

Monroe County Canal Restoration Demonstration Project Updates

WQPP Steering Committee Meeting
March 2, 2016



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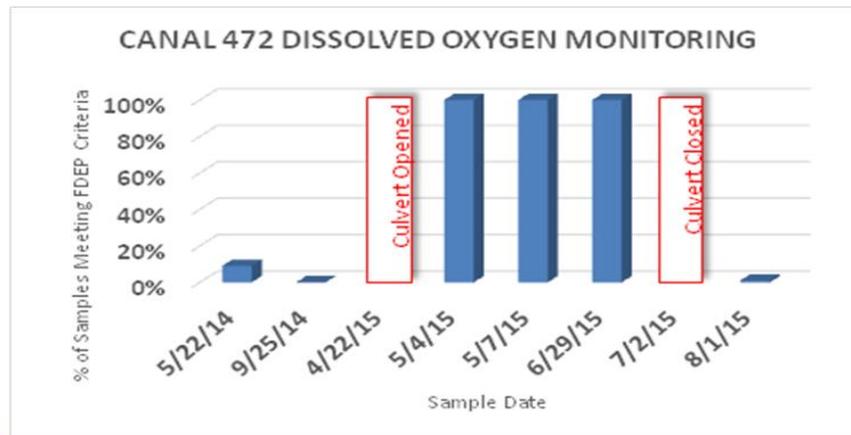


Update on Geiger Key #470 / #472 Monroe County and DEP Funded Culvert Project

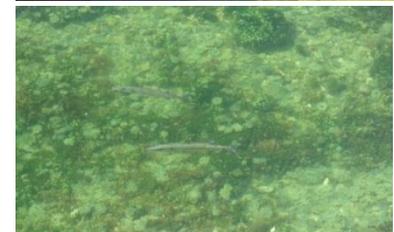
1. Project Completed April 2015, culvert closed July 2, 2015

2. Next Course of Action

- At the December 11, 2015 WQPP Canal Restoration Advisory Subcommittee Meeting a motion was passed to support AMEC's recommendation to reopen the culvert and monitor
- Recommendation based upon improvement in water quality
 - FIU DO data at depth show the culvert improved the water quality to meet State Standards even with heavy seaweed loading



c) Monroe County is evaluating how to proceed



Update on Canal #29 Backfilling Demonstration Project Sexton Cove, Key Largo

1. Restoration consisted of placing **900 Truckloads of clean fill (26,000 cy)** to raise canal bottom from **-35 feet Mean Low Water (MLW) to -7.7 feet MLW**
2. **Project Completed July 3, 2015**
3. **Benefits: return of sea life, revegetation of canal bottom, DO levels pending FIU February monitoring evaluation**



Update on Organic Removal Projects

Canal 266 Drs. Arm & Canal 290 The Avenues, Big Pine Key

1. Hydraulic removal of 5 feet of decayed seaweed and muck

2. Project Updates

- a) JND Thomas, Company completing both projects
- b) Canal #266 dredging and 6 inch sand layer completed Jan 13
 - 63 roll-offs (20 cy each) of dewatered sediment reused
 - 16 trash containers (10 cy each) removed
- c) Canal #290 dredging completed early Feb
 - 45 roll-offs of dewatering sediment disposed at landfill
 - 13 trash containers of debris and scrap metal removed
- d) Canal #290 sand placement Feb 23 through March 2
- e) Immediate improvement in elimination of hydrogen sulfide odor, improved clarity and DO (5 mg/l 70% saturation)



Before



After



Update on Canal #277 Culvert Installation – Tropical Bay Estates, Big Pine Key

1. Canal #277 Monroe County Canal Demonstration Culvert Project

- a) 60" concrete culvert to connect two sections of canal system
- b) PRD review was expedited - USACE permit received Jan 27
- c) Contract awarded to Douglas N. Higgins out of Key West
- d) Contract approved by BOCC January 20
- e) Pre-construction meeting held February 12
- f) 5 weeks needed to deliver culvert
- g) Anticipated construction start date last week in March

HAVE ALL PERMITS!



2. DEP Grant

- a) DEP to fund \$50,000 of the construction costs
- b) County signing Grant Agreement
- c) Culvert installation complete ~ end of May
- d) Schedule tight to complete revegetation



Update on Two Monroe County Air Curtain Installations

1. Air Curtain Installations – Canals #266 Drs. Arm & #287 Atlantic Estates, Big Pine Key

- a) Canal #266 combined with organic removal; Canal #287 stand alone technology
- b) Both projects include demolition of old weed barriers
- c) PRD review required for Canal #287 – first air curtain reviewed; completed in Jan; took 7 months
- d) Contract awarded to Earth Tech Enterprises Inc. based in Naples
- e) Contract approved by BOCC February 10
- f) Pre-construction meeting held February 24
- g) Anticipated construction start early April



Permitting Issues

1. SFWMD and FKNMS

- No issues



2. USACE

- PRD Consultations

a) Taking 7 months

b) Karla Reece identified the option of adding the canal restorations to the State Programmatic Review that was already being undertaken

c) AMEC provided the necessary information

d) USACE reviewing to determine the activities that will be included and the necessary design criteria

e) If canal restorations are included would not require site specific PRD review



US Army Corps of Engineers

3. Future Actions Needed

- 1) Follow up with Krista Sabin USACE Point of Contact



2016 EPA Grant for Water Quality Improvements in Residential Canal

A. Bench Scale Testing to Assist with Beneficial Re-Use of Organics Removed from Canal Bottoms

- 1) Soil flushing laboratory testing to remove salts
- 2) Report complete

B. Alternative Technologies Evaluation to Address Accumulated Muck in Canal Bottoms

- 1) Research alternative technologies to dredging

C. Alternative Technology Evaluation for Water Quality Improvements in Canals

- 1) Identify technologies not currently included in the CMMP
- 2) Identify passive & less energy intensive techniques

D. Development of a Business Plan for Canal Management

- 1) Identify reliable and equitable funding mechanism



Other Updates and Issues

1. Eden Pines

- a) Various Technologies are being evaluated, including alternative technologies



2. Florida Keys Stewardship Bill

- a) Expands funding beyond waste water to other water quality improvements
- b) FL Senate Appropriations Subcommittee endorsed the Senate's version on Feb 17
- c) Up next in the house – hopefully to be voted on prior to session end March 11

3. Next Canal Demonstration Projects

- a) In Situ Muck Aeration
- b) Organic Muck Removal AND Backfilling AND weed gate

4. Sea Level Rise – Impact on Selection of Canals for Restoration

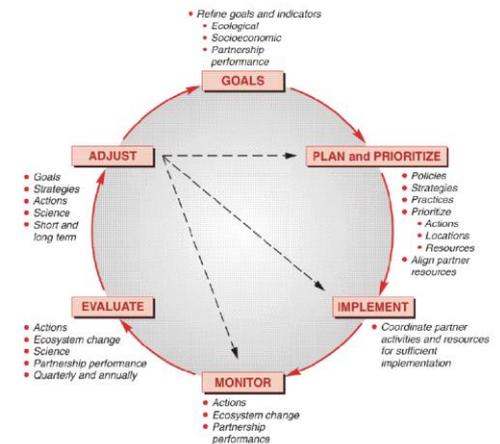
MONROE COUNTY BOCC CANAL WORKSHOP

1. BOCC Workshop to discuss Plan for future Canal Restorations

- April 11

2. Agenda Topics

- a) Municipality support and participation
- b) Regulatory Requirements
- c) Funding Mechanisms
- d) Issues identified during the Demonstration projects
- e) Resident participation
- f) Successes!
- g) Next steps



Adaptive management framework from Canal Management Master Plan

EPA Letter



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
ATLANTA FEDERAL CENTER
81 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960

AUG 28 2015

Mr. George R Neugent
1583 Eastward Ho Lane
Marathon, Florida 33050

Dear Mr. Neugent:

Thank you for your July 28, 2015, inquiry to the U.S. Environmental Protection Agency on behalf of Monroe County seeking clarification of Monroe County's state and federal responsibility to restore the impaired canal systems as described in the Florida Keys Reasonable Assurance Document (FKRAD). Water quality monitoring of the nearshore waters (halo zone) and the inland canal systems of the Keys, confirmed pollution due to excessive nutrients and low dissolved oxygen. The failure to meet water quality standards put the Florida Keys on the Clean Water Act Section 303(d) list of impaired waters. Once on the 303(d) list, the State or the EPA is required to develop Total Maximum Daily Loads (TMDLs) to restore the waterbodies. In lieu of developing the TMDLs, Monroe County and local stakeholders contacted the EPA and State and expressed interest in pursuing a FKRAD, a commitment by a local sponsor and stakeholders to implement corrective actions to reduce pollution and restore waters. Monroe County was already in a strong leadership position through their participation in the Florida Keys National Marine Sanctuary Water Quality Protection Program that was established to address pollution from wastewater, stormwater, marinas, and other sources. After a series of technical and stakeholder meetings, the decision was made by Monroe County and local stakeholders to develop a FKRAD that was finalized in 2008 and approved by the Florida Department of Environmental Protection (FDEP) in 2012.

At the time of the FKRAD development, it was known that wastewater and stormwater management alone would not restore canal systems due to canal depths, organic loadings, canal configuration and hydrological restrictions. The EPA, FDEP and stakeholders also recognized the limitations of the FKRAD to accurately identify sources of impairment, loading rates, water quality targets, outside sources, effective corrective measures, and funding for pollution control measures. To manage these unknowns, the FKRAD included the adaptive management process. Adaptive management is the commitment to revise the FKRAD and pollution controls, if progress towards achieving water quality standards is not demonstrated. Monroe County and the stakeholders have accepted the challenges of adaptive management and shown their commitment to the environment of the Florida Keys. This is best demonstrated by the elimination of approximately 25,000 polluting septic tanks and cesspits and the implementation of state-of-the-art wastewater facilities throughout the Keys by 2016 at a cost approaching \$1 billion.

In 2013, Monroe County provided \$5 million to implement the Monroe County Canal Management Master Plan (CMMP) and pilot restoration technologies at seven canals. As a partner, the EPA has provided \$5 million towards Keys water quality and seagrass monitoring to assess FKRAD implementation; \$300,000 towards pre- and post-water quality and seagrass monitoring of the canal demonstration sites; and \$300,000 to develop the CMMP, explore alternative technologies for remediating canals, and support public outreach efforts by Monroe County. It is important that Monroe

County and its partners continue to implement the CMMP to protect water quality, aquatic life, and seagrasses for residents living along these canals.

The FKRAD was adopted as a FDEP order on February 7, 2012, and subsequently accepted by the EPA. The FKRAD states that the management actions will be completed by 2015 and water quality improvement in the halo zone and inland canals is expected by 2020. If it is determined by the FDEP or the EPA that implementation of the FKRAD is not achieving the expected water quality improvements for nutrients and dissolved oxygen, the impaired waterbodies will be reassessed and given a higher priority for TMDL development. Again, thank you for your inquiry. If you have questions or need additional information from the EPA, please contact Mr. Steven Blackburn of my staff at (404) 562-9397.

Sincerely,

James D. Giattina
Director
Water Protection Division



**FLORIDA DEPARTMENT OF
ENVIRONMENTAL PROTECTION**

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RICK SCOTT
GOVERNOR

CARLOS LOPEZ-CANTERA
LT. GOVERNOR

JONATHAN STEVERSON
SECRETARY

September 10, 2015

Mr. George Neugent
1583 Eastward Ho Lane
Marathon, FL 33050

SUBJECT: FL Keys Restoration

Mr. Neugent,

This letter is intended to provide clarification on Monroe County's responsibilities to restore water quality in the waters surrounding the FL Keys, including inland canals, under the Secretarial adopted FL Keys Reasonable Assurance Document (FKRAD). The FKRAD was developed to address nutrient impairments in the nearshore waters. The plan was completed and implementation of the plan began in 2008. In 2011, the waters were re-assessed by DEP and some of the inland canals were found to have low dissolved oxygen (DO) which did not meet the water quality standard. This meant the canals were "impaired" and would be added to the State's list of waters that need a Total Maximum Daily Load (TMDL) determination. The original FKRAD did not include projects to specifically address DO impairments in the canals, but the department decided to delay adding them to the "impaired" waters list because the work being done under the existing plan would address the anthropogenic nutrient inputs contributing to low DO in the canals. This meant a TMDL was not necessary at that time due to on-going restoration activities. The canal restoration work that has been initiated addresses the other factors (mainly hydrologic) contributing to low DO that are not covered under the FKRAD. These efforts in conjunction with the nutrient reductions in the FKRAD provide the flexibility to postpone TMDL development; however, if water quality standards for nutrients and dissolved oxygen are not achieved under the FKRAD or through other restoration efforts, the waters will be placed on the list for TMDL development. It is the department's hope that FKRAD stakeholders will continue to meet their commitments detailed in the document and the additional restoration efforts such that water quality standards will be achieved as expected by 2020.

Sincerely,

A handwritten signature in blue ink, appearing to read "Jonathan Steverson".