

WQPP Priorities

Canal Restoration, Marine Debris, Sargassum

FKNMS WQPP Steering Committee

with Sanctuary Advisory Council

September 23, 2020



Rhonda Haag
Monroe County



Greg Corning
Wood



Peter Frezza
Islamorada



George Garrett
Marathon

Presentation Topics

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**Why? Canal
Restoration
Program**

**How? Canal
Restoration
Program**

**What's Next?
Canal
Restoration
Program**

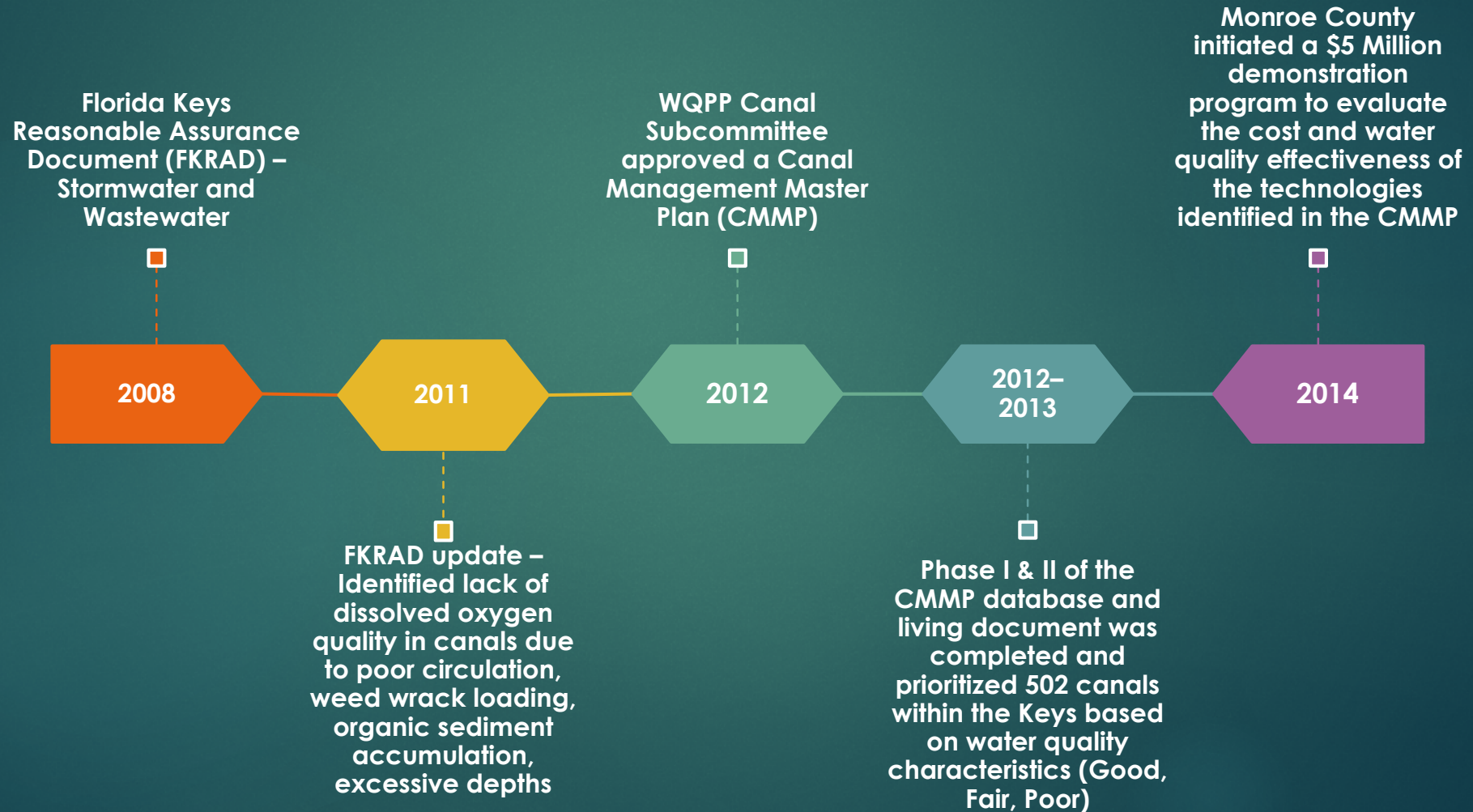
**Why?
Sargassum and
Organic Debris**

**How?
Sargassum and
Organic Debris**

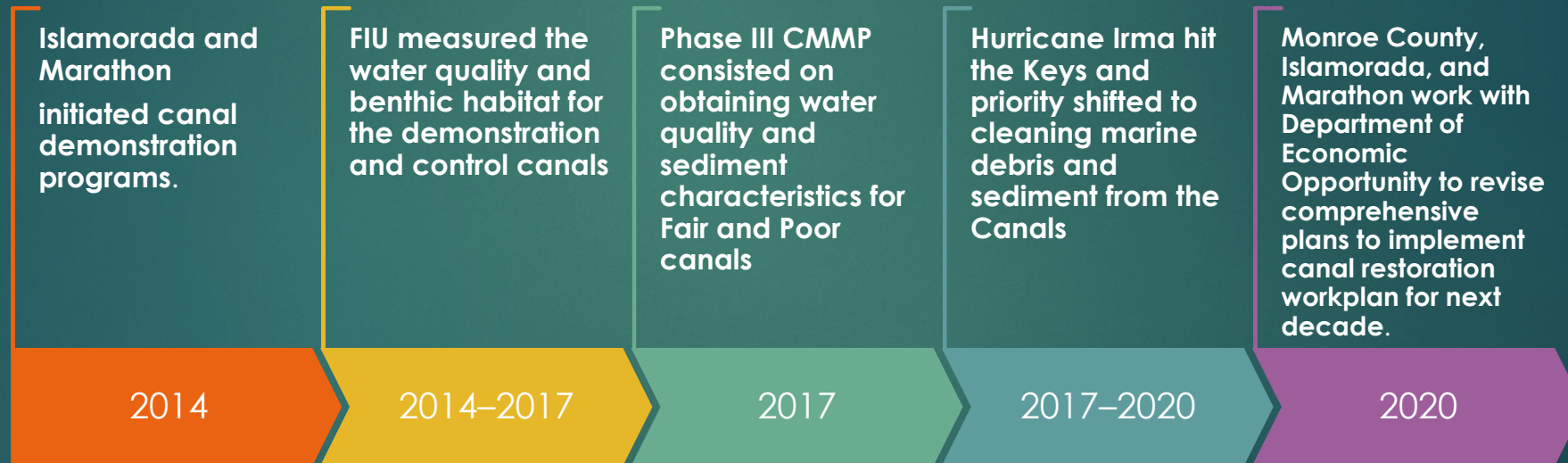
**What's Next?
Sargassum and
Organic Debris**

Why? Canal Restoration Program

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Why? Canal Restoration Program



How? Canal Restoration Program

Canal Restoration Program Guidance Document

- Guiding principles
- Structure for establishing a program
- Do's and don'ts (i.e. lessons learned)
- A streamlined process for implementation

**MONROE COUNTY
SELECTION OF DEMONSTRATION CANALS FOR
WATER QUALITY IMPROVEMENTS**

PREPARED FOR:
MONROE COUNTY

PREPARED BY:
AMEC Environment & Infrastructure, Inc.

AMEC Project No. 6783-13-2507
November 8, 2013

March 16, 2018

TECHNICAL MEMORANDUM

Prepared For: CITY OF MARATHON, FL

Prepared By: Amec Foster Wheeler Environment & Infrastructure, Inc.

Subject: Task 1 Deliverable – Canal Selection Process

Project: Selection of Canal Restoration Projects for Water Quality Improvement within the City of Marathon

I. Background
The ranking and selection of canals for the improvement of water quality within the City of Marathon will allow stakeholders to make decisions based on the applicability, feasibility, potential for success, and cost effectiveness of potential restoration technologies. This was a similar process that has previously been implemented by Monroe County for the Canal Management Master Plan (CMMP). Amec Foster Wheeler used information obtained during the development of various phases of the Monroe County CMMP and Geographical Information System (GIS) Canal Inventory database to score and rank the canals. Phase II of the CMMP which occurred from 2012 and 2013 involved an evaluation of all 800 Keys canals in the GIS canal inventory database based on available water quality data and other quantitative and qualitative information. This information has since been updated based on additional water quality data collected during Phase III of the CMMP and the updated Florida Department of Environmental Protection (FDEP) rule regarding dissolved oxygen (DO). DO concentration and relevant biological indicators were used to develop the following canal water quality classification system.

DO Conditions	Biological Conditions	Water Quality Ranking
> 4.0 mg/L	Positive	Good
> 4.0 mg/L	Negative	Fair
3.0 – 4.0 mg/L	Positive	Fair
3.0 – 4.0 mg/L	Negative	Poor
< 3.0 mg/L	N/A	Poor

Subsequent to the start of Phase II of the CMMP, the FDEP water quality criteria for DO was modified from the 4 mg/L (at any location at any time) threshold to percent saturation as follows:

1. The daily average DO percent saturation shall not be below 42 percent;
2. The weekly average DO percent saturation shall not be below 51 percent; and
3. The monthly average DO percent saturation shall not be below 56 percent.

In 2017, water quality data for each of the canals ranked as either poor or fair was updated following the collection of additional data during the performance of Phase IIIA of the CMMP. In order to comply with the updated FDEP standard, in 2017, one time grab samples were collected along a vertical profile from the center of the canal. The readings were averaged and corrected for Time of Day. If the average was below 42 percent, the canal was recorded as being out of compliance.

**VILLAGE OF ISLAMORADA
SELECTION OF DEMONSTRATION
CANALS FOR
WATER QUALITY IMPROVEMENTS**

PREPARED FOR:
VILLAGE OF ISLAMORADA
VILLAGE ADMINISTRATION CENTER
8800 OVERSEAS HIGHWAY
ISLAMORADA, FLORIDA 33036

PREPARED BY:
AMEC Environment & Infrastructure, Inc.
5945 N.W. 15th Street
Miami Lakes, Florida 33014

AMEC Project No. 6783-13-2540
January 21, 2014

Canal #237 Trussard Harbor Entrance

Canal #145 Nona-Lida Beach

What's next?

Canal Restoration Projects

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- **Coordination with DEO on the Canal Restoration Work Plans**
- **Continue to pursue state and federal funding for canal restoration implementation**
- **Hold public outreach meetings (pending EPA Grant application)**
- **Improving canal water quality throughout the Florida Keys**





Why? Sargassum and Organic Debris

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A. Florida Department of Health

In response to the concern of residents, the Florida Department of Health released a sargassum FAQ pamphlet to inform the residents living and working on or near the coast of the health implications associated with increased sargassum loading.

B. Monroe County Tourist Development Council

Completing an economic study to evaluate the effects on tourism including the following:

- potential economic effect of Sargassum on the tourism industry, if any,
- identify solutions and the cost associated with those solutions.

Why?

Sargassum and Organic Debris

Monroe County Sargassum Management Master Plan – Phase 1. EPA grant awarded to Monroe County

- A review of existing management strategies from across the region
- Development of a hydrodynamic model that helps explain how sargassum moves into and around the Florida Keys.
- A proposed framework that will encourage regional partners to work together on management strategies and disposal options
- Evaluate existing and proposed strategies for the management of sargassum
- Feasibility of Onshore vs. Offshore disposal options
- Preliminary economic analysis of proposed management strategies.





How? Sargassum & Organic Debris Management

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Beach Clean up and Disposal

City of Marathon

- Sombrero Beach
- Coco Plum Beach

City of Key West

- Higgs Beach
- Smathers Beach
- Dog Beach
- Rest Beach
- South Beach

How?

Sargassum and Organic Debris Management

Monroe County and Municipalities Canal Program

- ▶ Canal Water Quality Improvement projects to increase dissolved oxygen and habitat quality:
 - **Air Curtain** at mouth of canal to prevent the sargassum from migrating into dead end canals
 - **Culvert** connections to improve flushing
 - **Backfilling** deep stagnant canals to increase flushing
 - **Organic removal** to remove the oxygen depleting decomposing sargassum that has fallen to the bottom of the canals
- ▶ **Sargassum Skimming Program**
 - Evaluated the use of a vessel to remove sargassum within the canals located in Key Largo

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What's next? Sargassum and Organic Debris Plan

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A. Health impacts

- Hydrogen sulphide

B. Water Quality impacts

- Accumulation and decomposing of sargassum causing consumption of oxygen within water column

C. Funding \$

- Design & Construction costs for implementation of water quality improvement projects
- Operations and Maintenance costs for air curtain canal projects
- Management and disposal costs with beach clean up

D. Regional Management Plan

- Incorporate a compact of local governments in S FL to collaborate on data collected and innovative technologies.
- Work together on pursuing funding opportunities as a group to prevent the loading of sargassum

Presentation Summary

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Thank You!
Rhonda Haag

