



C-139 Regional Feasibility Study

**A Complete Water Resource
Perspective**

**Quarterly Communications Meeting on the Long-Term
Plan for Achieving Water Quality Goals for Everglades
Protection Area Tributary Basins**

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The C-139 "Region"

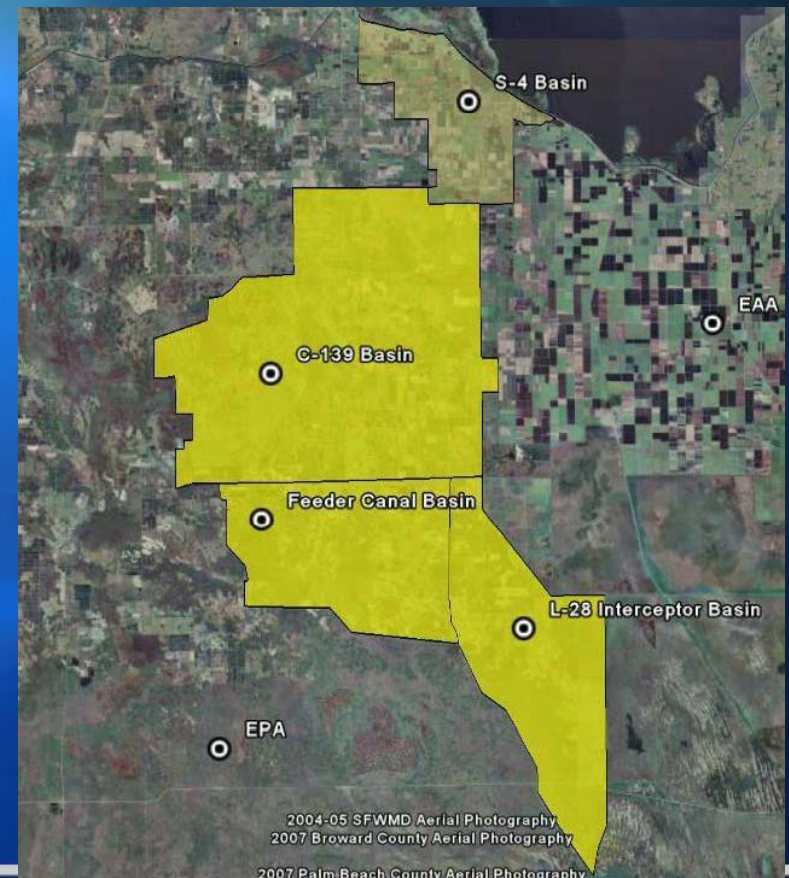
- *C-139 - one of several Everglades western tributaries*
- *Collectively known as the "Western Basins"*

Basins Tributary to Everglades

- C-139 Basin
- Feeder Canal Basin
- L-28 Basin

Potential Tributary Basin

- S-4 basin (Clewiston Canal)



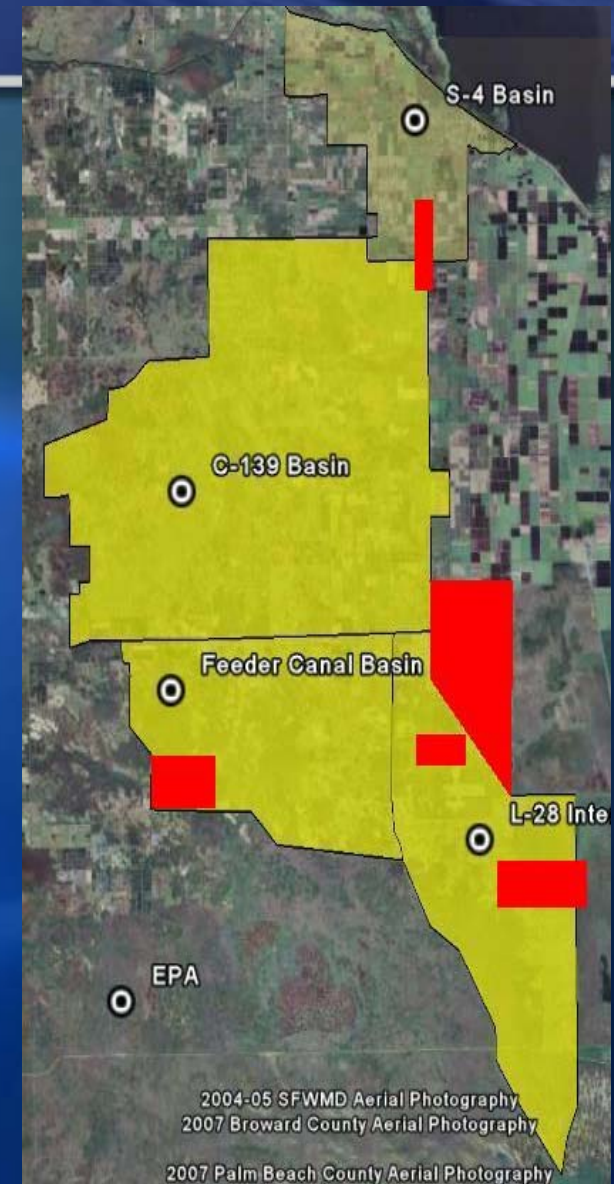
Basin Specific Projects: Existing & Currently Planned

Existing

- STA-5: Cells 1, 2 and 3
- STA-6: Sections 1 and 2
- C-139 Annex Pump Station

Planned

- Feeder Canal Basin: “Critical Project” (Tribe and ACOE)
- “Compartment C” under construction
- Potential S-4/Clewiston Canal Diversion to the south
- Feeder Canal/L-28 CERP Projects





C-139 Regional “Challenges” Summary

Develop an integrated regional approach beyond basin specific efforts to deal with these challenges

- **Water Quality & Quantity**
 - EFA mandates – basins not meeting goals
- **Stormwater Management**
 - High intensity rainfall events occur in short time period decreasing percent retained within basins
- **Water Availability**
 - Reliance on groundwater is affected by rainfall patterns and soils
- **Coordination/Integration of Projects**
 - ECP/LTP, CERP, Land Practices



C-139 Regional Perspective: Potential Solutions



Evaluating the feasibility of Regional Solutions across Basin Boundaries allows for....

- **Flexibility in movement of water between individual basins for water availability, timing of STA inflows, flood control & regional storage**
- **Integrated approaches to meet common Water Quality and Conservation Goals**
- **Opportunities to use District or public-owned lands for more comprehensive benefits**



C-139 Regional Perspective: Potential Solutions



- **Regional Storage**
 - **Benefit Water Quality, Water Availability**
- **Canal / Infra-structure modifications**
 - **Allow for more flexibility in movement of water for flood protection & regional storage/treatment**
 - **Develop interconnections between individual basins for excess stormwater recycling**
- **Operational Optimization**
 - **Take advantage of infra-structure to better manage regional water resources**
 - **Retain first wet season events to capture the first flush of nutrients**



C-139 Basin Regional Feasibility Study: Current Status

- **Identify solutions for C-139, Feeder Canal and L-28 Basins together as a “Region”**
- **Phase 1:**
 - **Gather existing information, identify data needs, fill in data gaps, identify potential alternative elements, develop integrated groundwater/surface water model for region – complete**
 - **New/updated data gathered as part of study:**
 - **Topography**
 - **Canal Cross Sections**
 - **“Nested Pair” groundwater monitoring wells installed**
 - **Summary Report February, 2011**



C-139 Basin Regional Feasibility Study: Current Status



- **Phase 2 Study began March 2011**
- **From Phase I Study, the integrated Surface/Groundwater “Detail Model” model did not calibrate well enough to use. Recommend development of a less complex “Routing” model**
- **Performance measures for Water Quality, Water Supply, Flood Control and Wetland resources have been developed.**
- **“Routing” model being developed using District RSM inputs (for C139 and Feeder Canal Basins), Mike11 for routing and DMSTA for water quality assessment.**
- **Model will be used to simulate the affects of alternative elements on Performance measures.**
- **Continuing to collecting groundwater data and further develop the Detail Model in-house**



Potential “Alternatives”

Regional Scale

- **S-4 excess stormwater south to storage area**
- **Caloosahatchee River excess stormwater south to storage area**
- **Use available lands, if acquired, for regional storage and treatment**
 - **C-139 Basin**
 - **Feeder Canal Basin**
- **Stormwater Management Improvements**



Potential Alternatives continued

Sub Regional Scale

- Dissect region into hydrologic “sub-basins”
- Focus efforts on storage and treatment in sub-basins yielding highest cost efficiencies
- Potential projects on District lands east of “Compartment C” and downstream of S&M sub basin



Potential Alternatives (continued)

Smaller Scale Alternatives

- **Cooperatively construct Above-Ground Impoundments (AGI) – improve above and beyond current requirements**
- **Addition of “Step Down” weirs at key topographical breaks**
- **Dispersed water storage and treatment program – solicitation for water management on public, private and tribal lands**
- **Canal sediment settling /collection basins**



Potential Alternatives (continued)

- **Advanced Treatment Technologies**
- **Retrofit current, bottom opening gates to “over the top” discharging gates**
- **Westward pumping stations on L-2**
- **“First Flush” Operating plans**
- **Cooperative Tail-water Recovery projects**
- **Others (as suggested)**



Coordinated Effort - Public Input and District Resources

Critical coordination

- **Stakeholder Input – through District PM**
- **Construction and Engineering issues**
- **Regional Modeling (integrated surface & groundwater)**
- **Land Management issues (exotics/nuisance vegetation)**
- **Operation of District facilities**
- **Regulatory issues**
- **Water Supply planning**
- **Everglades Restoration coordination**



C-139 Basin Regional Feasibility Study

- **Questions/Comments?**