

Implementation and Improvement of the Texas Coastal Nonpoint Source Pollution Program



NOAA Coastal Management Fellow Proposal, 2020 – 2022

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A handwritten signature in blue ink that reads "Melissa Porter".

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Implementation and Improvement of the Texas Coastal Nonpoint Source Pollution Program

Background and introduction

Texas, the largest continental state by size, has 367 miles of diverse coastline that offers broad value to coastal organisms through pristine habitat, citizens through public access and recreation opportunities, and industry through abundant natural resources. Texas values the public's right to access beach areas for recreation and relaxation, and law mandates that the public has the free and unrestricted right to access Texas beaches. Given that Texas beaches are easy to access, tens of millions of people visit Texas coastal areas every year.

The population of Texas has been booming over the past decade. Texas, the second-most populous state, currently leads the nation in population growth, adding almost 400,000 people in 2018, a 1.3% increase to a state with an estimated population of ~29 million people. This increase in population has helped stimulate the economy of Texas but, at the same time, has put more pressure and stress on coastal water bodies. Development along the Texas coast is increasing, with coastal habitat acreage lost to agriculture and development. Increasing population and use of coastal resources and associated infrastructure development change land-use and expands impervious surface cover which impacts stormwater runoff and water quality in bay systems. These factors have cumulative effects on coastal resources and the coast's ability to adapt and respond to changing conditions, threatening the health of ecosystems, protective properties, and other ecosystem services and the local economies based on these services. Ultimately, reduced freshwater inflows and a deterioration in water quality lead to negative impacts on coastal habitat and inhibits the public's ability to access and enjoy coastal areas, hurting coastal economies.

The Texas Coastal Management Program (CMP), through the Texas General Land Office, is one agency tasked with responding to various coastal issues and creating policy to maintain a resilient coastline. One of the main goals of the CMP over the past 5 years has been to develop a strategy to create and implement a coastal nonpoint source (NPS) pollution program in accordance with Section 617 of the Coastal Zone Management Act. For Texas, implementation of the NPS program has been a long time coming. In December 1998, Texas submitted its Coastal NPS Program to NOAA and the EPA, and in July 2003, the plan was conditionally approved with seven outstanding conditions. The outstanding conditions have since been addressed, and as of August 23, 2019, the final seven management measures are still under review by NOAA and EPA but are expected to be approved soon. Program implementation is under development, partner collaboration with various agencies and NGOs is occurring, and supplemental funding is being applied for. Once EPA and NOAA approve of the State's approach to enhancing the management of NPS in the coastal zone boundary, then it will be formalized by Texas and implemented by networked agencies.

The implementation process of the Texas coastal NPS program provides a unique opportunity for a NOAA Coastal Management Fellow to learn how to communicate data to project stakeholders, engage in public outreach with local communities and planners, and participate in coastal program planning and management. The fellow will work with a motivated, energized team and will build skills to develop a career in the coastal management field.

Goals and Objectives

We are proposing a project in which a fellow would play a major role in the implementation and improvement of the Texas coastal NPS pollution program. This project would have four specific objectives with associated goals and deliverables:

- Objective 1:* Synthesize and communicate coastal water quality data to appropriate stakeholders
- Goal 1:* Produce 9 county-specific report cards for beach water quality

- Objective 2:* Increase public awareness and engagement in local water quality management
- Goal 2:* Encourage 3 to 5 local municipalities to adopt new water quality ordinances

- Objective 3:* Improve efficiencies within the Texas NPS program to optimize water quality sampling and develop new policies to target coastal NPS issues
- Goal 3:* Produce a report that is adopted by the GLO that changes water quality sampling locations and protocols to optimize future management

- Objective 4:* Increase Fellow's awareness of coastal management issues, policies, and solutions as it relates to water quality and other pressing issues
- Goal 4:* Fellow leaves the fellowship after 2 years primed with the skillset and drive to pursue a career in coastal management

Project Description

In July 2019, the Texas General Land Office (GLO) submitted its final coastal nonpoint source (NPS) pollution program plan (Plan) to NOAA and the EPA. Since submission, the Plan has received positive feedback and is expected to be approved in short order. This effort was a collaboration between the Coastal Management Program (CMP) and Water Resources Program within the Coastal Resources division of the GLO as well as the Texas Council on Environmental Quality. Even though approval of the NPS plan is a huge achievement 20 years in the making, the work of the CMP does not stop with approval. Going forward, the coastal NPS program has a 15-year implementation plan to bring coastal areas and communities in compliance with new policies and improve water quality so that all Texans can enjoy the coast. The first 3 years of implementation are critical for setting the tone of the program moving forward. We envision a fellow playing a crucial and prominent role during this timeframe and would propel the program forward. The proposed project is broken down into 3 tasks in which a fellow would be responsible for ensuring that data is communicated properly and clearly, the appropriate communities and members of the public are engaged, and that internal planning within the NPS program is appropriate to achieve the program's specified goals.

TASK 1 – Data Communication

Water quality data along the Texas coast has been collected for decades, yet little effort has been made to synthesize this data and create an overall water health report along the coast. Water quality data is currently being collected as a part of the Texas Beach Watch Program (Fig. 1; <https://cgis.glo.texas.gov/Beachwatch/>). The goal of the Texas Beach Watch program is to provide the public with information about water quality at selected recreational beaches along the Texas coast. The program monitors these Texas' recreational beaches, and when Enterococcus bacteria levels in the

water exceed the acceptable standards established by the EPA, the GLO works with local governments to issue advisories warning the public not to swim in affected waters.

Beginning in September 2019, the GLO will dive deep into the historical data at every Beach Watch site. This data analysis is expected to wrap up around October 2020. This would be perfect timing for a fellow to come in, once the data analysis is complete, and create various data communication products for external stakeholders. One product envisioned being created from this data is a “report card” for all 9 counties within the Beach Watch program. Report cards are great communication tools because they can take often complicated data and patterns and transform the information into an easy-to-understand product. These historical report cards will be great outreach tools to make communities aware of local water quality problems and start them on the path towards better water management planning.

For this task, a fellow would manage the data communication project, create public outreach materials, and engage with the public with the created materials. Travel for the fellow to engage with the public (either through stakeholder workshops, regional meetings, or one-on-one meetings) will be paid for by the CMP.

Milestones and Outcomes

- Data Synthesis complete – October 2020
 - Once synthesis is complete, the fellow can begin to compile results and determine the best ways to disseminate to the public. An October start date will allow the fellow a few months to become familiar with the program before starting this task
- Report Card Complete – 1 year
 - 1 year would allow the fellow time to develop the communication materials and engage with county stakeholders to determine the best format for distribution
- Public Engagement period – Oct 2021 to End of fellowship
 - Travel to and engage with local planners and policymakers to make them aware of issues in their community

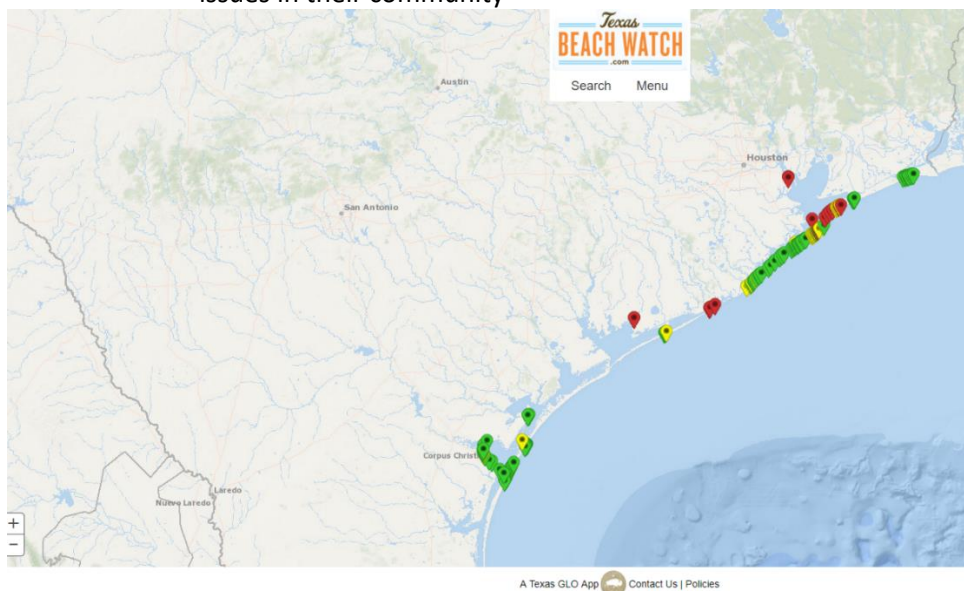


Figure 1. Screenshot of the Texas Beach Watch Online Tool. Each site is sampled and given a color code based on contamination level. <https://cgis.glo.texas.gov/Beachwatch/>

TASK 2 – Public Outreach

After the Texas Coastal NPS program is approved, the GLO will need to begin a large-scale public outreach campaign to get communities invested into implementation over the next 15 years. This will involve developing a suite of communication materials based on program management measures, Sustainable Stormwater Drainage on the Texas Coast manual, website, and initiatives approved by EPA and NOAA.

Another important component of coastal NPS implementation is getting local coastal communities to improve planning ordinances that reduce practices that cause impaired water quality. Working with local communities is important because real, substantial change related to water pollution issues is more likely to happen if ordinances and policies are implemented at the local scale. Local, personal engagement with leaders and planners will be a pivotal part in ensuring this task is successful.

For this task, the fellow will work with a team and help to create regional communication materials that will help the reader improve understanding of how various green infrastructure/low impact development techniques coupled with planning can enhance NPS pollution management and community resiliency. The fellow will also host a series of public engagement workshops along the coast presenting ideas for ordinances local communities can adopt to comply with the coastal NPS program.

Milestones and Outcomes

- Create public communication materials – Year 1
- Host 5 public engagement workshops along the coast – Year 2
 - Outcomes – Stormwater Drainage Manual adoption; ordinance adoption and/or revision; or community engagement is occurring, which will lead to enhanced planning efforts

TASK 3 – Program Planning

With the implementation of the coastal NPS program, there is a need for a reassessment of program activities that the Water Resources Program has been conducting up to this point in order to improve the program and coordinate activities within the GLO moving forward.

Task 3.1. Coverage of Texas Beach Water monitoring sites is tightly grouped in some areas but completely missing from others (Fig. 1). A monitoring site optimization assessment is needed to determine if there is a better way to prioritize or relocate water sampling efforts. A data-driven approach to optimize Beach Watch site locations would improve implementation efforts going forward. Through this process, the fellow will also gain experience in managing and administering a statewide regulatory project.

Milestones and Outcomes

- Determine where to add/reduce Beach Watch monitoring stations – 6 months

Task 3.2. A major component of this overall project (Tasks 1&2) will be to engage with local communities and stakeholders in order to achieve the adoption of coastal NPS policies. There are many ways to go about engaging communities to achieve results, but the optimal strategy is not clear. Throughout the 2-year project, the fellow will document their successes and failures on how different engagement strategies results in manual adoption, ordinance changes, best management practices implementation,

etc. The fellow will help the Water Resources Program to develop a strategy document that will ultimately be adopted by the GLO to achieve all goals set out in the 15-year implementation plan.

Milestones and Outcomes

- GLO adoption of assessment document for engaging communities – End of fellowship
- Develop project management and program administrative skills – ongoing for 2 years

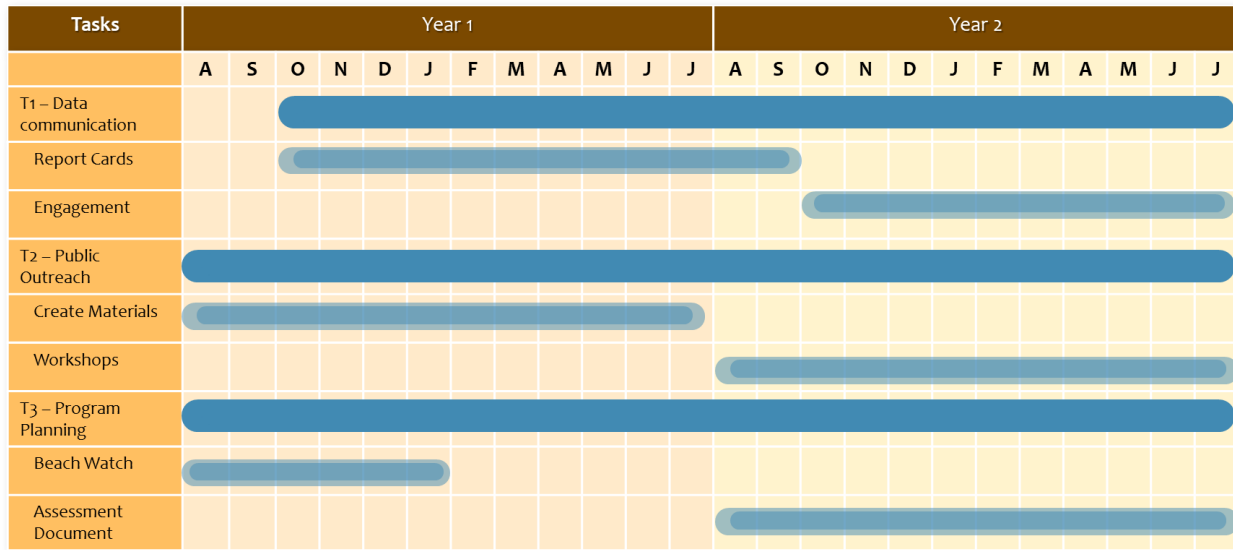


Figure 2. Tasks and associated timelines for the proposed project. *Note: this figure is only an approximation of activities for the fellow. Activities may overlap or adapt as the fellowship progresses*

Fellow Mentoring

Having a fellow in the Texas CMP office would be a great learning opportunity not only for the fellow but also for the office. The fellow would be able to provide a new perspective on program activities and help direct the future of the water quality program. At the same time, office staff will acknowledge that this fellowship will also be a learning experience for the fellow to develop the skills and tools he or she will need to have a successful career in coastal management.

The fellow will be housed at the GLO Austin Headquarters in the Coastal Resources division. The fellow will share an office space with 30+ coastal resource managers working on a variety of issues including coastal management, oil spill response and prevention, beach access and dune protection, and water quality. The fellow will have the opportunity to interact with this diverse workforce and gain insights to help them plan their future career.

The fellow will be directly mentored by Ben Wilson, a Coastal Planner in the Texas Coastal Management Program and former science policy fellow with the National Academy of Sciences. Dr. Wilson’s experience as a former fellow will provide a unique mentoring experience that will ensure that the fellow is maximizing their time in the office to gain as many on-the-job skills and knowledge to be successful post-fellowship.

At the beginning of the fellowship, the fellow and Dr. Wilson will discuss the goals, skills, and professional development that the fellow wants to achieve during their fellowship and map out a plan to

Texas Proposal for 2020-2022 NOAA Coastal Management Fellowship

get there. Quarterly check-ins of this plan will ensure that the fellow is staying on track. Dr. Wilson will provide day-to-day supervision and will be available to answer any questions that arise, but he will also allow the fellow to operate with autonomy. The fellow will have their own office space and equipment directly next to Dr. Wilson and will be an integral part of the team. They will be treated as another member of the staff and not as an intern. As so, the fellow will be a part of and be expected to contribute to weekly staff meetings.

The fellow will also have open access to Jason Pinchback, the GLO's Water Resources Program Manager, and Lucy Flores, The Texas Beach Watch Project Manager, both of whom manage the Coastal NPS, Texas Beach Watch, and Texas Coastal Ocean Observation Network (TCOON) programs. They will be able to provide high-level guidance and answer any questions the fellow may have as they are progressing through their project.

Along with the designated project in this proposal, the fellow will be allowed and encouraged to participate in other CMP activities depending on his or her own background and interests and available time. These other activities include, but are not limited to: grant reviewing, project management and coordination, and resource management planning. We will strive to ensure that the work the fellow is performing aligns with the goals and skills the fellow wants to achieve during the two years in this position.

Professional development and on-the-job education are a key component of this fellowship as many applicants have no experience outside of academia. Working with the Texas CMP is an opportune way to learn how a state resource management agency operates. As stated above, the fellow will be expected to develop a professional development plan that will include the skills and goals they want to get out of their fellowship experience. This will be a living, fluid document that the fellow and mentor will routinely consult and adjust as new opportunities come up to make sure the fellow is maximizing their fellowship experience and setting themselves up for their ideal career. The fellow will be encouraged to attend local, state-agency based training events. Any travel related to project activities listed in this proposal will be paid for by the CMP.

Project Partners

The Water Resources Program operates coastwide and utilizes partnerships and collaboration to accomplish its mission. The Program worked closely with the Texas Council on Environmental Quality (TCEQ) to finalize the coastal NPS program documents submitted to NOAA and the EPA and will continue to work closely with TCEQ during the implementation phase.

The program also currently works with: EPA, NOAA, Texas Parks and Wildlife (TPWD), Texas State Soil and Water Conservation Board (TSSWCB), Texas Railroad Commission (RRC), Texas Department of Transportation (TXDOT), Texas Community Watershed Partners/AgrLife, Texas Sea Grant, National Wildlife Federation, Harris County, Galveston County, Brazoria County, Matagorda County, Nueces County, San Patricio County, Cameron County, Texas State University, Texas A&M Corpus Christi, Texas A&M College Station, Texas A&M Galveston, and numerous municipalities. These partners will all be available to provide guidance, information, and research support to the NOAA Fellow. The fellow will have ample opportunities to engage and work with GLO partners in order to achieve results.

Cost Share Description

The Texas CMP has invested heavily in the development of the coastal NPS program. The NPS program was one of the CMP's core strategies in the 2016-2020 Assessment & Strategies report, with ~\$600,000 allocated for five cycles. Currently, the NPS program has \$324,400 allocated for the 2019-2023 period, a portion of which will be used by the fellow to conduct all the tasks lined out in the project description, including travel.

The Texas GLO headquarters in downtown Austin is easily accessible by public transportation and provides excellent resources for GLO staff to complete their jobs easily. The fellow will be given their own large cubical space equipped with a desktop computer with dual monitors, an adjustable standing desk, a normal desk with built-in filing cabinet, and a separate, larger filing cabinet. The office is well stocked with binders, notebook, pens, and other supplies. The GLO will supply the fellow with the necessary tools and support to successfully carry out the project. Ben Wilson, Jason Pinchback, and Lucy Flores will generously donate some of their time for training the fellow on office policies, project details, and professional development. For creating communication materials, the fellow will have access to Microsoft and Adobe products. For any data analysis, Microsoft Excel, ArcGIS, and various statistical programs are available.

The \$15,000 nonfederal fellowship match will come from the Texas share of the Gulf of Mexico Energy Security Act (GOMESA) funding. The GLO is a recipient of the state's GOMESA funds (\$46 million in 2019) and allocates 3% of this funding towards administration and planning. \$7,500 of the 2020 and 2021 GOMESA administration allocation will go towards the required nonfederal match.

Strategic Focus Area

This proposed project around the implementation of the Texas coastal nonpoint source pollution program would help support two of NOAA's Strategic Focus Areas, including:

Healthy Coastal Ecosystems

- *Build innovative natural and social science research capacity, products, and applications that reflect user-driven science, and synthesize, visualize, communicate, and transfer research results to strengthen policies and decisions, and effectively manage coastal and ocean resources.*
- *Support coastal and ocean resource managers through cooperative funding, data, information, tools, training, technical assistance, analysis, and exchange of best practices to strengthen ecosystem policies, build capacity, and implement prioritized management efforts.*
- *Develop and support coastal observing networks and provide integrated data, tools, and information to decision makers for understanding, visualizing, and communicating the state of the nation's coastal and ocean natural resources, including thresholds at which ecosystem values and the services provided become reduced or lost.*

Water quality issues plague the Texas coast, and this project will help resource managers by providing them with data, communication materials, and best practice policies to reduce pollution. Specifically, the fellow will improve the Beach Watch coastal observing network through a detailed data analysis that will strengthen the tool for end-users. The fellow will then communicate this water quality data and tool availability to local, statewide, and national audiences.

Vibrant and Sustainable Coastal Economies

- *Assist coastal decision makers in conserving active and passive recreational uses and in preparing for existing and emerging coastal and ocean uses by providing socioeconomic data, information, visualizations, technical assistance, funding, and tools.*
- *Build capacity of coastal states and communities to foster ecologically sustainable economic development and activities.*
- *Understand, quantify, visualize, and communicate ecosystem services of key natural areas along the coasts to inform decision-making.*

The project will engage and encourage local governments to alter ordinances to better serve NPS program goals and local flooding problems. Tackling water quality issues from the root of the problem will improve coastal recreational opportunities and foster ecologically sustainable economic development.