## MISSISSIPPI COASTAL CLEANUP

Annual Program Summary

2022









# MISSISSIPPI COASTAL CLEANUP PROGRAM

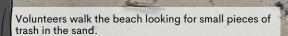
The Mississippi Coastal Cleanup Program (MSCCP) is a non-profit educational program that promotes the conservation of the local marine environment by facilitating active stewardship within coastal Mississippi. The MSCCP mission is to prevent and remove litter from the coastal environment through education, outreach, research, and cleanup events. The MSCCP organizes monthly beach cleanups, provides in-class presentations, and hosts outreach booths at multiple public events throughout the year. By integrating the latest research, the MSCCP trains community leaders and fellow stewards on ways to incorporate best litter-management practices into their ongoing programs. This program not only promotes active stewardship but also enables long-lasting education and outreach and other toolkits that empower communities to make environmentally and economically sound decisions regarding litter and marine debris.

Marine debris is defined as any manmade material that is intentionally or unintentionally, directly or indirectly disposed of or abandoned into our marine environment, according to the **NOAA Marine Debris Program**. Marine debris includes everyday items we toss in the trash, litter on sidewalks, parking lots, and streets that is washed or blown away by gulf winds, and even larger objects, such as fishing nets, construction materials, and derelict boats. These items persist in the environment where they can be extremely harmful to wildlife on land, in the air, and in water.

## POWERED BY VOLUNTEERS!

Thousands of volunteers participate in cleanups year-round to remove trash and debris from the Mississippi Gulf Coast beaches and waterways.

Throughout the 2022 year, 2,337 volunteers removed over 14,617 pounds of litter and debris!



# MISSISSIPPI COASTAL CLEANUP PROGRAM

During Mississippi Coastal Cleanup Program events, volunteers are required to collect data on the different types and how much trash is collected. Unsurprisingly, single-use plastic items are the most common materials collected on the beaches. Some of the commonly found plastic trash items include cigarette butts, food wrappers, packaging, bottle caps, and beverage bottles. Plastic is a manmade material that our earth cannot naturally break down. Plastic items persist in the environment and eventually break up into smaller and smaller pieces becoming what we know as microplastics. Microplastics are plastic fiber, fragment, bead, and film pieces smaller than 5mm that wreak havoc on the environment as they are commonly mistaken for food by marine life and ingested. Toxins and **pollutants** in the water can bind to microplastics impacting the animals ingesting the pieces on a physiological level. Studies have shown that microplastics have entered our food chain posing not just detrimental impacts to animal health, but possibly to human health as well. Uh oh...

In general, trash we toss away has four fates – it's taken to a landfill, recycled, incinerated, or ends up in the environment. Recycling is **expensive** and cumbersome with separate methods to pick up the intended materials, remove contamination, and sort the different types of materials. Due to the degradation of plastic after 1–2 meltdowns, it's cheaper to toss plastics than it is to recycle them. Recycling plastic to combat plastic pollution is not a viable option, and further emphasizes the importance to reduce plastic use from the get–go.



## MISSISSIPPI COASTAL CLEANUP PROGRAM



We know litter and plastic pollution is a problem, and providing actionable opportunities for the public to get involved with reducing plastic pollution is key. Luckily, there are programs, initiatives, and research taking place within and in partnership with the MSCCP. The Derelict Trap Reward Program focuses on how abandoned crab traps impact local shrimpers in the water of the Mississippi Sound. The Mississippi Inland Cleanup Program (MSICP) is an expansion program of the MSCCP to extend litter awareness efforts inland. SWAPS is a new no-cost-to-you program that provides litter and waste prevention solutions and materials so the community can take an active part in preventing waste!

The MSCCP has also had the privilege of working with other projects and organizations that share the same mission. The **Plastic Free Gulf Coast Project** and **Osprey Initiative** both collect data to find sources of plastic pollution and sustainable solutions. Keep reading to see what these amazing programs were up to in 2022!

#### REQUEST A BIN



The MSCCP Request a Bin initiative encourages volunteers to conduct their very own small-scale cleanup events. The bins provided include supplies for a successful cleanup including trash bags, gloves of various sizes, hand sanitizer, first aid kit, buckets, trash grabbers, and data collection materials. The MSCCP Team also provides guidance and training to help volunteers efficiently lead their own cleanup.

More than 500 volunteers participated in this initiative in 2022 removing over 3,300 pounds of trash consisting mostly of single-use plastic!

## CLEANUP SUMMARY

Check out the different types & amounts of debris found during 2022 by the Mississippi Coastal Cleanup Program!

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CUMM	UNLY	FUUNU	ITEMS:

Cigarette butts	29,303	Beverage bottles (plastic)	4,714
Food wrappers	9,362	Beverage bottles (glass)	1,212
Take out containers (plastic)	981	Beverage cans	2,581
Take out containers (foam)	803	Grocery bags (plastic)	1,751
Bottle caps (plastic)	5,584	Other plastic bags	2,350
Bottle caps (metal)	2,719	Paper bags	885
Lids (plastic)	1,526	Cups & plates (paper)	934
Straws/stirrers	2,966	Cups & plates (plastic)	1,017
Forks, knives, spoons	827	Cups & plates (foam)	1,330

#### PACKAGING MATERIALS:

6-pack holders	66
Strapping bands	398
Tobacco packaging/wrap	1,090
Other plastic/foam packaging	2,447
Other plastic bottles (oil, bleach, etc.)	288

#### FISHING GEAR:

Fishing buoys, pots, and traps	539
Fishing nets & pieces	418
Fishing line (1 yard = 1 piece)	611
Rope (1 yard = 1 piece)	279
Boats	8

#### TINY TRASH:

Foam pieces	4,985
Glass pieces	4,078
Plastic pieces	15,442

#### PERSONAL HYGIENE:

Condoms	88
	4
Diapers	142
	74
Syringes	/1
T /1 1: 1	0.5
Tampons/tampon applicators	85
Claves & mosks (DDE)	97
Gloves & masks (PPE)	97
Clothing & shoes	361
Clottillig & shoes	301

#### OTHER TRASH:

Appliances (fridge, washer, etc.)	29
Balloons	482
Cigar Tips	2,558
Cigarette lighters	208
e-Cigarette waste	24
Construction materials	1,294
Fireworks	4,742
Tires	59
Other	1,602

#### 2022 CLEANUP SUMMARY:

Number of bags filled	856
Weight of trash collected (pounds)	135,467
Distance cleaned (miles)	44
Number of volunteers	2,337

# DERELICT TRAP REWARD PROGRAM



Mississippi State University Extension Service and Mississippi Commercial Fisheries United (MSCFU) have continued their partnership to remove derelict crab traps for a fourth consecutive year and have secured funding for an additional 3 years. **Derelict crab traps**, those that have been lost or abandoned by crabbers, create a variety of economic and environmental issues. The **Derelict Trap Reward Program** invites commercial shrimpers to enroll in the incentive program.

The program has 40 active participants, and the project team continuously recruits new participants. As commercial shrimpers encounter derelict traps at sea, they remove entangled traps from their trawls and deposit them at designated harbors. During 2022, shrimpers have removed 363 derelict crab traps with an estimated weight of 2,940 pounds. Since its inception in 2019, 3,251 traps have been removed from the Mississippi Sound and the surrounding waters.



#### TRAP MAP

Blue dots indicate locations where derelict crab traps were found by shrimpers and disposed of in 2022.



# DERELICT TRAP REWARD PROGRAM

MSU and MSCFU would like to introduce a **new marine debris removal program starting in**January 2023. The new program is open to Derelict Trap Reward Program participants as well as federally registered boats who have a valid Mississippi commercial shrimping license. The new program focuses on **incentivizing shrimpers to properly dispose of a variety of marine debris types (single-use plastics, tires, metal, etc.).** The incentive rates will vary based upon categories and weight of marine debris outlined by an incentive matrix.

The only requirement to participate in either program is an active commercial shrimping license. Shrimpers may sign up by contacting either MSU or MSCFU and the registration documents can be found on our **website**.

In an effort to continue to include the Mississippi fishing industry in the removal of marine debris, MSU and MSCFU will begin regular **aerial mapping of Deer Island** in Biloxi to locate marine debris. This project will target **derelict oyster farming gear**. Oyster farmers will be contracted to recover lost gear followed by regular volunteer-based cleanups to remove other debris. Throughout this project, we hope to gain an improved understanding of habitat recovery after debris removal using aerial imagery. We expect to remove an estimated 10,000 pounds of debris over the course of this project.

## ..PASCAGOULA RIVER CLEANUP



As part of a NOAA Marine Debris Removal Program grant, we facilitated the removal of 8 derelict vessels, a refrigerator, a camper trailer, a houseboat, and a fishing shed, resulting in about 120,850

**pounds removed** from the lower Pascagoula River. These sites will continue to be monitored for the impacts of the debris on the vegetation and shoreline.

"... down by the river!"

STAY CONNECTED·····



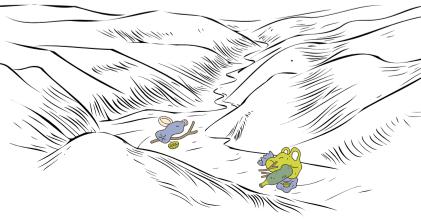
msumarinedebris@gmail.com

### MISSISSIPPI INLAND CLEANUP PROGRAM



In 2022, the Mississippi Inland Cleanup
Program (MSICP) organized a total of 14
community cleanup events which attracted 158
volunteers who contributed 316 volunteer hours
to remove 1,223 lbs. of litter from the inland
roads, and waterways, wetlands, and metropolitan
areas of southeastern Mississippi. During these
events, volunteers also collected data on the
specific types of litter removed, to identify sources
and design targeted prevention methods. The top
litter items removed included individual plastic
pieces (926), cigarette butts (871), food
wrappers (791), and plastic beverage bottles
(485). The value of this volunteer effort exceeds
\$9,464.20.

Aside from organizing cleanup events, the MSICP also visited K-12 classrooms, was invited to give guest lectures, awarded mission-supporting grants, has been published in the local newspaper several times, and even made it on the radio! This program has continued to bring awareness to the importance of removing litter inland before it has the chance to end up in the watershed, inevitably making its way to the coast.



### MISSISSIPPI INLAND CLEANUP PROGRAM

In the spirit of Halloween, the first annual "Tricky Trashy Halloween Bash" was organized in late October—drawing in volunteers with promises of candy, trunk-ortreating, and community service! During this event, 41 volunteers picked up 131 lbs. of litter from Henderson Point (Pass Christian, MS), and prizes were given for categories for best costume, most trash collected, spookiest item found, most sustainable swag, and more! The event was such a success, we're looking forward to making this a yearly cleanup staple.



The MSICP continues to organize bigger and better outreach into 2023! You can get more information on this program, and learn how to participate in upcoming events, at www.nolittermovement.com



Decorated booth for the first annual Tricky Trash Halloween Bash in Pass Christian, MS.



#### STAY CONNECTED

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# PLASTIC FREE GULF COAST



In collaboration with Mississippi Coastal and Inland Cleanup programs, **Plastic Free Gulf Coast** is documenting brand data on the **branded plastics** gathered during cleanups. The data collected during plastic brand audits is used to identify the **top plastic polluters** in our cleanup areas and can identify possible interventions to reduce plastic production and use **before it becomes waste and ends up in our waterways, ecosystems, and our bodies.** 

In 2022 we collected and audited 2,600 pieces of branded plastic totaling over 100lbs.

**95%** of the branded plastic audited in 2022 was **single-use packaging.** With Frito Lay, Coca-Cola, and Walmart brands (including subsidiaries) being in the top 10 brands documented. Dart is also heavily represented with single-use Styrofoam cups including cups manufactured by Dart and then further branded by companies including Waffle House, Sonic, and Circle K.

According to the Plastic Soup Foundation, **44% of all the plastic produced is single-use packaging.** Check out *Fighting Plastic Pollution in the Oceans - Plastic Soup Foundation* and the *Plastic Pollution Coalition* for more information and free webinars about plastic pollution and the work being done to stop it.

Learn more about plastic brand audits @ www.breakfreefromplastic.org



# PLASTIC FREE GULF COAST





During the summer of 2022, Plastic Free Gulf Coast continued working with the Maritime and Seafood Museum Sea and Sail Summer camps to do Lunch Plastic Audits. Students separated their lunch trash into 4 bins and then spent time documenting the brands, weighing the plastic and food waste, and learning about plastic pollution and plastic alternatives.

These Lunch Brand Audits give the chance to identify areas of intervention and quick solutions to the amount of single-use plastic packaging and food pre-packaged in plastic that is in our student lunches.

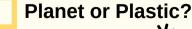
Foods packaged in single-serve sizes dominate students' lunches wasting money and creating plastic waste. Buying in bulk and repackaging your own servings in paper bags or reusable alternatives like silicon, glass, or metal is a great way to save money and lower your waste footprint.

#### WHAT YOU CAN DO TO:

>>> Be an educated and aware consumer and skip plastic products and packaging when you can.

- Choose reusable to prevent waste and save money.
- >>> Keep learning and share information with others.
- >>> Lead by example and help normalize skipping the plastic.
- >>> Do what you can! It doesn't have to be perfect.





### PLASTIC FREE GULF COAST





Please email the Project Coordinator, Elizabeth, with any questions: e.englebretson@msstate.edu

plasticfreegulfcoast
plasticfreegulfcoast
plasticfreegulfcoast.com

Nurdles are considered a primary microplastic meaning they are **purposely made microplastics** and come in thousands of different resins. Nurdles are the basis for all the plastic products we consume. According to Nurdle Patrol, approximately 1,500 nurdles are needed to make 1 single-use water bottle. Nurdles are **washing up on beaches across the globe** and are considered one the **biggest micropollutants** in the ocean. This is detrimental as nurdles are often **mistaken for food** by shorebirds, fish, and other amazing wildlife.

During our monthly Nurdle Patrols in 2022, we collected **727 nurdles** from one small area at Jones Park East Beach. **That number averages out to 61 Nurdles per hour....1 nurdle every minute.** 

Check out Nurdle Patrol to learn more about nurdles!

#### MONTHLY NURDLE PATROLS []

Monthly Nurdle Patrols
Second Saturday of each month
@ Jones Park East Beach
9 a.m. to 10 a.m.

Come and join us and be part of citizen data collection that is raising awareness about Nurdles!

#### 2023 DATES

January 14 - February 11 - March 11
April 8 - May 13 - June 10
July 8 - August 12 - September 9
October 14 - November 11 - December 9

if there is a 50% or higher chance of rain in Gulfport on the morning of Nurdle Patrol it will be cancelled.

### IN-STREAM FLOATING LITTER REMOVAL

A **Litter Gitter** is a tactical in-stream litter collection device used to **intercept floating litter** from storm-water runoff. They are cleaned out by the Osprey crew a minimum of twice a month and after major rain events.

In 2022, the 4 coastal Mississippi Litter Gitters have collected a total of **1,033 lbs** of trash and debris with **167 lbs recycled** through the Osprey Initiative.

Funding for these projects comes from an EPA Trash Free Waters Grant and the Mississippi Department of Environmental Quality.



"We don't just collect litter, we use patented technology to collect data to determine sources and solutions."

### CHECK EM OUT

You can check out these Mississippi Litter Gitters in action in the following areas:



Keegan Bayou - Biloxi, MS Auguste Bayou - Biloxi, MS Chicot Bayou - Pascagoula, MS Johnson Bayou - Long Beach, MS

ospreyinitiative ospreyinitiative www.osprey.world



Mississippi State Extension would like to introduce a **new** litter prevention and reduction program launched in September of 2022. Sustainability With Awareness and Prevention Solutions (S.W.A.P.S.) is focused on preventing and eliminating excessive waste and litter in our local communities. S.W.A.P.S. is currently working in the lower 6 counties of Mississippi but hopes to expand into other counties further north.

The S.W.A.P.S. program provides hands-on education and sustainable incentives to support local communities in making eco-friendly choices in their everyday lives. The program accomplishes this through in-classroom teaching at local high schools and public educational workshops taught by extension professionals and researchers that work in the field.





S.W.A.P.S. currently has 4 learning modules that cover microplastics in our watersheds, eliminating singleuse plastics, rethinking food waste, and ways to get involved and strengthen existing litter and waste prevention and removal programs. Each module taught includes a hands-on learning activity with an emphasis on sustainability. Each month S.W.A.P.S. will teach one module to high school science students and one Saturday a month S.W.A.P.S. will work with high schools to host student participants and their invited family and friends to a hands-on workshop coinciding with each module taught. During these classes and workshops, participants will get hands-on education and experience with topics like D.I.Y. alternatives to single-use plastic or how to build and maintain a Worm Bin.

If you're interested in S.W.A.P.S. organizing a community workshop or teaching within your local school, check out our contact information through the S.W.A.P.S. **website**.

### S.W.A.P.S.

Tired of buying single-use saran wraps? Have you heard of beeswax wraps? In our latest **D.I.Y. tutorial**, we show you how to **make your own food-safe** wraps at home! Beeswax wraps can be reused several times and are **super easy to maintain and keep** clean! Use them for keeping sandwiches fresh or sealing jars! You can watch our tutorial on the Mississippi Inland Cleanup's YouTube page.



#### OFFICES MAKING THE SWAP



S.W.A.P.S. is in the process of implementing a **new plastic-free and zero-waste** meeting and event policy for our office Instead of plastic cutlery, bowls, and plates, S.W.A.P.S. uses **compostable materials** we compost on-site and is moving the office toward reusables for 2023. S.W.A.P.S. also partners with Makin' Groceries to compost their waste and has composted nearly **520 pounds** of materials over 4 months!



**Sustainability With Awareness and Prevention Solutions** 

#### STAY CONNECTED

- **f** msuswaps
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### RESEARCH PROJECTS

In addition to education and outreach events, the Mississippi Coastal Cleanup Program uses research to gather information to better serve the local community.

Check out the different research projects taking place!

#### Plastic potential degradation and fragmentation through a sequence of terrestrial and aquatic environments

Plastics are a diverse group of polymer-based materials that contribute to the ever-increasing problem of marine litter and microplastic formation. Litter often originates from terrestrial sources and may experience different environments as it is transported to its eventual destination in marine environments. In this ongoing study, small plastic pieces of three types of common plastics were fastened to large boards and exposed to different environments in coastal Mississippi, simulating various pathways that litter might be subjected to as it transitions to marine waters. Subsamples of plastics were collected periodically to assess changes (e.g., mass, tensile strength, elasticity) to predict shifts in the potential for fragmentation into microplastics. Results from this study will reveal time and geographic insights into plastic fragmentation through typical pathways of marine debris transport from land to marine environments. This information will aid in improving future targeted cleanup efforts

designed to prevent microplastic generation in coastal environments.







#### Impacts on marsh vegetation during and after the presence of marine debris

Marine debris discarded onto marshes can negatively impact vegetation and shoreline stability. Such loss of habitat is of concern to coastal areas in the northern Gulf of Mexico due to ongoing habitat degradation and erosion as well as receding shorelines resulting from sea-level rise. This study aims to quantify the loss of vegetation due to the presence of debris for variable intervals of time as well as the recovery rates with and without restoration efforts after the removal of debris. This study uses two common types of debris items, wire crab pots and dense plastic squares intended to mimic opaque debris, for varying periods of time at both shoreline and higher marsh locations. Monthly vegetation measurements are collected to assess changes in marsh dynamics. Data from this project will provide useful information for making decisions when prioritizing the urgency and location of wetland cleanup sites with ongoing litter accumulation and sudden debris spreading disturbances such as in the aftermath of hurricanes.



#### Check out recent publications!

Many of the projects throughout this document have published their work in scientific journals. Click on the study title to access the full artile!

#### The distribution and direct impacts of marine debris on the commercial shrimping industry



Commercial shrimpers frequently encounter marine debris in their nets, resulting in economic empacts. Currently, no information existed on the spatial and temporal distribution of marine debris that shrimpers encounter and the subsequent economic impact on commercial shrimping. The results of this study show that marine debris encounters can have a large impact on the cemmercial shrimping industry.

#### Marine debris awareness improvement using immersive virtual reality



VR could be a great NEW interactive approach to environmental education! This type of tool allows students to be immersed in life-like situations along with increasing their knowledge on the subject. Through 3 modules the participant learns about marine debris, helps untangle marine animals from debris, and participate in a beach clean-up.

#### In-Stream Marine Litter Collection Device Location Determination Using Bayesian Network



Increased generation of waste, production of plastics, and poor environmental stewardship has led to an increase in floating litter. In the open ocean or streams, a common passive technique is to use booms and a collection receptacle to trap floating litter. A Bayesian Network technology was applied to analyze criteria to determine the most appropriate locations for in-stream collections devices - Litter Gitters.

#### The development of a derelict crab trap removal incentive program for commercial shrimpers



Due to fishery-tailored gear, shrimpers are often affected by benthic marine debris, specifically derelict crab traps. To alleviate the impacts on the commercial shrimping industry in the Mississippi Sound, a team of natural resource professionals and stakeholders developed a derelict crab trap removal incentive program for commercial shrimpers.

#### Consumer Concern and Willingness to Pay for Plastic Alternatives in Food Service

Plastic foodservice packaging represents a large source of plastic waste and marine debris. Currently, most food service business operators are resistant to changing to environmentally friendly alternatives due to perceived cost and loss of business due to passing these costs onto the consumer. To address these issues, this study assessed the willingness of consumers to pay for plastic alternatives in both dine-in and takeout scenarios at restaurants in relation to levels of environmental concern, environmental identity, and demographics through a survey.

## THE TEAM



Dr. Eric Sparks
MISSISSIPPI
COMPACTABLE
MISSISSIPPI
MSCCP Lead



Mandy Sartain

MSCCP Coordinator



Jessi James

MSICP Coordinator

SWA'S Coordinator



Alyssa Rodolfich

DTRP Coordinator



Keith Chenier

DTRP Coordinator

Coordinator

Coordinator



Ellie Mallon

Extension Program
Assistant





Plastic Free Gulf Coast Coordinator

SWAPS Coordinator





#### January

Jones Park East Beach Gulfport, MS. 8:30 a.m. to 10 a.m.

#### february

Biloxi Lighthouse Biloxi, MS. 8:30 a.m. to 10 a.m.

#### March

Pass Christian Harbor Pass Christian, MS. 8:30 a.m. to 10 a.m.

#### April

Earth Day Celebration
Cleanup @ Biloxi Beach
Boardwalk
Biloxi, MS.
8:30 a.m. to 10 a.m.

#### May

Pascagoula Beach Pascagoula, MS. 8:30 a.m. to 10 a.m.

#### June

World Ocean Day Beach Cleanup @ Ken Combs Pier Gulfport, MS. 9:00 a.m. to 11 a.m.

Waveland Beach Waveland, MS.
8:30 a.m. to 10 a.m.

#### July

- Star-Spangled Cleanup Various Locations, MS 8:00 a.m. to 10 a.m.
- Front Beach
  Ocean Springs, MS.
  8:30 a.m. to 10 a.m.

#### August

Washington Street Pier & Boat Launch Bay St. Louis, MS.

September

Long Beach Harbor Long Beach, MS.

8:30 a.m. to 10 a.m.

All events are subject to change or cancellation. Please visit www.mscoastalcleanup.org for detailed event information.

#### October

### ANNUAL MISSISSIPPI COASTAL CLEANUP Saturday, October 21%, 2023

Multiple cleanup locations across the Mississippi Gulf Coast! 8 a.m. to 11 a.m

This event is part of the Ocean Conservancy International Coastal Cleanup.





# THANK YOU TO OUR 2022 SPONSORS!





















#### & PARTNERS











#### WANT TO BE A SPONSOR?

### STAY CONNECTED

The best way to stay updated and learn about events hosted by the Mississippi Coastal Cleanup Program is through our social media. All events are listed on our website, and announcements for events are released on social media as event dates near and registrations open.

#### INTERESTED IN LEADING YOUR OWN CLEANUP?



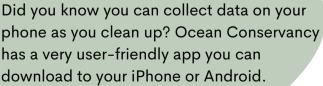
Check out this short and sweet video on our YouTube to learn the basic structure of our cleanups!



DASTAL CLEANU

**MSCCP** 

#### DITCH THE PAPER.



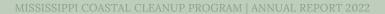
Find out more about *Clean Swell*a oceanconservancy.org

### FOLLOW US ON INSTAGRAM



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- o mscoastalcleanup
- mscoastcleanup.org





# The OSPREY team showed their strength after leading volunteers through a

cleanup on Deer Island!

#### **#MSCOASTALCLEANUP #MSCCP**

Volunteers enjoying their time at an evening cleanup in Ocean Springs hosted by MSCCP sponsor Thalassas.



Firework debris left on the beach after Fourth of July celebrations.

Volunteers spent their morning on the beaches of Gulfport picking up trash in celebration of World Oceans Day.



(No, we did not stage this photo! 😯)



TAG US ON SOCIAL MEDIA







