CITIZEN ENGAGEMENT FOR IMPROVED WATER QUALITY IN GALVESTON BAY

Charlene Bohanon, Advocacy Team, Galveston Bay Foundation, Webster, TX
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Water quality is not always the most attractive topic in which to engage citizens, but the outreach, volunteer, and advocacy programs that will be presented during this session have shown great success around Galveston Bay. Galveston Bay Foundation has partnered with local organizations, universities, marinas, and municipalities to empower stakeholders to do ‘sexy’ things like reduce sewer overflows and stormwater runoff, eliminate illegal boat sewage discharges, and report pollution events. Program models, results, lessons-learned, and opportunities for improvement will be discussed and participants will be given activities and takeaways from each program that they can implement at their organization upon leaving.

Four topics will be covered, including Galveston Bay Foundation’s Rain Barrel Program, Dockwalker Volunteer Program, Cease the Grease Campaign, and Galveston Bay Action Network mobile app. The session will highlight how these programs have been designed to maximize cost-effectiveness, generate loads of in-kind match, attract sponsorships, and deliver results. For example, through partnerships with Coca-Cola Bottling Company, and corporate and non-profit sponsorships, GBF has now partnered with 11 local organizations to sell-out nine Rain Barrel Workshops per year, which generate tens of thousands of dollars of match, and no longer requires grant funding. The Dockwalker Volunteer Team is increasing the reach of our boater waste education campaign, decreasing staff time in the marinas, and generating data that will aid our request for a federal No Discharge Zone in Galveston Bay. The Cease the Grease Campaign is using united messaging to connect the 27,000 square mile Galveston Bay watershed through active municipal participation and public awareness about fats, oils, and greases causing sanitary sewer overflows. The Galveston Bay Action Network mobile app is connecting citizens with a simple-to-use tool for reporting pollution, which not only maps the report for public use, but also instantly emails the report to the correct authority thanks to increasing buy-in from those authorities to facilitate this communication.

All of these presented projects stem from management measures identified in the Implementation Plan for Eleven Total Maximum Daily Loads for Bacteria in Waters of the Upper Gulf Coast. The goal of this I-Plan is to reduce bacteria concentrations in Upper Gulf Coast waters to levels that meet oyster water standards through adaptive management and implementation strategies.

Join us to gain ideas and strategies to apply to your existing programs or for adopting new programs that maximize your budgets and citizen engagement for improved water quality.
Texas Estuarine Resource Network
Kari Howard Audubon Texas

The Audubon Texas Coastal Program began in 1923, when Audubon established a system of island sanctuaries along the Texas Coast. These island sanctuaries are home to twenty-plus species of colonial waterbirds, several of which are considered endangered or threatened. The majority of waterbirds that nest along the Coast from the Texas-Louisiana border to the Texas Mexico border utilize islands that are Audubon owned or leased. The Texas Estuarine Resource Network or T.E.R.N. is a citizen science program that continues Audubon’s legacy of protecting colonial waterbirds through monitoring surveys to gather valuable data about bird populations in foraging grounds and rookery habitats. The data collected through citizen science programs can be incorporated into management and conservation plans, and influence local, state and federal policy development.

The Texas Estuarine Research Network collects data in two essential habitats: colonial waterbird rookeries and waterbird foraging habitat. Successful rookery islands cannot exist without adequate foraging habitat and foraging habitat quality can have an effect on the production of chicks in nearby rookeries. All information gathered by volunteers is entered and stored in an online database. This online database will be developed for participants to submit their observations as well as access resources required for monitoring and receive updates from the TERN program coordinators. The data collected from this website will be utilized for GIS modeling and an interactive map designed to locate areas of high productivity and areas highly used by waterbirds. The Coastal Conservation Program is utilizing this data to keep an eye on healthy and highly used foraging habitats in relation to rookery locations, diversity of species, and types of habitats most used by these waterbirds. In addition to the Audubon Texas usage, partnering organizations have access to this data with capabilities of filtering the dataset for specific bird species, types of habitat, behaviors, and more.

The TERN program has developed a network of highly trained volunteers comparable to a fleet of graduate technicians, but more enduring and each provide a unique skill set from previous experience. Through this program volunteers are trained on how to identify local species of colonial waterbirds, monitor rookery island and wetland foraging grounds, learn current scientific survey protocols and data collections, and assist researchers with conducting these surveys by boat and by land, much like a graduate student or technician would experience. TERN volunteers are offered free trainings, educational workshops, opportunities to participate in habitat restoration, and learn more about their local wildlife and natural resources along the Texas Coast. Volunteer participation is highly active in areas of education, skill development, and in implementing monitoring activities and bird surveys. In addition to providing value in data and service to the TERN program, many of the volunteers have been utilized to expand the “network” of TERN by participating in many other bird related research projects, patrols, and surveys. Partners of the Coastal Conservation Program have utilized TERN volunteers in activities ranging from monitoring American Oystercatcher nests to picking up monofilament line and trash clean ups throughout the bay system. This provides variety for the volunteer and offers an elite pool of skilled helpers for partners to choose from.
The purpose of water quality outreach is to inform and ultimately cause a change in behaviors that will improve water quality including picking up pet waste, properly disposing of fats, oils and grease, or keeping foreign debris out of storm sewers and wastewater infrastructure. Additionally, public outreach is required in some form for all state- and/or federally-funded grants and is a compliance requirement for Phase I and II stormwater permits. As such, it is often treated as a box to check, with few or difficult to prove metrics associated with evaluating and proving the successes of various outreach activities.

This panel will focus on metrics established and used by three existing outreach campaigns. Three presenters will present the components of their respective campaigns, focusing specifically on metrics proving useful in obtaining additional funding, metrics proving water quality benefits, and/or metrics that were less successful in measuring campaign goals. The goal of this panel is to provide participants an opportunity to explore new and/or successful metrics to use for in future campaigns.

Presenter One will focus on a multi-county/jurisdictional campaign specifically geared towards general water quality outreach and broad behavioral change. “Back the Bay” is an example of this type of campaign.

Presenter Two will focus on a campaign to inform an audience about a specific behavioral change that impacts water quality in a regional program. “Patty Potty” through the San Jacinto River Authority is an example of this type of campaign.

Presenter Three will focus on a targeted campaign to improve water quality within a specific geographic area, such as a single city. The efforts of the City of Pasadena are an example of this type of campaign.

H-GAC staff would moderate the panel discussion and facilitate a question and answer session immediately following the discussion. It is not anticipated that an H-GAC campaign would be featured as a presentation.

Attendees should leave the session with information on how to use quantitative and qualitative metrics to better measure the results of water quality outreach efforts by their organizations.
The Galveston Bay Foundation, utilizing Coastal Management Program grant funds and the in-kind contributions of labor and materials from local city and counties, implemented a Galveston Bay Seafood Advisory Education Campaign. The purpose of the campaign was to educate area fishermen, crabbers, and residents in general about the risks of human consumption of seafood contaminated with toxic substances, in particular subsistence fishermen.

The first phase, conducted from October 2010 to March 2012, emphasized reaching areas of Harris County Precinct 2 and local municipalities contained therein and included the development of a Galveston Bay Foundation webpage; the design, production and installation of seafood advisory signs and brochure holders; and the development of brochures and flyers for distribution to local community groups, schools and the public. Throughout the period, the Galveston Bay Foundation also made presentations to various audiences and exhibited materials at various events.

Based on lessons learned from the first phase, a second phase was conducted from October 2013 to December 2014 and focused solely on placing more signs in areas of Harris County Precinct 2 where gaps in coverage existed as well as moving upstream on the Houston Ship Channel where the worst of the seafood advisories are in place.

This presentation will include lessons learned from the garnering of partners and the development of the campaign to Galveston Bay Foundation’s recommended path forward to educate not only subsistence fishermen, but all Galveston Bay fishermen.
PLACE HOLDER FOR
CITY OF PASADENA’S SUCCESSFUL ENVIRONMENTAL EDUCATION AND AWARENESS PROGRAMS

Luz Locke
Environmental Services
Engineering Department
Pasadena, Texas

The city of Pasadena has engaged in several education and outreach programs for residents and vendors who contract with the city. They city is also a regional leader in the National Flood Insurance’s Community Rating System. Luz Locke would present these programs, how they were developed, how the outreach events/programs are conducted, how they are report, how they successes are measured.
ENVIRONMENTAL STEWARDSHIP AT THE PORT AUTHORITY

Author: Nikki Loya, Environmental Affairs/ Port of Houston Authority
Author: Leah Oberlin, Environmental Affairs/ Port of Houston Authority

The Port of Houston is a 25-mile-long complex of diversified public and private facilities along the Houston Ship Channel. These facilities include over 150 private industrial companies along with the eight public terminals owned, managed and leased by the Port of Houston Authority (PHA or Port Authority). The Port Authority is directly responsible for the environmental management of its eight terminals and 14,000 acres of property located within the greater Port of Houston. The Port Authority strives to be an environmental leader for all industries and terminal operators located along the Houston Ship Channel. PHA is committed to conducting port operations in a manner that protects and preserves the natural environment and promotes the port as a maritime industry leader. PHA would like to use the 10th State of the Bay Symposium as a platform to share with the community PHA’s stewardship efforts, as they relate to habitat protection, spills and dumping, stormwater management efforts, informing and involving bay users in bay protection. PHA’s stewardship efforts include:

- The Port Authority is continually seeking beneficial uses for dredged materials and has successfully begun creation of over 3,300 acres of wetlands in Galveston Bay. PHA cares for the communities near its facilities, and proactively manages environmental conditions at the dredge material placement areas along the channel. The Port Authority pioneered the use of dredge material to create marsh and wildlife habitat. All dredge material, from Port Authority facilities, must undergo a rigorous testing process and be evaluated prior to receiving approval for placement into a Port Authority owned dredged material placement area.

- The design of PHAs Bayport terminal had taken into account the preservation of more than 450 acres of wetlands, forested uplands, open-water habitat, and coastal prairie along the lower part of the San Jacinto River. This terminal has an extensive terminal storm water collection system to protect Galveston Bay. The storm water system is designed to collect all rainwater runoff to reduce potential material from the terminal grounds before it ever reaches the bay.

- PHA is one of the only ports in the country to audit tenant compliance with local, state, and federal environmental requirements. The auditing program also provides environmental compliance and stewardship advice and assistance to tenants who are out of compliance.

- PHA’s Educational Outreach and community participation efforts include but are not limited to participation in the Bayou Preservation Association, Buffalo Bayou Partnership, Bayou Land Conservancy, and educational displays for students at the Centennial Family Festival at the Bayport Cruise Terminal, Port Family Day, Bay Day, and Earth Day.

In striving to be the recognized maritime industry leader in environmental stewardship, PHA has a commitment for environmental restoration activities in the Galveston Bay and keeps the protection of the Bay as a high priority item in all business decisions, best management practices and programs, mitigation efforts and by communicating all these activities to stakeholders.
Plastic Pollution Prevention Partnership  
Stennie Meadours, Houston Audubon, Houston/Galveston, Texas  
Amanda Hackney, Audubon Texas, Texas City, Texas  
Kari Howard, Audubon Texas, Texas City, Texas

Marine debris and plastic pollution is one of the greatest threats to our environment and wildlife yet the simplistic nature of this problem holds the greatest potential for immediate solutions and measurable results. These threats occur worldwide, and are, also, apparent along the recreational shorelines of Galveston Bay. The impacts and prevention of non-point source pollution generated by high human recreational use along the shorelines of Galveston Bay is the focus of this presentation.

On Galveston Island in December 2014, 124 juvenile brown pelicans were found sick, injured, entangled, and distressed as a direct result of plastic pollution and discarded monofilament line. These 124 pelicans were successfully rehabilitated and released by the Wildlife Center of Texas, and countless others did not survive their injuries. Similarly a juvenile American Oystercatcher was found unable to fly near a nesting site in Galveston Bay and was taken to a wildlife rehabber. The bird died the next day. The determined cause of death was ingestion of monofilament. In another situation, well meaning beach goers chased windblown trash into a colony of beach nesting birds, dramatically disturbing incubation, and increasing the chance of predation.

In response to these incidents, the Plastic Pollution Prevention Partnership (Partnership) was formed among several Houston and Galveston based non-profit organizations and government agencies. At the time of this submittal, Partnership additional joining organizations include; Galveston Bay Estuary Program, Environmental Protection Agency, Galveston Bay Foundation, Galveston Bay Area Chapter-Texas Master Naturalist, Turtle Island Restoration Network and Trash Fee Waters. The Partnership is addressing non-point source pollutants that impact wildlife and water quality, particularly, plastic litter and monofilament found on the shores of Galveston Bay. The Partnership seeks to collaborate and coordinate internal resources and volunteers to enhance our collective response to shoreline non-point source litter, much like an incident command center in the case of an oil or chemical spill. In addition, the Partnership is broadening existing efforts from the reaction to pollution already on the ground to preventing pollution through changing minds and attitudes about litter and trash through both education and action. As one of the largest cities complexes in Texas, Houston/Galveston and surrounding cities has an urgent need for education, outreach, and stewardship opportunities based on the high population and the close proximity to our many waterways, rivers, bayous, creeks, drainage ditches, Galveston/Trinity Bay and the Gulf of Mexico.

The Partnership presentation will outline a plastic pollution response plan where each organization fills a niche or particular focus that contributes to the common goals of education, and containment. In addition, the presentation will identify measures the Partnership has taken. Some of these measures include; existing programs that are being more fully utilized to expand non-point source pollution prevention to new areas. Others include, convenient methods of reporting plastic pollution shoreline “drop” spots, fish kills, spills, or other environmental hazards; deploying, monitoring, and updating monofilament recycling bins at popular fishing spots; organizing more frequent strategically based area litter clean-ups of specific beaches, bays, and bayous; and working with a number of site managers to provide educational signage at high use areas to inform the public of the impact plastic pollution and monofilament line on wildlife. Finally, the actions and future plans of the Partnership will be reported.
REDUCING HUMAN DISTURBANCE OF BEACH-NESTING BIRDS ON THE TEXAS COAST USING TARGETED OUTREACH

Kacy Ray - American Bird Conservancy
David Newstead – Coastal Bend Bays and Estuaries Program
Susan Heath – Gulf Coast Bird Observatory

From 2012 to 2014, American Bird Conservancy (ABC) and its partners launched a public awareness campaign about beach- and island-nesting birds along the Texas coast during the breeding season. A public service announcement (PSA) targeting recreational boaters, fishermen, and beach visitors to raise awareness about beach- and island-nesting birds was filmed (in year 1) and placed in Texas television and internet markets in the greater Houston area, San Antonio, and Corpus Christi. We also utilized print and Smart Phone advertising to distribute the messaging. The 30-second PSA features Gary P Nunn, the Music Ambassador of Texas, who asks boaters to “Fish, Swim, and Play from 50 yards away…’” from nesting birds on islands and beaches, so as to not disturb them or put young at risk of overheating, depredation, and death.

To gain insight into the public’s general awareness and attitudes about beach- and island-nesting birds and to determine the level of market saturation of the PSA, Coastal Bend Bays and Estuaries Program (CBBEP) and Gulf Coast Bird Observatory (GCBO) provided volunteer and staff resources to conduct educational evaluative surveys. Surveys were conducted at boat ramps and marinas along the central and upper coasts of Texas. Houston Audubon also provided support during the campaign, by conducting similar surveys on the beaches of Bolivar Flats and the Texas City dike north of Galveston.

In 2012 we conducted 103 surveys representing 220 people, in 2013 we administered 148 surveys reaching 238 people, and in 2014 we carried out 169 surveys that equated to 258 respondents. Over the three years, we observed an increase in the number of people who said that large groups of birds (10 to 100 or more) influenced the distance at which they anchored their boats and/or recreated from the group (2012=54%, 2013=78%, 2014=82%). Most people were aware of regulations protecting birds (52-57% of respondents) and very few had experienced territorial or mobbing behavior indicative of avian behavior in response to being disturbed (by predators or people). Boaters along the upper Texas coast were asked what they would do if they saw signs around an island that indicated a cautious approach or discouraged close anchoring (less than 30-50 yards) to islands with nesting birds. The most common answer in all 3 years was that the boaters would go elsewhere. We asked people at what distance they thought was suitable to recreate at from groups of nesting birds. We saw a decrease in responses of “> 50 yards from shore” over the three years, and most people indicated “within 30 yards of shore” or “as close as possible without disturbing the birds.”

Further education and targeted outreach is needed for coastal recreationists to influence behavior change and reduce disturbance to nesting birds on islands and beaches. Additional market research conducted by professional firms would address potential biases in survey responses and assist in developing new effective messaging. This campaign and other similar ones has spurred the Texas Coastal Wildlife Outreach Program (TCWOP), a large consortium of partners including US Fish and Wildlife Service and Texas Parks and Wildlife Department, that are working to develop programming and strategies to address recreational disturbances.
and to implement new technologies and messaging that will effectively reach people before they reach the coast.

1. Kacy Ray, Gulf Conservation Program Manager, American Bird Conservancy, 267 E Constance Rd, Debary, FL 32713; kray@abcbirds.org; 614.218.8838
2. Oral presentation, panel session with Houston Audubon bird conservation topics
3. Species Protection
Students participated Eco-Art Workshops and Eco-Art Kayak Adventures. Eco-Art Workshops (80 two-hour sessions in class) were two-hour, in-class sessions using a hands-on watershed model to demonstrate human impacts on estuaries and plein-air water coloring to teach students about the flora/fauna of the ecosystem. Eco-Art Kayak Adventures (80 four-hour adventures) were four-hour field labs at the Galveston Island State Park (Galveston Bay), The Nature Conservancy-Cohn Preserve and Lighthouse Lakes (Corpus Christi Bay), and the Galveston Island State Park (GISD). Kayak adventures provided a feet-in opportunity for participants to learn about the current status of the source of freshwater input water quality and quantity to the estuaries (quality and quantity); water quality testing; marsh restoration and; natural marshes and interpretation of their observations using plein-air water coloring.

The goal of WaterIQWet was that participants learn about water quality issues along Texas coasts and will change their attitude and behaviors for the benefit of estuarine health. To evaluate this goal, we used student pre and post surveys, student blogging, and teacher evaluations. We then calculated the change in student knowledge and stewardship behaviors/attitudes between the surveys. Similarly, we monitored the blog for vocabulary and stewardship behaviors/attitudes. We calculated the average of the teacher evaluation, which served as an additional assessment of the quality of the WaterIQWet program.

WaterIQWet was structured around the “An Ocean-Oriented Approach to Teaching Science Standards Ocean Literacy the Essential Principles of Ocean Sciences K-12.” This is a nationally accepted format for promoting ocean literacy in schools. This program meets the nationally recognized standards of NOAA Bay and Watershed Education Training Meaningful Watershed Education by including a preparation phase via the in-class Eco-Art Workshops for students and the Coastal Waters Institute for teachers; an experiential outdoor studies component via the Eco-Art Adventures via a kayak; and each component of the program includes a reflection phase via creation of watercolors in the habitats and the production of mini blogs by students.
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Presentation type: We would prefer an oral presentation.

Topical areas: Public participation and Education, nonpoint source pollution, freshwater inflow and circulation
Media Partnerships for Public Awareness and Education Campaigns

John Rizzuti, Senior Account Executive KPRC-TV

Placeholder for presentation on engaging media as a partner for a public awareness and education campaign. The planning, stakeholder involvement and successes of the Back the Bay and Cease the Grease campaign.

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PARNTERING WITH COLLEGES TO PROMOTE THE SUSTAINABLE INVOLVEMENT OF CITIZENS IN ENVIRONMENTAL MONITORING FOR THE HOUSTON-GALVESTON AREA

Author

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Abstract

College, government, and corporate scientists have many opportunities to partner with NGOs by serving on advisory boards and partner directly with citizens by collaborating through programs such as Citizen Science programs, On-Call Scientists, Science Buddies, and Volunteer Science. A model program is being developed at Lone Star College System to connect science faculty and students with NGOs and citizen groups to assist with environmental quality monitoring locally and globally. This model branched off from international service learning projects in Colombia, Honduras, and the Philippines in which faculty and students helped impoverished communities sustainably monitor and remediate water resources.

The first stage of the current project resulted in an inexpensive and portable method for citizens to presumptively detect harmful levels of coliform endotoxins in waterways. Students designed this project to correspond with the Houston-Galveston Area Council’s Clean Waters Initiative. The test mimics a very sensitive endotoxin test called the limulus amoebocyte lysate test. A second project is in development and was funded by a grant to purchase a mass-spectroscopy unit. College students and faculty in this project will provide presumptive water quality analyses for citizen clients interested in investigating the presence
of organic molecule pollutants in their waterways.

Participants in this session will learn how to search for programs that connect volunteer scientists with the community. Strategies for developing stakeholder-centered projects will also be described. Citizen-based projects can include advocacy training, public education approaches, and the development of sustainable environmental quality monitoring programs. So far, the completed projects have proven successful based on citizen surveys and have been disseminated in peer reviewed and at invited-speaker conferences.

Format

Oral presentation. A poster session can be done if the oral presentation is not selected.

Symposium Topics Areas Covered

**Public Participation and Education** – assessment of public attitudes towards environmental protection; involving citizens and volunteers in estuary and watershed protection; implementing adult education and outreach; involving local government in estuary protection; developing and implementing student estuary curricula; informing and involving bay user groups (business, industry, agriculture; commercial/recreational fishing, boaters/marinas; ecotourism interests, etc.) in bay protection; measuring the effectiveness of outreach and education efforts.

**Monitoring and Research** – unique or emerging technologies or methods to assess ecosystem function; developing environmental and programmatic indicators.

Abstracts must be received in electronic format at the Estuary Program no later than May 15, 2015 via e-mail. Abstracts will be reviewed by a symposium committee, which will try to accommodate the authors’ desire for an oral or poster presentation, or panel session. You will be notified if your presentation or session has been accepted for inclusion in the symposium by July 10, 2015. At that time, further information will be provided about event registration and submittal of biographical sketches, presentation slides and full papers.
Contact Information

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The reaction of the public can be the wildcard for many projects. The Houston-Galveston Area Council, through a recent regional planning effort, developed a toolbox to facilitate successful community engagement, participation and education: the Community Ambassador Toolbox.

Community Ambassadors are community members engaged in community outreach who would like to more actively participate. This presentation will highlight outreach challenges and train attendees to effectively utilize the Community Ambassador Toolbox for water quality projects.

Topics covered include:

**Organize Your Way to Success:** Participants can achieve community goals one project at a time with this step-by-step review on how to organize before the efforts get started. (Presentation)

**No Need to be Fearful:** Participants will be given facilitation tips to aid in participation when encountering challenging or adversarial community members during public gatherings. (Presentation/Discussion)

**Activities That Get People Talking:** Participants will be introduced to and participate in activities that get people to talk but also reap rewards in communication with you and others in their community. (Presentation/Activity)

**Toolbox for Getting Started:** Participants will be introduced to and take home a toolbox equipped with traditional and out-of-the-box ideas for entities and organizations to use when engaging the community. During this segment participants will be presented with pros and cons of each element and participate in a real-time discussion. (Discussion/Participating)

H-GAC staff will lead the presentation and guide the participants in an interactive exploration of the toolbox.

Attendees will leave the session with confidence to take the toolbox home and use the community resources, tools and network-building elements for greater support in future projects in water quality and beyond.