



ACTION PLAN 2 OF 2

SUPPORT PUBLIC EDUCATION AND AWARENESS INITIATIVES (PEA)

In the Galveston Bay watershed, both the social and ecological components of the ecosystem influence each other. This dynamic informs the GBEP and its partners' focus on public education and awareness initiatives in Galveston Bay. Fostering environmental literacy in the region will help provide skills to understand, analyze, and think critically about current and future needs for Galveston Bay. Environmental literacy is achieved through awareness of the critical issues influencing Galveston Bay, including the importance of freshwater inflows, habitat and water conservation, protecting native bay species, preventing NPS pollution, potential risks from contact recreation, and seafood consumption safety.

Environmental literacy in kindergarten – 12th grade (K-12) and college students is a key focus area for *GBP'18*. Students who are engaged in bay-related research and stewardship efforts can serve as ambassadors to the larger community, affecting long-term, positive change as they become decision makers for the region. Environmental education curriculum and programs aligned with a focus on science, technology, engineering, art, and math are essential components for protecting and sustaining Galveston Bay. While there are several groups engaged in providing environmental education and awareness programs, there is a need for a more cohesive regional system to track these efforts and identify gaps in regional services and resources. In addition to implementing these programs, the GBEP and partners can play a role in bringing various groups together by helping catalog, profile, and publicize the region's environmental education and awareness programs.

Example of Public Education and Awareness Implementation Action

In 1996, Rice University's Kinder Institute for Urban Research conducted a survey for the GBEP to track public awareness and perceptions of a wide range of issues relating to environmental concerns, ecotourism, and protecting and preserving the region's natural resources. In 2005, the HARC issued a *Galveston Bay Indicators* report that included data on socioeconomic indicators for the region, including population data and changes in land use patterns. Additional public perception and awareness data were captured through surveys conducted before and during the Back the Bay campaign, and the Galveston Bay Foundation continues to track public opinions and attitudes with the annual *Galveston Bay Report Card*.

However, empirical data on environmental literacy in and around Galveston Bay is incomplete. Stakeholders developing *GBP'18* identified environmental literacy as a crucial element to successfully engaging communities to preserve Galveston Bay. To improve environmental literacy for students in the region, the GBEP and partners created the Galveston Bay Watershed Academic Partnership in 2007. This led to two youth symposia that highlighted student-led projects on local environmentally based issues and the development of a resource guide, *The Galveston Bay Estuary System: An Educator's Resource for Developing Bay-Related Curricula*. The guide provides science educators curricular resources for grades six through eight that focus on bay issues.

New partnership initiatives aim to make it easier to find educational resources in the region, such as the [HERE in Houston website](#), which provides a one-stop shop for classroom and informal educators, Texas Master Naturalists, scout leaders, and others looking to teach about the environment of the Houston-Galveston region. In addition, the GBEP’s partners hosted an education workshop at the 2009 State of the Bay Symposium. Many partners continue to collaborate on educational programs for teachers, students, homeowners, and the public, providing watershed education for curriculum, rain barrel workshops for homeowners, education for septic systems and well owners, and more. A continued effort to track social indicators will help guide the GBEP and its partners’ efforts. There is an additional need to conduct research to identify underrepresented and underserved communities in the region to understand language and cultural barriers. This information will help guide translating outreach and education materials.

FIGURE 28
PEA ACTION PLAN MATRIX

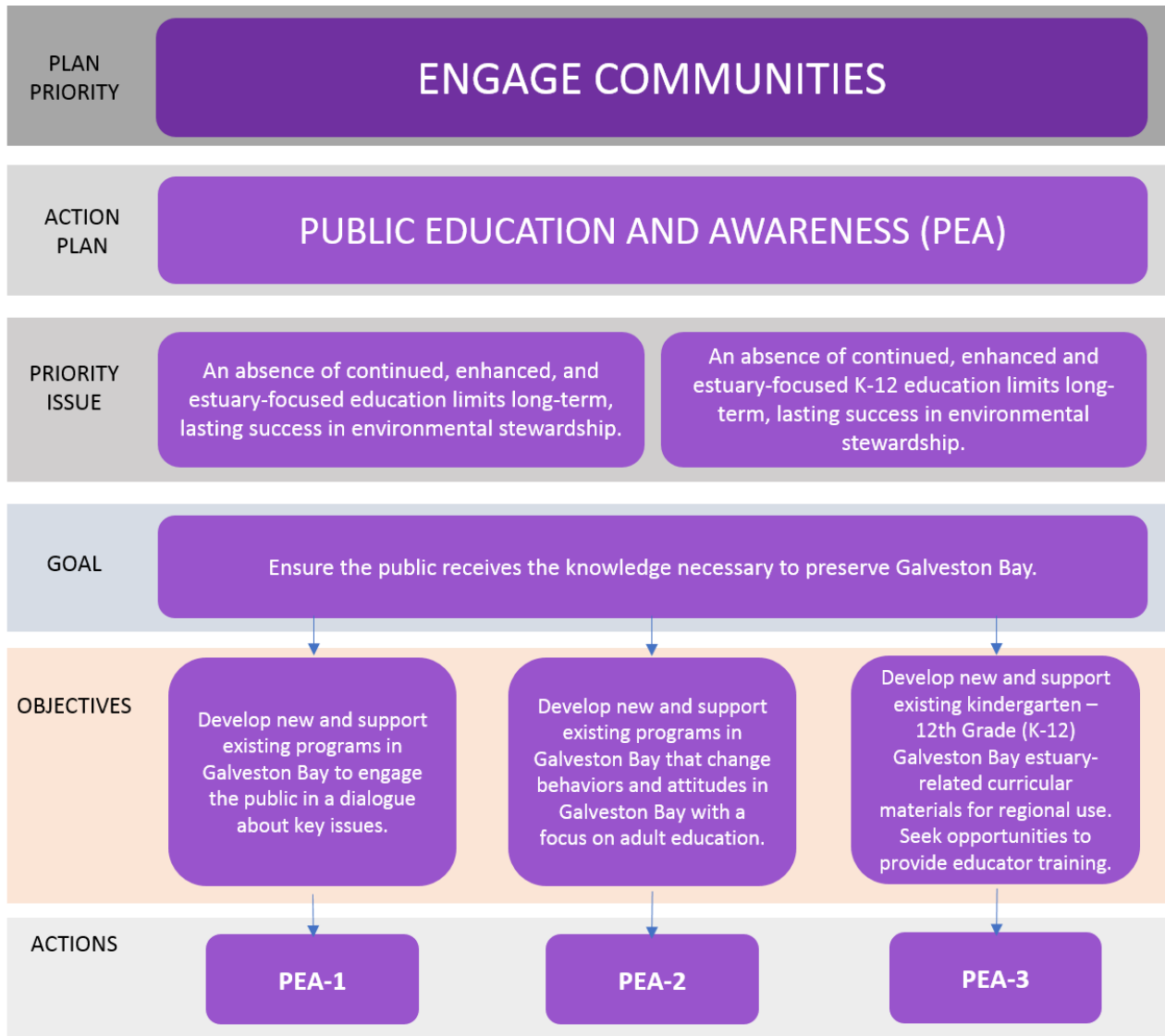
ACTION PLANS AND CORRESPONDING ACTIONS		PLAN PRIORITIES			
		Ensure Safe Human and Aquatic Life Use	Protect and Sustain Living Resources	Engage Communities	Inform Science-Based Decision Making
Action Plan: Support Public Education and Awareness Initiatives (PEA)					
PEA-1	Key Issue Engagement	x	x	x	x
PEA-2	Adult Education	x	x	x	
PEA-3	Kindergarten to 12th Grade (K-12) Education Efforts			x	

Action Plan Overview

The PEA Action Plan includes three Actions that ensure information on protecting and preserving Galveston Bay is available to anyone who wants it. This is accomplished by engaging the public about key issues affecting Galveston Bay (**PEA-1**) and developing and promoting adult-focused awareness initiatives (**PEA-2**) in the lower Galveston Bay watershed. Engaging area students (K-12), as well as educators and trainers, on bay-related curriculum and materials will teach them how their behaviors and attitudes can positively affect Galveston Bay (**PEA-3**).

PEA-1 supports all Plan Priorities identified within *GBP’18*. Successful implementation of this Action requires coordination between the PPE, WSQ, NRU, and M&R subcommittees.

**FIGURE 29
PUBLIC EDUCATION AND AWARENESS ACTION PLAN**



PEA-1



Key Issue Engagement

Objective: Develop new and support existing programs in Galveston Bay to engage the public in a dialogue about key issues.

Priority Issue: An absence of continued, enhanced, and estuary-focused education limits long-term, lasting success in environmental stewardship.

Description: To establish more meaningful public engagement, the GBEP and its partners are continuing to develop, support, and promote public awareness along with education/outreach and starting a dialogue with the public about key issues affecting Galveston Bay and what can be done to mitigate those issues.

Implementation location: Lower Galveston Bay watershed.

ACTIVITIES	TIMEFRAME AND OUTPUT(S)	IMPLEMENTATION COST
Capture list of existing awareness and education programs in the region.	Within 2-5 years, develop database of existing programs.	\$0 - \$200,000
Conduct gap analysis, to include public awareness and perception assessments to identify audiences and geographies needing additional education and awareness programs.	Within 2-5 years, conduct awareness level assessments prior to program expansion.	\$0 - \$200,000
	Within 2-5 years, identify new geographies and communities from assessments.	\$0 - \$200,000

POTENTIAL IMPLEMENTERS

Bayou Preservation Association
Galveston Bay Foundation
HARC
Houston Zoo
Sierra Club

Student Conservation Association
Texans for Clean Water
Texas A&M AgriLife Extension Service
Texas Community Watershed Partners

PERFORMANCE MEASURES

1. Database of existing education and awareness programs in the region completed.
2. Number of completed public awareness assessments to identify audiences and geographies for education and outreach programs.

REFERENCES

GBP'95: PPE-3

SAP Reference: Public Education: Goal 1 / Objective B

PEA-2



Adult Education

Objective: Develop new and support existing programs in Galveston Bay that change behaviors and attitudes in Galveston Bay with a focus on adult education.

Priority Issue: An absence of continued, enhanced, and estuary-focused education limits long-term, lasting success in environmental stewardship.

Description: To better engage the public in long-term environmental stewardship, the GBEP and its partners are continuing to develop, support, and promote public education activities that change behaviors and attitudes in Galveston Bay with a focus on adult education and are conducting and / or supporting public awareness and public perception assessments to measure awareness levels and impact of the message.

Implementation location: Action for the Lower Galveston Bay watershed.

ACTIVITIES	TIMEFRAME AND OUTPUT(S)	IMPLEMENTATION COST
Create plan of action to provide education and awareness programs to underserved geographies and communities. Explore additional topic needs, such as emerging pollutants.	Within 2-5 years, create plan to engage the public (specific goals to be determined based on gap analysis). Coordinate with other groups conducting similar research / assessment.	\$0 - \$200,000
	Within 5-10 years, see significant progress on items outlined in plan to engage the public (50% of goals met).	\$0 - \$200,000
	Within 10-plus years, see completion of all items outlined in plan to engage the public (100% of goals met).	\$200,000 - \$1 Million
Support and fund existing and new education and awareness programs.	Within 10-plus years, conduct awareness level assessment after program expansion.	\$0 - \$200,000
Create new material resources and language translations, where needed.	Within 5-10 years, create new materials identified in plan to engage the public.	\$0 - \$200,000
	Within 10-plus years, create any additional new materials, as needed.	\$0 - \$200,000

POTENTIAL IMPLEMENTERS

Galveston Bay Foundation
 Bayou Preservation Association
 HARC
 Houston Zoo
 Sierra Club

Student Conservation Association
 Texans for Clean Water
 Texas A&M AgriLife Extension Service
 Texas Community Watershed Partners

PERFORMANCE MEASURES

1. Plan of action to deliver education and outreach programs in underserved geographies and communities completed.
2. Number of plan of action education and outreach programs implemented.
3. Number of materials and resources created to support outreach and education.
4. Number of pre- and post-assessments conducted with each education and outreach program.

REFERENCES

GBP'95: PPE-3

SAP Reference: Public Education: Goal 1 / Objective B

PEA-3

K-12 Education Efforts

Objective: Develop new and support existing K-12 Galveston Bay estuary-related curricular materials for regional use. Seek opportunities to provide educator training.

Priority Issue: An absence of continued, enhanced, and estuary-focused K-12 education limits long-term, lasting success in environmental stewardship.

Description: To ensure students and educators receive the knowledge necessary to protect and preserve Galveston Bay, the GBEP and its partners are continuing to develop, support, and promote programs that seek to educate K-12 audiences on how changes in behavior and attitude can positively influence the protection and preservation of Galveston Bay.

The GBEP and its partners are continuing to develop, support, and promote programs that seek to work collaboratively with educators on how educational materials and programs are introduced to students.

Implementation location: Action for the Lower Galveston Bay watershed.

ACTIVITIES	TIMEFRAME AND OUTPUT(S)	IMPLEMENTATION COST
Capture list of existing K-12 programs in the region.	Within 2-5 years, develop a database of existing programs.	\$0 - \$200,000
Conduct gap analysis to identify K-12 program needs.	Within 2-5 years, conduct an educators summit to identify education gaps and needs.	\$200,000 - \$1 Million
Convene thought leaders in region to create plan of action to support K-12 programs.	Within 2-5 years, create a plan to support K-12 educators (specific goals to be determined in Educators Summit).	\$0 - \$200,000
Support and fund existing and new K-12 programs.	Within 5-10 years, see significant progress on plan to support K-12 educators (50% of goals met).	\$0 - \$200,000
Support existing and build new relationships with Independent School Districts, Professional Educator Groups, Resource Developers, etc.	Within 10-plus years, see completion of the plan to support K-12 educators (100% of goals met).	\$200,000 - \$1 Million

POTENTIAL IMPLEMENTERS

Local school districts
Local science teacher associations
Artist Boat
Katy Prairie Conservancy

Bayou Land Conservancy
Bayou Preservation Association
Galveston Bay Foundation
Various Partners

PERFORMANCE MEASURES

1. Database of existing K-12 education programs completed.
2. Educators Summit to identify needs and gaps in K-12 education completed.
3. Plan to support K-12 education (as identified at the Educators Summit) completed.
4. Number of programs delivered through the K-12 education plan.
5. Assessment of K-12 programs and the number of students and educators reached completed.

REFERENCES

GBP'95: PPE-4, PPE-3

SAP Reference: Public Education: Goal 1 / Objective A