

FCC Quarterly Report 2nd Quarter 2021 – WXEL

04/01/2021 - 06/30/2021

04/05/21

5:30 PM

CHANGING SEAS #803

“Maug’s Caldera: A Natural Laboratory”

In the remote Pacific, the islands of Maug rise out of the sea. Formed by an ancient volcano, shallow hydrothermal vents are found close to coral reefs inside the submerged caldera. These vents emit levels of CO₂ that can be expected in the world’s oceans by the end of the century, making these waters a natural laboratory for scientists studying the impacts of ocean acidification on coral reefs.

04/06/21

5:30 PM

CHANGING SEAS #203

“Seagrasses and Mangroves”

They are an ancient species of flowering plants that grow submerged in all of the world’s oceans. Seagrasses link offshore coral reefs with coastal mangrove forests. Today, these “prairies of the sea,” along with mangroves, are on the decline globally. Scientists fear the diminishing vegetation could result in an ecosystem collapse from the bottom of the food chain all the way to the top. Changing Seas joins experts in the field as they work to restore Florida’s important mangroves and seagrasses.

04/12/21

5:30 PM

CHANGING SEAS #804

“Beneath the Bridge”

The Blue Heron Bridge in Riviera Beach, Florida, is known as one of the best shore dives in the United States. What appears as an unlikely dive site at first is home to a rich variety of marine life, ranging from sea horses to manta rays. A scientist from Florida Atlantic University is studying the two species of octopus that live here, to better understand how these animals can co-exist in one area without competing with each other. In addition, a group of dedicated underwater photographers is contributing to scientific knowledge by documenting the large number of nudibranchs, or sea slugs, that live beneath the bridge.

04/13/21

5:30 PM

CHANGING SEAS #204

“Sinking the Vandenberg”

In the turquoise blue waters of the Florida Keys, a new attraction is drawing scuba divers from around the world: The USNS General Hoyt S. Vandenberg. The Vandenberg is the world’s second largest intentionally sunk shipwreck. Prior to being sunk, this mighty ship transported troops to the battlefields of World War II, carried European refugees to distant shores, and later helped win the Cold War. Left abandoned for years as part of a ghost fleet, the Vandenberg has at last found her final resting place – seven miles off Key West, in the Florida Keys National Marine Sanctuary.

04/14/21

1:00 AM

CHANGING SEAS #804

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04/19/21

5:30 PM

CHANGING SEAS #901

“The Future of Seafood”

It is estimated there will be two billion more people on the planet by mid-century. To feed this booming world population, more fish will need to be farmed than ever before. Scientists at the University of Miami’s Experimental Hatchery are developing new and innovative techniques to help meet future demand. The scientists often collaborate with the private sector, including Open Blue, a company that raises cobia along Panama’s Caribbean coast. Open Blue’s approach to farming fish in a sustainable way is to move aquaculture operations offshore – where there is plenty of available space and strong currents flush out the pens to avoid polluting sensitive ecosystems.

04/20/21

5:30 PM

CHANGING SEAS #301

“Alien Invaders”

In the waters of the western Atlantic and Caribbean, a voracious alien predator has taken hold. Native to the Indo-Pacific, the invasive lionfish is a major threat to biodiversity and the health of already stressed coral reef ecosystems. To combat this problem, experts are encouraging people to “eat’em to beat’em”. Changing Seas joins scientists in the field to learn more about this beautiful, yet gluttonous feeder and the threat it is posing to native fish populations.

04/26/21

5:30 PM

CHANGING SEAS #902

“Toxic Algae: Complex Sources and Solutions”

For the past two decades, the residents of Martin county and the surrounding areas have been faced with a silent curse. A guacamole thick mat of blue-green algae periodically grows and clogs the waterways. These toxic algal blooms kill local marine life and even cause short term and long term health effects in humans. Scientists say that the source of these problems is in Lake Okeechobee. “Lake O,” as it is known, once South Florida’s lifeline for fresh water, is now a dumping ground for pollutants from agriculture, farming, and septic tank effluent. When the lake accumulates enough of these

fertilizers, blue-green algae grow, and they are released when water levels are too high. The solution to this problem is complex, but those affected by it are urging experts to find it fast.

04/27/21

5:30 PM

CHANGING SEAS #302

“Reef Revival”

In the emerging science of coral reef restoration, marine biologists and resource managers are discovering naturally occurring mechanisms that promote coral growth and restore ecological balance in these gardens of the sea. In South Florida, scientists are using native sponges and spiny sea urchins in novel ways that may help attract corals to damaged sites. Can nature heal itself with a little help from marine experts? Can new technologies help restore the lost coral communities?

05/03/21

5:30 PM

CHANGING SEAS #903

“The Fate of Carbon”

For millennia, the exchange of CO₂ between the oceans and atmosphere has been in balance. Two distinct processes, known in the scientific community as the solubility pump and the biological pump, transport carbon from surface waters down to the depths, where it can stay for thousands of years before returning to the surface and re-entering the atmosphere as CO₂. Now, with more anthropogenic carbon dioxide in the atmosphere, the oceans are taking up more CO₂ as well. This additional CO₂ is negatively impacting sensitive ecosystems through a process called ocean acidification, and scientists worry how changes to the ocean environment will affect the way carbon is cycled through the seas.

05/04/21

5:30 PM

CHANGING SEAS #303

“Prescription: Oceans”

At Harbor Branch Oceanographic Institute in Fort Pierce, researchers are testing sea sponges for their potential anti-cancer properties. At The Whitney Laboratory for Marine Bioscience in Marineland, experts are taking a closer look at horseshoe crabs to better understand how eyes function and change with age. Scientists there are also studying sea slugs for insights into neurodegenerative disorders such as Alzheimer’s and Parkinson’s disease. What clues will these and other simple organisms reveal about the human body? Are there cures that lie beneath the waves?

05/10/21

5:30 PM

CHANGING SEAS #904

“Majestic Mantas”

The remote Revillagigedo Archipelago off Mexico’s Pacific coast is a hotspot for giant mantas that interact with awe-struck scuba divers. Scientists with the Pacific Manta Research Group are studying the local population using photo ID techniques and acoustic tags which track the movements of these

mysterious fish. Experts from Pelagios Kakunjá are conducting experiments to see if the filter-feeding rays are impacted negatively by microplastics, tiny pieces of toxic trash that float in the ocean.

05/11/21

5:30 PM

CHANGING SEAS #304

“After the Spill”

The catastrophic oil spill in the Gulf of Mexico in April 2010 may no longer make headline news, but the story is far from over. Oceanographers continue to study the long-term effects this disaster might have on marine ecosystems. Among them are the scientists from the College of Marine Science at the University of South Florida, who have been studying the impacts of this spill from the beginning. Experts are analyzing water and sediment samples for hydrocarbon presence and toxicity and are studying the long-term effects the spill might have on a number of marine species. What impacts will low-level, chronic toxicity from oil and dispersants have on the environment? How long until the true extent of this disaster will be known?

05/17/21

5:30 PM

CHANGING SEAS #1001

“Dolphins: Breaking the Code”

Dr. Denise Herzing has dedicated her career to studying a community of wild Atlantic spotted dolphins that live in the shallow, crystal clear waters of the Bahamas. Since 1985 she has researched the animals’ social structure, behaviors and communication through non-invasive, in-water observation. This “hands-off” approach allows Herzing and her team to gain the trust of the animals and study their natural behaviors. Each field season, information is added to a large database which includes topside and underwater photographs to keep track of individuals and document their reproductive and health status as well as social associations.

05/18/21

5:30 PM

CHANGING SEAS #401

“Tracking Tigers”

Sharks are beleaguered species. The oceans’ most formidable apex predators are overfished worldwide for their fins, which are considered a delicacy in many Asian countries. Shark populations have declined by up to 90 percent in some cases. But much is still unknown about the animals. Tiger sharks in particular display behaviors that are not well understood. Known to travel long distances, these fish have a broad diet and spend time in shallow, near-shore habitats as well as the depths of the open ocean. Scientists use satellite tags and DNA forensic tools to better understand their migration patterns. Such information is crucial for resource managers to make more informed fisheries management decisions in the future.

05/24/21

5:30 PM

CHANGING SEAS #1002

“Cryptic Critters”

Right under the noses of thousands of scuba divers, a potential new threat appeared on the Vandenberg wreck. It is not surprising that it went unnoticed, since it is the width of a pencil eraser, barely the length of your finger, and perfectly camouflaged. Thankfully, one expert spotted it and immediately knew it didn't belong. It turns out it was a new species: the Vandy worm-snail. Worm-snails can be a concern because they can damage coral and transmit parasites that can infect sea turtles. Researchers want to know where this worm-snail came from, how it got there, and whether this is the start of the next harmful invasion.

05/25/21

5:30 PM

CHANGING SEAS #402

“Mysterious Microbes”

They are some of the ocean's tiniest inhabitants. On coral reefs, microorganisms are copious creatures. But in a world that's invisible to the naked eye, drastic changes are taking place. Throughout Florida, scientists painstakingly work to identify key players within this microbial community. Recent breakthroughs revealed a direct link between a human pathogen and a devastating coral disease. With corals under immense stress, experts are using advanced genetic tools and a former aquarium “pest” to better comprehend these microscopic organisms. With experimental sites in the lab and in the sea, what will microbes reveal about coral health? How do human activities impact the microbial balance on the reef?

05/31/21

5:30 PM

CHANGING SEAS #1003

“Lords of the Wetlands”

American crocodiles are shy creatures, living in mangrove swamps and other brackish or saltwater habitats. The species occurs in 17 countries, from the southernmost tip of Florida, throughout the Caribbean and Central America, to Peru. And while American crocodiles are recovering in parts of their range, their future looks bleak in Jamaica.

06/01/21

5:30 PM

CHANGING SEAS #403

“Grouper Moon”

Join researchers from the Reef Environmental Education Foundation and the Cayman Islands Department of Environment as they study one of the last great reproductive populations of Nassau Grouper. Normally a solitary species, during the winter full moons Nassau Grouper travel, sometimes over great distances, to “group” together and spawn. While most of the known spawning sites in the Caribbean have been fished out over the years, the west end of Little Cayman in the Cayman Islands is home to the largest known reproductive spawning aggregation of this endangered species.

06/07/21

5:30 PM

CHANGING SEAS #1004

“Fishing the Flats for Science”

The flats are shallow, clear waters made up of sand and seagrass that provide habitat for bonefish, tarpon and permit – three species that are popular with recreational anglers in the Florida Keys and the Bahamas. But until relatively recently, little was known about these fishes.

06/08/21

5:30 PM

CHANGING SEAS #404

“Coastal Carnivores”

On the southern tip of the Florida Everglades, the Shark River meets the Gulf of Mexico. This estuary is home to a number of predators, including the alligator and the bull shark. But despite its wild nature, the Everglades ecosystem is in trouble. Humans have greatly reduced water flows across the famed “River of Grass.” Now, a large scale restoration project aims to re-direct some of the fresh water back into the Everglades. A team of scientists from Florida International University has been studying predators in the estuary. Their goal is to better understand how these animals will respond to the changes in water flows, to ensure they continue to fulfill their critical ecological role in the food web.

06/14/21

5:30 PM

CHANGING SEAS #1101

“The Cordell Bank: A National Treasure”

California’s north-central coast is famous for its natural splendor. Only fifty miles northwest of San Francisco’s Golden Gate Bridge, yet light years away from the hustle and bustle of the human world, lies a magical underwater island few people have ever heard of. Protected inside a National Marine Sanctuary, the Cordell Bank is a hotspot for marine life. Cold, nutrient-rich waters welling up from the deep fuel the base of the marine food chain in the region, which in turn feeds birds, sea turtles, and marine mammals who travel from thousands of miles away.

06/15/21

5:30 PM

CHANGING SEAS #501

“Coral Hybrids”

Once a common sight in the Caribbean and Florida, Elkhorn and Staghorn corals are now listed as threatened on the U.S. Endangered Species list. But while these corals have declined in recent years, their hybrid appears to be increasing in parts of the region. Often found in really shallow water, this hybrid, commonly called “Fused Staghorn,” closely resembles its parents. Dr. Nicole Fogarty from Nova Southeastern University’s Oceanographic Center has been studying the hybrid near a small island off the coast of Belize since 2005. Carrie Bow Cay is a research facility of the Smithsonian Institution. The island is an ideal place to study the hybrid, because of its proximity to all three types of corals.

06/21/21

5:30 PM

CHANGING SEAS #1102

“Toxic Waters”

Florida experiences many types of harmful algal blooms, some of them annually. Several species of algae, like sargassum, aren't toxic, but can cause economic and environmental stress when they pile up on beaches and clog up coastlines. Others, like red tide and blue-green algae, release neurotoxins, causing massive wildlife kills and affecting beachgoers.

06/22/21

5:30 PM

CHANGING SEAS #502

“Sunken Stories”

The oceans are a graveyard of man's seafaring adventures. Today, underwater archaeologists are scouring the seafloor for clues to our maritime past. Changing Seas joins members of the National Association of Black Scuba Divers, or NABS, as they learn how to map shipwrecks in Biscayne National Park. Teaming up with researchers from the Florida Keys National Marine Sanctuary and the Mel Fisher Maritime Museum, volunteers return to south Florida and apply their skills on a mysterious 19th Century slave ship. Later, we follow explorers from the Aurora Trust in Key Largo, Florida who use sonar and other remote sensing tools to create detailed maps of the ocean bottom.

06/27/21

8:00 PM

CHANGING SEAS #1301

“Recreational Shark Fishing: Collaborating for Conservation”

Shore-based, catch and release shark fishing is a popular past time in Florida. But is it having a negative impact on sensitive shark populations? Scientists have teamed up with anglers to study the survival rates of the fish and conduct outreach on best practices.

06/27/21

8:30 PM

CHANGING SEAS #1302

“At the Water's Edge: The Salt Marsh”

Along scenic coastlines in the South, waves of mesmerizing green and golden grass stretch to the horizon. This is the salt marsh - a part liquid, part solid landscape that is teeming with life. How do scientists study the salt marsh? And how resilient is it to climate change?

06/28/21

7:30 PM

CHANGING SEAS #1301

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06/29/21

5:30 PM

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