

**COASTAL MANAGEMENT PROGRAM - CYCLE 15  
FINAL COMPREHENSIVE PROGRESS REPORT  
SCIENCE & SPANISH CLUB NETWORK**

**A report of the Coastal Coordination Council pursuant to the National Oceanic and Atmospheric Administration Award No. NA10NOS4190207.**



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SCIENCE & SPANISH CLUB NETWORK**

**Submitted to:** Texas General Land Office, Coastal Management Program

**On Behalf of:** The Gulf of Mexico Foundation, Inc.

**Project Title:** Science & Spanish Club Network

**Grant Number:** 11-010-000-4308

**Project Period:** October 20, 2010 – June 30, 2012

**Grant Amount:** \$100,000.00

*Summary - The Science and Spanish Club Network (SSCN) on average, serves over 400 students annually with about 32 faculty sponsors. The SSCN is capable of mobilizing 20 to 200 volunteers for any given activity and remains active in the community year-round. The SSCN students and faculty both benefit from their participation in the SSCN. Many SSCN students achieve success in other extracurricular campus activities, oftentimes assuming leadership roles. We suspect that field-based experiences through the SSCN have led to improved standardized testing scores. Also, SSCN faculty sponsors are having professional development advancement through their SSCN experiences.*

*This grant from the Texas Coastal Management Program (CMP) of the Texas General Land Office (TGLO) in support of the Environmental Education Network (EEN) was written to support the continuation and advancement of the SSCN. In particular, the grant was to support the facilitation of several key activities of the program, including coastal clean-ups, curriculum development, and other conservation and stewardship activities. Additionally, the grant provided support to conduct the Gulf of Mexico Youth Leadership in Stewardship Conference in 2010.*

## **FINAL COMPREHENSIVE REPORT**

### **I. Resulting Impacts and Outcomes**

*In total, more than 50 individual outreach activities associated with this grant were conducted by SSCN students, faculty sponsors, and the project director. As a result, more than 25 coastal communities have been reached through outreach events. Activities during the project period have engaged more than 50 local, state, and government agencies, non-profits partners, and academic institutions.*

*Through efforts associated with the Upper 33 Club and other Upper Watershed initiatives, we have built partnerships with many Gulf Watershed states, including Canada and Mexico. SSCN activities have thus taken on a truly regional approach to coastal environmental education. Through events such as the Youth Environmental Leadership in Stewardship Conference SSCN students can communicate with others throughout the region on environmental issues and continue to learn about living and working in the coastal zone.*

*Throughout the project the Project Coordinator continued to pursue additional knowledge to help in expanding the activities of the SSCN until his departure from GMF as of July 31, 2011.*

## II. Deliverables and Milestones

### a. TASK 1: Matagorda Island Gulf and Bayside Coastal Cleanups

- i. Deliverable: Pre-planning, poster/t-shirt design and in-kind sponsorship solicitation

*SSCN clubs were given the assignment to use past cleanup experiences in creating a poster and t-shirt design, which was displayed at the June 10-12, 2011 Redfish Bay Seagrass Tent at the Annual Aransas Pass Shrimporee. A grant provided by the Gulf of Mexico Alliance (Dauphin Island Sea Lab) agreed to sponsor the t-shirts. The final design of the shirts did not include the original marine debris components as planned but did include the Whooping Crane which lives near the habitats the students helped to clean in Matagorda Island. The connection to a living organism and a symbol of what they are helping to protect was a powerful experience for the students. It's all connected is our motto and this was emphasized as students saw the connection among the Aransas National Wildlife Refuge, Matagorda Island (clean-up), and the Whoopers in their native habitat.*



*Hilda Lamas, singer for the "Whoop" song, signs autographs for students and shows off the specially designed t-shirt at the Annual Aransas Pass Shrimporee. Students also had the chance to premiere the Whoop dance to audiences.*

- ii. Deliverable: Conduct the Matagorda Island shoreline cleanups

*A total of four cleanups were conducted with assistance provided by this award. The cleanups took place on the following dates: 1) November 11<sup>th</sup>, 2010; 2) December 13<sup>th</sup>, 2010; 3) June 15<sup>th</sup>, 2011; and 4) June 29<sup>th</sup>, 2011. National Coastal Clean-up data tabulation cards were completed and provided to Adopt-A-Beach site coordinator.*

**Deliverable: Post Matagorda Island Cleanup Evaluation**

*A total of 110 SSCN students, 16 SSCN parents, 6 SSCN faculty sponsors, and 8 USFWS staff participated in the four events and removed a total of 8 tons of debris. This information was posted on the GMF website ([www.gulfmex.org](http://www.gulfmex.org)) and highlighted in an edition of the Foundations electronic quarterly newsletter. For a breakdown of participant and debris metrics by event please refer to previous progress reports.*



*Pictures Above: Students and teachers clean-up an abundance of trash on Matagorda Island. Plastics, fishing and industry debris are a major issue on the Island.*

**b. TASK 2: The Whooping Crane Curriculum: Texas to Canada to Texas**

**i. Deliverable: Whooping Crane assessment of existing literature**

*The project coordinator conducted a search for existing whooping crane educational materials on the internet and located a significant amount of information for the Eastern Migration whooping cranes, which was incorporated into curriculum planning. Three trips were conducted with students and teachers to the Refuge in October through December 2010. See pictures below.*



Much of the information on the Whooping Crane can be found on these organizations reliable websites. They include various facts and some even have links to current research being conducted on the Whooping Crane. Listed below are also some of the essential maps that be used in conjunction with curriculum.

Organizations with useful and informative links:

- International Crane Foundation
- Seven Great Rivers (Waterway conservation for crane habitat)
  - Guadalupe River in Texas
    - Fresh Water In-flows
    - Seagrasses
    - Blue Crabs
- Journey North
- Aransas National Wildlife Refuge
- Aransas First
- Guadalupe Blanco River Authority
- Operation Migration

These organization websites contain some of the following maps:

- Map of North America migratory pathways
- Map of US National Wildlife Refuge System to show relationship of major migratory streams and refuges
- Map of Canadian Wildlife Refuge System
- Local map of Wood Buffalo National Park



ii. Deliverable: Whooping Crane poster/t-shirt design

*The Coastal Bend Bays Foundation used a watercolor painting of a Whooping Crane eating a blue crab for the Earth Day Bay Day poster for the April 16, 2011 event. A Whooping Crane poster and banner were created for the 2012 Earth Day Bay Day and Earth Expo event in April 2012. See pictures below.*

*Earth Day Bay Day 2012 – Corpus Christi, TX  
Earth Day Expo 2012 – Victoria, TX*



*Migrating to Canada. Kids learn about all the different states the Whooping Crane flies over.*



*Making prints of the Whooper's favorite food: the blue crab.*



*Feeding frenzy. Students learn about energy requirements needed to make the long journey to Canada.*

*In addition, the Whooping Crane was used to have a t-shirt designed that was featured at the 73<sup>rd</sup> Anniversary of the Aransas National Wildlife Refuge. The design shows parts of the Whooper life cycle including its mating dances and its main food resource, the blue crab. Parts of the graphics were used in the cover of the Whooping Crane Curriculum. The Foundation will continue their partnership with the ANWR and will help them celebrate their 2012 anniversary in October by promoting the whooping crane curriculum featuring an interactive whoop game, song and dance. We will also conduct clean-ups at Matagorda Island as part of recent grant received where students and teachers will be involved and educated about the connection between the Whooping Crane and the Matagorda Island habitat.*



*The first Flash Flock party was dubbed “Tom Stehn Day” by the city of Aransas Pass. The celebration was held to honor the 73rd birthday of the Aransas National Wildlife Refuge and the work of its whooping crane wildlife biologist, Tom Stehn. **The t-shirt design was first featured with the Whoop dance for the June 10-12, 2011 Redfish Bay Seagrass Tent at the Annual Aransas Pass Shrimporee.***

- iii. Deliverable: Compile and develop Whooping Crane curriculum in English, Spanish and French

*The Whooping Crane curriculum named “Let’s Migrate Like a Whooping Crane” was completed and posted on the GMF website. The curriculum features a whooping crane game as the main activity with mini-lessons to accompany and further augment the understanding of the whooping crane migration from Texas to Canada. The “Whoop” song and lyrics are also featured as a physical education and music lesson and can be used in both informal educational settings such as community events and formal settings such as school gyms and playgrounds.*

*Whooping cranes lessons were created in collaboration with staff from the Gulf Coast Bird Observatory and the Woods Buffalo National Park in Canada. The game, song, and mini lessons were pilot tested at various community and school events in order to assess best practices in presenting the materials being created as well as to gather feedback for GMF from the educators that will be using the lessons in the classroom. Both teachers and students provided verbal feedback to GMF on the curriculum and all pertinent suggestions were incorporated into the lessons. Most comments received were focused on the curriculum’s*

*innovative, interdisciplinary, and interactive approach to teaching what educators called “difficult concepts” to teach in life science, geography, and environmental science, especially to a younger audience. Educators commented that students had fun learning which is key to retention of these concepts. Other suggestions from educators that were addressed in editing included: providing teachers more information on the Whooper for the main activity, the need for printable pages for the game layout and maps to give to students, and breaking down the difficult concepts of the curriculum into mini-lessons so students can better digest the information presented. The curriculum was showcased at various venues including those already mentioned as well as the ones featured below. The curriculum will be presented at CAST 2012 in November. Whoop CDs, posters, bonded copies of lessons will be given away as prizes at the GMF exhibitor booth. During CAST 2011 in November, the curriculum had not yet been completed and was not able to be showcased during this time.*

*The GMF multicultural education program will continue to use the Whooping crane as major component of their education and outreach. Connecting our students and teachers to the migration route of the Whooping Crane helps to foster the awareness that we are all connected far beyond just our own backyards. GMF is also in line to receive funding from NOAA to conduct more Matagorda Island Clean-ups. We will use these games and lessons to remind students how picking up trash can help keep the Whooper’s habitat safe from pollution. In addition, as seen below the curriculum will also continue to be part of our yearly teaching training expedition, the Intracoastal Waterway Wetland Expedition (IWWE). Many of the participants are elementary school teachers, the target group for our Whooper activities. During our June 2012 trip, teachers were excited about introducing these lessons to their students.*



Whooping Crane dance was adopted by a local dance studio. For some this was the first they had heard of the Whooper. Plus, they had fun dancing the whoop.



The First Bird Camp for our partners at the Gulf Coast Bird Observatory was held June 2012. The GCBO helped with the curriculum and used it to educate their 8-12 year old campers about the Whooper.



Elementary students from Oppe Elementary in Galveston, TX attend the Coastal Carnival. GMF had many activities including learning about the Whooping Crane food chain.



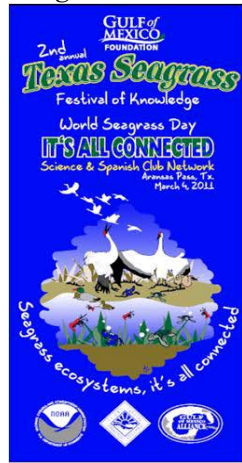
Teachers on the IWWE learn about GMF’s latest lessons concerning the endangered Whooper while listening to the Whoop song on the laptop.



**c. TASK 3: Redfish Bay Seagrass and Trash Parade and Texas Seagrass Festival**

- i. Deliverable: Seagrass poster/t-shirt design and essay competition for local students

*The project coordinator picked the winning design of the t-shirt (featured below) with a seagrass ecosystem for use by SSC students working at the 2<sup>nd</sup> Annual World Seagrass Festival of Knowledge on March 4, 2011. A poster design contest was held with schools from Fulton, Ingleside and Aransas Pass in March-April. Poster and t-shirt designs are shown below. Other submitted designs that did not win remained with the students and are no longer available.*



*Other designs submitted by students are featured. Even though these designs did not win, some schools held their own contest and printed what they thought was the winning design for their students. The picture of one groups featuring the SOS t-shirt is featured below this section.*

ii. Deliverable: Recruit academic researchers and develop poster displays

*A request to the Texas Seagrass Working Group was made at February 14, 2011 to have state agencies and academics develop poster displays for future public outreach efforts. A list of 35 potential exhibitors/poster displays about seagrasses were compiled for the March 4, 2011 Seagrass Festival of Knowledge. Examples of posters featured at the event included “Importance of higher education in solving scientific problems” and “Seagrasses and Genetics”.*

iii. Deliverable: Conduct Texas Seagrass Festival of Knowledge

*The Aransas Pass Civic Center was the site of the 2nd Annual World Seagrass Day Festival of Knowledge held on March 4, 2011 with over 250 in attendance. SSCs from Martin Middle School, Aransas Pass and Ingleside assisted in directing 190 5th graders from Charlie Marshall Elementary School in Aransas Pass and 10 from the Fulton Learning Center. Presentations, exhibits, and activities focused on the importance of seagrass habitats and included presenters from a variety of local, state, federal, non-profit, and community organizations including interanaitonl and Gulf wide orgranizarions that participated by way of distance learning capabilities. (Examples: Rio Grande/Rio Bravo Advisory Committee, Florida Department of Environmental Protection, Colegio Rendon de Matamoros, Mexico, St. Croix Central High School, US Virgin Islands, TAMU-CC, Welder Wildlife Refuge, Texas Master Naturalists, International Crane Foundation, Coastal Bend Bays Foundation, Aransas National Wildlife Refuge, Aransas Pass Boy Scouts, and Girl Scouts of America.) This event also helped students prepare for their outreach event and activities that took place June 10-12, 2011 at the Redfish Bay Seagrass Tent at the Annual Aransas Pass Shrimporee. Some of the presenters and attending groups are featured below.*



#### **TASK 4: El Limpienato Mas Grande: The Biggest Cleanup-The Bahia Grande Earth Month Cleanup Campaign**

iv. Deliverable: Bahia Grande poster and t-shirt design

*The selection of Ila Marie Loetcher, the Sea Turtle Lady, as the “La Mas Limpia” and her surviving niece, Mary Ann Tous, as co-parade marshals, has offered the Kemp’s Ridley Turtle as a theme for the t-shirt design. Students from Port Isabel High School created designs for poster/banner and t-shirts for the April 16, 2011 5<sup>th</sup> Annual Parade. Some of the banner and t-shirt designs created by the students are featured below along with a picture of the parade theme “Bubbles Not Balloons.”*



v. Deliverable: Conducting five cleanup events

*A total of six cleanup events took place with assistance from this award. The events and dates are as follows: 1) Limpianato Parade and Coastal Cleanup held on April 16; 2) Laguna Vista Recycling Day on the Bay held on April 30; 3) City of Port Isabel Community Recycling Earth Day Arbor Day held on April 30; 4) City of Los Fresnos residential recycling survey held April 1-15, 2011; 5) Colegio Rendon cleanup in Matamoros held on April 30; and 6) Colegio Rendon first annual Garbage Fest on June 10.*





Pictures of Garbage Fest and Recycling day events.

- vi. Deliverable : Tabulate trash data cards and develop a trash profile for Bahia Grande Ecosystem

*Due to the fact that the National Coastal Cleanup debris profile data cards were provided to TGLO Adopt-A-Beach site coordinators after each event, data cards were not on hand during comprehensive profile tabulation. However, based on tonnage removed and volunteer participation, a comprehensive debris profile was extrapolated from regional marine debris metrics available in the data provided by the 2010 National Coastal Cleanup Report. A comparable breakdown of debris categories is provided, including a list of the top ten items by relative abundance and percentage. In addition, percent efficiency for SSCN participants was calculated based on tonnage removed per individual for all cleanups as compared to regional data. Please see marine debris matrix provided, as well as attached marine debris metrics one-pager.*



Category	Texas Total	Extrapolated (GMF)	Top 10 (Ranked)
<b>SHORELINE &amp; RECREATION</b>			
Bags (paper)	4194	200	10
Bags (plastic)	21236	951	3
Balloons	1557	70	
Beverage Bottles (plastic)	17937	803	2
Beverage Bottles (glass)	8339	374	7
Beverage Cans	12782	573	9
Caps, Lids	33650	1507	4
Clothing, Shoes	4424	198	
Cups, Plates, Forks, Knives, Spoons	10745	481	6
Food Wrapper, Containers	12159	545	5
Pull Tabs	2418	108	
6-Pack Holders	990	44	
Shotgun Shells/Wadding	1002	45	
Straws, Stirrers	6668	299	8
Toys	2399	107	
		<b>6306</b>	
<b>OCEAN &amp; WATERWAY</b>			
Bait, Containers, Packaging	824	37	
Bleach, Cleaner Bottles	852	38	
Buoys, Floats	540	24	
Crab, Lobster, Fish Traps	289	13	
Crates	174	8	
Fishing Line	2658	119	
Fishing Lures, Light Sticks	1074	48	
Fishing Nets	663	30	
Light Bulbs, Tubes	433	19	
Oil, Lube Bottles	713	32	
Pallets	120	5	
Plastic Sheeting, Tarps	2220	99	
Rops	7782	349	
Strapping Bands	919	41	
		<b>863</b>	

## Running the Numbers...



### d. TASK 5: Using Earth Day Bay Day as a Tutoring Tool to Improve TAKS Test Scores in Science & Math

- i. Deliverable: Student benchmark testing October 2010 to January 2011-Organize TAKS

#### Defining TAKS versus TEKS:

**TAKS** – Texas Assessment of Knowledge and Skills; statewide student assessment

**TEKS** – Texas Essential Knowledge and Skills; official K-12 curriculum for the state of Texas and details the curriculum requirements

*The Martin Middle School TAKS group benchmarked in October 2010 and 60 students from 6<sup>th</sup> and 8<sup>th</sup> grades were identified. Sinton Middle School benchmark tested on January 17, 2011. The scores from benchmark testing were not provided to GMF by the academic institutions after completion. Current efforts of the new project manager to obtain scores from schools were unsuccessful.*

- ii. Deliverable: Create pre-activities for TAKS objectives groups

*Sinton Middle School SSC faculty sponsors worked on a series of TAKS activities for the 8<sup>th</sup> grade “bubble” students. “Bubble” students are defined by SSCN as those students that possess the excitement and initiative to learn but still have difficulties learning concepts and may or may not test well concerning standardized testing. These students need extra help to assist and facilitate their learning experience. Martin Middle School math instructors worked on a series of activities for the 17 students. These included such concepts as scientific processes, i.e. conducting field and laboratory investigations, making wise choices in the use and conservation of resources and the disposal or recycling of materials.*

- iii. Deliverable: Volunteer at Earth Day Bay Day third Saturday in April

Earth Day Bay Day on April 16, 2011: The project coordinator, Richard Gonzales, served a member of the Coastal Bend Bays Foundation Earth Day Bay Day Committee and received approval to apply TEKS objectives to some of the exhibitor booth. Students were able to learn about various ecological, conservation, and water issues especially with a focus on working partners such as the Texas Parks and Wildlife staff (TEKS objectives on ecological process and scientific communication) as well as partners from the Guadalupe Blanco River Authority (TEKS objectives on water cycle and nutrients plus other abiotic factors).

- iv. Deliverable: TAKS objectives groups take final TAKS test last week of April 2011.

*The Martin Middle School and Sinton Middle School groups took the least the last week of April 2011.*

- v. Deliverable: Evaluate benchmark and TAKS test scores

*Due to the fact that GMF has been unable to obtain the benchmark testing scores from Martin and Sinton Middle Schools, no formal assessment of pre- and post-test scores have been completed. However, SSCN Sponsors at the two participating schools have indicated that participation by the students in experiential, GMF sponsored learning activities may have helped to improve some of the students TAKS scores. In addition, sponsors observed that these types of activities also had other positive effects on their students, such as improvement in participation and motivation as well as an increased interest in their environment, science, and conservation issues. Other education research case studies do support the positive connection between hands-on activities and improved test scores.*

**e. TASK 6: 6<sup>th</sup> and 7<sup>th</sup> Annual Gulf of Mexico Youth Leadership in Stewardship Conference**

- i. Deliverable: Conduct a SSCN wide competition for a t-shirt and poster design for the Conference.

*There was a late start to the CMP 15 grant cycle and no competition was held for 2010. The 2011 Conference was held in December 2011 because funding from a third party (main sponsor of event) had to be used before 2012. Therefore there was not time for a t-shirt competition. A poster design was created and can be seen below as it was also made into a banner.*

- ii. Deliverable: Print 100 posters for distribution at SSCN sites and host community and make 400 t-shirts for conference use

*There was a late start to the CMP 15 grant cycle and no competition was held for 2010. The 2011 Conference was held in December 2011 because funding from a third party (main sponsor of event) had to be used before 2012. Therefore there was not time for a t-shirt competition. A poster design was created and can be seen below as it was also made into a banner. The theme was "It's All About Habitat."*

- iii. Deliverable: Conduct the 6<sup>th</sup> Annual Gulf of Mexico Youth Leadership in Stewardship Conference November 20, 2010 and the 7<sup>th</sup> Annual Conference November 19, 2011.

*The 6<sup>th</sup> Annual Gulf of Mexico Youth Leadership in Stewardship Conference was held on November 6, 2010 at the Aransas Pass Civic Center in Aransas Pass, Texas. Over 160 students, teachers, and presenters attended the conference. In addition, the conference was streamed live on UStream. The conference highlighted aquatic robotics and distance learning technologies, among other environmental and science-based topics. Distance learning technology was used to stream live video from the Whooping Crane's various stops during its migration including Canada. Presentations listed below were given by experts in the field and included presenters from multiple Whooper Crane organizations. Unfortunately, the seagrass expert Dr. Royce Avery that presented to the students in 2009 could not attend the conference in 2010. He did present at the 2011 World Seagrass Day Event. Other presentations on the "Effects of oil on turtles" and "Connecting the Rio Grande" were also presented.*

*Samples Presentations (Streamed Live from various states and Canada) from 2010 Youth Conference Agenda*

- **Crane Trust: Saving the Endangered Whooping Crane**  
Use of GPS tracking technology to determine causes of migratory mortality  
Dr. Felipe Chavez Ramirez, Wildlife Biologist
- **Us Forest Service Climate Change Initiative: Using Citizen Science to Make it Happen**  
Tamberly Conway, Conservation Education
- **Operation Migration LIVE update:** Whooping Crane migration from Necedah, Wisconsin to St. Marks, Florida  
Liz Conde, Director, Operation Migration
- **Canadian Update on Whooping Crane population at Wood Buffalo National Park, Ft. Smith, Northwest Territories**  
Mike Keizer and Rhona Kindopp, Wildlife Biologists



*Pictures highlighting this event.*



*The 7<sup>th</sup> Annual Gulf of Mexico Youth Leadership in Stewardship Conference themed “It’s All About Habitat” took place December 10, 2011 at the Texas A&M University – Corpus Christi campus. Over 100 students, teachers, and presenters attended the conference. Interactive lectures on various coastal natural resource areas (CNRAs) were given by scientists and naturalists from around Coastal Bend. Wetland tours, hands-on activities, and a Q&A session also helped students and teachers understand the importance of habitat. Teachers were able to take home habitat trunks with activities for the classroom.*

*This process is replicable in all Gulf watersheds and is a derivative of the SSCN deliverable to host youth leadership in stewardship conferences. The GMF plans to continue providing this unique opportunity for club members in Texas as well as to teachers and students in all Gulf and Gulfshed States, including Mexico, Canada, and the Caribbean. See pictures of event below.*

