

Monroe County Hurricane Irma Debris Removal and Canal Restoration Updates May 22-23, 2018



Rhonda Haag
Monroe County



Hurricane Irma makes Landfall in Florida September 10, 2017





Big Pine Key Canals Impacted





Big Pine Key



Little Torch Key Impacted Canals





Marathon Canals Impacted





Islamorada Impacted Canals





Tavernier



Key Largo



Manatee in Canal Big Pine Key



MARINE AND VESSEL DEBRIS REMOVAL MOU

- **FDEP and Monroe County executed an MOU on 02-06-28 for removal of marine debris in private and public waterways**
 - \$5 M Debris Removal
 - \$1 M Monitoring
 - Focus on Canals
- **Separate \$2 M MOU's for Marathon and Islamorada**
- **All 3 will reimburse DEP, and then seek reimbursement from FEMA**
- **FDEP contracted with DRC and Tetra Tech to start the removal**



DEP Dep Secretary David Clark, Mayor Rice, Rep. Holly Raschein, County Administrator Roman Gastesi, County Attorney Bob Shillinger sign the County MOU on 2/26/18

MARINE AND VESSEL DEBRIS

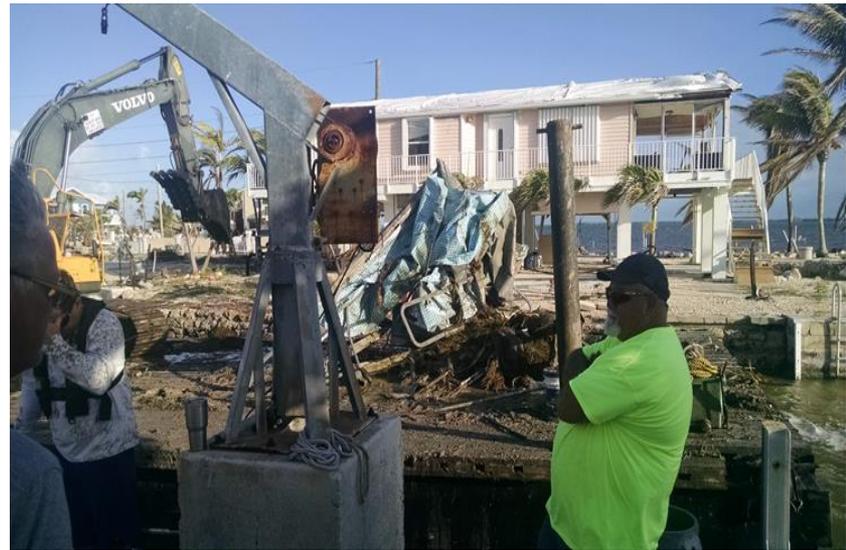
Depth of Debris Removal

FEMA only reimburses for removal and disposal of debris related to *navigation hazards*

- Normally 2 feet below the low-tide draft of largest vessel
- 4 foot average draft of fishing vessel

County made Request:

- Average draft of 5 largest vessels throughout Monroe County is 14.72 feet
- Not Approved by FEMA



NOAA Aerials

Debris Volume Estimates

ERMA | Environmental Response Management Application
Gulf of Mexico



Big Pine Key, FL
"The Avenues"

Avenue J

Avenue I

Avenue H

Avenue G

Avenue F

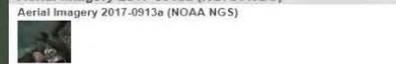
Avenue E

Avenue D

Aerial Imagery Identified Debris 30-Sep-17 (RPI)

- Aerial Imagery Identified Debris 30-Sep-17 (RPI)
- Automotive
 - Construction
 - Debris Pile
 - Trailer
 - Unknown
 - Vessel
 - Oil Hazmat Container

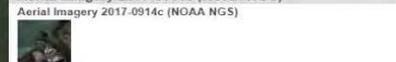
Aerial Imagery 2017-0913a (NOAA NGS)



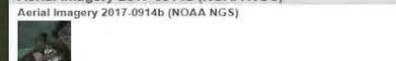
Aerial Imagery 2017-0913b (NOAA NGS)



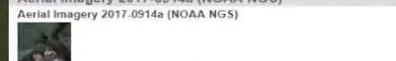
Aerial Imagery 2017-0914c (NOAA NGS)



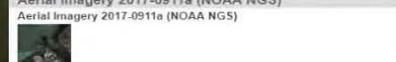
Aerial Imagery 2017-0914b (NOAA NGS)



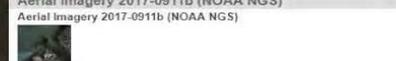
Aerial Imagery 2017-0914a (NOAA NGS)



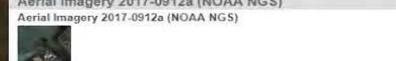
Aerial Imagery 2017-0911a (NOAA NGS)



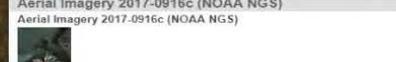
Aerial Imagery 2017-0911b (NOAA NGS)



Aerial Imagery 2017-0912a (NOAA NGS)



Aerial Imagery 2017-0916c (NOAA NGS)



USCG Sectors (USCG, 2014)

- USCG Sectors (USCG, 2014)
- ✓ USCG Sectors (2014)

Eari National Geographic



Estimated Volumes of Marine Debris

- Estimated 100,000 cubic yards:
 - 50,000 construction & demolition;
 - 50,000 vegetative
- Estimates based on NOAA aerial photos. Need underwater sonar to verify accuracy.
- Total estimated cost to remove marine debris is **\$52.6 Million** throughout Keys



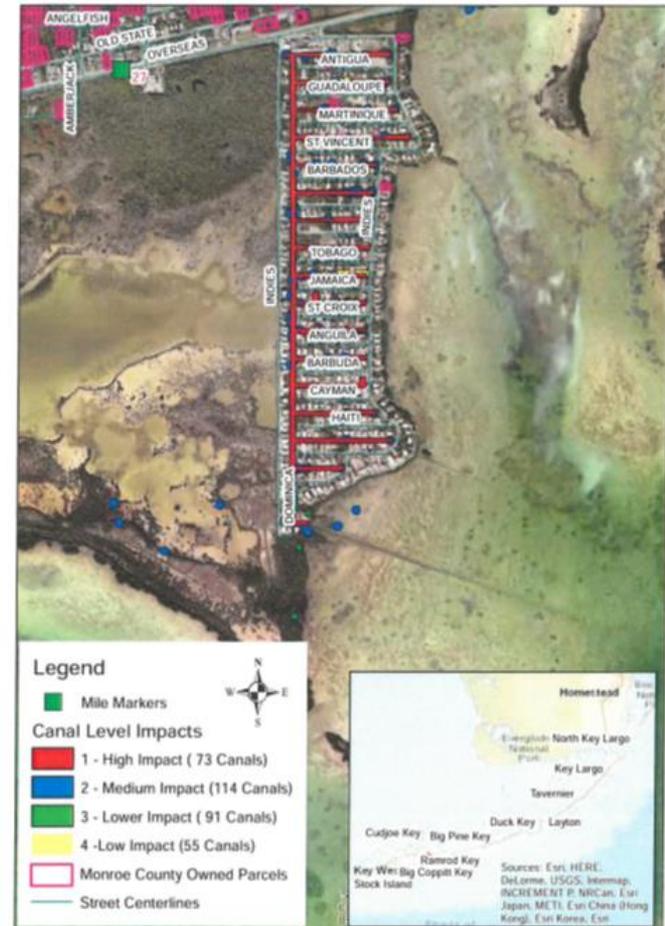
Marathon Canal



Big Pine Key Avenue E Canal

Number of Canals Impacted in Keys

- Total number of canals in the Keys, including municipalities: **513**
- Due to Hurricane Irma impacting the entire Keys, assumption is that all 513 canals are impacted to some degree. 333 in Unincorporated Monroe
- Impacts Vary- Keys Wide:
 - **High Impact:** **97 canals**
 - **Medium Impact:** **150**
 - **Lower Impact:** **139**
 - **Low Impact:** **127**



Definition of Marine Debris

This debris includes, but is not limited to:

- **Vegetation**
- **Hazardous waste**
- **Construction and demolition debris**
- **Propane tanks**
- **White goods**
- **Docks**
- **Non-marine vehicles**
- **Seawalls**
- **Houses or portions of houses**
- **Motorhomes**
- **Boats not included**



MARINE DEBRIS REMOVAL MOU with FDEP and Unincorporated Monroe County

- Debris removal ceremony on February 16, 2018
- Started removal in the *Avenues* of Big Pine Key – most heavily impacted area
- Former Big Pine Key Prison site being used as a temporary debris management area
- Coordination with DEP on environmental monitoring



Erin Muir w/Rep Raschein, Gus Rios w/DEP, Cynthia Hall, Commissioner Neugent, Rhonda Haag, Mayor Rice, County Administrator Roman Gastesi, Islamorada Councilmember Mike Forster

Big Pine Key Debris Removal



Little Torch Key Debris Removal



791 CAROLYN AVENUE, Little Torch

Canals Cleared to Date

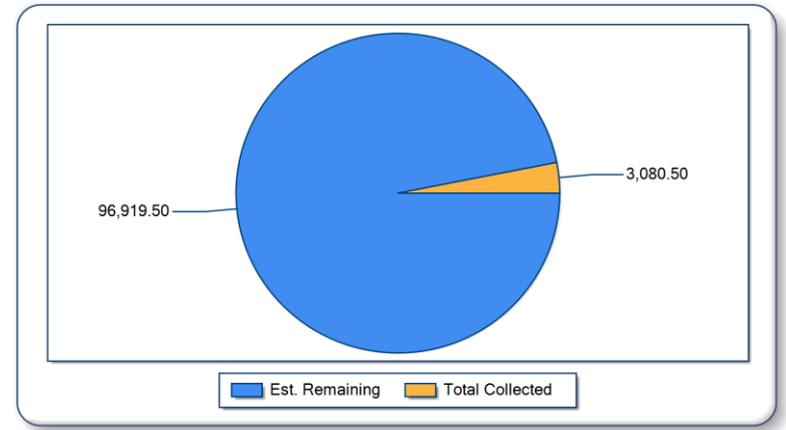
Name	Status	Canal Level Impact
258 BIG PINE KEY	In Progress	2
277 BIG PINE KEY	In Progress	2
292 LITTLE TORCH KEY	In Progress	2
288 BIG PINE KEY	Completed	1
317 LITTLE TORCH KEY	Completed	2
339 LITTLE TORCH KEY	Completed	2
259 BIG PINE	Completed	2
263 BIG PINE KEY	Completed	2
266 BIG PINE KEY	Completed	2
282 BIG PINE KEY	Completed	1
286 BIG PINE KEY	Completed	1
287 BIG PINE KEY	Completed	1
290 BIG PINE KEY	Completed	1
293 BIG PINE KEY	Completed	1
295 BIG PINE KEY	Completed	1
297 BIG PINE KEY	Completed	1
299 BIG PINE KEY	Completed	1
300 BIG PINE KEY	Completed	1
350 RAMROD KEY	Completed	1



Couch pulled from the canal along Blackbeard on Little Torch Key

Debris Collected to Date

- YTD summary of FDEP Monroe County Waterways Program Vegetative and C&D Debris Removal Operations:
 - **3,081 Cubic Yards**
- Contractor halted work on **04/18/2018**
- Program on a temporary hold while State determines options for moving forward



Big Pine Key Staging Area

LESSONS LEARNED MOVING FORWARD

- **FEMA RESTRICTIONS**
 - Can't go to bottom of all canals to remove debris
 - Must prove debris is from Irma storm only
 - Not yet clear what \$ will be reimbursed to County
- **Not Enough Debris Storage Sites**
- **Low Bid Pricing**
- **Federal Funding Slow To Arrive – work delays**
 - FEMA, NRCS, NOAA, EPA
- **Elected Officials Helping!**



Senator Marco Rubio and County Administrator Roman Gastesi meet on April 4, 2018

POTENTIAL FEMA RESTRICTIONS

Potential FEMA FUNDING: \$10 Million loan from FDEP on marine debris.
Navigation is the guiding principle.

- County and municipalities to submit for reimbursement from FEMA.
- Amount reimbursable from FEMA still under negotiation, not clear what work will be reimbursable
- Reimbursable work related only to canals navigability. **Sediment removal** or plugged canals **not covered**.
- **Debris may be left on the bottom** of deeper canals if not related to navigation issues, or County may self-fund the removal of this portion.



FEMA



USDA NRCS

Natural Resources Conservation Service

❖ NRCS *Applications* were based on geographic locations and the approved NRCS methodology:

- **Hydraulic capacity**
- Site evaluations based on a cross section approach across the FL Keys
- **Economic considerations** for properties adjacent to canals that would be protected
- Social considerations such as **life and property impacts**
- Debris and cost estimates for the eligible canals.

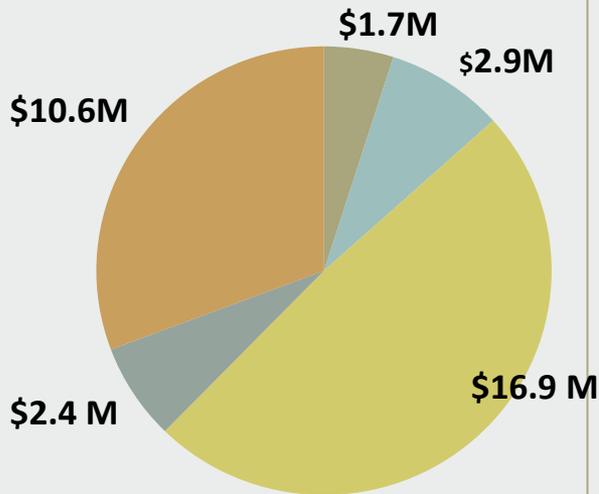
❖ NRCS *Eligibility Considerations* for the Florida Keys canals in regards to program funding include:

- Debris in canals and causing potential blockages *is eligible*
- Debris not in canals and not causing potential blockages is not eligible
- **Debris in the ocean, shorelines, on land**, or previously removed from canal and piled on shore are ***not eligible***.
- Land debris, if partially in the water, *is eligible* only if other work is already being done in the same canal for eligible items.
- **Vessels** out of a canal or floating are ***not eligible***. Sunken vessels may be removed with additional approved debris in same canal (not as a stand-alone item) and only if considered to cause flooding potential.

NRCS FUNDING – 103 Canals

NRCS Applications Total **\$45 M** in Cost
\$34.5 M in Potential Reimbursement
\$10 M in Local Match Required

Upper Keys	8 Canals
Middle Keys	23 Canals
Lower Keys	<u>72 Canals</u>
Total Eligible	103 Canals
Total Impacted	513 Canals



- DSR #1 - Lower Keys: Big Coppitt, Geiger Key, Saddlebunch, Sugarloaf \$1.7 M
- DSR #2 - Lower Keys: Cudjoe, Summerland, Ramrod, Little Torch Key \$2.9 M
- DSR #3 - Big Pine Key \$16.9 M
- DSR #4 - Conch Key, Tavernier, Key Largo \$2.4 M
- DSR #5 - Marathon and Islamorada \$10.6 M

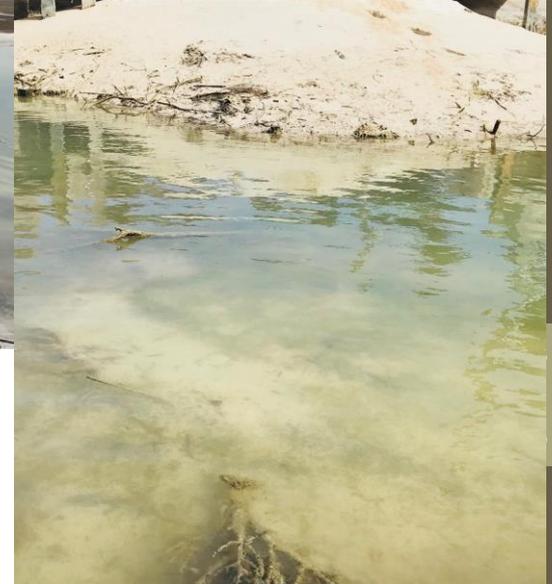


Debris Clearing Vs. Dredging

- Only Marine Debris Clearing is an approved activity
- Dredging not yet approved
- Will seek approval from NRCS to add dredging
- Federal permits required –
- Hydraulic versus mechanical



Lower Matecumbe Canal filled in with Sand



Schedule for NRCS Work

- RFP's for Marine Debris Clearing and Monitoring Services issued May 8.
 - ✓ RFP's Open May 31
- NRCS Grant, vendor contracts and ILA's with municipalities
July 20th BOCC
- 200 Day Work Period



CANAL RESTORATION

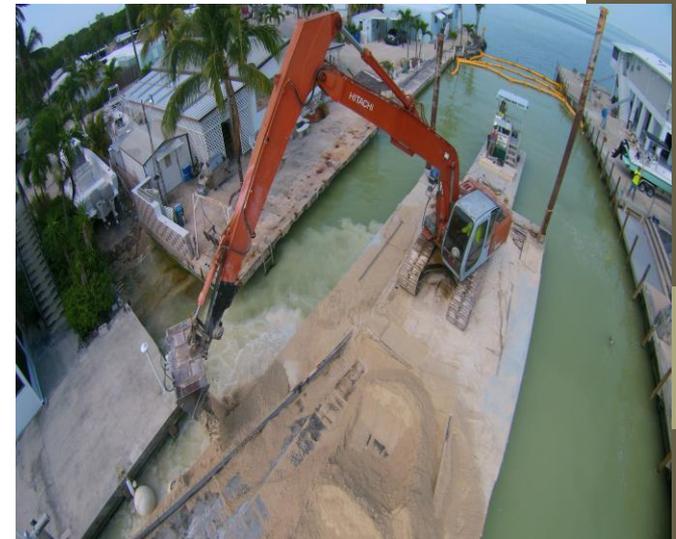
Florida Keys Canals Do Not All Meet State Water Quality Standards



Revised Water Quality Summary	Unincorporated Monroe County	Village of Islamorada	City of Marathon	Total
Poor	15	4	1	20
Limited Data - Poor	4	0	4	8
Fair	71	15	12	98
Limited Data - Fair	13	6	4	23
Sub total POOR/FAIR	103	25	21	149
Good	24	4	5	33
Limited Data - Good	101	17	6	124
No Data	1	0	3	4
Total	229	46	35	310

Previous Monroe County Canal Demonstration Projects

1. Canal 266 – Organic Removal and Air Curtain, Big Pine Key
 - Construction Cost – \$1,303,355.00
 - Completion Date – May 2016
2. Canal 287 – Air Curtain – Atlantic Estates, Big Pine Key
 - Construction Cost – \$101,192.00
 - Completion Date – June 2016
3. Canal 290 – Organic Removal and Air Curtain, Big Pine Key
 - Construction Cost – \$788,421.00
 - Completion Date – Organic Removal – March 2016; Air Curtain – June 2017
4. Canal 470/472 – Culvert, Geiger Key
 - Construction Cost – \$199,291.00
 - Completion Date – April 2015
5. Canal 277 – Culvert, Big Pine Key
 - Construction Cost – \$423,957.00
 - Completion Date – May 2016
6. Canal 83 – Organic Removal, Backfilling, and Air Curtain, Key Largo
 - Construction Cost – \$1,524,040.00
 - Completion Date – July 2017
7. Canal 29 – Backfill, Sexton Cove, Key Largo
 - Construction Cost – \$1,360,000.00
 - Completion Date – June 2015



Current Backfilling Project

Canal #75 Rock Harbor, Key Largo

- A. Adventure Environmental, \$1,216,000, was ranked #1 through the selection committee.
- B. Funded from the \$1.5 Million FY16/17 DEP Stewardship allocations
- C. Notice to Proceed issued on February 7, 2018.
- D. Adventure Environmental removed storm debris from Hurricane Irma prior to backfill operations
- E. Final completion of work anticipated by June 7, 2018
- F. As of 5-8-18 already backfilled over **1,200 truckloads** = 24,000 tons



Monroe County Canal Skimming Demonstration Project

- A. Routine weekly cleaning of canals to remove:
- Litter and large objects
 - Floating Seaweed or seagrass
 - Potential future use - remove growing vegetation that impedes navigation
- B. Vendor hotline to report floating seaweed, debris or trash
- C. Trash and debris disposal at County sites. Most seaweed taken out to sea, but during heavy loading removal may be needed.
- D. No long term easements from residents
- E. Residents save potentially on O&M costs by sharing the skimming cost with many canal owners on multiple canals
- F. County saves by not purchasing or installing air curtains – Use saved funds for other canal restoration projects



- Miami Beach current waterway skimming program
- Marathon uses program for navigational trimming only

Canal and Nearshore Waters Water Quality Monitoring

1. FDEP will provide 50% funding and require 50% match from Stakeholders of the Reasonable Assurance Document “RAD”.
2. FDEP developed a scope of work and asked the County to issue an RFP and manage the contract
3. County included canal / nearshore monitoring in unincorporated Monroe at its own cost, Muni’s to fund their share of the RAD monitoring.
4. Estimated Cost **\$496,000 for 2 years** for RAD and canal monitoring
5. **University of Miami selected vendor**
6. Grant and Contract to be submitted in June BOCC for approval.



Potential Canal Maintenance Plan

- **Future Reimbursement from Hurricane damage easier with a canal maintenance plan in place**
- **Must document yearly maintenance activities**
- **Document the conditions of canals prior to a storm and immediately after a storm**
- **For FEMA reimbursement – document the size and depth of vessels navigating in the canals**
- **For NRCS reimbursement – document impediments to the hydraulic capacity**



Monroe County Canal Program Funding

Restoration Funding needs are estimated
at \$700 Million

1. RESTORE Gulf Consortium Pot 3 - \$19 Million
2. FY17/18 State Stewardship Act –\$3.9 Million
to County – varies annually
3. RESTORE Local Pot 1 - \$478,000
4. DEP Annual funding - \$100,000
5. Monroe County funding –amount to be
determined
6. Homeowners – amount to be determined



**NOT A TIDAL
WAVE OF
FUNDING**

Thank You!



Haag-Rhonda
@MonroeCounty-FL.gov