FROM WAVES TO WALLETS
the Socioeconomic Impacts of Red Tide Events in Florida

OVERVIEW

In recent years, Florida has experienced red tide events that have resulted in social, environmental, and economic consequences. This toolkit was developed to provide agencies with materials to communicate the impacts of red tide events to their audiences. The messages in this toolkit are targeted toward people who live in or visit Florida, as well as business owners and individuals working in industries affected by red tide. The goal of the toolkit is to communicate the impacts of the 2017–2019 red tide event in Florida and inform the public about efforts to mitigate future events. The toolkit contains both digital and print materials for use on multiple platforms.

Components

- Social media graphics (6)
- Social media plan for Facebook and X
- Issue guide – Public perceptions
- Issue guide – Agricultural stakeholder perceptions
- Issue guide – Socioeconomic impacts

Key Topics

- Efforts to assess and mitigate red tide events
- Impacts on tourism and recreation
- Changes in coastal property values
- Commercial and recreational fishing impacts
- Community vulnerability
- Stakeholder knowledge and perceptions

Definitions

Commercial fishing – Catching fish or seafood for economic profit. Florida is home to species with multi-million dollar annual commercial fishing landings such as shrimp, crabs, spiny lobster, and mullet.

Harmful algal bloom (HAB) – Algal blooms occur when natural algae in lakes, rivers, and coastal zones grow out of control. Algal blooms composed of algae that have toxic or other harmful effects on people, wildlife, and ecosystems are known as harmful algal blooms (HABs).

Recreational fishing – Fishing activity that is for lesiure, sport, or competition.

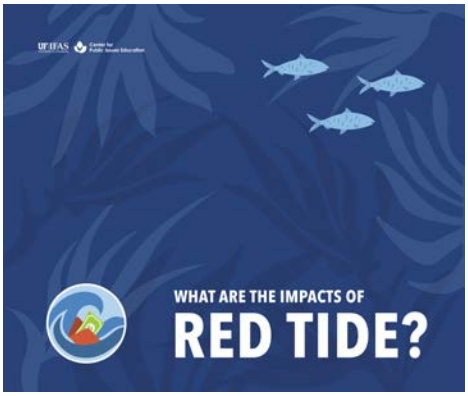
Red tide – *Karenia brevis* (*K. brevis*) is a species of algae common in the Gulf of Mexico. When *K. brevis* is present in dense concentrations, it is referred to as red tide. Red tide events can result in water discoloration, respiratory distress, and skin irritation in humans and mortality events for marine life. These events often occur in the ocean and nearshore coastal waters of southwest Florida.

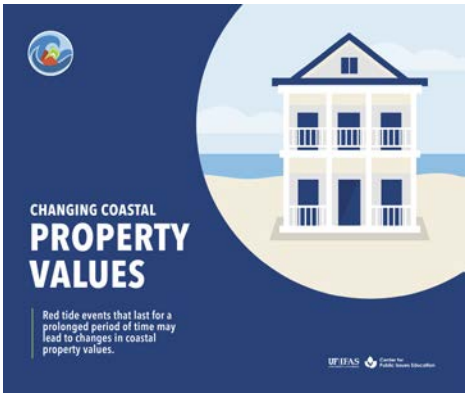
Vulnerability – Individuals, communities, or industries that are at a higher risk for negative impacts of red tide events due to pre-existing characteristics or limitations.

2017–2019 red tide event – From October 2017 to February 2019, Florida was impacted by a significant, long-lasting red tide event. The event affected Florida's coastlines along the Gulf of Mexico and was also observed on the Atlantic Coast.

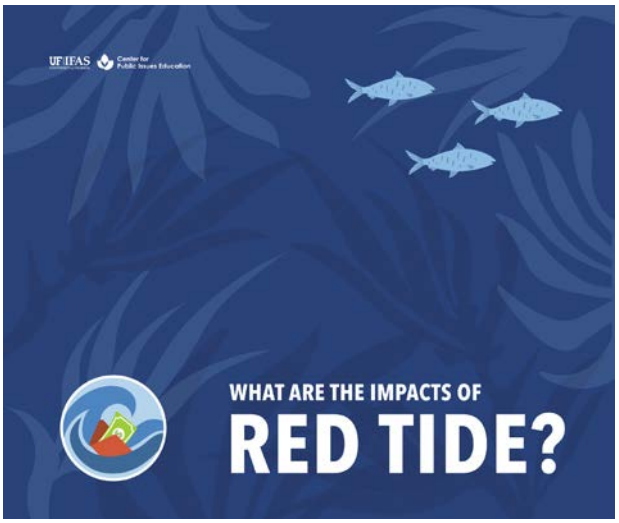
SOCIAL MEDIA

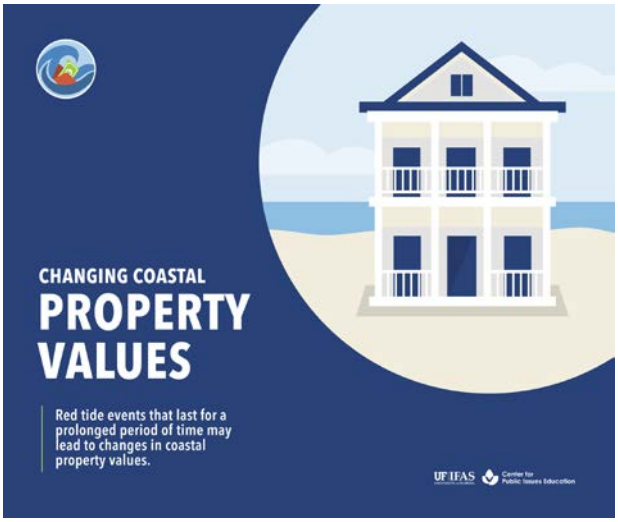
Social Media Plan

GRAPHIC	FACEBOOK	X
	Did you know that red tides are not only harmful to marine life, but also to the economy? By impacting tourism, fishing, and countless other sectors, red tide events can result in lasting consequences for the State of Florida. Learn more about the impacts of red tide at **go.ufl.edu/2017-2019-RedTideImpacts**	In addition to environmental impacts, red tide events can result in lasting consequences for Florida's economy. Learn more about the impacts of red tide at **go.ufl.edu/2017-2019-RedTideImpacts**
	Scientists and researchers are working to better understand red tide events in Florida. Quantifying the socioeconomic impacts of red tide events informs decisions related to solutions aimed at mitigating their effects. Read about red tide research efforts at **go.ufl.edu/2017-2019-RedTideImpacts**	Assessing the socioeconomic impacts of red tide events is helping Florida communities find solutions for mitigating their impacts. Read about red tide research efforts at **go.ufl.edu/2017-2019-RedTideImpacts**
	Red tide can ruin more than just a beach day. In 2018, the ongoing red tide event in Florida led to a loss of $70M in the state's Airbnb market and a decline of $184M in expenditures by visitors from outside the state. Learn how red tide takes a toll on tourism at **doi.org/10.1177/13548166211068276**	The 2018 red tide event in Florida led to a decline of $184M in expenditures by out-of-state visitors. Learn how red tide takes a toll on tourism at **doi.org/10.1177/13548166211068276**

GRAPHIC	FACEBOOK	X
	Due to changes in water quality and fish mortality, commercial and recreational fishing in Florida are vulnerable to red tide events. Read more about the impacts of red tide on fishing at **go.ufl.edu/2017-2019-RedTideImpacts**	Fishing activity in Florida is vulnerable to red tide events due to changes in water quality and fish mortality. Read more at **go.ufl.edu/2017-2019-RedTideImpacts**
	During an active red tide event, coastal properties in Florida might experience a decrease in value. Learn how researchers are exploring the impact of red tide events on property values at **go.ufl.edu/2017-2019-RedTideImpacts**	Coastal properties in Florida might experience changes in property values during red tide events. Learn more at **go.ufl.edu/2017-2019-RedTideImpacts**
	Red tide events create a ripple effect in communities, impacting everything from public health to local businesses. Researchers are working to understand what factors make communities vulnerable to red tide in order to build resilience. Learn more at **go.ufl.edu/2017-2019-RedTideImpacts**	Red tide events result in countless direct and indirect effects. Researchers are working to understand factors that make communities vulnerable to red tides. Learn more at **go.ufl.edu/2017-2019-RedTideImpacts**

Social Media Graphics





ISSUE GUIDES

Public Perceptions of Harmful Algal Blooms in Florida

Summary – Key findings from focus group interviews with Florida residents about their knowledge, perceptions, and concerns related to harmful algal blooms.

Target audiences – Policymakers, local and state government agencies, communities and businesses in coastal regions of Florida.

Agricultural Stakeholders' Perceptions of Harmful Algal Blooms in Florida

Summary – Key findings from an interview and survey of agricultural stakeholders in Florida about their knowledge, perceptions, and concerns related to harmful algal blooms.

Target audiences – Extension professionals, policymakers, agricultural businesses, and regulatory agencies.

Socioeconomic Impacts of Florida's 2017–2019 Red Tide Event

Summary – Results from the analysis of socioeconomic impacts of the 2017–2019 red tide event in Florida. Discusses impacts to tourism, property values, and commercial and recreational fishing.

Target audiences – Policymakers, local and state government agencies, communities, and businesses in coastal regions of Florida.

PUBLIC PERCEPTIONS
of Harmful Algal Blooms in Florida

Understanding perceptions of harmful algal blooms (HABs) is necessary for developing future mitigation strategies. From April through July 2021, focus groups were conducted with 22 Florida residents from Tampa, Fort Myers, and Panama City to identify knowledge, experiences, and concerns related to HABs.

Knowledge & Experiences

Focus group participants expressed varying levels of knowledge related to HABs. Participants identified HABs to be naturally occurring in addition to being related to increased fertilizer and stormwater runoff, nitrates, septic tank pollution, and water temperature. Most participants were not knowledgeable about efforts to address HABs in their communities.

All focus group participants felt the 2017-2019 red tide event in Florida emphasized the consequences of HABs. During the event, many participants experienced economic and social impacts such as physical and mental health challenges and pet health concerns.

HAB Information Sources

Participants expressed that they wanted to receive more information about HABs. Topics of interest included current HAB research and prevention methods. Preferred sources for receiving HAB information were social media platforms, local media channels, and local state parks. Participants trusted HAB information from governmental organizations, colleges or universities, and scientists.

Top Concerns Across Focus Group Locations

1. HAB similar to the 2018 red tide event occurring again
2. Economic & environmental impacts of future HABs
3. Protecting oneself from HABs & staying informed

Perceptions & Concerns

Participants agreed that HABs resulted in costs to the economy and industries such as tourism, restaurants, fishing, and real estate. HABs were perceived to impact the environment, human health, and quality of life.

Among all focus groups, participants were most concerned about future HAB events and their associated impacts. Participants were also concerned about their ability to protect themselves from HABs and stay informed about HAB conditions.

Preferred Sources of HAB Information

Social media | Local media | State parks

Trusted sources of HAB information

Government | Universities | Scientists

**Focus groups represented specific audiences; findings do not represent statewide general public. Learn more at go.ufl.edu/2017-2019-RedTideImpacts.*

Lindsey, A., & Anderson, S. (2022). Harmful Algal Bloom Stakeholder Summary. PIE2022/23-02. UF/IFAS Center for Public Issues Education.

UF IFAS UNIVERSITY of FLORIDA

GCOOS GULF OF MEXICO COASTAL OCEAN OBSERVING SYSTEM

AGRICULTURAL STAKEHOLDERS' PERCEPTIONS of Harmful Algal Blooms in Florida

Understanding perceptions of harmful algal blooms (HABs) is necessary for developing future mitigation strategies. From April through July 2021, one interview and five online surveys were conducted among select individuals with an interest in the Florida agricultural industry (stakeholders) to assess their knowledge, experiences, and concerns related to HABs. Participants in this study might not represent the views of all agricultural stakeholders in Florida. Responses highlight specific concerns and perceptions that will be used to guide future research efforts.

Knowledge & Experiences

The agricultural stakeholders who answered the survey possessed moderate levels of knowledge regarding HABs. Most of the respondents did not feel that the 2017–2019 red tide event resulted in direct impacts to themselves or their community. The interview participant was not personally affected by the event, but witnessed impacts to industries such as tourism and seafood.

> ***Anytime there are red tide events, it can have a pretty devastating effect on tourism and recreation activities.***
> ***– Stakeholder participant***

HAB Information Sources

During the 2017-2019 red tide event, stakeholders primarily received information about red tide from news channels and social media. Respondents preferred to learn about HABs from Extension, friends and newspapers. The most trusted sources of HAB information were scientists, the National Oceanic and Atmospheric Administration (NOAA) and marinas.

Perceptions & Concerns

Overall, agricultural stakeholders expressed concerns about the potential costs of not controlling HABs. When asked about the impact of HABs on their business, respondents were most concerned about fertilizer limitations placed on farmers but not on homeowners, as well as perceptions that the agricultural industry is responsible for causing HAB events.

> ***I just want it to be known that agriculture is doing our best to be a part of the solution in the implementation of the best management practices and in all sorts of water resource production and irrigation management.***
> ***– Stakeholder participant***

Preferred Sources of HAB Information


Extension


Friends

Newspapers

Trusted Sources of HAB Information


Scientists

NOAA


Marinas

**Focus groups represented specific audiences; findings do not represent statewide general public. Learn more at go.ufl.edu/2017-2019-RedTideImpacts.*

Lindsey, A., & Anderson, S. (2022). Harmful Algal Bloom Stakeholder Summary. PIE2022/23-02. UF/IFAS Center for Public Issues Education.

SOCIOECONOMIC IMPACTS of Florida's 2017–2019 Red Tide Event

From October 2017 to February 2019, the state of Florida experienced a significant red tide event. To understand the consequences of this event, researchers at the University of Florida assessed socioeconomic impacts related to tourism, residential property values, and commercial and recreational fishing. Findings contribute to nationwide efforts to understand the implications of red tide.

Tourism & Recreation

The 2017–2019 red tide event resulted in significant impacts to Florida's tourism industry. To estimate economic losses associated with red tide, tourism expenditure patterns were analyzed. In 2018, the decrease in tourism activity due to red tide resulted in $184 million in losses across the state. The Southwest Gulf region of Florida accounted for 84% of the direct economic impact.

Tourism Losses During 2018 Red Tide Event

Southwest Gulf region
$158.492 million (84%)
Rest of Florida
$25.711 million (16%)

$184 million total losses

Surveys of both Florida residents and non-resident tourists were conducted to measure recreational behavioral changes associated with red tide. The severity of red ride was identified as an important factor in travelers' decisions to visit Florida's Gulf Coast region. Travelers were more likely to visit Florida's Gulf Coast if red tide conditions were classified as *low* or *medium*.

Many travelers based their decision to visit Florida's Gulf Coast on the severity of red tide conditions.

Property Values

To assess the impact of red tide on coastal property values, Zillow data was analyzed from six counties in southwest Florida. Results indicated a decrease in property values during ongoing red tide events in 2017 and 2018. Single-family homes experienced the strongest impact, with a 9% decrease in value during a three-month red tide event. Properties in Charlotte and Sarasota counties were most affected.

Single-family properties on the coast experienced a 9% decrease in value during a 3-month red tide event.

Commercial & Recreational Fishing

Using data from the Florida Fish and Wildlife Conservation Commission (FWC), researchers assessed the impact of red tide on commercial landings (pounds harvested) of economically important species along Florida's Gulf Coast.

While findings regarding blue crab and mullet fisheries were inconclusive, researchers estimated that red tide events decreased landings revenue by at least $940,000 in bait shrimp and $2.1 million in mullet roe fisheries between 2010 and 2019.

In coastal counties, the monthly average number of recreational fishing trips decreased by 10% during active red tide events. The impact was strongest for non-shore fishing (private boat or charter), which decreased by 14%.

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Learn more at go.ufl.edu/2017-2019-RedTideImpacts.

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