CURRENTS & CROSSROADS

A VISION FOR FLORIDA'S OCEAN & COASTS

Ocean Conservancy®

WHAT COMES TO MIND WHEN YOU THINK ABOUT FLORIDA?

For me and for so many Americans, it's emerald waters. Sandy beaches. Diverse coral reefs. Sea turtles. Manatees. Fresh seafood. I constantly marvel at the ocean and coastal riches bestowed on this state.

Florida has an iconic natural environment. It is surrounded by and dependent on clean water. From the Panhandle to the Treasure Coast to the Florida Keys, you're never more than 60 miles from the beach. Florida's coasts serve as treasured sanctuaries and economic engines – places to enjoy as well as earn a living and build a life. Ocean Conservancy has been honored to work in Florida for more than 30 years, working to keep beaches clean and fisheries healthy. During our time in this state we have seen time and again the deep passion that Floridians have for their ocean and coasts.

Florida is now at a crossroads. It seems like new threats emerge every day that risk taking away that special connection to the ocean. We've seen harmful algal blooms blanket both coasts. Pollution, from oil and gas to plastic trash, hurts Florida's diverse wildlife and threatens the state's pristine beaches and waters. And long-term threats like ocean acidification and sea level rise are already having clear impacts, with even more harm looming just over the horizon.

Floridians, however, are resilient. When it matters most, Floridians come together to find ways to protect their home.

At Ocean Conservancy, we share Floridians' optimism for healthier and cleaner beaches and coasts. But how do we get there? In looking at the massive amounts of information available about Florida's beaches and coasts, we found ourselves wishing for a single document that did the following:

1) Articulates the many ways that Florida depends on its beaches, coasts and ocean;
2) Provides a comprehensive overview of the serious challenges facing Florida's beaches, coasts and ocean environments; and
3) Provides solutions to address those challenges.

This report sets out a vision for Florida's ocean and coasts. We know this is a phenomenal challenge – to imagine and then realize a Florida whose beaches are (even more) vibrant, whose waters are clean and accessible to all, and whose ocean is thriving and providing for millions.

We are up to the challenge – and we hope that you are, too.

Janis Searles Jones
Chief Executive Officer
Ocean Conservancy

Healthy Florida Ocean & Coast

Florida's ocean and coastal environment drives the economy and culture of the state, making it a world-renowned destination. In this section, we lay out key pillars of a healthy ocean and coast.

Challenges & Solutions

Florida is at a crossroads. Many challenges have arisen that jeopardize our environment and economy. We highlight these challenges and provide examples of solutions to address each one.

Ocean Conservancy®

Florida’s ocean and coastal environment drives the economy and culture of the state, making it a world-renowned destination. In this section, we lay out key pillars of a healthy ocean and coast.

HEALTHY FLORIDA OCEAN & COAST

FLORIDA COASTAL CONNECTIONS

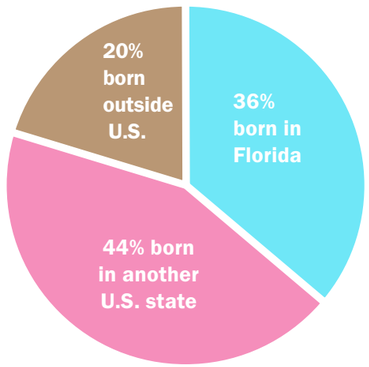
Floridians rely on healthy ocean and coastal environments for work and play.

RESIDENTS

Florida is the 3rd most populous U.S. state, and its population is growing rapidly due in large part to people moving to Florida from other states and countries.

- 800 – daily population growth
- 21 MILLION – residents
- 12% – increase in population from 2010 to 2017

FLORIDIANS' ORIGINS



VISITORS

Florida is one of the most popular tourist destinations in the United States, with the number of visitors increasing steadily every year.

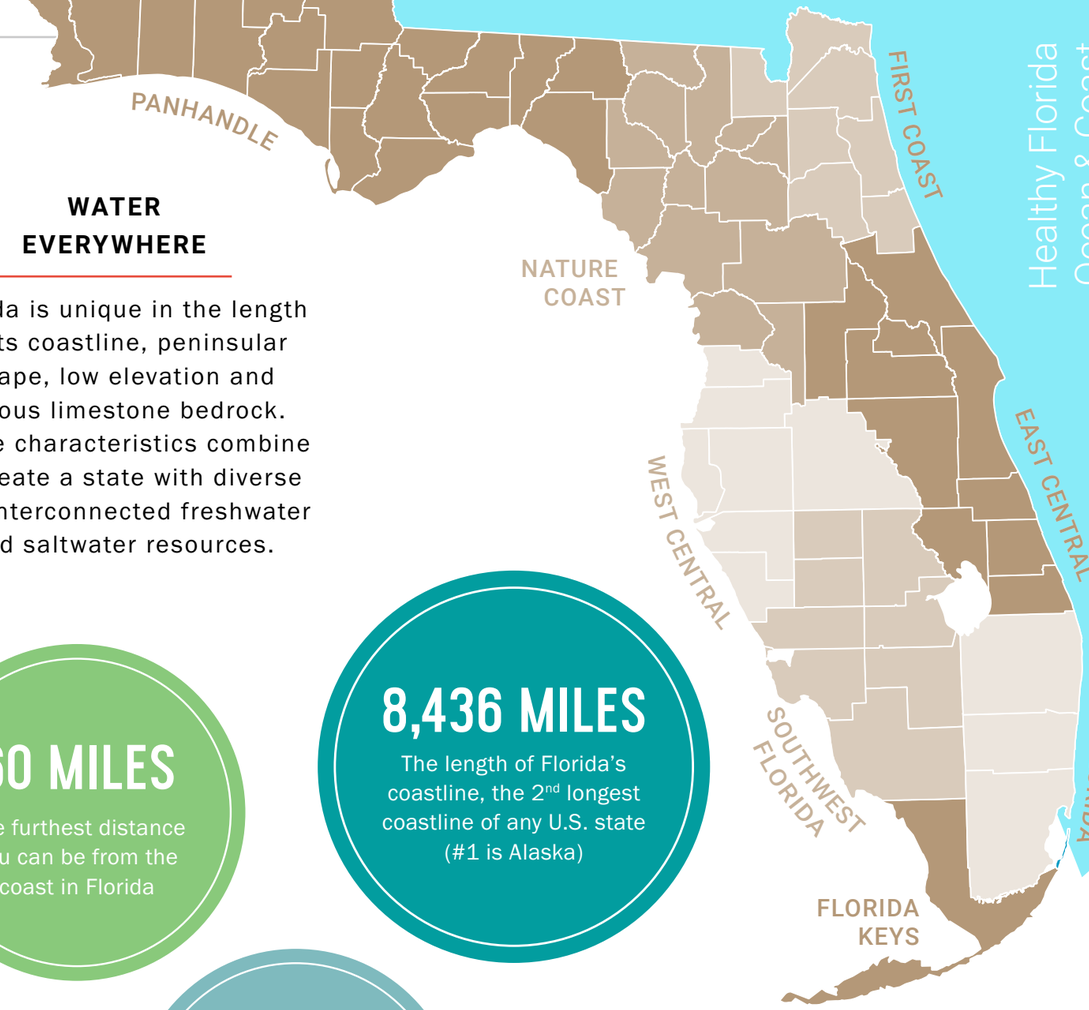
- 119 million – number of tourists that visited Florida in 2017
- 45% – increase in tourist visits from 2010 to 2017
- Visiting a beach or waterfront area is the top activity for Florida's tourists, who spent $112 billion and supported 1.4 million local jobs in the state in 2016

ECONOMIC IMPACT

Almost half a million Floridians work in the ocean economy, which includes jobs in tourism & recreation, marine transportation, marine construction, ship and boat building and living resources (including fishing). Florida employs more people in marine construction than any other state and ranks 2nd nationally in total ocean employment. The ocean economy contributes $30 billion annually to Florida's gross domestic product.

"MY FAMILY HAVE BEEN FLORIDIANS GOING ON SEVEN GENERATIONS. SINCE MY ANCESTORS FIRST CAME HERE IN THE 19TH CENTURY, OUR WAY OF LIFE HAS BEEN TIED TO FLORIDA'S COASTS, BOTH AS A SOURCE OF CULTURAL IDENTITY AND AS A LIVELIHOOD. TWO CENTURIES LATER, FLORIDIANS ARE STILL MAKING THEIR LIVING ON THE WATER, AND WE ARE STILL TAKING OUR IDENTITY FROM THE SUNSHINE AND SAND THAT MAKE THE STATE SO SPECIAL – IT'S A WAY OF LIFE THAT IS WORTH PRESERVING, AND THEY KEY IS IN ENSURING HEALTHY COASTAL ECOSYSTEMS THAT DRIVE ROBUST COASTAL ECONOMIES."

— JP BROOKER, OCEAN CONSERVANCY STAFF AND ST. PETERSBURG, FL RESIDENT



WATER EVERYWHERE

Florida is unique in the length of its coastline, peninsular shape, low elevation and porous limestone bedrock. These characteristics combine to create a state with diverse and interconnected freshwater and saltwater resources.

60 MILES
The furthest distance you can be from the coast in Florida

8,436 MILES
The length of Florida's coastline, the 2nd longest coastline of any U.S. state (#1 is Alaska)

83%
Percentage of ocean jobs in tourism & recreation

$14 BILLION
Annual wages in ocean-related jobs

477,333
Number of Floridians who work directly in ocean-related jobs

4,150
Number of islands, that are at least 10 acres, more than any other state except Alaska

CLEAN & ABUNDANT WATER

Floridians' lives are shaped by the waters that surround them: hauntingly beautiful springs, iconic coastal waters, the mammoth Lake Okeechobee and the one-of-a-kind Everglades.

FLORIDA'S WATERS - SALT AND FRESH, ABOVE GROUND AND BELOW - PERMEATE THE STATE IN INTERCONNECTED AND DEEPLY INTERDEPENDENT SYSTEMS.

INLAND WATERS:
90% of Floridians rely on groundwater for their water supply. Two quadrillion gallons of water flow through Florida's underground aquifer and fill Florida's springs.

41
Number of outstanding Florida waterbodies that receive special water quality protection

OCEAN WATER:
Florida's coastal waters are connected to three large marine ecosystems: the southeast U.S. continental shelf (Atlantic Coast), Caribbean Sea and Gulf of Mexico.

1,700
Number of rivers in Florida, through which water flows from inland to the sea

95%
Percentage of recreationally and commercially important fish and shellfish species that spend part of their lives in estuaries, where rivers meet the sea

FILTRATION:
Mangroves, seagrasses and corals thrive when the state's swamps, marshes and other wetlands are healthy enough to remove excess nutrients from fresh water before it flows into the sea.

HABITAT:
Springs, watersheds and groundwater feed the state's rivers and support catfish, mullet, bass, gar, many species of birds and overwintering manatees.

HUMAN USE:
Groundwater moves in complex ways through underground caves, sinkholes and caverns providing drinking water for Florida's 21 million residents.

"IN FLORIDA, THE HEALTH OF OUR OCEAN AND ESTUARIES, AND THE FISHERIES AND JOBS THAT THEY SUPPORT, ARE INEXTRICABLY LINKED TO THE HEALTH OF OUR FRESHWATER ECOSYSTEMS. WHETHER IT'S THE MIGHTY APALACHICOLA RIVER THAT FEEDS APALACHICOLA BAY, TAMPA BAY AND THE FOUR MAJOR TRIBUTARIES THAT FEED IT, THE CALOOSAHATCHEE RIVER AND ITS ESTUARY, OR THE ST. LUCIE RIVER AND ESTUARY, WE HAVE TO MANAGE OUR WATER RESOURCES HOLISTICALLY. ULTIMATELY, OUR OCEAN, OUR ESTUARIES AND OUR RIVERS ARE ALL CONNECTED."

ANDY HAYSLIP, EXECUTIVE DIRECTOR AT TAMPA BAY WATERKEEPER WHICH IS DEDICATED TO ENSURING FISHABLE, SWIMMABLE AND DRINKABLE WATER FOR ALL; FOR PEOPLE, FOR OUR ENVIRONMENT AND FOR OUR ECONOMY.

HEALTHY BEACHES

Florida's beaches are iconic, culturally and economically important and provide habitat for many species, as well as storm and flood protection for coastal communities. Beaches are also the top tourist attraction in Florida and the strongest element of Florida's state brand.

825
Miles of beaches in Florida

485
Miles of beaches experiencing active erosion

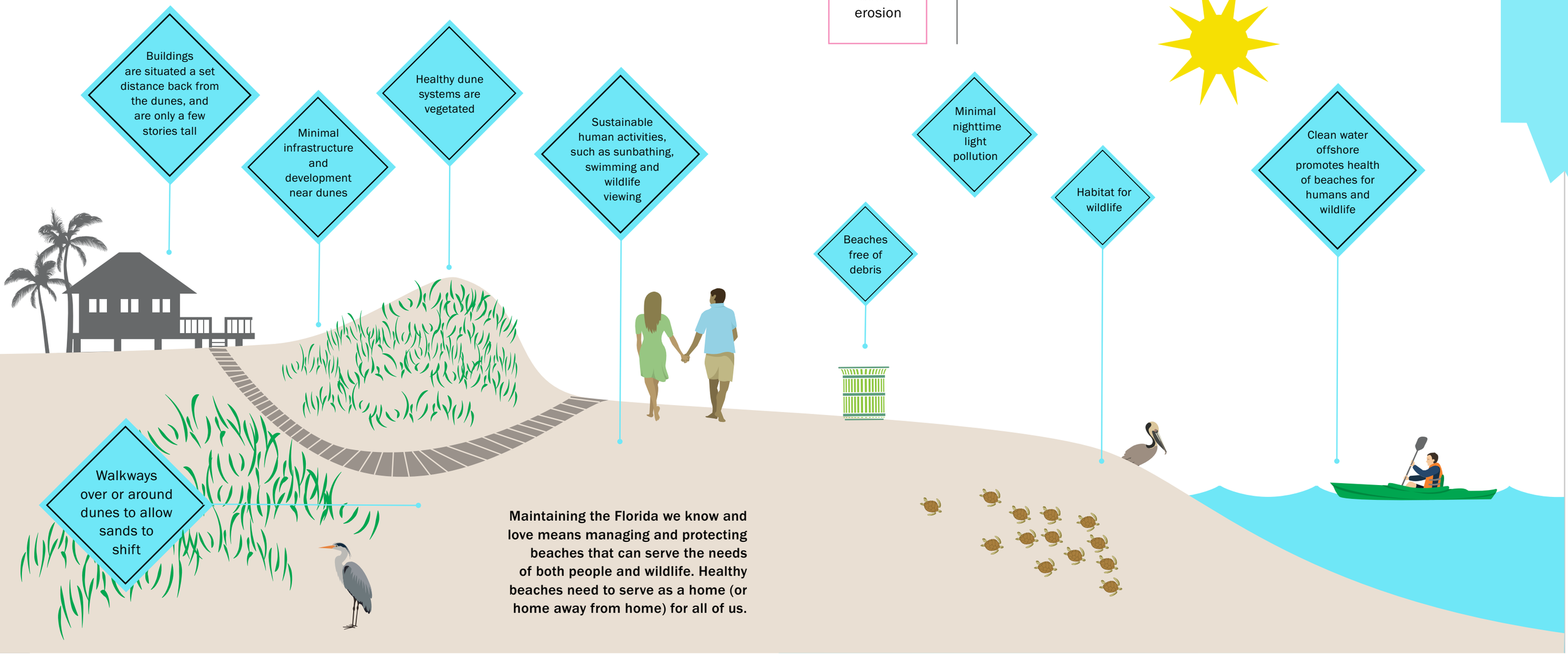
$2 BILLION
Estimated tourist spending resulting from beach visits in 2012-13

40,000-80,000
Nests on Florida beaches made by sea turtles every year

30
Number of rare plant and animal species that depend on healthy Florida beaches for habitat

26%
Percentage of visitors who choose Florida due to beaches (compared to 24% for theme parks, 22% for retail/dining/nightlife)

KEY ELEMENTS OF A HEALTHY BEACH



Maintaining the Florida we know and love means managing and protecting beaches that can serve the needs of both people and wildlife. Healthy beaches need to serve as a home (or home away from home) for all of us.

THRIVING HABITATS

Florida's corals, seagrasses and mangroves create a rich, diverse set of coastal ecosystems that are critical to marine life and provide recreation and commercial value to Florida's residents and visitors.

90%
of commercially caught fish depend on mangroves

FLORIDA BAY
lost 44% of its mangrove and salt marsh acreage over the last 100 years

LAKE WORTH
lost 87% of its mangrove acreage over the last 40 years

MANGROVE

Mangroves are unique trees, able to extract the fresh water they need from saltwater. Florida's mangroves create entire coastal ecosystems, trapping sediment, cycling organic material and storing carbon.

Mangroves are especially important for Florida's recreational and commercial fisheries.

- Food and shelter for many species of fish and crabs
- Nurseries for snook, tarpon and many species of snappers and grunts
- Habitat for oysters, sponges and other species that filter the water

469,000
Acres of mangroves in Florida

1,800
Miles of shoreline lined by mangroves in the Florida Keys National Marine Sanctuary

Mangroves protect upland areas from storm impacts – wind, waves and flooding. They also help stabilize shorelines, prevent erosion, filter water and maintain water quality and clarity.

Planners are identifying suitable areas where mangroves can be allowed to migrate inland as sea levels rise so that their benefits can be maintained.

CORAL

The Florida Reef Tract stretches from the tip of the Florida Keys up the Atlantic Coast to Martin County. It's the largest reef in North America and the 3rd largest in the world. Coral is also found along Florida's Gulf Coast.

A significant portion of Florida's commercial and recreational fish species depend on coral reefs for food and habitat. Coral reefs in Florida have significantly declined over the last 40 years. In the 1970s, 50% of the seafloor in some areas was covered with coral compared to less than 6% today.

360
Miles of coral in the Florida Reef Tract

2,800
Nautical mi^2 within the Florida Keys National Marine Sanctuary

Coral reef tourism – diving, fishing and viewing – in Florida has major economic impact:

- **$6 billion in local sales**
- **$3 billion in local income**
- **70,000 local jobs**

SEAGRASSES

Seagrasses provide food for manatees, sea turtles and conchs, and shelter for snapper, grouper, sea trout and blue crabs. Seagrasses trap sediments, stabilize the seafloor, improve water clarity and store carbon.

- Seagrass beds in Florida's Big Bend, Florida Bay and the Indian River Lagoon have shrunk in recent years due to poor water quality.
- Improvements in wastewater treatment, stormwater management, watershed land use policies and regulation of dredging have allowed seagrass beds to recover in Tampa Bay and Sarasota Bay.

2.2 MILLION
Acres of seagrass beds in Florida

40,000
Number of fish supported by an acre of seagrass

Some of the most extensive seagrass beds in North America occur in two areas of Florida's coast – in Florida Bay and the area stretching from Tarpon Springs on the West Central Coast, through the Nature Coast and into the eastern Panhandle in Apalachee Bay.

ABUNDANT WILDLIFE

Florida is home to rich marine life - sea turtles, manatees, dolphins, whales, sharks, rays, fish, lobsters, crabs and smaller critters that are part of the beach experience, like sand dollars and sea stars. Shorebirds, seabirds, waterfowl and birds of prey depend on the ocean and coastal habitats, as do alligators, crocodiles and even panthers. Floridians care about their amazing wildlife and their communities benefit from wildlife-related tourism, which depends on healthy animal populations.

20 POUNDS
Amount of fish and invertebrates eaten each day by a bottlenose dolphin, the most common dolphin in Florida

100
Number of dolphins sometimes found traveling together in offshore groups

$4.9 BILLION
Economic impact of wildlife viewing in Florida in 2011

6 WEEKS
Length of time least terns need to nest on Florida's beaches, including 3 weeks for eggs to hatch and 3 weeks for young to learn to fly

1,500
Nesting pairs of bald eagles in Florida in 2014, an increase from 88 pairs in 1973

43 YEARS
Age of the oldest known brown pelican

115
Average number of eggs laid by female green turtles nesting on Florida beaches

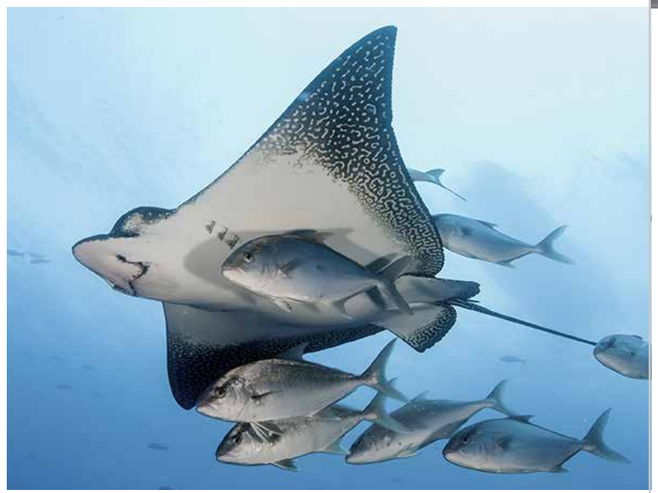
1 IN 1,000
Chances that a newly hatched sea turtle has of surviving to adulthood

1,300 POUNDS
Size of a full-grown leatherback turtle

50 MILLION
Years that manatees and their ancestors have lived in the waters around Florida

6,350
Manatee population in Florida in 2012, a threatened population requiring protection

20 MILES
Typical distance migrating manatees cover in a day



10 FEET
Wingspan of spotted eagle ray, which can grow to 500 pounds and 17 feet total length

6 FEET
Length of Atlantic sturgeon, a fish whose ancestors have inhabited Florida's waters for 225 million years

100s OF MILES
Distance that bull sharks can travel inland up freshwater rivers

VOLUNTEERS FOR WILDLIFE
Floridians volunteer thousands of hours every year for wildlife. The Sea Turtle Conservancy, Surfrider Foundation, National Audubon Society, marine animal rescue centers and many other organizations bring together hundreds of volunteers to make Florida's ocean and coast more wildlife-friendly.

"It all started the day my husband and I found an injured crowned heron and brought it to a local seabird sanctuary. That was my initiation into wildlife volunteering. I started donating time to the sanctuary, which eventually led to volunteering at the Clearwater Marine Aquarium and joining the Stranding Team, which responds to calls for injured animals. What strikes me most about this work is the realization of what animals suffer because of us. It really tugs on the heartstrings when you pull a turtle out of the water that's been struck by a boat, or you cut fishing line from a heron or pelican tangled in the mangroves. I'm just one of thousands of Floridians who donate their time to help injured and stranded animals; this state is full of people who are passionate about their environment and their wildlife." **Ocean Conservancy staffer Lesley Ferguson moved to Florida as a 10-year-old and has been in love with the water ever since. She and her husband live by the Gulf of Mexico; her favorite place in the world is on the bow of their boat photographing and following the lives of their local neighborhood dolphins.**

PLENTIFUL FISHERIES

Florida is known as the “Fishing Capital of the World.” Commercial and recreational fishing have long been economic drivers for the state, creating billions of dollars in local sales. More than 200,000 Floridians make their living fishing, in communities from the Panhandle to the Florida Keys. Their livelihoods and communities depend on plentiful fish and shellfish populations. Responsible fisheries management, healthy habitats and water quality are all essential for maintaining plentiful fisheries.

#1 Florida has more recreational fishing world records than any other state or country

#1 There are more recreational fishermen in Florida than in any other state

Percentage of national commercial spiny lobster landings caught in Florida **88%**

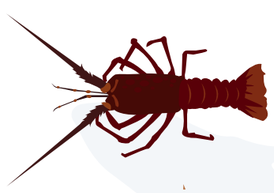
1.8 MILLION

Number of saltwater recreational fishing licenses issued by the state of Florida 2016/2017

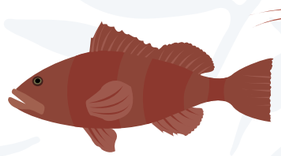
98 MILLION

Pounds of fish and shellfish landed by Florida commercial fisherman in 2016

THE TOP 4 COMMERCIAL SPECIES BY VALUE IN 2016



Spiny lobster ($54 M)



Red grouper ($53 M)

Shrimp ($45.9 M)

Stone crab ($30.4 M)

IN FLORIDA	SALTWATER RECREATIONAL FISHING	COMMERCIAL FISHING
LOCAL SALES	$13.1 BILLION	$17.7 BILLION
LOCAL INCOME	$4.8 BILLION	$3.3 BILLION
LOCAL JOBS	97,000	92,858

MAYPORT

100 YEARS OF SHRIMP

Commercial fishing for shrimp has been central to Mayport’s identity since the 1920s. At the height of the fishery in the 1950s, 150 fishing boats lined the town’s wharfs.

DESTIN

CENTURY OF RED SNAPPER

From the town they call “The World’s Luckiest Fishing Village,” Destin captains have pursued recreational and commercial fisheries for over 100 years.

FT. LAUDERDALE

EMERGING GOLDEN CRAB

A dozen fishing boats pursue this deep-water crab on the continental shelf east of Ft. Lauderdale in a small-scale, sustainable fishery.

MADEIRA BEACH

LEGENDARY RED GROUPER

Recreational, charter-for-hire and commercial fishermen land vast quantities of fish caught offshore, while tourists flock to the beach and enjoy blackened grouper sandwiches.

CORTEZ

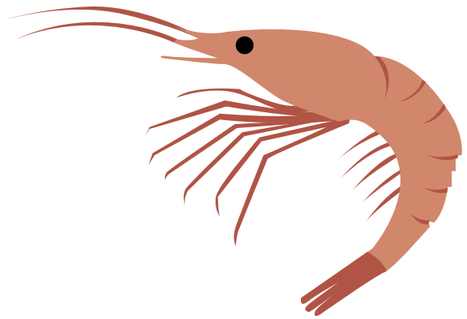
A NEW DELICACY IN THE MIX

Innovative local processing and marketing of dried mullet roe, sold as ‘bottarga’ in Italy and ‘karasumi’ in Asia, is increasing profits in this fishing town reliant on grouper, shrimp, stone crab and other fish.

MARATHON

LUCRATIVE SPINY LOBSTER

The trap fishery for lobster has boomed in recent years, providing a more diverse economic base for Florida Keys communities otherwise dependent on tourism.



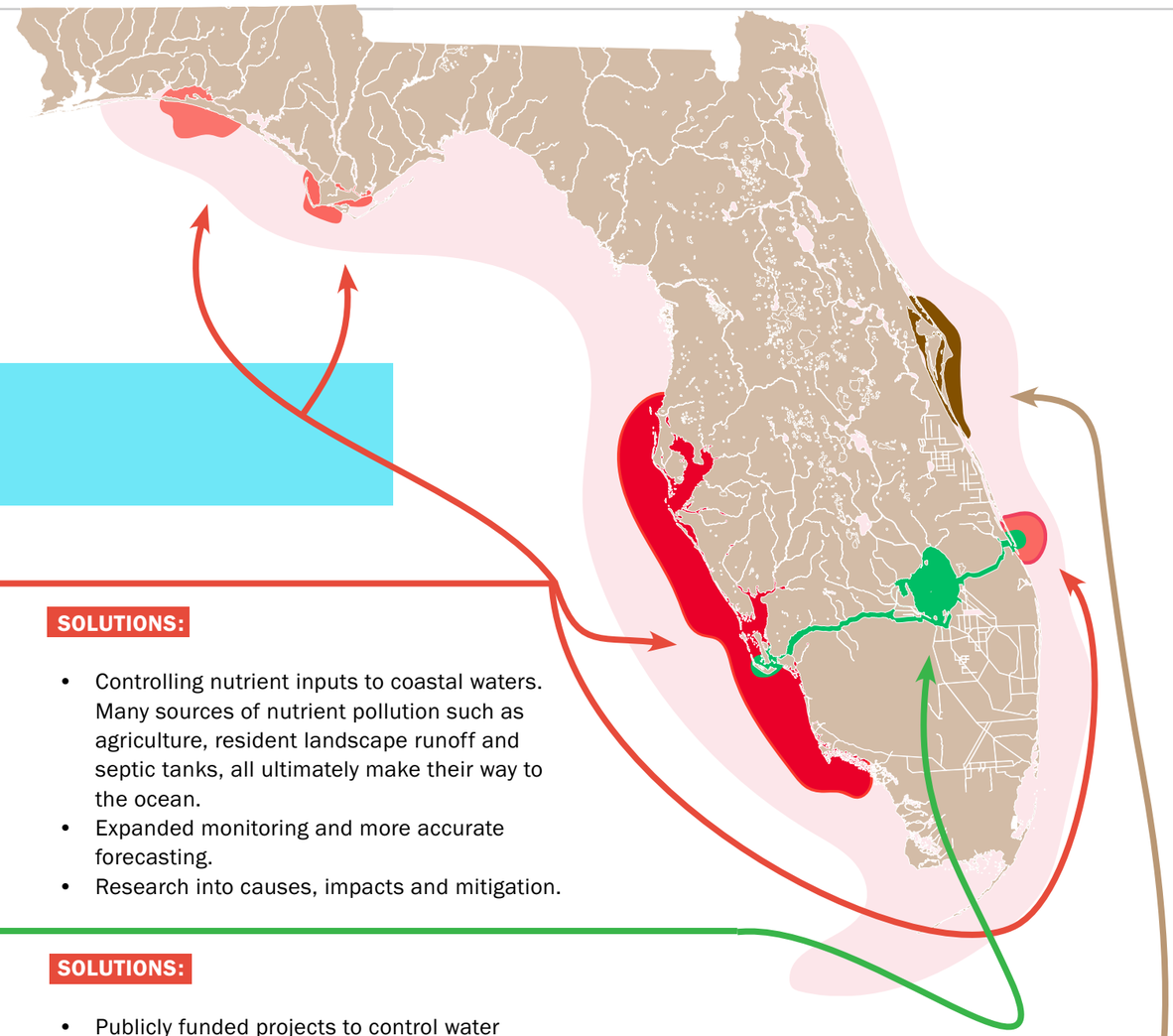
Florida is at a crossroads. Many challenges have arisen that jeopardize our environment and economy. We highlight these challenges and provide examples of solutions to address each one.

CHALLENGES & SOLUTIONS

HARMFUL ALGAL BLOOMS

Multiple types of algal blooms occur in Florida's ocean and coastal environments, harming water quality, wildlife, fishing, recreation and human health. 2018 was a record year for algal blooms in Florida. Warmer conditions, nutrient pollution and more extreme weather are projected to cause more frequent blooms in the future.

"AS WATER GOES, SO GOES FISH. COMMERCIAL FISHERMEN DEPEND ON CLEAN WATER TO PROVIDE HIGH-QUALITY SEAFOOD TO OUR LOCAL MARKETS. BAD WATER MEANS BAD FISHING" — TOM MARVEL, F/V SEA MARVEL, NAPLES, FLORIDA



RED TIDE

DEVASTATING IMPACTS IN 2018:
In 2018 a red tide event encompassed Florida's southwest coast and then spread to the Atlantic Coast and up to the Panhandle. This event had devastating impacts on Florida's environment and economy, killing hundreds of sea turtles, manatees and dolphins, and costing communities millions of dollars.

WHAT
Red tide is caused by naturally occurring algae that "blooms" when conditions are right. The algae release a toxin that can sicken animals and people. Red tide can be exacerbated by increased human-caused nutrient inputs from coastal waters.

WHERE
Ocean and coastal waters – offshore origin.

SOLUTIONS:

- Controlling nutrient inputs to coastal waters. Many sources of nutrient pollution such as agriculture, resident landscape runoff and septic tanks, all ultimately make their way to the ocean.
- Expanded monitoring and more accurate forecasting.
- Research into causes, impacts and mitigation.

BLUE-GREEN ALGAE

2018 WORST BLOOM IN HISTORY:
At its worst, more than half of Lake Okeechobee, the St. Lucie River to the east and the Caloosahatchee River to the west were covered by blue-green algae. Direct contact with blooms can cause rashes, respiratory irritation, cramps, nausea, diarrhea and vomiting.

WHAT
Blue-green algae blooms are out-of-control growth of a naturally occurring species. Blooms are triggered by nutrient pollution in runoff, warm temperatures and abundant sunlight. The blooms sicken people and starve aquatic life of oxygen and sunlight.

WHERE
Fresh water and rivers – inland origin. Fresh water and nutrients flow into estuaries on the Atlantic and Gulf coasts, fueling the growth of resident blue-green algae.

SOLUTIONS:

- Publicly funded projects to control water flow and nutrient pollution (See Water Quantity & Quality page for infrastructure solutions).
- Further improving agricultural practices, water treatment in urban areas, and septic systems in rural areas and residential landscape practices.

BROWN ALGAE

2016 WORST BLOOM IN HISTORY THREATENS AGAIN IN 2018:
In a 2016 brown algae event, animal carcasses "blanketed Cocoa Beach canals and dotted the lagoon from Titusville to as far south as Palm Bay." (Florida Today, 3/2/18).

WHAT
Different species of algae can form brown tides, and some are becoming increasingly problematic. Polluted runoff and the thick, nutrient-polluted muck coating the bottom of Indian River Lagoon both feed the algae bloom, which kills fish and shades sunlight, causing large-scale seagrass die-offs.

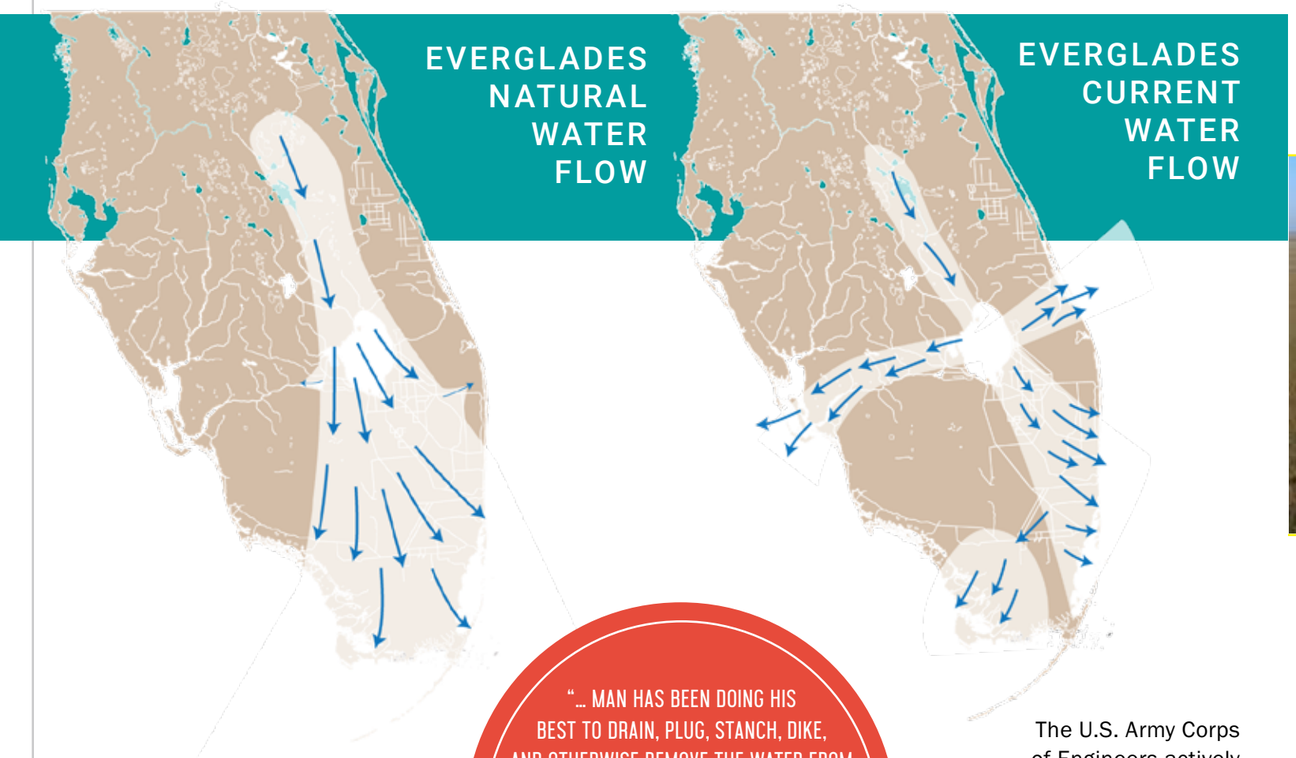
WHERE
Central & northern Indian River Lagoon.

SOLUTIONS:

- Marsh restoration
- Redirecting wastewater from waterbodies
- Improving stormwater, sewer system and septic tank infrastructure
- Improved residential landscape practices

WATER QUALITY & QUANTITY

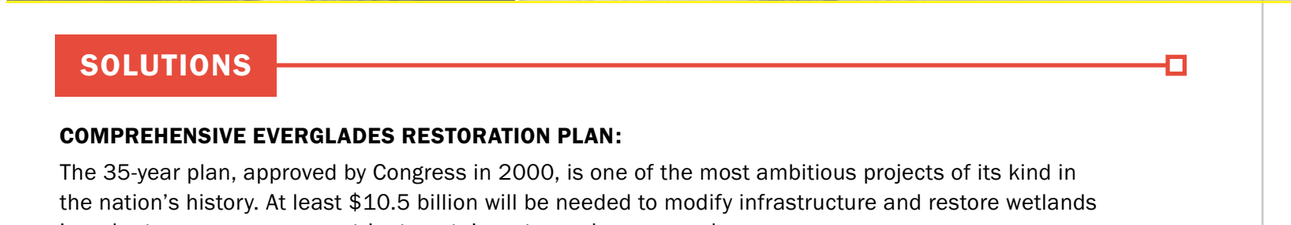
Starting in the early 1900s, people have built complicated water control systems to drain wetlands, control flooding, irrigate crops and provide water to growing cities and towns throughout the state. All of the major rivers have been impacted, including the Apalachicola, St. Johns, Kissimmee, St. Lucie and Caloosahatchee. The result has been a dramatic change to the way fresh water flows throughout the inland areas of the state, and in the lakes, rivers and estuaries that flow into the sea, eventually impacting marine life. These altered flows of fresh water, combined with significant nutrient pollution inputs and a long list of other threats, pose an ongoing risk to Florida's waterways and marine environment.



40,000 acres of seagrass died in Florida Bay in 2015 due to drought and decreasing freshwater flow from the Everglades into the bay.

"... MAN HAS BEEN DOING HIS BEST TO DRAIN, PLUG, STANCH, DIKE, AND OTHERWISE REMOVE THE WATER FROM THE EVERGLADES SINCE THE BEGINNING OF [THE 20TH] CENTURY... BY 1947, WHEN THE NATIONAL PARK WAS ESTABLISHED, THE EVERGLADES ALREADY HAD BEEN TRANSFORMED." — Marjory Stoneman Douglas, 1987

The U.S. Army Corps of Engineers actively manages water levels in Lake Okeechobee within the constraints of existing infrastructure and the need to balance water flow across a complex ecological and agricultural system.



SOLUTIONS

COMPREHENSIVE EVERGLADES RESTORATION PLAN:

The 35-year plan, approved by Congress in 2000, is one of the most ambitious projects of its kind in the nation's history. At least $10.5 billion will be needed to modify infrastructure and restore wetlands in order to remove excess nutrients, retain water and manage releases.

RESTORING WATER FLOW - RAISING THE TAMIAMI TRAIL (PICTURED ABOVE) ONTO BRIDGES:

In 2012 a new one-mile-long bridge was completed on a section of the Tamiami Trail crossing the Everglades, raising the roadway and allowing the Army Corps to release more water from Lake Okeechobee into the Everglades and Florida Bay. The raising and bridging of an additional two-mile segment is underway, leaving 6.7 miles to be bridged and raised. For decades the Tamiami Trail has artificially blocked the free flow of water south into the Everglades. The effort to elevate the highway is a desperately needed step toward restoring the southward flow of fresh water.

OCEAN ACIDIFICATION

As more carbon pollution is absorbed by the ocean, it is changing the chemistry of the ocean. This is known as ocean acidification.

CARBON DIOXIDE DISSOLVES IN THE OCEANS WHERE IT COMBINES WITH WATER MOLECULES TO CREATE CARBONIC ACID.

1. CARBON DIOXIDE POLLUTION IS RELEASED INTO THE ATMOSPHERE.
2. 30% OF EMITTED CO_2 IS ABSORBED INTO THE OCEAN, WHERE IT CAUSES OCEAN ACIDIFICATION.
3. OCEAN ACIDIFICATION IS HARMFUL TO CREATURES ACROSS THE FOOD WEB.

WHY DOES OCEAN ACIDIFICATION MATTER?

Oysters, clams and corals have trouble building their shells and skeletons in these conditions and are less able to handle other stressors. Corals, in particular, are less able to handle loss from disease, heat-related bleaching, or ship strikes.

Fish like sharks, cobia and dolphinfish hear and smell poorly in acidified conditions, which hurts their ability to find food. Even more marine life could be impacted by food web changes, but more studies are needed.

Wildlife and reefs threatened by ocean acidification are vitally important to Florida's economy. Coral reefs alone support 70,000 jobs and create $60 billion every year in local sales.

"CORAL REEFS ARE OUR BUSINESS. THAT IS WHAT WE'RE ALL ABOUT. THE HEALTH OF THE OCEAN. WITHOUT THAT, WE DON'T HAVE A BUSINESS. IT'S EVERYTHING TO US, SO THE IMPORTANCE OF THE HEALTH OF THE REEFS AND THE FISHING ITSELF IS EVERYTHING TO US. WITHOUT IT WE'RE NOTHING." DALE PALOMINO IS THE GENERAL MANAGER AND HEAD CHEF AT THE CAPTAIN'S TAVERN RESTAURANT & SEAFOOD MARKET, HIS FAMILY BUSINESS IN MIAMI, FL.

CORAL DISEASE & BLEACHING

The Florida Coral Reef Tract, one of the state's treasures, is highly stressed due to disease and bleaching.

DISEASE: Corals, like all animals, suffer from diseases due to viruses and bacteria that naturally occur in the water. An unprecedented outbreak of stony coral tissue loss disease started in southeast Florida in fall of 2014, and has now expanded over at least 200 linear miles of reef, stretching from the lower keys in the south to Martin County in the north. Half of Florida's 45 reef-building species have been affected.

BLEACHING: Bleaching occurs when the coral expels the tiny symbiotic algae that give the reef its color. Stress due to warming ocean temperatures is the primary cause of bleaching events worldwide. Run-off, pollution, overexposure to sunlight and extreme low tides can also cause bleaching.

WHY DO CORAL DISEASE AND BLEACHING MATTER:
Bleached and diseased coral ecosystems are less alluring to tourists and support fewer fish that sport fishermen want to catch. Coral disease and bleaching hurts the bottom line of charter fishing and scuba businesses. The ongoing disease outbreak is devastating one of the most biodiverse ecosystems in the world.

JANUARY 5, 2017
5% DEAD

JANUARY 19, 2017
20% DEAD

FEBRUARY 1, 2017
60% DEAD

SOLUTIONS

To fix the problems of ocean acidification, coral disease and coral bleaching for good, we need to cut carbon emissions and address climate change. We should also address other stressors that damage coral systems, like ship strikes and run-off pollution. And we need to continue supporting scientific research investments to better understand these complex threats and improve coral restoration efforts.

OIL & GAS DRILLING AND POLLUTION

Oil and gas drilling creates grave risks to Florida's ocean and coast and the livelihoods that depend on healthy marine resources. Unfortunately, Floridians know all too well the damage that can occur when things go wrong with oil and gas activities. Counties, cities, towns, chambers of commerce and individual businesses, and families are taking their own initiative to oppose offshore drilling to keep Florida's ocean and coasts healthy and beautiful.

BP *DEEPWATER HORIZON* OIL DISASTER 2010

176 Miles of the Florida Panhandle impacted by oil pollution.

Economic losses to Florida's tourism & recreation businesses between August 2010 and March 2012. **$884 MILLION**

18,000 Estimated loss of loggerhead sea turtle hatchlings in 2010 due to clean-up activities deterring adult female turtles from nesting.

Economic loss to Florida's charter fishing industry. **$71 MILLION**

15,300 Square miles of Gulf of Mexico off Florida's coast closed to fishing in 2010.

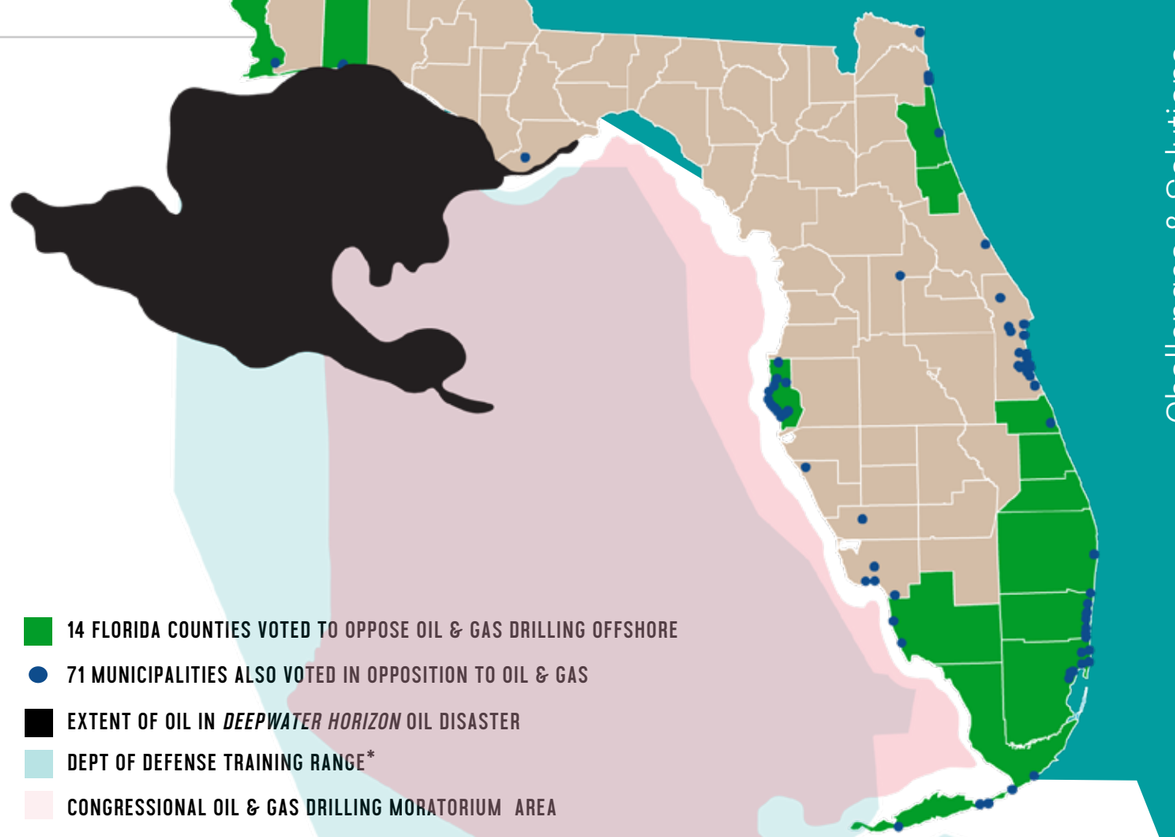
Square feet of damage to Florida seagrass beds. **9,429**

SILENT CHRONIC POLLUTION

The problems of oil and gas pollution are not limited to well-known major disasters like *Deepwater Horizon*. In fact, active and aging petroleum infrastructure is polluting Florida's ocean and coast all the time. "For every 1,000 wells in state and federal waters, there's an average of 20 uncontrolled releases of oil — or blowouts — every year. A fire erupts offshore every three days, on average, and hundreds of workers are injured annually." (Washington Post, 10/21/18)

14 The number of years that oil has been leaking from Taylor Energy wells damaged by Hurricane Ivan's 145-mph winds and 70-foot waves.

"WITH NO FIX IN SIGHT, THE TAYLOR OFFSHORE SPILL IS THREATENING TO OVERTAKE BP'S DEEPWATER HORIZON DISASTER AS THE LARGEST EVER." (Washington Post, 10/21/18)



* The Department of Defense has expressed concerns that new oil and gas drilling in the eastern Gulf of Mexico would compromise the military test and training exercises they carry out in this area, which is the largest over-water military training area in the continental United States.

SOLUTIONS

Floridians and their elected officials can protect the health of the ocean and coastal environments by opposing oil and gas drilling in state waters and adjacent federal waters, and pushing to maintain existing bans like the congressional oil and gas drilling moratorium in the eastern Gulf of Mexico.

68% OF FLORIDIANS VOTED FOR A STATE-WIDE BAN ON OIL & GAS DRILLING OFF THEIR SHORES

In 2018, Floridians approved Amendment 9, prohibiting drilling, either for exploration or extraction, of oil or natural gas in state waters, which extend three miles from shore on the Atlantic Coast and nine miles from shore on the Gulf Coast.

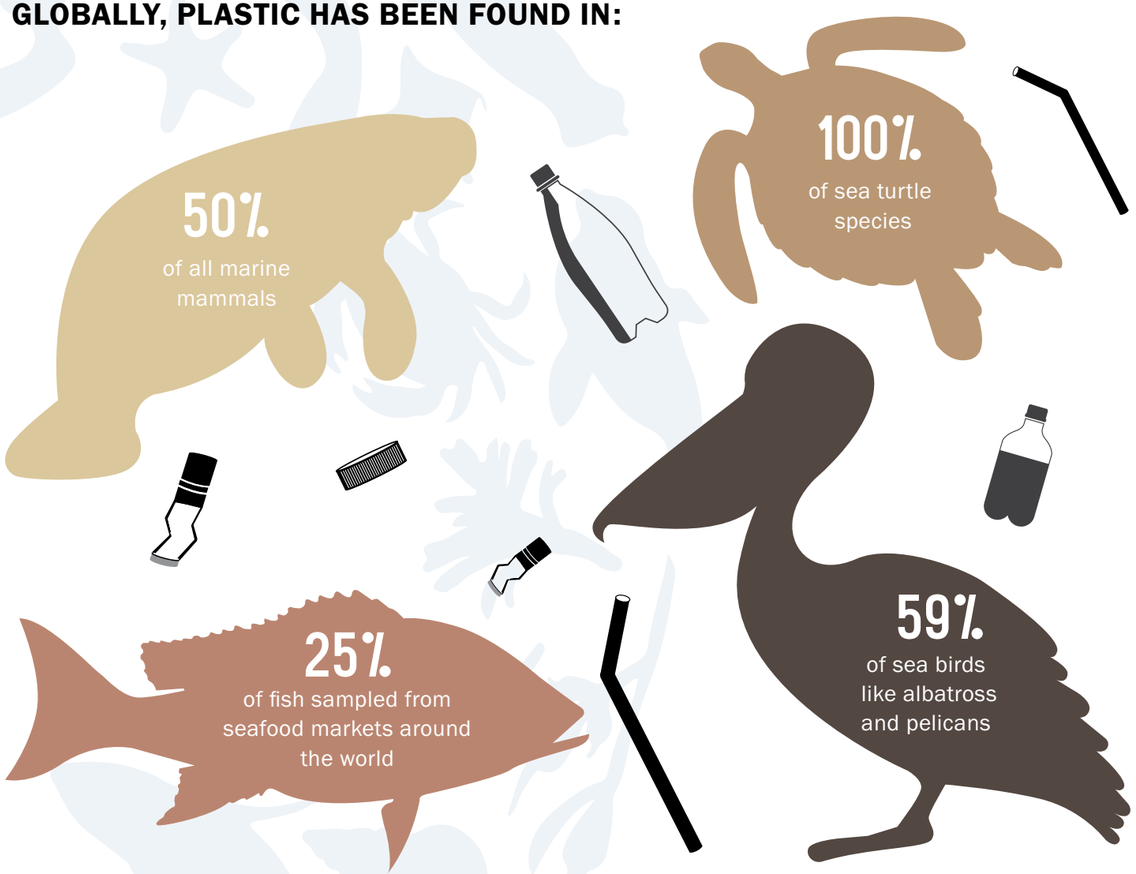
BUSINESSES ADD THEIR VOICE IN OPPOSITION TO OIL & GAS DRILLING, INCLUDING THE FOLLOWING CHAMBERS WHICH PASSED RESOLUTIONS OF OPPOSITION IN 2017 AND 2018:

- Greater Naples Chamber of Commerce
- Greater Key West Chamber of Commerce
- Tampa Bay Beaches Chamber of Commerce
- Miami Beach Chamber of Commerce
- Destin Chamber of Commerce

OCEAN TRASH

Ocean trash affects the health of wildlife, people and local economies. Trash in the water and on the shore can be mistaken as food by wildlife or entangle animals with lethal consequences.

GLOBALLY, PLASTIC HAS BEEN FOUND IN:



"THE SEA TURTLE HOSPITAL AT UNIVERSITY OF FLORIDA WHITNEY LABORATORY HAS BEEN HELPING SEA TURTLES IMPACTED BY OCEAN TRASH SINCE OCTOBER 2015. OUR TEAM OF DEDICATED STAFF AND VOLUNTEERS CARE FOR TURTLE PATIENTS SUFFERING FROM FISHING LINE ENTANGLEMENT AND PLASTIC INGESTION, AMONG OTHER MALADIES. TEAM MEMBERS ALSO CONTRIBUTE BEYOND THE WALLS OF THE FACILITY, PARTICIPATING IN THE INTERNATIONAL COASTAL CLEANUP OR MONITORING BEACHES FOR SEA TURTLE NESTS."

CATHERINE EASTMAN, SEA TURTLE PROGRAM COORDINATOR, UF WHITNEY LABORATORY, ST. AUGUSTINE, FLORIDA

SOLUTIONS

REDUCE SINGLE-USE PLASTICS: All individual consumers can take steps to stop using unnecessary products like straws and plastic grocery bags. Elected officials at all levels of government can also implement policies that help reduce the amount of waste produced from unnecessary single-use items.

INCREASE RECYCLING: All Floridians can recycle waste in their daily life and help stimulate demand for recycled materials by buying products with recycled content and packaging. Elected officials can help by supporting improved recycling infrastructure, setting ambitious targets and incentives for the use of recycled materials and increasing consumer transparency and public education.

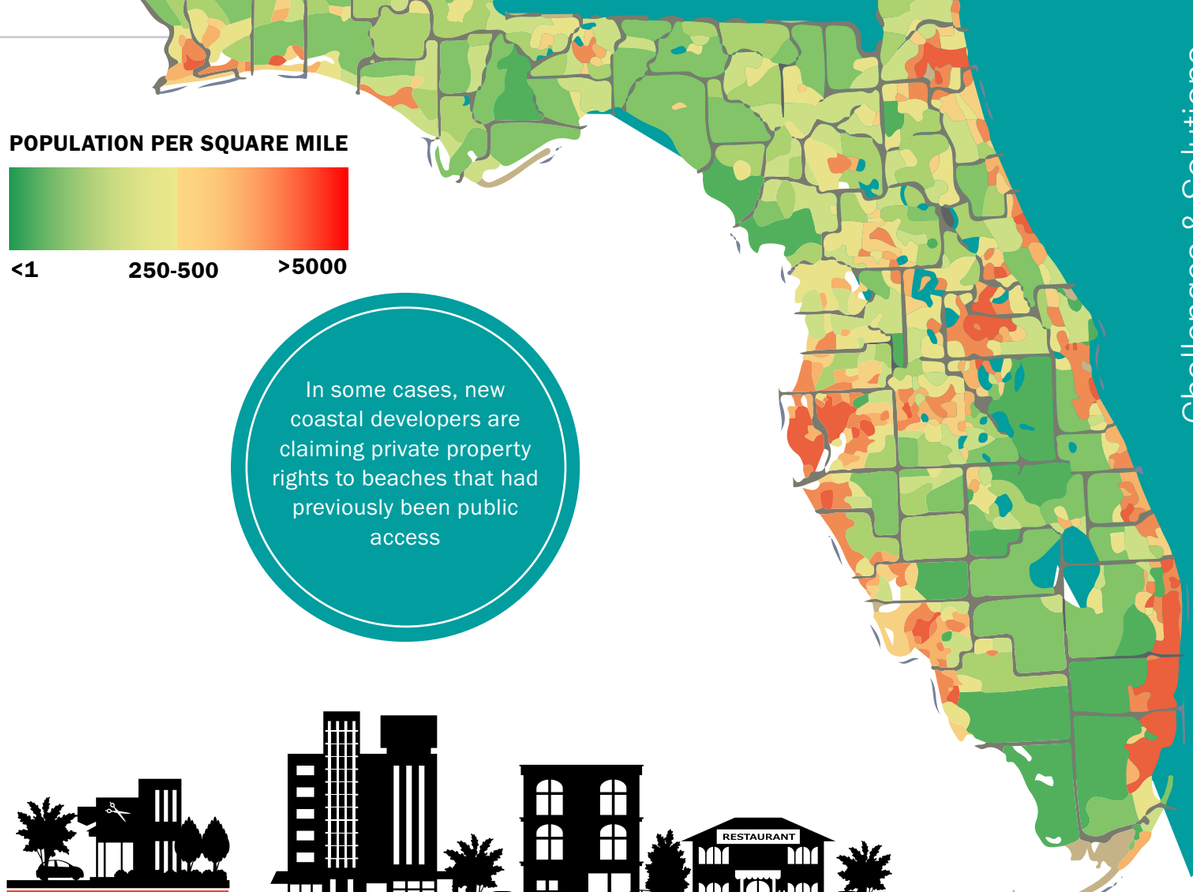
HELP FISHERMEN REDUCE AND RECOVER LOST FISHING GEAR: For example, Ocean Conservancy's Global Ghost Gear Initiative brings together the fishing industry, private sector, academia, governments, intergovernmental and nongovernmental organizations to pilot new approaches and share what they are learning to reduce the problem of lost and abandoned fishing gear worldwide.

ATTEND OR HOST A BEACH CLEANUP: In 2017, 21,000 volunteers across Florida cleaned up 173,000 pounds of trash from over 2,904 miles of coastline as part of Ocean Conservancy's annual International Coastal Cleanup. Anyone can sign up for a local cleanup at www.signuptocleanup.org and help us collect ocean trash information on beaches and waterways by downloading our Clean Swell app.

SUPPORT RESPONSIBLE BOATER EDUCATION PROGRAMS: For example, Ocean Conservancy's Good Mate program works in collaboration with the U.S. Coast Guard and Coast Guard Auxiliary to educate the boating community to reduce ocean trash.

COASTAL DEVELOPMENT

Florida's 21 million residents live mostly along the coast, and residential and tourism development is a central feature of the coastal environment. Unfortunately, some types of coastal development cause problems for wildlife and compromise the experience of the coast for both residents and visitors. Addressing this challenge requires action from both Floridians and their elected officials. We need to work together to ensure that development is in sync with wildlife and habitat so that coastal plants and animals, marine life and people can coexist.



In some cases, new coastal developers are claiming private property rights to beaches that had previously been public access

Light pollution disorients sea turtles, disrupting nesting and decreasing survival rates

Over-development causes loss of habitat and interrupts wildlife movement and natural patterns

Canals dredged to fill land for waterfront residents in the 20th century now host thousands of private boats, increasing chances of collisions with manatees

Coastal construction can impact sensitive marine habitats, including seagrass and coral reefs

Municipalities struggle to keep pace with expensive upgrades to sewage treatment and stormwater systems required by new development, leading to degraded marine water quality

SOLUTIONS

DECREASING LIGHT POLLUTION

Improved local ordinances, better public infrastructure and individual Floridians' actions can all work together to reduce light pollution. For example, the Sea Turtle Conservancy coordinates efforts around the state to change lightbulb types and install shading on light fixtures to direct light away from the beach. These projects have decreased light reaching the beach by more than 85%.

PROTECTING BIRD NESTING & WILDLIFE HABITAT

State and local governments and private landowners can join forces to protect coastal areas, wildlife corridors and breeding habitats. Such efforts can help protect Florida's imperiled species, like the American oystercatcher, snowy plover, least tern and black skimmer.

DUNE PROTECTION & RESTORATION

In some areas where development has destroyed natural dunes, local organizations and volunteers are working to restore dunes, promote native plant growth and manage foot traffic with constructed walkways. The need for such restoration highlights the importance of strengthened local development codes and municipal planning for maintaining healthy beaches.

500,000

Number of plants restored along 8.1 miles of Pensacola beach dunes

500

Number of volunteers who helped restore dunes with Miami Chapter of Surfrider Foundation

Number of months for newly planted sea oats to mature and begin to stabilize dunes

18

SEA LEVEL RISE & FLOODING

Sea level rise will impact ALL parts of Florida's coastline, the Atlantic, Keys and Gulf coast - both urban and rural. Florida is the most vulnerable state in the country to sea level rise due to low elevations and porous limestone bedrock underlying much of the state. As sea levels rise, high tides are getting higher, causing 'sunny day' flooding. As tides creep higher in future years, Florida's coastline and coastal areas will change, impacting all aspects of the ocean and coastal environment. Humans, plants and animals will all need to adapt in order to survive as habitats change and shift.

20,000
Floridians living in homes at risk of chronic flooding today

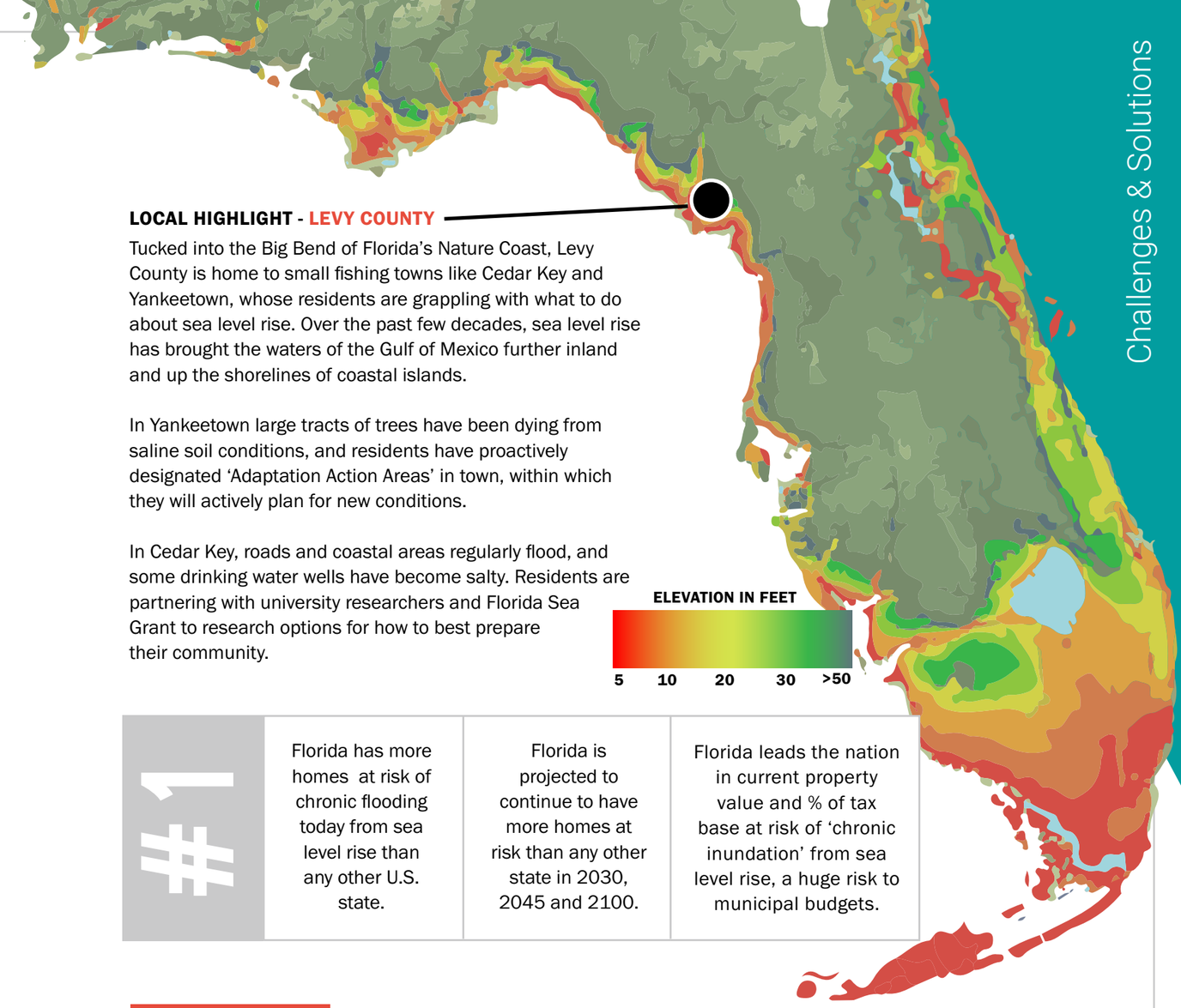
2.1 MILLION
Floridians living in homes at risk of chronic flooding by 2100

15 INCHES
U.S. Army Corps of Engineers projects 15 inches of sea level rise in Florida Keys by year 2045

$400 MILLION
Cost of keeping seawater off the streets in Miami Beach over the next 20 years

$2.2 BILLION
Value of tourism industry at stake in Florida Keys due to increasing flooding

75%
Percent of hospitals & 65% of schools in South Florida at risk of chronic inundation



LOCAL HIGHLIGHT - LEVY COUNTY

Tucked into the Big Bend of Florida's Nature Coast, Levy County is home to small fishing towns like Cedar Key and Yankeetown, whose residents are grappling with what to do about sea level rise. Over the past few decades, sea level rise has brought the waters of the Gulf of Mexico further inland and up the shorelines of coastal islands.

In Yankeetown large tracts of trees have been dying from saline soil conditions, and residents have proactively designated 'Adaptation Action Areas' in town, within which they will actively plan for new conditions.

In Cedar Key, roads and coastal areas regularly flood, and some drinking water wells have become salty. Residents are partnering with university researchers and Florida Sea Grant to research options for how to best prepare their community.

#1			
	Florida has more homes at risk of chronic flooding today from sea level rise than any other U.S. state.	Florida is projected to continue to have more homes at risk than any other state in 2030, 2045 and 2100.	Florida leads the nation in current property value and % of tax base at risk of 'chronic inundation' from sea level rise, a huge risk to municipal budgets.

SOLUTIONS

We need to cut carbon emissions and address climate change to fix the problems of sea level rise for good.

Green infrastructure is the most effective first line of defense - dunes, corals, mangroves and oyster reefs can protect the coast.

Conserving nearby coastal land and allowing natural habitats to migrate inland can buffer against sea level rise. Roads, bridges, culverts and stormwater overflow drainage systems can be modified to make flood risks less dangerous and destructive.

Better building codes, municipal infrastructure planning and changes to public and private insurance in the coastal zone are all important for strengthening resilience of our coastal communities.

EXTREME WEATHER

Common sense rises above partisanship in the face of disaster. Tropical storms and hurricanes regularly batter the coast and coastal ocean, causing damage from wind, waves and floods. Scientists predict stronger storms in the future due to climate change and warmer ocean waters.

#1	More major hurricanes make landfall in Florida than in any other U.S. state.	Highest annual precipitation in the U.S.	Central Florida has more lightning strikes than any other part of the U.S.	More thunderstorms and tornadoes per square mile than any other state.

6.5 MILLION
Number of people relocated by Hurricane Irma

120
Number of hurricanes striking Florida between 1851-2017. 37 were major storms (Category 3 or above) – an average of one major storm every 4.5 years

16 MILLION
Floridians living in the coastal zone, where their homes, businesses, possessions, quality of life and safety are at high risk from tropical storms and hurricanes

40%
Percentage of all U.S. hurricanes that hit Florida

$50 BILLION
Damage from Hurricane Irma in 2017, the costliest in FL history

EXTREME WEATHER IMPACTS FLORIDA'S OCEAN AND COASTAL ENVIRONMENTS

100s of oil & gas platforms in the Gulf of Mexico were damaged or destroyed by Hurricanes Ivan, Katrina and Rita in 2004/2005. Wells connected to one of these platforms, owned by Taylor Energy, are still leaking oil into the Gulf. (see Oil & Gas pollution page).

150 stranded manatees were rescued by volunteers during 2018 after storm surge left them in backyards, in drainage ditches, in ponds at golf courses and even in a mud puddle in the middle of a forest.

150,000 lobster and crab traps were lost or destroyed when Hurricane Irma pummeled the Florida Keys in 2017, requiring a massive cleanup effort. The storm cost local fishermen and fishing businesses an estimated $200 million.

HURRICANE MICHAEL
Homes, businesses and community infrastructure were destroyed in Mexico Beach, a small community on the Panhandle, when Hurricane Michael made landfall there October 2018. Photos: Getty images.

SOLUTIONS

Green infrastructure – Oyster reefs, mangroves and coral reefs can act as the first line of defense against storm impacts on Florida's coast. Research indicates coral reefs can remove 97% of a wave's energy and 100 meters of mangrove trees can reduce wave height by 66%.

Planning – Better building codes, municipal infrastructure planning and changes to public and private insurance in the coastal zone are all important for strengthening resilience of our coastal communities.

Taking care of our waste – Municipal stormwater systems should be piped so that sewage is separated from stormwater drainage. Separate systems avoid overflow of untreated sewage during storms.

Funding cleanups after storms – It is critical that state and federal agencies fund the safe cleanup and disposal of storm debris and ecosystem restoration.

Extreme weather events are projected to continue to worsen unless we cut carbon emissions.

SOLUTIONS: ALL HANDS ON DECK

Working together for a better Florida

WHAT CAN BE DONE AND HOW TO GET INVOLVED

LET'S ROLL UP OUR SLEEVES AND GET TO WORK

Whether it's joining (or organizing) a neighborhood beach cleanup to pick up trash, volunteering for a sanctuary that rehabilitates injured marine wildlife or spending time helping one of the many organizations that patrol Florida's beaches to locate and protect sea turtle nests, there are countless ways to get involved. Florida's beaches and waterways enrich our lives in so many ways. Every day, friends and neighbors roll up their sleeves and dedicate time and energy to help make our beaches and waterways healthy. Join us! And if you're not sure where to start, just ask us!

ASK THE SAME OF YOUR ELECTED OFFICIALS

Solving Florida's ocean and coastal environmental challenges won't be easy, and we're going to have to work together. While there is a lot that we can do as individuals, many of Florida's ocean and coastal challenges are so big that they require action at a broader scale – action from our elected and government officials. If you, your friends and your neighbors are working hard to make Florida's ocean and coasts healthy, you should ask your elected officials to do the same! Whether they're in city hall, the state government in Tallahassee or in Congress in Washington, D.C., it's important that the elected officials who work for YOU hear from you. They need to know that you want them to be a part of the solution.

A CALL TO ACTION FOR POLICY-MAKERS

Florida's ocean and coastal environment is at a crossroads. The state's beaches, waterways and wildlife are precious natural riches in dire need of help. They are also the beating heart of Florida's tourism industry, of Florida's economy, of Florida's culture and of the Florida way of life. Throughout this report we have presented dozens of example solutions for Florida's ocean and coastal environmental challenges – both those that are being implemented and those that have yet to become a reality. But the solutions in this report are just a sample of the work that can and should be done. Floridians want action, and it's time to heed their call. It's all hands on deck, and we invite ALL of Florida's elected officials and policy-makers to join us.

A PRESCRIPTION FOR ACTION

Here are the top five areas where Florida's beaches, waterways and ocean environments need action. Whether it's the work of individual Florida residents, businesses, state and federal government officials, local governments or prominent community leaders, working together on these five areas is essential for reaching our vision of a clean, healthy and beautiful Florida ocean and coastal environment.

WATER QUALITY

We need to restore clean freshwater flows to estuaries and coastal habitats, improve water quality by reducing pollution (including nutrient pollution) and put an end to the human activities that are contributing to harmful algal blooms.

MARINE WILDLIFE

Stewardship of wildlife and fisheries means responsible resource management and taking care of habitats – the waterways, beaches, corals, seagrass beds and mangroves that serve as their home. People and wildlife *can* coexist, but not if habitat destruction, oil spills, overharvest or overdevelopment are left unchecked.

EDUCATION & OUTREACH

We have to spread the word! Person to person, neighbor to neighbor, as a community it's essential that we share the wonder of Florida's ocean and coasts and the challenges facing them.

OCEAN TRASH

Tackling ocean trash means both cleaning up what's already there and stopping trash and plastics at its source – preventing trash and plastic pollution from entering Florida's waterways and beaches in the first place.

CARBON POLLUTION

Impacts from carbon pollution are touching virtually every aspect of Florida's ocean and coasts – from sea level rise, ocean acidification, warming waters and coral die-offs. Tackling carbon pollution is essential for protecting the special Florida coastal places that we love.

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Ocean Conservancy®

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Report created by Heather Deese, Beech Hill Consulting in collaboration with Naretiv.

OCEAN CONSERVANCY IS WORKING WITH YOU TO PROTECT THE OCEAN FROM TODAY'S GREATEST GLOBAL CHALLENGES. TOGETHER, WE CREATE SCIENCE-BASED SOLUTIONS FOR A HEALTHY OCEAN AND THE WILDLIFE AND COMMUNITIES THAT DEPEND ON IT.