

GULF RESEARCH PROGRAM

Project Title: Magnolia Bayou: A Catalyst for Change in Downtown Bay St. Louis, Mississippi

Award Amount: \$98,080

Awardee: Mississippi State University, Gulf Coast Community Design Studio

Award Start Date: 10/01/18

Award End Date: 09/30/19

NAS Grant ID: 2000009809

Project Director: David Perkes

Affiliation: Mississippi State University, Gulf Coast Community Design Studio

Project Key Personnel:

- Kelsey Johnson, Gulf Coast Community Design Studio
- Elizabeth Englebretson, Gulf Coast Community Design Studio
- Allison Anderson, Unabridged Architecture
- Steve Barney, Bay St. Louis Community Arts Center

I. PROJECT SUMMARY (from proposal)

The proposed project will expand a summer program designed and implemented by the Gulf Coast Community Design Studio in 2017. The pilot program was funded through the NOAA 21ST CCLC Watershed STEM Education Partnership Grant and helped connect teens at the Hancock County Unit of the Boys and Girls Club to their local Magnolia Bayou watershed. Magnolia Bayou is an important coastal stream that flows into the Bay of St. Louis. The watershed itself is around 800 acres, includes much of downtown Bay St. Louis, and is seeing an influx of new development. Over the course of the summer, students learned about the effects of stormwater runoff on the watershed and water quality in the Bayou in a series of multi-disciplinary workshops and field experiences. During the last couple of weeks of the program, students worked with artists to translate their scientific data and what they had learned into a multi-media art exhibition and documentary that was used as a community outreach tool. The program also brought to light opportunities where the City's ordinances and local practices around low impact development can be strengthened to improve and protect this important urban ecosystem. Additional funding would allow partners to further develop the program to engage students at Bay-Waveland High School and those involved in the afterschool program at the Boys and Girls Club. The second part of the program would challenge students to engage City leadership and explore ways the community can address threats to the Bayou through policy and action.

II. PROJECT SUMMARY (from final report)

The project used Magnolia Bayou Watershed as a backdrop for a multi-disciplinary learning experience for students that was rooted in real-world challenges and opportunities. Magnolia Bayou is an important coastal stream that flows into the Bay of St. Louis - a vital waterbody in the Mississippi Gulf Coast Region. The EPA has ranked the Bay of St. Louis as the second most impaired waterbody in the State of Mississippi. A Conservation Action Plan was completed in 2016 for Magnolia Bayou Watershed by The

Nature Conservancy as part of the Coastal Streams and Habitat Initiative. The assessment identified streamside development, stormwater runoff, and degraded riparian areas key threats to the watershed. The top recommended conservation strategy was community outreach and engagement. Based on this, GCCDS has been working with students, community members and local leadership in Magnolia Bayou Watershed since 2017.

Under this funding opportunity, GCCDS worked with 8th graders at Bay Waveland Middle School and students enrolled in after-school and summer programming at the Hancock County Unit of the Boys and Girls Club. Programming focused on stormwater management, watershed dynamics and Low Impact Development strategies. A central part of the work was to engage with Bay St. Louis City leadership both to lay the groundwork for policy change related to the City's stormwater management and to help students gain confidence in interacting in the civic arena. A highlight of the work with the after-school program was developing and implementing a stormwater mitigation and native planting project at MLK Park nearby.

III. PROJECT RESULTS

Accomplishments

The project used Magnolia Bayou and Magnolia Bayou Watershed as a backdrop for a multi-disciplinary learning experience rooted in real-world challenges and opportunities for K-12 students at the Boys and Girls Club and 8th grade students at Bay Waveland Middle School. Magnolia Bayou is an important coastal stream that flows into the Bay of St. Louis - a vital waterbody in the Mississippi Gulf Coast Region with designated uses of shellfish harvesting and primary contact recreation. The Environmental Protection Agency ranked the Bay of St. Louis as the second most impaired waterbody in the State of Mississippi's 303(d) list for 1996. A Total Maximum Daily Load (TMDL) for fecal coliform was subsequently developed and approved by the Mississippi Department of Environmental Quality in 2001.

The Magnolia Bayou Watershed is around 800 acres and includes much of downtown Bay St. Louis. Downtown Bay St. Louis is a flourishing arts community that is seeing an influx of new development. The momentum around the development is both invigorating and worrisome, given the proximity to important and already impaired waterways and waterbodies. A Conservation Action Plan was completed in September 2016 for Magnolia Bayou Watershed by The Nature Conservancy as part of the Coastal Streams and Habitat Initiative. The assessment identified streamside development, stormwater runoff, degraded riparian areas and invasive species as key threats to the watershed. The number one recommended conservation strategy was community outreach and engagement. Based on this recommendation, GCCDS applied for and received funding through the National Oceanic and Atmospheric Administration's 21st Century Community Learning Center Watershed STEM Education Partnership Grant to design and implement a summer program in 2017 focusing on Magnolia Bayou. The pilot program helped connect teens at the Hancock County Unit of the Boys and Girls Club to their local waterway and other professionals working in Magnolia Bayou Watershed. At the conclusion of this program it was clear that more outreach and education was needed. Target audiences included students at the Hancock County Unit of the Boys and Girls Club and middle school-age students at Bay Waveland Middle School, adjacent to Magnolia Bayou. Efforts were then made to connect student learning and experience with community members, local leadership and elected officials.

Significant results included:

- 1) Direct education to over 200 students; and
- 2) Extended outreach through take-home handouts, press coverage, a community event at MLK Park, and a booth at the 2019 Celebrate the Gulf event in Pass Christian.

Over 5,800 people were in attendance at the Celebrate the Gulf Event and the Magnolia Bayou Watershed booth gave out over 200 handouts on the project.

Twenty-eight volunteers attended the community planting day at MLK Park and the educational gardens; the signage installed at the site will continue to raise awareness among residents and visitors.

Implications

As a result of the work the lead science teacher, Bay Waveland Middle School was able to secure over \$30,000 in funding from the Blue Cross & Blue Shield of Mississippi Foundation for an education and wellness garden at the school that will include a stormwater/watershed education component. She has also continued to utilize curriculum and materials from the program with her current students and intends to take students out to test water quality again this academic year.

GCCDS has also applied for over \$80,000 in funding from NOAA's Gulf of Mexico Bay - Watershed Education and Training (B-WET) Program to continue education, outreach and monitoring in the watershed. Results have been and will continue to be shared with local leadership and elected officials to raise awareness of what they can do from a policy perspective to increase best management practices in the watershed and improve the health of the Bayou, Bay of St Louis, etc.

Finally, investment in MLK Park has spurred a domino effect of additional private interest and investment in the park. Countless volunteers have stepped up to water the gardens during periods of drought, clean and paint restroom facilities, and purchase and install new swings at the playground since the Community Planting Day orchestrated in September as part of this project.

Unexpected Results

We did not anticipate the additional funding secured by the school as a result of the project nor the level of private investment in MLK Park.

Project Relevance

The following audiences would be most interested in the results of this project:

- Educators
- Local Government Officials

Project results demonstrate how tying classroom and extra-curricular learning to timely, local challenges and opportunities not only has a dramatic impact on the students' learning experience, but can and often does lead to meaningful and ongoing change in the community.

Education and Training

Number of students, postdoctoral scholars, or educational components involved in the project:

- Undergraduate students: 0
- Graduate students: 0
- Postdoctoral scholars: 0
- Other educational components: 228

Other educational components include:

- 107 8th graders at Bay Waveland Middle School
- 93 after school program attendees at Boys and Girls Club
- 3 interns
- 25 summer program participants at Boys and Girls Club

IV. DATA AND INFORMATION PRODUCTS

This project produced data and information products of the following types:

(N/A)

DATA

Data Management Report:

N/A

Relationships Between Data Sets:

N/A

Additional Documentation Produced to Describe Data:

N/A

Other Activities to Make Data Discoverable:

N/A

Sensitive, Confidential, or Proprietary Data:

N/A

INFORMATION PRODUCTS

Information Products Report:

N/A

Citations for Project Publications, Reports and Monographs, and Workshop and Conference Proceedings:

N/A

Websites and Data Portals:

N/A

Additional Documentation Produced to Describe Information Products:

N/A

Other Activities to Make Information Products Accessible and Discoverable:

N/A

Confidential, Proprietary, Specially Licensed Information Products:

N/A

V. PUBLIC INTEREST AND COMMUNICATIONS

Most Unique or Innovative Aspect of the Project

The internship and intern-led summer programming at the Boys and Girls Club was new for us and particularly meaningful. Three 8th grade students who participated in GCCDS' programming at Bay Waveland Middle School and who were also enrolled for the summer program at the Hancock County Unit of the Boys and Girls Club were selected to participate in a summer internship under the guidance of GCCDS to develop and implement a Magnolia Bayou Watershed-based summer program with teens at the Club. The work produced and the leadership displayed by these ladies was exemplary. The fact that the programming was designed and implemented by these young adults made it all the more powerful for the other teens at the club and community members who witnessed or heard about the project.

Most Exciting or Surprising Thing Learned During the Project

Two things that surprised and excited us about this work were 1) the level of creativity and caliber of work produced by our young summer interns and 2) extent to which community members continued to invest in and take ownership of MLK Park even after the funded project period.

Most Important Outcome or Benefit of Project

The most important outcome of the work is that it is continuing beyond the funded project period. Programming has continued at Bay Waveland Middle School and has resulted in additional funding; projects started by the summer interns continue to influence youth at the Hancock County Unit of the Boys and Girls Club; and the community continues to invest in MLK Park.

Communications, Outreach, and Dissemination Activities of Project

Yes, press releases have been picked up by local media and MSU; handouts have been disseminated to parents of participating students, community members and local leadership; and signage was displayed at events and/or installed at MLK Park.