



# UF/IFAS Extension & FL Sea Grant Preparation, Mitigation, Response, & Recovery Efforts following Hurricanes

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# Florida EDEN



## Collaborative Effort across Extension offices in all 67 counties

- 3 Points of Contact (POC)
  - 1 overall (Lindsey)
  - 1 from FAMU (Davis)
  - 1 representing FL Sea Grant (McGuire)
- Over 20 delegates with representatives from all over the state

## Our Work

- Align with national mission to reduce the impact of disasters through research-based education
- Work with all 67 counties on programs, education, & tools involved at all levels of disaster management - preparedness, mitigation, response, & recovery

# Work of Florida EDEN

Combining research, current Extension programs, & recent experience with Hurricanes Irma (2017), Michael (2018), Sally (2020), Ian (2022), and Idalia (2023)



**Active involvement in:**

Preparation  
n

Mitigation

Response

Recovery

# Work in Preparation

Few days prior to impending storm

- Participate in daily calls with Florida Department of Agricultural and Consumer Services (FDACS) State Agricultural Response Team (SART) –
  - Aquaculture also part of these calls
- Develop a “TEAMS team” to communicate internally with UF/IFAS colleagues
  - Disaster leadership team and beyond
- Leverage UF/IFAS and EDEN national networks to compile relevant resources
- Share relevant resources with County Extension faculty as well as Research and Education Centers throughout the state to push out to their local communities
  - UF/IFAS Agricultural Damage and Loss Assessment Tool
  - Resources specific to preparation and response for hurricanes and flooding
    - Web-based links and physical copies
- Communication of what’s “at risk” in terms of agriculture and fisheries in areas expected to receive impacts

# Work in Response

- Agents in impacted areas visit farms & other sites to assess damages and help with clean-up
- Assist with hard-to-get resources such as gas, groceries, water, etc.
- Deploy to the Incident Command Post (ICP) for ESF 17 to assist with donations and coordination for UF/IFAS
- Information, Information, Information
- Assist with industry organizations w/immediate needs



# Lessons Learned

## Response

- **Formalizing teams for assistance**
  - Resources
  - Fill-in for staff/faculty personally impacted
- **Utilizing partners & partner connections**
  - Communicating with partners year-round re: their programs
  - Addressing barriers & confusions during blue skies
  - Collaborating, collaborating, collaborating
- **Working w/in the FEMA system**
  - Training

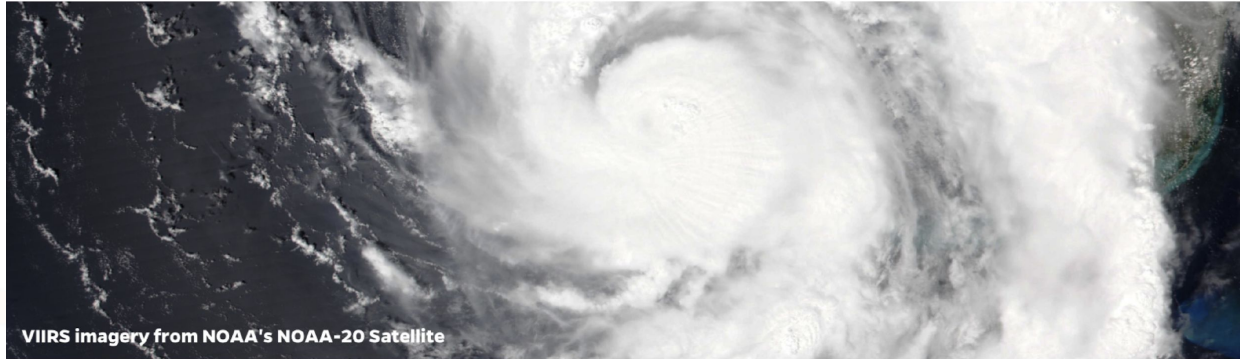
# Work in Recovery

- Provided information on federal, state, & local assistance programs
- Provided industry stakeholder resources (donation & pick-up locations, recovery centers)
- Connecting stakeholders WITH resources & service organizations
- [Assessments](#)



# Disaster Impacts Assessment

Food And Resource Economics Department



Assessment of Agricultural Losses Resulting from Hurricane Idalia

Summary

Food And Resource Economics Department



Assessment of the Short- and long-term socioeconomic impacts of Florida's 2017-2019 Red Tide event

Summary, Communications Tool Kit and More Coming Soon!





# Work in Recovery

- Pushed information from partners, local, state, & federal agencies to Extension offices for distribution within communities:
  - Division of Emergency Management
  - FDACS
  - Florida Wildlife Commission
  - Department of Health
  - Volunteer Florida
  - NOAA
  - Florida Small Business Emergency Bridge Loans
  - Visit Florida
  - Florida Department of Economic Opportunity



# Information, Information, Information

## FOOD SAFETY

[Safe Handling of Food and Water in a Hurricane](#)

[Food Safety During Hurricane Season](#)

[After a Hurricane – Keep Food Safety in Mind](#)

[Food Safety Tips for Power Outages](#)

## GENERATOR AND EQUIPMENT SAFETY

[Are You Using Your Generator Safely?](#)

[Portable Generator Safety Tips](#)

[Generator Safety](#)

[Chainsaw Safety](#)

## FLOODING

[Minimize Flooding Damage to Commercial Vegetable Production](#)

[Private Wells 101](#)

[Flooding Hazard Resources](#)

[What Should I Do After My Drinking Well is Flooded?](#)

## MENTAL HEALTH AND RESILIENCE

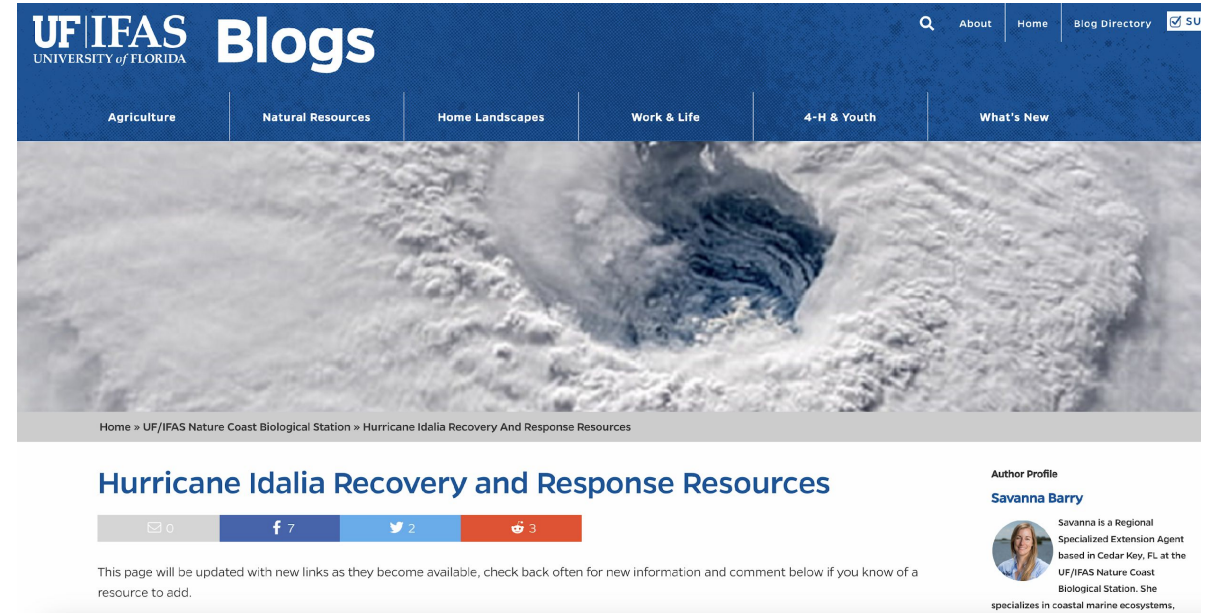
[Disaster mental health training from PIE Center](#)

[Disaster mental health information and resources from the CDC](#)

[SAMHSA information on disaster distress and recovery](#)

[SAMHSA information on children and families coping with disaster](#)

[Tips for talking with children](#)



The screenshot shows the UF/IFAS Blogs website. The header includes the UF/IFAS logo and navigation links for Agriculture, Natural Resources, Home Landscapes, Work & Life, 4-H & Youth, and What's New. The main content area features a large image of a hurricane eye and the title "Hurricane Idalia Recovery and Response Resources". Below the title are social media share buttons for email (0), Facebook (7), Twitter (2), and YouTube (3). A note states: "This page will be updated with new links as they become available, check back often for new information and comment below if you know of a resource to add." An author profile for Savanna Barry is also visible, describing her as a Regional Specialized Extension Agent based in Cedar Key, FL, at the UF/IFAS Nature Coast Biological Station, specializing in coastal marine ecosystems.

# Lessons Learned

## Recovery

- **We have a lot to learn here.....**
  - Role of Extension in recovery looks different in 67 counties
  - Who are the partners?
    - How does this work?
    - What do we need to know?
    - How can we best share the information?
  - WHAT and HOW can Extension at a state level assist in recovery efforts?
    - A lot is making those connections
  - Showing-Up

# Did you know?

- First Category 5 Hurricane to hit Northwest Florida
- Sustained winds of 160 mph, Mexico Beach, October 10, 2018.
- Florida Emergency Support Function 10 (ESF-10) removed 175 vessels and mitigated pollution from 29 actively sheening vessels.
- Most efforts focused in Bay County, with vessel processing and recovery operations at county-owned boat ramps.

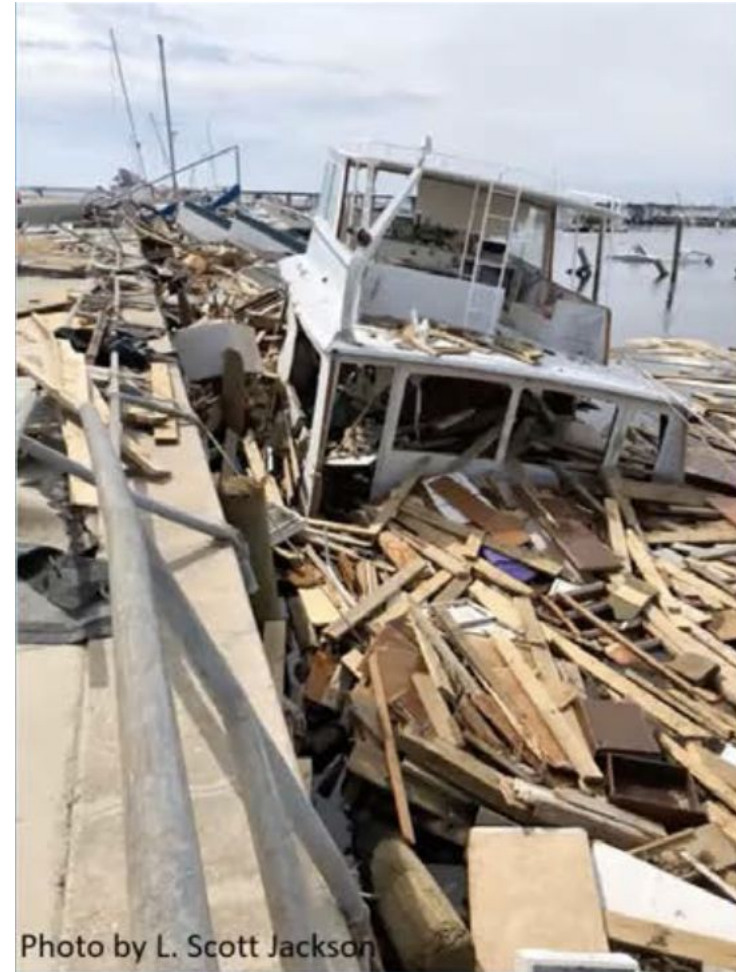
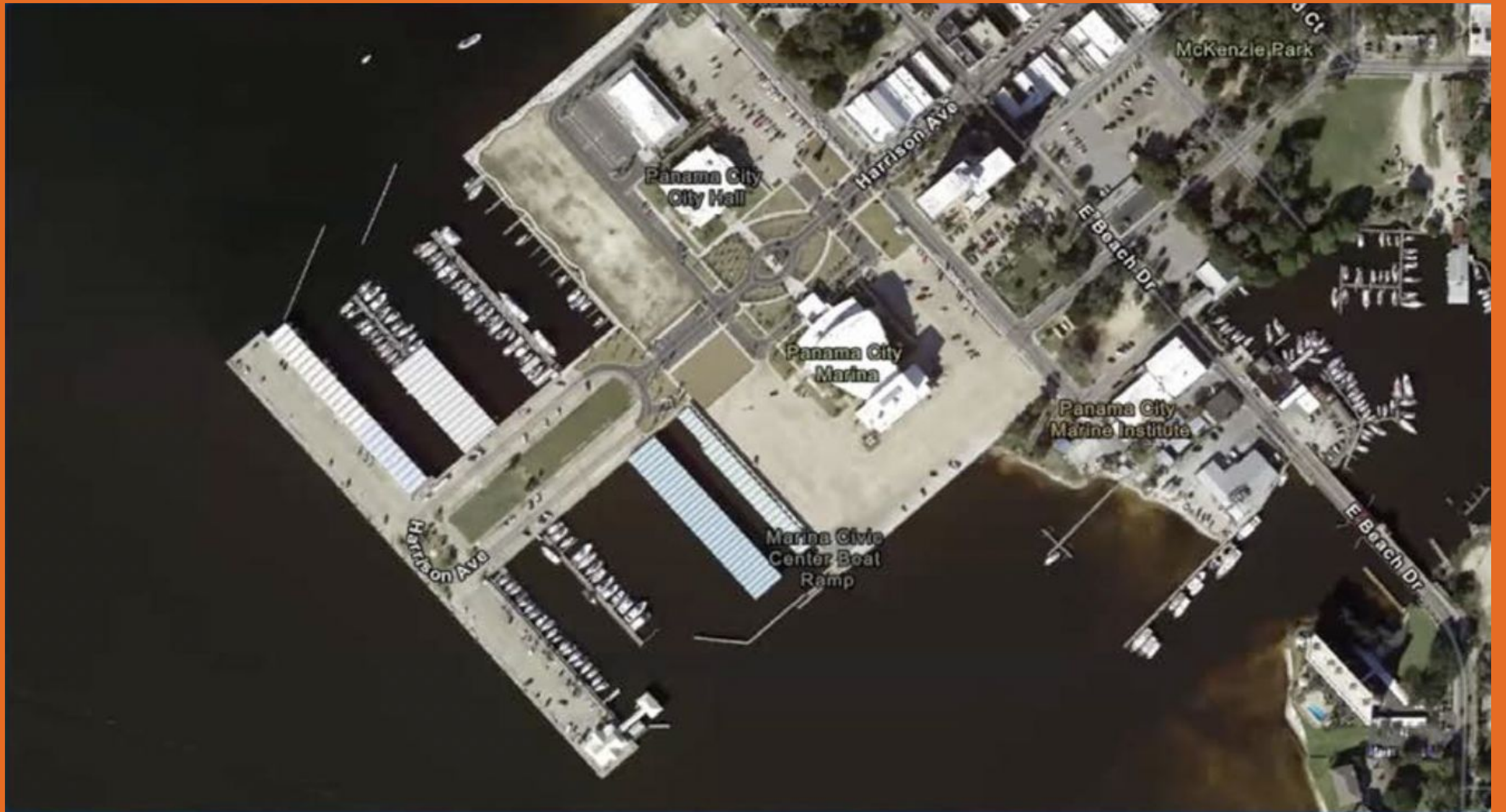


Photo by L. Scott Jackson



# Purpose

- Task: Remove remaining debris in three local bay systems (Panama City, Port St Joe, and Apalachicola, Florida)
- Debris: Approximately 70 vessels and 600 structural debris targets (docks, piers, boat sheds)
- Funding: Grant funds from NFWF (NOAA) 3 million dollars
- Partnerships: University of Florida, FWC, Franklin, Gulf, and Bay Boards of County Commissioners, and over 20 other entities
- Monitoring and Collaboration: Ensuring project success through a strong partnership network



# Hurricane MICHAEL Imagery

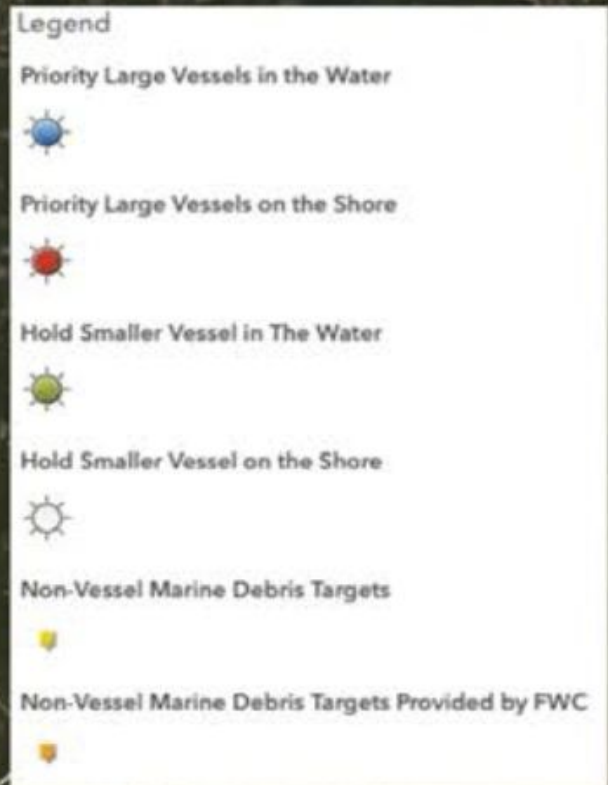
[About](#) [Download](#) [Contact](#)







Ground truthing Hurricane Michael marine debris from satellite imagery by vessel and drones

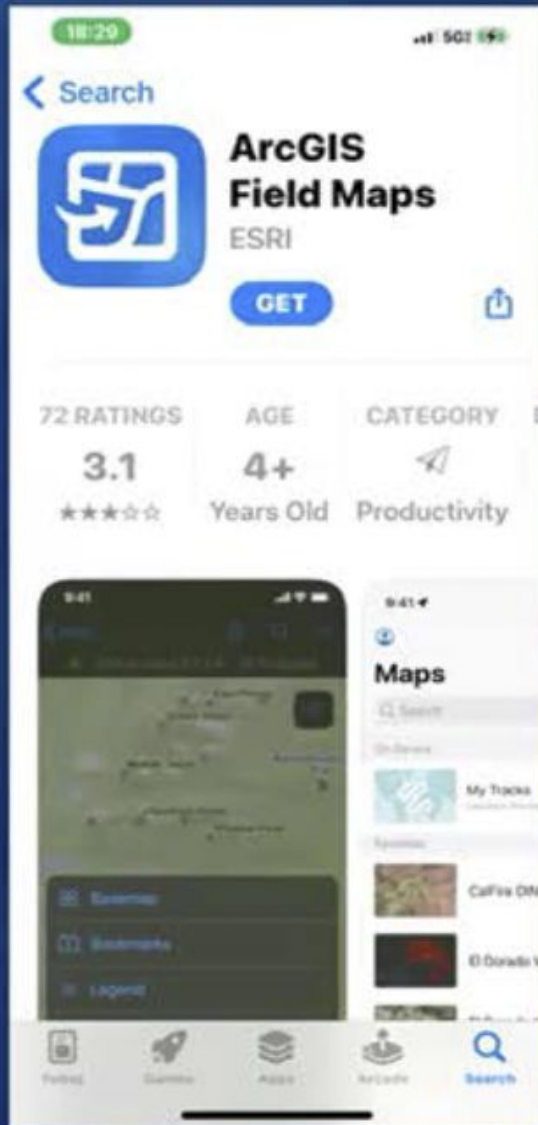




# Field Verification with Theodolite App



# ArcGIS Field Map (Collector)



# Zulu Marine Drone Tools



NE E SE  
30 60 90 120 150  
86°E (T) ● 29°46'31"N, 84°57'52"W ±144ft ▲ 6ft



22' sailboat way up in tree line.  
Very little water in creek to get  
there.

Florida  
03 Feb 2022 10:21:39

A screenshot of the Zulu Marine Drone Tools software interface. The interface is divided into several sections. On the left is a dark sidebar with navigation options: Dashboard, Work Packages, Map, List, Search, and Profile. The main area shows a project overview for 'Bay County'. It includes a map view with a 'Folder' dropdown and 'Action' buttons. Below the map is a list of folders and sub-folders, such as 'Shell Island' and 'West Bay'. The right side of the interface displays a grid of 12 drone images, each with a filename like 'NAL\_1313.JPG'. At the top right, there are navigation icons for 'Detail', 'Photos', 'Views', 'Diagrams', and 'Flyview'. The user's name 'Jackson Lawrence Shell' and 'Zulu Marine' are visible in the top right corner.

Hurricane Michael  
Bay County Fla  
Residual Debris Targets  
2021-2022

250 + Coastline Miles Inspected  
1400 + GEO Referenced Images  
300 + Residual Debris Targets Identified



DJI\_0037.JPG



IMG\_0870.JPG



IMG\_2233.JPG

Folders info Map EXP



Lat: 80.128153 N  
Long: 85.602950 W  
Above Mean Sea Level  
8 706 ft / 2 653 467 176 m



FEATURES LIST

Owner Info

John Doe  
813-455-3211

FL REG #

FI 34526CD

FWC #

65437FL 2020

Removed

Zulu Marine  
02/15/2020

# Processing and Investigating Vessels is not Easy

Vessels in State Waters are Relatively Straightforward



Conducted by FWC and Local Law Enforcement

Vessels on Shoreline or Submerged Land Lease can be Complex



Rely on Action by Impacted Property Owners (Boat, Land, etc.) and Local Law Enforcement

# High and Dry Vessel Process

Need Vessel Owner ID



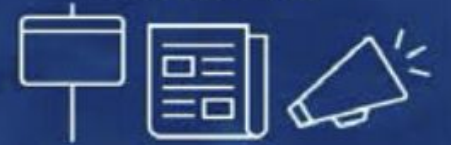
Found



Not Found



Post Notice



Title to Abandoned VSTL-29



Enforcement Help



Title to junk, Contract, Remove VSTL-12



Title to junk, Contract, Remove





# High and Dry Success Stories

## Watson Bayou



Removed by Grant

## Veteran's Boat



To be Assessed by Owner for Possible Repair

# Marsh Removal VIA Airboat



# Removal Summary

- About 500 owners were faced with developing plans and associated removal costs. This project provided \$1,107,960 to shoreline owners to restore property value and waterfront access.
- An additional \$262,860 was expanded to remove debris and vessels from public and state lands.
- 62 Storm Impacted and Derelict Vessels Removed from St. Andrew Bay since May 2020 – both Hurricane Michael and abandoned boats
- Additionally, 14 Hurricane Michael vessels were removed from Franklin County in 2021.
- Total Marine Debris Removal including vessels and structural debris from the project totaled over 2.5 million pounds (Recycled 404,240 lbs.)
- 131,000 acres assessed (estimated 30,000 acres in person by boat and drone)



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# Grant Support

USDA/NIFA Rapid Response grants submitted:

- Funded:
  - AI – Enhanced Rapid Response Tool for Extreme Weather Events
  - Citrus – Recovering from Ian and Enhancing Future Hurricane Readiness
  - Forest Ecosystems – A Web-Based Mapping Platform for Rapidly Assessing Impacts from Hurricane Ian
  - Mental Health of Most Heavily Impacted Agricultural Communities (Pending)





**EXTENSION DISASTER  
EDUCATION NETWORK**

# What is EDEN?

**Extension Disaster  
Education Network**

A collaborative multi-state effort by Cooperate Extension Services across the country to improve the delivery of services to citizens affected by disaster. Over 300 delegates representing 77 Extension systems.



United States Department of Agriculture  
National Institute of Food and Agriculture

## NIFA LAND-GRANT COLLEGES AND UNIVERSITIES



\* Central State University (CSU), in Ohio, has been designated as an 1890 LGU. Under the law, CSU will be eligible to receive certain capacity funds in October 2014 and others in fiscal year 2016.  
\*\* College of the Muscogee Nation and Keweenaw Bay Ojibwa Community College are designated as 1994 LGUs and will be eligible to receive capacity funds in October 2014.

# Work of Florida EDEN



Combining research, current Extension programs, & recent experience with Hurricanes Irma (2017), Michael (2018), Sally (2020), Ian (2022), and Idalia (2023)



## Work in Preparation, Mitigation, Response, and Recovery

Morning coordination calls with UF/IFAS Extension Administration

Development of materials that can be distributed post storm

Supplies gathered to have ready to take to impacted areas

Responding to needs from Extension offices re: education pieces needed to help communities prepare