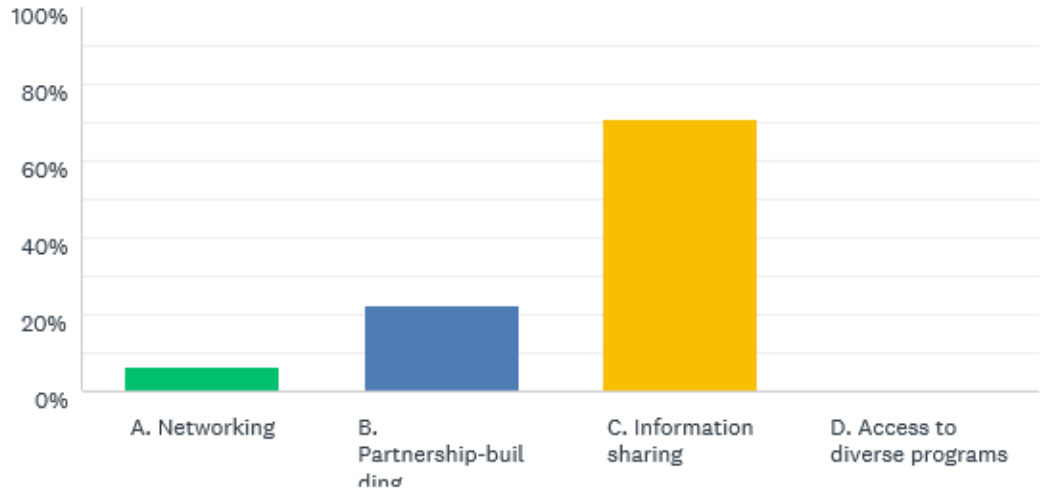
Q1. Which of the following does your organization/agency think is the most valuable role for the GBC?



ANSWER CHOICES	RESPONSES	
A. Provide an ongoing forum for technical and stakeholder review and involvement for implementation of the Galveston Bay Plan (The Plan)	83.87%	26
B. Contribute to assessments of The Plan's effectiveness and initiatives	0.00%	0
C. Set annual priorities for the implementation of the Galveston Bay Plan	0.00%	0
D. Maintain agency commitments to implement The Plan to ensure cross-jurisdictional coordination	16.13%	5
TOTAL		31

- "Provide an ongoing forum for technical and stakeholder review and involvement for implementation of The Plan" selected as most valuable role.
- Three additional comments provided.
  - All roles important with "D" as most valuable
  - A, B, & C" as overlapping roles of the GBC
  - "D" as most valuable, followed by "B, C, & A"

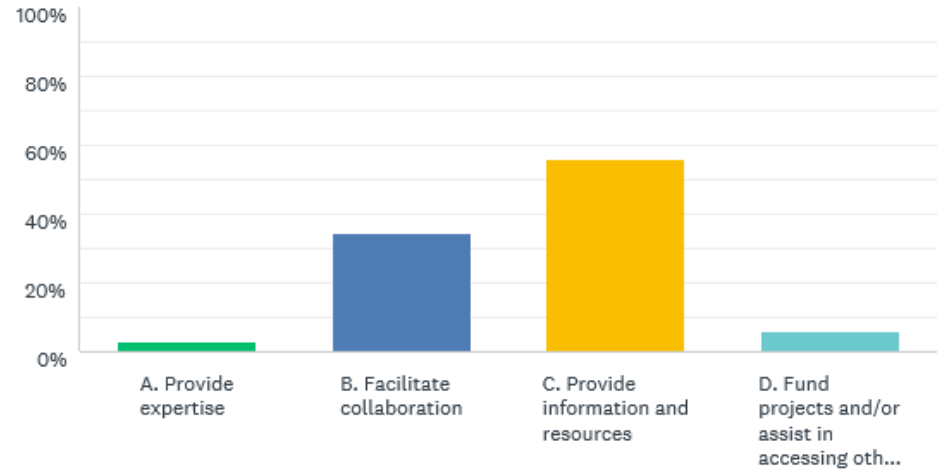
Q2. What do you and your represented entity most gain from being a part of the GBC?



ANSWER CHOICES	RESPONSES	
A. Networking	6.45%	2
B. Partnership-building	22.58%	7
C. Information sharing	70.97%	22
D. Access to diverse programs	0.00%	0
TOTAL		31

- "Information sharing" selected as what entities most gain from being a part of the GBC.
- Three additional comments provided.
  - All choices beneficial
  - "A-C" equally beneficial
  - "B & C" equally beneficial, followed by "D & A"

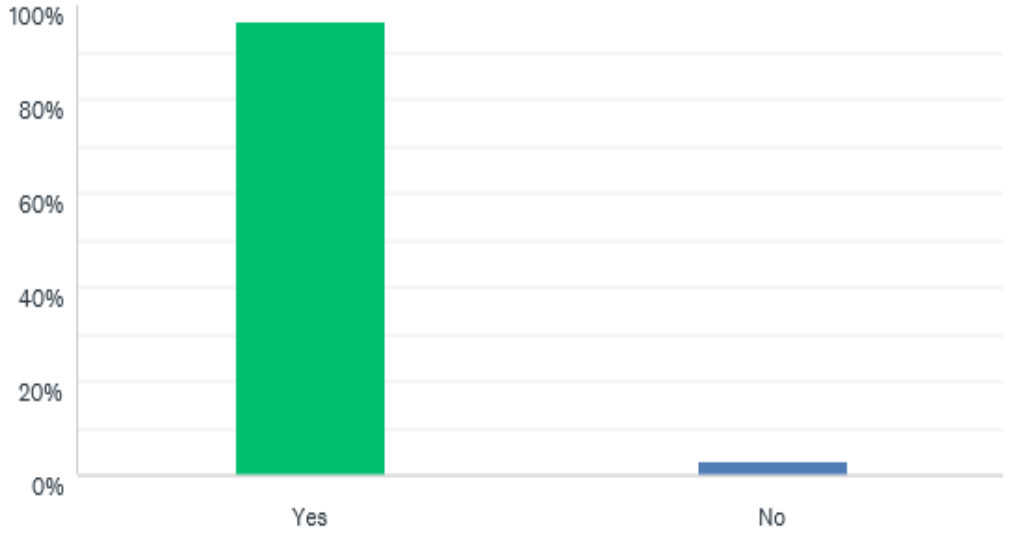
Q3. As a collaborative network of state and federal agencies, academia, nonprofit organizations, and businesses, what can GBEP do to help your organization/agency best accomplish its current goals?



ANSWER CHOICES	RESPONSES	
A. Provide expertise	3.13%	1
B. Facilitate collaboration	34.38%	11
C. Provide information and resources	56.25%	18
D. Fund projects and/or assist in accessing other sources of funding	6.25%	2
TOTAL		32

- "Provide information and resources" selected as what would most help your organization/agency best accomplish its current goals.
- Two additional comments provided.
  - All choices helpful with emphasis on "collaboration and funding of projects"
  - "B & C" equally helpful, followed by "A & D"

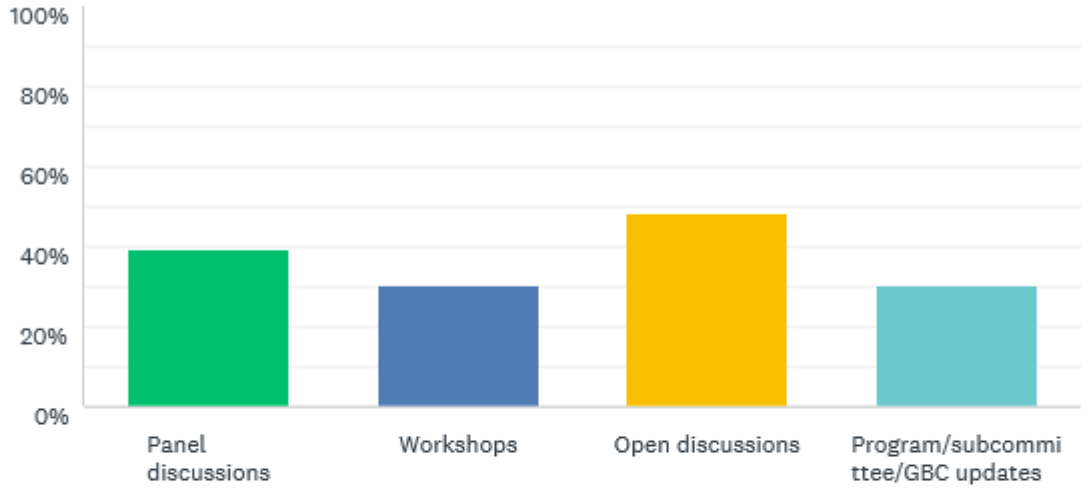
Q4. Are you satisfied with the current structure of the GBC meetings?



ANSWER CHOICES	RESPONSES	
Yes	96.97%	32
No	3.03%	1
TOTAL		33

- Majority of members satisfied with current structure.
- Three additional comments provided.
  - Provide more “timely” information on upcoming projects/policies that may affect the Bay & implementation of The Plan, especially when controversial
  - Return to in-person meetings when appropriate
  - A focus on implementation of The Plan vs. reports on scientific studies

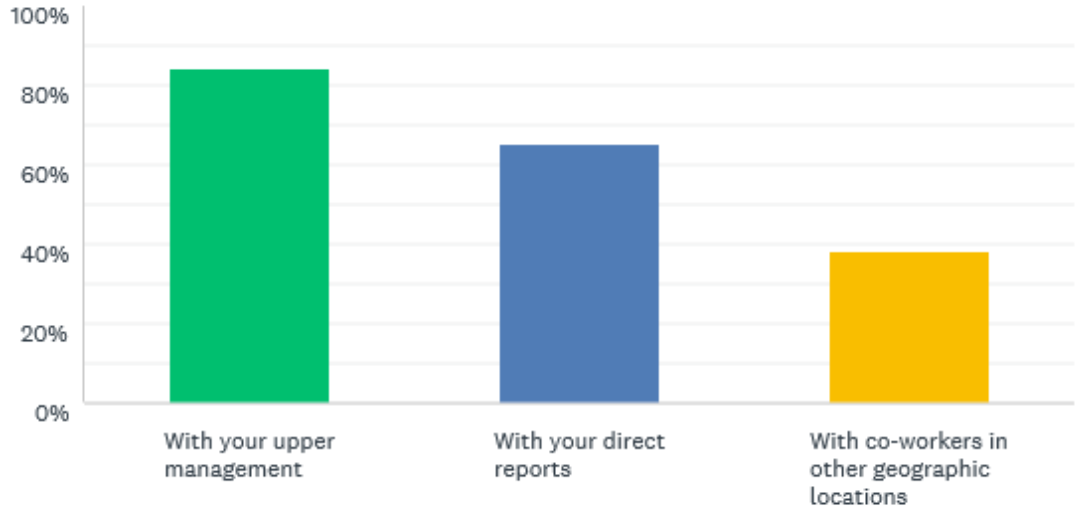
Q5. Which of the following would you like to include more of in GBC meetings? Select all that apply.



ANSWER CHOICES	RESPONSES	
Panel discussions	39.39%	13
Workshops	30.30%	10
Open discussions	48.48%	16
Program/subcommittee/GBC updates	30.30%	10
Total Respondents: 33		

- Near even distribution of answer choices, with “open discussions” as what most members would like to include more of in GBC meetings.
- No additional comments provided.

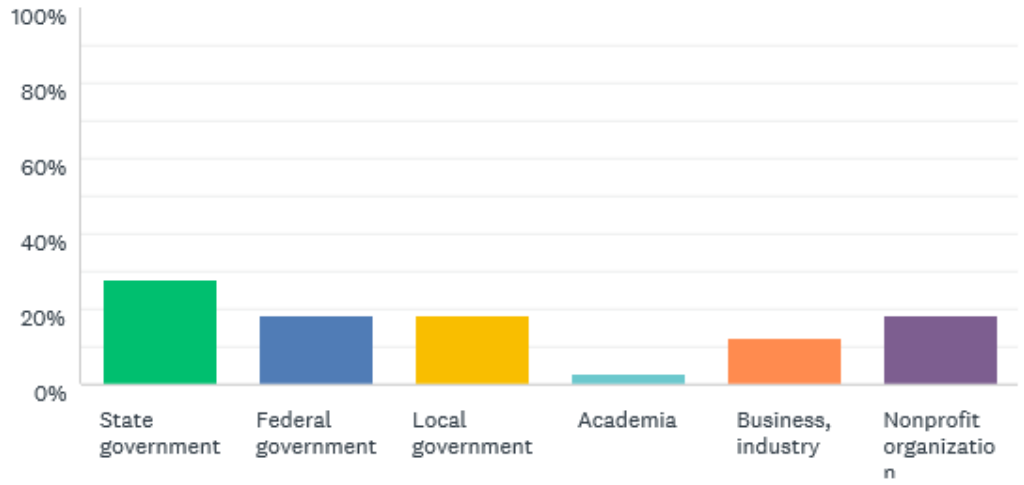
Q6. Is the information from GBC meetings shared with other individuals in your entity? Please select all that apply.



ANSWER CHOICES	RESPONSES	
With your upper management	84.62%	22
With your direct reports	65.38%	17
With co-workers in other geographic locations	38.46%	10
Total Respondents: 26		

- "Upper management" selected as who most information from GBC meetings is shared with.
- Four additional individuals and two comments provided.
  - Interested students & facility
  - Community
  - Entire leadership team across office disciplines
  - Government entities
  - "Only share when something affects us"
  - "I need to do more in sharing info with other members of the entity"

Q7. Please select which type of organization best represents your affiliation.



ANSWER CHOICES	RESPONSES	
State government	28.13%	9
Federal government	18.75%	6
Local government	18.75%	6
Academia	3.13%	1
Business, industry	12.50%	4
Nonprofit organization	18.75%	6
TOTAL		32

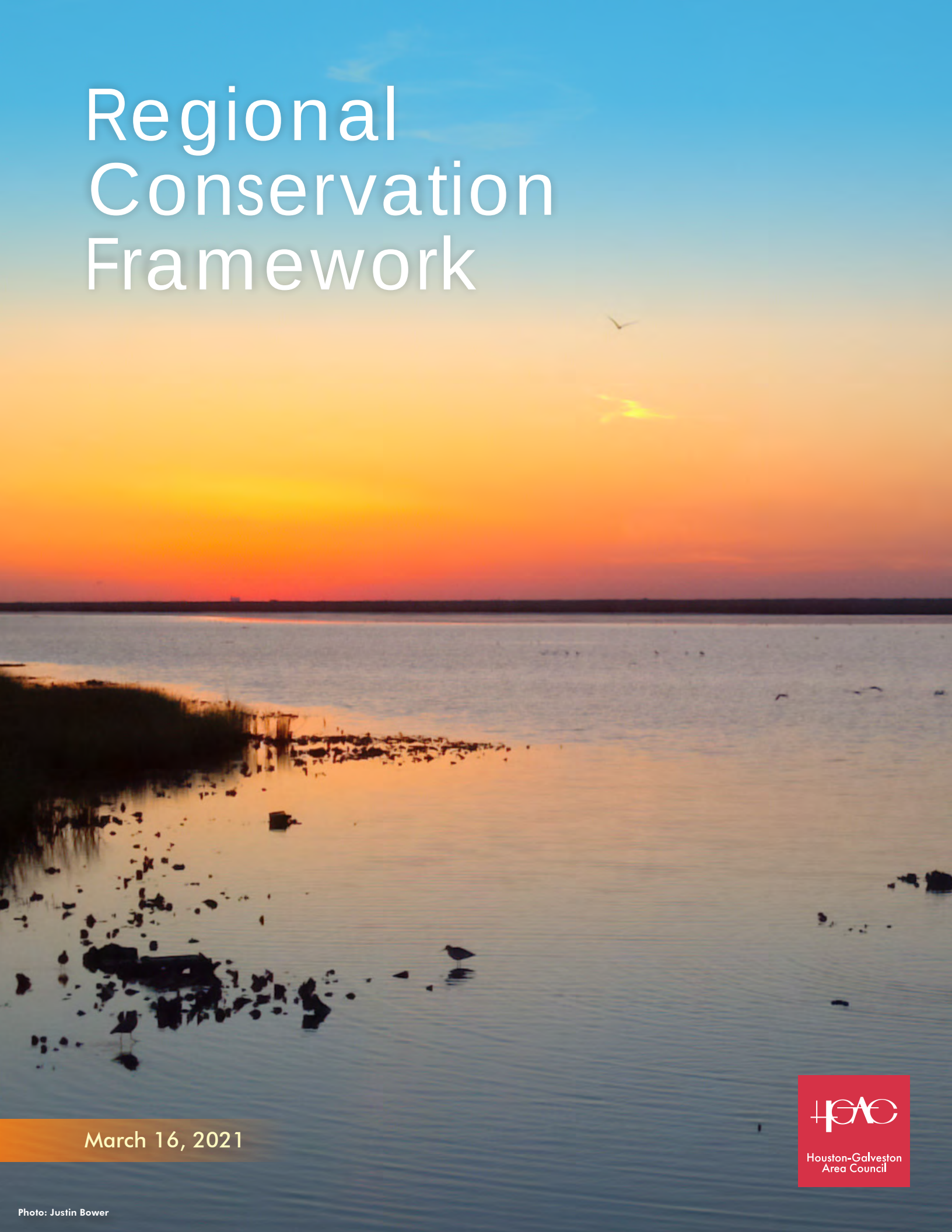
- Near even distribution of answer choices, with “State Government” as most common organization selected and “Academia” as least.
- One additional organization provided.
  - Special District

FY 2022 GBEP Proposed Budget

Category	Grantee	October 2020 Meeting Budget	FY 2022 Staff Recommendation		FY 2023	NOTES:
			State Funding	Federal Funding		
Baseline Costs						
Salaries, Fringe, and Indirect	N/A	$ 616,900	*$77,400	$ 628,516	$ -	*State funding for salary is from a different department (index) outside of GBEP and is not calculated as part of the GBEP budget.
General Operational Costs	N/A	$32,113/$8,245	$ 32,000	$ 8,045	$ -	
Programmatic Costs						
1. Annual Website Hosting & Maintenance (2 websites)	Wilkins Group	$ 4,000	$ -	$ 6,000	$ -	*Added $2,000*
2. Back the Bay/GBEP Website Redesign	Wilkins Group	$ 25,000	$ -	$ 25,000	$ -	
3. Mickey Leland Environmental Internship Program	Goodwill Staffing	$ 7,500	$ -	$ 7,500	$ -	
4. Regional Monitoring Database	HARC/GTRI	$ 104,018	$ -	$ 104,018	$ 35,931	**PRIOR APPROVAL FROM GBC _ NO CHANGES**
WSQ						
5. Baseline Assessment of Microplastics in Galveston Bay	USGS	$ 28,500	$ -	$ 28,500	$ -	**PRIOR APPROVAL FROM GBC _ NO CHANGES**
6. Supporting the Use of Green Infrastructure in the Lower Galveston Bay Watershed	H-GAC	$ 45,000	$ -	$ 45,000	$ -	*Moved funds from partial state to all federal*
7. Townwood Park Green Stormwater Infrastructure	HPARD	$ 55,000	$ -	$ 80,000	$ -	*Added $25,000*
8. ALTERNATIVE: Watershed Protection Plan Development for Clear Creek	*H-GAC*	*$30000*	$ -	$ -	$ -	
NRU						
9. Conservation Assistance Program	GBF	$ 100,000	$ -	$ 100,000	$ -	
10. The 7th/8th Additions to the Coastal Heritage Preserve	TPWD	$ 125,000	$ 125,000	$ -	$ -	
11. Jones Bay Oystercatcher Habitat Restoration and Enhancement	GBF thru TPWD	$ 75,000	$ 75,000	$ -	$ -	*This project is dependent upon extra FY22 state funding allocation*
12. ALTERNATIVE: Sylvan Rodriguez Park Habitat Restoration	HPARD	*75300	$ -	$ 75,300	$ -	*Additional FY22 project*
PPE						
13. Audubon TERN citizen science in Schools: Students as field researchers	Audubon TX thru HCDE	$ 40,000	$ -	$ 40,000	$ -	
14. Microplastics in the Galveston Bay Watershed: The Big Impacts of Tiny Pollution	TIRN thru UHCL	$ 50,000	$ -	$ 50,000	$ -	
15. Mobilizing the Environmental Education Community through Prairie Education	NTPA, CEC, EcoRise thru UHCL	$ 51,520	$ -	$ 80,000	$ -	*Added $28,480*
M&R						
16. The Distribution, Fate, and Transport of Emerging Contaminants in Galveston Bay	TAMU Oceanography	$ 5,490	$ -	$ 15,500	$ -	**PRIOR APPROVAL FROM GBC ($5,490).** *Added $10,010*
17. Effects of Erosion Control Structures on Shoreline Marsh Species Populations	TAMUG	$ 38,165	$ -	$ 38,165	$ 31,140	
18. The Fate of Emerging PFAS Pollutants in Shellfish And Fish of Galveston Bay	TAMUG	$ 63,549	$ -	$ 68,456	$ 37,093	*Added $4,907*
FY 2022 Funding Requests		$ 1,475,000	$ 232,000	$ 1,400,000		
FY 2022 Anticipated Funding Allocation		$ 1,475,000	$ 175,000	$ 1,400,000		
Difference		$ -	$ (57,000)	$ -	$ 104,164	

EPA Section 320 Funds: $700,000
TCEQ State Funds: $875,000

Regional Conservation Framework



March 16, 2021

Houston-Galveston Area Council

Photo: Justin Bower

From the mixed pine-hardwood forests of the Sam Houston National Forest to the coastal plains of Matagorda Bay, the Houston-Galveston region has an unparalleled natural heritage. Visitors to natural areas and open spaces like these are the tourism industry's fastest growing sector.[1] Hikers, anglers, hunters, and birders flock to our abundant forests, native prairies, and over 16,000 miles of bayous, rivers, and coastline to appreciate the beauty and bounty within the region.

Conserving these resources as we add an expected 4 million more residents over the next 25 years will be a challenge.[2] We anticipate this growth will add over 120 square miles of development to our landscape. Without a strategy to deal with the impacts of this growth, the Houston-Galveston region could experience increased flooding, worsening air quality, and a loss of open space, fundamentally altering the character of our region.

The good news is that by working together now, we can expand the impact of voluntary local conservation efforts, big and small, to realize significant regional benefits.

Photo: Justin Bower

[1]Galveston Bay Estuary Program. (2018). The Galveston Bay Plan, 2nd Edition. Retrieved from https://gbep.texas.gov/wp-content/uploads/2019/08/CCMP_2ndEdition_FINAL-TCEQ-Approved-DRAFT.pdf.

[2]Houston-Galveston Area Council. (2018). Regional Growth Forecast - Current Release: 2018. Retrieved from https://www.h-gac.com/regional-growth-forecast.

SECTION 1: BENEFITS OF A REGIONAL CONSERVATION FRAMEWORK

The Houston-Galveston Area Council (H-GAC) worked with local governments to develop this Regional Conservation Framework. Its aim is to support regional conservation projects and identify ways H-GAC can support local governments in their own conservation efforts.

WHAT IS CONSERVATION?

For the purpose of this framework, H-GAC defines conservation as: the protection of natural areas where human and environmental needs are considered and balanced. Within this broad definition, there are three main types of conservation practices:

PRESERVATION – Protecting areas in their natural state.

RESTORATION – Returning natural ecological elements to an area.

ENHANCEMENT – Creating or expanding natural elements within a developed area.

Natural areas and open spaces in the Houston-Galveston region include public and private land in urban, suburban, and rural settings. They may be specific places like parks, nature preserves, and working lands – such as farms and ranches or broader natural systems like the region's tree canopy or the vegetated areas adjacent to waterways. Natural features and systems are also increasingly being incorporated into the built environment. One of these design techniques, known as "low impact development," can be a cost-effective alternative to traditional infrastructure that also creates community amenities.

With such a broad spectrum of conservation opportunities, there is no "one size fits all" conservation solution for our region. Instead, the Regional Conservation Framework focuses on common needs shared by communities across the region to magnify the impacts of the many local conservation efforts and produce benefits that can be reaped by all. These include:

FLOOD MITIGATION – Strategically conserving natural areas and open spaces can be a significant tool for mitigating the impact of flood events.

ECONOMIC BENEFITS – Natural areas and open spaces provide tangible economic benefits, such as tourism dollars, productive fisheries, and reduced air and water pollution. Learn more about these benefits on page 14.

QUALITY OF LIFE – Natural areas and open spaces make our communities more desirable places to live. These amenities are important assets in attracting residents and businesses to our region. In addition, time spent in natural areas and open spaces can help individuals fight against mental health issues like depression, anxiety, and stress.[4]

[3]The Conservation Fund. (2013). Houston-Galveston Green Infrastructure and Ecosystem Services Assessment. Retrieved from https://www.conservationfund.org/images/projects/files/Houston_Galveston_Report.pdf.

[4]National Recreation and Park Association. (2020). Parks and Improved Mental Health and Quality of Life. Retrieved from https://www.nrpa.org/our-work/Three-Pillars/health-wellness/ParksandHealth/fact-sheets/parks-improved-mental-health-quality-life/.

Photo: Cheryl Mergo

PROJECT SPOTLIGHT:
PALACIOS PRAIRIE WETLANDS

LOCATION: City of Palacios

SIZE: 27 acres

FUNDING: Funded in part by the Trull Foundation and Matagorda County, with grant support from the U.S. Fish and Wildlife Service Coastal Impact Assistance Program.

NOTABLE FEATURES: Ecotourism; Community-driven

Photo: Cheryl Mergo

For several years, community members in Palacios talked about a parcel of property on the edge of town that held the potential to serve as a visual gateway to the city along Highway 35. In 2009, a group of citizens formed the Palacios Prairie Wetlands, Inc., a nonprofit organization, and negotiated with the owners to acquire the property. Using Coastal Impact Assistance Program funds provided by the U.S. Fish and Wildlife Service to Matagorda County, and with support from the Trull Foundation, Palacios Prairie Wetlands, Inc., was able to clean up the site. Today, the Palacios Prairie Wetlands is a 27-acre upland prairie and coastal marsh area with around 700 feet of trails, a pier with a kayak launch, and a bird watching tower just north of Trull Marsh. Palacios Prairie Wetlands, Inc., owns the property and manages all maintenance. Community members serving on the Palacios Prairie Wetlands Board work together on weekends to trim trees, record birds, identify plants, and otherwise care for the conserved area.

According to Erwin Janszen, chairman of the board, relationships with governmental entities at the city and county level have made this project a success. The Matagorda County Commissioners Court has been supportive of the project, and the County has stepped in to help haul away junk and tree limbs, as well as lend equipment, when necessary.

SECTION 2: LOCAL NEEDS, REGIONAL BENEFITS


Photo: Justin Bower

UNDERSTANDING LOCAL NEEDS

H-GAC engaged local governments, decision-makers, and resource agencies in a series of discussions on the topic of conservation. H-GAC also met with representatives from a wide spectrum of regional and local non-governmental conservation organizations, who provided valuable input and supporting information. Between June and September 2020, H-GAC conducted 11 listening sessions, where more than 100 participants detailed their conservation opportunities, needs, and challenges, as well as the public's views on conservation in their communities.

One key thing we learned was that, following the widespread flooding and economic impacts resulting from the Memorial Day Flood in 2015, the Tax Day Flood in 2016, and Hurricane Harvey in 2017, there has been heightened interest in strategically using natural areas and open spaces to reduce the impacts of severe weather events. This interest, coupled with the increased public use of these spaces during the COVID-19 pandemic, presents a major opportunity to scale up our region's conservation efforts.

Additionally, several other common themes emerged:

- The public places a higher value on conservation projects where additional benefits – including flood mitigation, recreation opportunities, maintaining rural character, beautification, increased values for adjacent properties, or other direct financial factors – can be demonstrated.
- Partnerships between public and nongovernmental organizations are one of the most efficient conservation vehicles for communities in our region.
- In addition to initial project costs, long-term maintenance and the potential loss of property tax revenue must be considered.
- Conservation investments should be coordinated with economic development opportunities to ensure local businesses and local governments benefit from increased visitation.
- Maintaining private property rights is a key priority in our region, so voluntary, "win-win" conservation efforts will be the most successful.
- Equitable access to natural areas and open spaces is also a guiding principle so that public investments in conservation can benefit all residents in the region.

Photo: Galveston Bay Foundation

PROJECT SPOTLIGHT:
TURTLE BAYOU NATURE PRESERVE

Photo: Galveston Bay Foundation

LOCATION: Chambers County

SIZE: 514 acres

FUNDING: Original land acquisition funded through Coastal Impact Assistance Program. Remediation work funded through the Texas Railroad Commission's Oil and Gas Regulation & Cleanup Fund and federal Brownfield Response Program. Additional enhancements funded through the Texas Parks and Wildlife Department National Recreational Trails Fund.

NOTABLE FEATURES: Remediation; Layered funding approach

The Turtle Bayou Nature Preserve, formerly the Turtle Bayou Oil Field, demonstrates how to convert a formerly contaminated site into a safe recreational amenity. In 2012, the Chambers-Liberty County Navigation District and Chambers County used Coastal Impact Assistance Program funding to acquire the Turtle Bayou Nature Preserve. The Galveston Bay Foundation holds a conservation easement on the property to ensure the preserve remains undeveloped. The conservation easement restricts the land use to activities beneficial to natural plant communities and wildlife, such as low-impact, public access infrastructure. The site was rehabilitated with funding from the Texas Railroad Commission Oil & Gas Regulation and Cleanup Fund and technical support for cleanup was provided by the Texas Railroad Commission Brownfield Response Program. In 2016, the preserve was opened to the public and has since become a popular birdwatching destination with the addition of a 2.2-mile trail, boardwalk, signage, and a trailhead kiosk, all funded by the Texas Parks and Wildlife Department's National Recreational Trails Fund.

SECTION 3: VISION, GOALS, AND STRATEGIES


Photo: Justin Bower

In addition to the numerous types of local conservation opportunities, listening session participants voiced support for several large-scale initiatives that could provide a long-range vision to unite the Houston-Galveston region. These initiatives include:

A FLOURISHING TREESCAPE

Whether in a forest, park, or as shading for our streets and neighborhoods, trees are essential to our region's quality of life. Trees generate $109 worth of environmental benefits per person every year, including $90 in annual household energy cost savings. Our region's trees remove more than 60,000 tons of air pollutants per year, as well as capturing carbon and absorbing stormwater.[5]

There is already significant momentum building toward large-scale tree plantings in the Houston urbanized area through a partnership of local government, industry, and nongovernmental organizations. H-GAC will seek to leverage these efforts by forging new and supporting existing connections between partners throughout the region, connecting local governments and professionals working in conservation with new tools and resources, and raising public awareness on the benefits provided by trees beyond the Houston urbanized area.

REGIONAL GREENWAY SYSTEM

The Houston-Galveston region is traversed by 16,000 miles of rivers, bayous, creeks, and streams. Mitigating flood risks and enhancing water quality in these waterways is a major priority in the region. The strategy for achieving these objectives – preserving natural, vegetated buffers along these waterways – provides us with an opportunity to develop a regional recreation system that is unparalleled in the United States.

This effort can be modeled on successful local initiatives, such as Harris County's *Bayou Greenways 2020* initiative. Once completed, *Bayou Greenways 2020* will establish 150 miles of trails that connect major bayous in and around the greater Houston area, improving access and safety between communities.[6] Waller County also envisions creating parks and trails connections with its *Waller County Parks, Trails, and Open Space Master Plan*.

H-GAC will seek to build on these projects and expand them regionally by integrating greenway planning into existing and future project plans, conducting comprehensive project mapping and data sharing, and raising public awareness about the need for and benefits of a regional greenways system.

[5]Houston-Galveston Area Council. (2020). Urban Forestry – Benefits of Trees. Retrieved from https://www.h-gac.com/urban-forestry#:~:text=Urban%20Forestry%20in%20the%20H,trees%20in%20the%20urban%20setting.

Photo: Baytown Nature Center

PROJECT SPOTLIGHT:
BAYTOWN NATURE CENTER

LOCATION: Harris County

SIZE: 500 acres

FUNDING: The City of Baytown originally acquired the land with FEMA disaster relief funding in 1983. Funding from the French Limited Superfund Site, the Natural Resources Trustee Grant Program, and private donors, including Exxon Mobil and Chevron Phillips Chemical, has enabled subsequent restoration and enhanced amenities.

Photo: Baytown Nature Center

NOTABLE FEATURES: Remediation; Public-private partnership

The Baytown Nature Center consists of 500 acres of mixed hardwood forest, wetlands, and high-quality tidal marsh ecosystems, surrounded by Burnet, Crystal, and Scott bays. Previously a residential neighborhood built in the 1940s, a combination of land subsidence and the impacts of Hurricane Alicia led FEMA to condemn the land for human habitation in 1983. The City of Baytown and FEMA purchased the homes and land, which had been set aside for a nature preserve. The nature center was funded initially through the French Limited Superfund Site mitigation funds. An original master plan was written in 1997, and in 2002, the area was reopened to the public. In the past decade, the Baytown Nature Center has facilitated several wetland remediation projects. With grant funding from the Natural Resource Trustee Grant Program, the nature center created 20 acres of salt marsh and enhanced 15 existing acres. The City of Baytown has also worked with several private entities on wetlands conservation projects, including 3.4 acres of salt marsh in partnership with the Port of Houston and 11 acres of shoreline and internal marsh with the GB Biosciences Corporation. The Baytown Nature Center is operated and maintained by the City of Baytown and supported by the Friends of the Baytown Nature Center.

According to Tracey Prothro, superintendent of natural resources at the City of Baytown, the nature center has not been afraid to forge partnerships and think of new, creative ways to use the center, which has been key to their success.

SIGNATURE PROJECTS

The natural heritage of the Houston-Galveston region attracts visitors from all walks of life. From birding in coastal areas, to camping opportunities in our state parks and national lands, the range of recreational options in our region's natural areas and open spaces is vast. These spaces help define our region as a great place to live and visit and help put local communities on the map.

In addition to recreation and quality of life, signature projects can provide significant environmental and community benefits, as well as opportunities for local economic development and marketing of the region as a whole. There are numerous examples of such projects throughout our region, several of which are highlighted in the Project Spotlights provided throughout this document. H-GAC will work with local governments, state and federal agencies, and nonprofit organizations to realize the vision of each of the 13 counties in the region having at least one such signature project.

REGIONAL CONSERVATION STRATEGIES

Achieving the vision of the Regional Conservation Framework will require focused, consistent coordination and engagement with a variety of stakeholders, including local governments, developers, nongovernmental organizations, and private landowners.

H-GAC has developed three strategies to support conservation by local governments and other partners in our region. For a detailed list of recommended implementation actions, see Appendix A - Recommended Strategies and Actions on page 12.

STRATEGY 1: LEVERAGE

GOAL: Use existing H-GAC programs to integrate conservation more fully into planning and implementation activities.

H-GAC programs like Economic Development, Resiliency, Transportation, and Water Quality can have both direct and indirect impacts on natural areas and open spaces. H-GAC will identify opportunities to strengthen the conservation components of all these programs.

STRATEGY 2: SUPPORT

GOAL: Support and expand existing efforts in our region through partnerships and communication, data access, and unified messaging.

H-GAC is uniquely positioned to complement local conservation initiatives from a regional perspective – connecting people and organizations, sharing data and best practices, and amplifying success stories.

STRATEGY 3: FUND

GOAL: Aid local governments or regional partners in receiving new funding or finding projects to fit existing funding sources.

Funding initial project costs and long-term maintenance for conservation efforts are primary concerns for local governments. To execute both large-scale projects and smaller-scale conservation efforts, local governments can use a variety of funding tools. As a starting point, H-GAC's interactive, online Conservation Funding Guide[7] catalogs federal and state or state-administered funding programs available to local entities in Texas.


Photo: Cheryl Mergo

[6]Houston Parks Board. (2020). Bayou Greenways 2020. Retrieved from https://houstonparksboard.org/about/bayou-greenways-2020.
[7]https://www.h-gac.com/regional-conservation/funding-guide

Photo: Spring Creek Greenway

PROJECT SPOTLIGHT:
SPRING CREEK GREENWAY

Photo: Spring Creek Greenway

LOCATION: Harris and Montgomery counties (along Spring Creek)

SIZE: Approximately 7,000 acres

FUNDING: Initial land acquisition funded through Land and Water Conservation Fund; Continued land acquisition funded through county general funds, bonds, flood control bonds as available.

NOTABLE FEATURES: Multi-county cooperation; Flood protection; Recreational opportunities

The Spring Creek Greenway connects and protects approximately 7,000 acres of forest in Harris and Montgomery counties along both sides of Spring Creek. In the late 1970s, Harris County began purchasing flood-prone property along Cypress Creek and then along Spring Creek using federal money from the Land and Water Conservation Fund. For the next 30 years, Harris and Montgomery counties continued the work, acquiring and protecting land along Spring Creek. Dennis Johnston, parks director for Harris County Precinct 4, sees this shared vision for a large-scale, conserved natural space and the foresight of elected leaders as the key to the greenway's continued success. Today, trails in the greenway stretch for nearly 20 miles, connecting small area preserves from State Highway 249 all the way to Interstate Highway 69. The Spring Creek Greenway Nature Center in Spring, Texas, is a hub for an array of educational and outdoor activities for all ages and levels of ability – from walking and biking along paved trails to kayaking and canoeing along stretches of Spring Creek. This conserved corridor of land along the creek also offers the dual benefits of flood protection and wildlife protection.

SECTION 4: NEXT STEPS


Photo: Justin Bower

As the growing region seeks to accommodate residents and businesses, conservation can be difficult to balance.

Fortunately, we now have an opportunity to work together to expand voluntary local conservation efforts, big and small, to realize significant regional benefits.

We look forward to continuing to work with local governments and other conservation partners, encouraging collaborative, timely conservation to ensure the region becomes an even better place to live, work, and prosper than it is today.

To keep up to date on H-GAC's regional conservation efforts, email us at conservation@h-gac.com or visit h-gac.com/regional-conservation and learn how you can get involved.

Photo: Justin Bower


Photo: Exploration Green

PROJECT SPOTLIGHT:
EXPLORATION GREEN

LOCATION: Harris County

SIZE: 178 acres

FUNDING: Original land acquisition was funded through county bond election funds. Subsequent phases of work were funded through Texas Parks and Wildlife grants, Texas A&M AgriLife Extension - Community Watershed Program grants, Texas Coastal Management Program grants, and donations from Trees for Houston, Harris County - Precinct 2 Commissioners and private individuals.


Photo: Exploration Green

NOTABLE FEATURES: Flood protection; Recreational opportunities; Site reuse

According to Exploration Green Conservancy Chair Frank Weary, it all started with the Clear Lake City Water Authority's vision for a stormwater detention site that was more than a hole in the ground. In 2011, the Clear Lake City Water Authority (CLCWA) purchased the old Clear Lake Golf Course using Harris County bond funds and hosted a series of town halls to collect community members' input on a multi-use stormwater detention project. A vision for a greenspace with trees, trails, and athletic fields emerged. The CLCWA hired a landscape architecture firm to prepare a master plan and set the project in motion. When fully built, Exploration Green's detention ponds will hold a combined 500 million gallons of stormwater, protecting an estimated 2,000 to 3,000 homes from flooding in 12 to 15 inches of rain. Exploration Green also serves as a nature preserve, with 6 miles of walking and biking trails, athletic fields available for local sports teams, and dedicated wetlands and native grassland areas. The Exploration Green Conservancy – a nonprofit organization formed by dedicated community members – coordinates volunteers and raises funds for all non-stormwater detention elements of the project. For many years, the conservancy has nurtured a group of volunteers to assist with planting and propagating trees and wetlands, applying for grant funding for new amenities, and coordinating events. Communication between the conservancy, the CLCWA, and the community has been critical to the project's success. After nearly 20 years of visioning, fundraising, and construction, the final phase of Exploration Green will be completed by 2023.

SECTION 5: APPENDICES

APPENDIX A – RECOMMENDED STRATEGIES AND ACTIONS

The text below details the goal of and recommended actions for the three strategies detailed in the Regional Conservation Framework.

STRATEGY 1: LEVERAGE

GOAL: Use existing H-GAC programs, projects, and funding to integrate conservation more fully into planning and implementation activities.

ACTION 1: Working with community and economic development organizations to broaden access to natural areas and open space throughout the region and create opportunities for local businesses.

ACTION 2: Convening a Regional Forestry Work Group composed of local government stakeholders to coordinate with other organizations on large-scale initiatives to enhance the region's treescape.

ACTION 3: Expanding and updating H-GAC's online Forestry Tool,[8] which enables users to take a detailed look at the tree canopy, down to the street tree level.

ACTION 4: Integrating conservation planning metrics into the following H-GAC-led planning initiatives:

- Comprehensive Economic Development Strategy
- Regional Transportation Plan
- H-GAC-led Watershed Protection Plans
- H-GAC-led regional and watershed-level flood mitigation projects

ACTION 5: Working with local partners, including nurseries, to increase the supply of native tree species available for tree planting initiatives.

STRATEGY 2: SUPPORT

GOAL: Support and expand existing efforts in the region through partnerships and communication, data access, and unified messaging.

ACTION 1: Compiling data on existing best practices and policy options, including relevant ordinances, and sharing with local governments.

ACTION 2: Developing and maintaining customizable public awareness materials for communities to use on social media and in press releases, posters, and flyers to build support for conservation initiatives.

ACTION 3: Engaging with decision-makers in the region to discuss the economic benefits of specific conservation strategies.

ACTION 4: Establishing and convening a conservation peer exchange forum, composed of local governments and professionals working on conservation issues across the region.

[8]https://datalab.h-gac.com/urbanforestry

ACTION 5: Expanding and updating the economic valuation data presented in The Conservation Fund's Houston-Galveston Green Infrastructure and Ecosystem Services Assessment,[9] exploring the benefit-relevant indicators for specific conservation practices and sharing those data with local governments and professionals.

ACTION 6: Working with local governments and private sector organizations to encourage conservation strategies – such as tree protection, low impact development, and connecting to existing greenways – being incorporated in community design early on.

ACTION 7: Providing support to local governments on data analysis and mapping, integrating factors such as existing land type and socio-economic data.

STRATEGY 3: FUND

GOAL: Aid local governments or regional partners in receiving new funding or finding projects to fit existing funding sources.

ACTION 1: Connecting local governments with nongovernmental organizations working toward similar goals or project outcomes.

ACTION 2: Developing funding partnerships that support land acquisition, development, management, and promotion.

ACTION 3: Establishing and maintaining a list of priority conservation projects for the region.

ACTION 4: Maintaining and expanding the online Conservation Funding Guide and promoting the tool with local governments.

ACTION 5: Providing support to requesting local governments in accessing grant funding to support conservation initiatives.

ACTION 6: Researching and distributing information on non-grant finance tools, such as bonds, donations from landowners, property tax dedications, and the establishment of a Regional Conservation District.

[9]https://www.conservationfund.org/images/projects/files/Houston_Galveston_Report.pdf

Photo: Justin Bower

APPENDIX B
ECOSYSTEM SERVICES - BENEFIT BY ECOLOGICAL ASSET TYPE

The chart below details potential benefits supported by specific ecological asset types.

	ECOSYSTEM SERVICE BENEFITS (P = Primary Benefit, S= Secondary Benefit)						
Ecological Assets	Flood and Disaster Mitigation	Economy	Carbon, Energy or Heat	Quality of Life/ Health	Environmental Quality	Recreation	Habitat
Undeveloped Forests	P		P	S	P	S	P
Urban Tree Canopy	P	S	P	P	P	S	S
Wetlands	P	S	S	S	P	S	P
Prairie and Grasslands	P	S	S	S	P	S	P
Working Lands	S	P		S	S		
Urban Open Space	S	S	S	P	S	P	S
Healthy Waterways	S	S		S	P	S	P
Clean Air		S	P	P	P		

Photo: Justin Bower

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WHAT IS H-GAC? H-GAC is the regional organization through which local governments consider issues and cooperate in solving area wide problems. Through H-GAC, local governments also initiate efforts in anticipating and preventing problems, saving public funds. The 13-county H-GAC service region is growing, becoming more diverse, and constantly changing. In order to address the needs of citizens and businesses, local governments are providing leadership to guide regional development wisely and manage change constructively.

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