

**C-139 AND WESTERN BASINS  
BEST MANAGEMENT  
PRACTICES (BMPs)  
GRANT PROGRAM**



**April 2005**

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## **C-139 AND WESTERN BASINS BMP GRANT PROGRAM**

### **APRIL 2005**

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#### **EXECUTIVE SUMMARY**

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To advance water quality improvements achieved by implementing Best Management Practices (BMPs) under the Everglades Restoration Program, the District launched the C-139 and Western Basins Grant Program in 2002 in partnership with the Natural Resources Conservation Service (NRCS), and entered into contract with Hendry Soil and Water Conservation District (HSWCD) to administer the program. In 2004, the Florida Department of Agriculture and Consumer Services (FDACS) joined the District and NRCS by contributing funds to the program. The basis of the program is to provide grants, primarily to local landowners, to facilitate implementation of BMPs that ultimately reduce phosphorus discharges to the Everglades from farms in these basins. This report provides a summary of BMP projects sponsored by the C-139 and Western Basins BMP Grant Program since its inception.

By committing \$1,793,230 to the grant program to date, the District has funded numerous BMP projects ranging from canal cleaning operations and installation of water control structures to construction of surface water reservoirs. As of December 2004, \$828,983 has been awarded for implementation of BMP projects in the C-139 basin and \$414,190 in the Feeder Canal basin. Administration costs have totaled \$50,057. The remaining \$500,000 will be awarded in future grant application cycles.

The District will continue to support voluntary BMP initiatives for water quality improvement by providing economic incentives to the farming communities in the C-139 and Western basins. The District is committed to allocating time, energy, and funds to projects that will result in expanding the body of knowledge in the area of farming BMPs, and will collaborate with the farming community and partnering agencies to ensure that water delivered to the Everglades meets mandated water quality standards.

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## INTRODUCTION

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In 2002, the C-139 and Western Basins Best Management Practices (BMP) Grant Program was created to advance implementation of BMPs for phosphorus reduction in agricultural discharges. Figure 1 shows the C-139 and Western Basins. For purposes of this report and this grant program, the Western Basins are the Feeder Canal and L-28 basins. These basins are comprised of mostly agricultural lands that are served by South Florida Water Management District (District) structures that discharge into the Everglades (aka Everglades Protection Area).

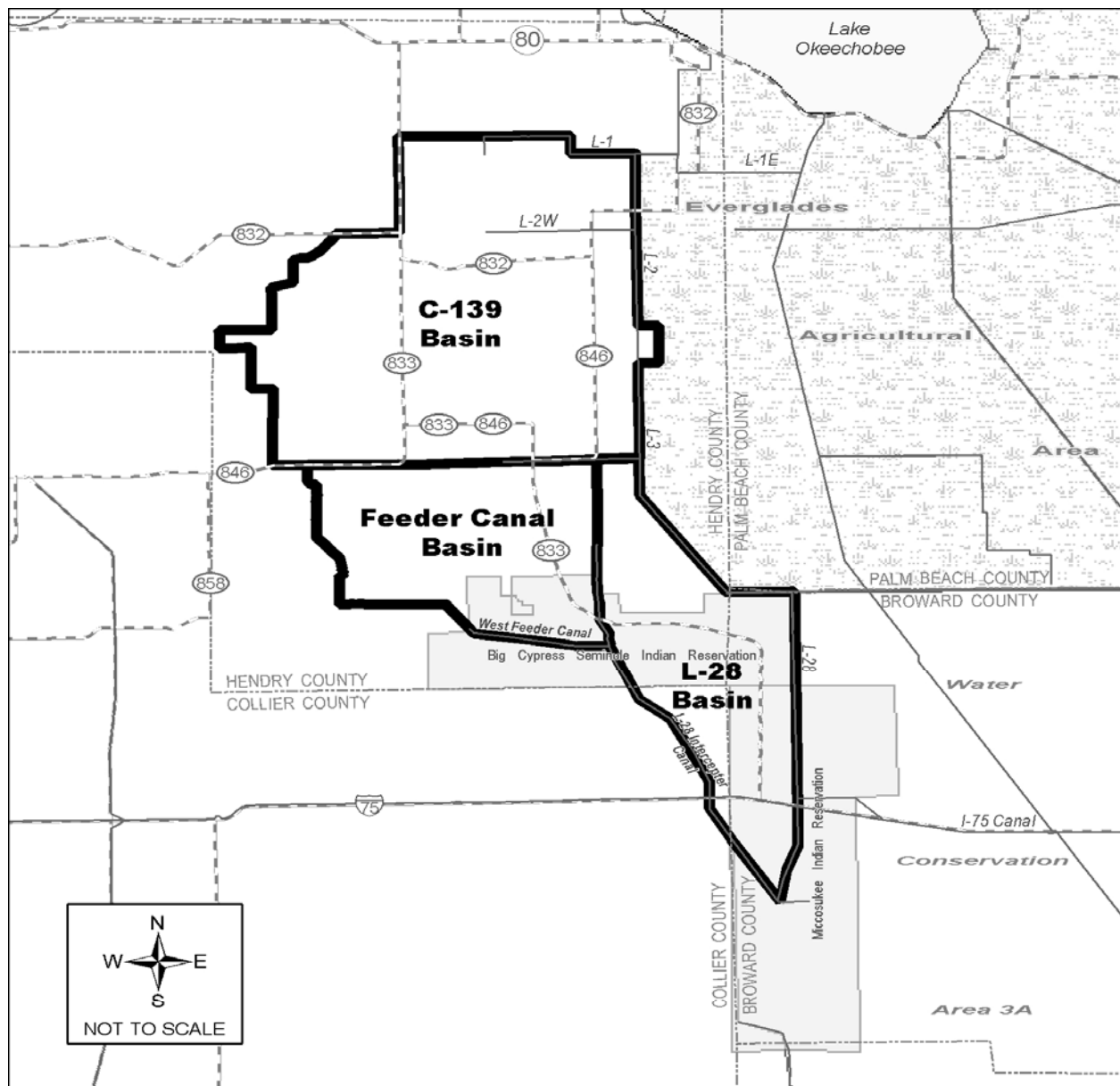
In 1994, the Everglades Forever Act (EFA) mandated the creation of the Everglades Program to achieve water quality standards in the Everglades. A major component of the program focuses on controlling phosphorus in discharges through a combination of BMPs in the tributary basins and Stormwater Treatment Areas (STAs). In 2003, the EFA was modified to incorporate the “Long-Term Plan for Achieving Water Goals in the Everglades Protection Area” (Long-Term Plan). The Long-Term Plan objective for the tributary basins is to further develop and strengthen BMP initiatives in these basins. Consistent with the EFA mandate, the C-139 and Western Basins BMP Grant Program builds upon the comprehensive approach of implementing source controls through regulatory, voluntary, and educational programs.

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## TRIBUTARY BASINS

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The C-139 basin is included in the Everglades Construction Project (ECP) mandated by the EFA, which discharges to STAs. The Feeder Canal and the L-28 basins are considered non-ECP basins because they discharge to the Everglades directly through District structures but are not included in the ECP. The C-139 basin also differs from the Feeder Canal and L-28 basins in that the ECP requires a mandatory BMP Everglades Regulatory Program be implemented in the C-139 basin, while BMPs in the other non-ECP basins are voluntary. The Everglades Regulatory Program was created to carry out regulatory activities required by the EFA in the C-139 basin and oversee implementation of mandatory farm-level BMPs.



SOUTH FLORIDA WATER MANAGEMENT DISTRICT  
Environmental Resource Regulation Department  
Everglades Regulation Division

Figure 1. C-139 and Western Basins Map

The EFA mandates that the goal for the C-139 basin is to maintain TP loads at or below historical baseline levels. Since the C-139 basin's initial compliance period in WY2003, this goal has not been met. The C-139 Basin is the second largest tributary source of phosphorus to the Everglades.

Voluntary BMP implementation in the Non-ECP basins is administered through the Everglades Stormwater Program (ESP). As part of the ESP Program, action plans have been developed for each basin, and include a combination of voluntary BMPs, requirement and/or modification of surface water permits to include water quality criteria, construction projects, and public education. Unlike the C-139 basin, which is required to maintain TP load at or below historical baseline levels, non-ECP basins do not have a specific phosphorus requirement established at the point of discharge. A summary of the characteristics of the tributary basins and water quality for Water Year 2004 (the period from May 1, 2003, to April 30, 2004) is presented below.

Table 1. Phosphorus (TP) Concentrations and Loads for Water Year 2004

| Basin Name   | Basin Category   | Primary Land Use | TP Concentration<br>(flow-weighted mean, ppb) | TP Load<br>(metric tons) |
|--------------|------------------|------------------|---|--------------------------|
| C-139        | ECP <sup>1</sup> | Agricultural     | 274   | 69.0                     |
| Feeder Canal | Non-ECP          | Agricultural     | 99  | 14.4                     |
| L-28         | Non-ECP          | Agricultural     | 42  | 7                        |

<sup>1</sup> ECP basin discharges receive further treatment downstream through the STAs prior to discharge to the EPA.

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## HISTORY OF THE GRANT PROGRAM

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To advance the results achieved by the Everglades Regulatory Program, the District launched the C-139 and Western Basins Grant Program in 2002 through a contract with HSWCD to administer the program. The program provides funding to local landowners to facilitate implementation of BMPs that reduce phosphorus discharges from their farms. The Natural Resources Conservation Service (NRCS), under their Environmental Quality Incentive Program (EQIP), and the Florida Department of Agriculture and Consumer Services (FDACS) have partnered with the District to increase the funding of the program. The funds from all three agencies are administered by the Hendry Soil and Water Conservation District (HSWCD) through separate contracts.

Table 2 summarizes the various contracts executed and amounts committed during the life of the grant program. Because of the success of the program, the District increased the funding twice between 2002 and 2004, and the program was renewed under a separate contract in 2005.

Table 2. District Contributions to the Grant Program

| Contract No. | Period                        | Contracted Amount<br>\$ | How Distributed                                    |
|--------------|-------------------------------|-------------------------|--|
| C-13345      | August 2002 – August 2005     | 300,000                 | \$100,000 each year                                |
| C-13345-A01  | January 2004 – August 2005    | 350,000                 | \$350,000 for the remaining contract period        |
| C-13345-A02  | July 2004 – August 2005       | 250,000                 | \$250,000 for the remaining contract period        |
| OT050184     | November 2004 – November 2007 | 900,000                 | \$400,000 – December 2004<br>\$500,000 – June 2005 |

Tables 3, 4, 5, and 6 provide a breakdown of the projects that were funded under each contract and amendment. Of the \$1,793,230 total District contribution to the program, \$828,983 is under contract between HSWCD and C-139 landowners and \$414,190

between HSWCD and Feeder Canal basin landowners. HSWCD has been paid \$50,057 to administer the program. The remaining \$500,000 will be allocated in upcoming grant application cycles.

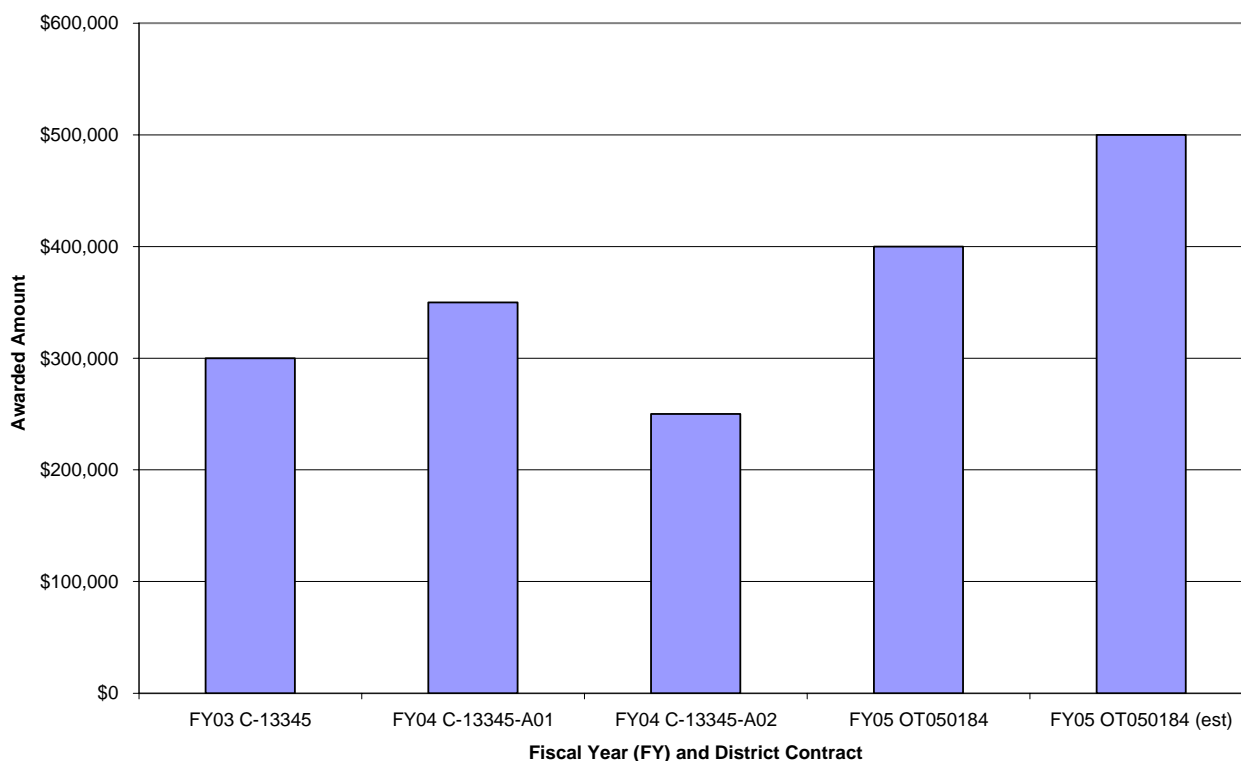


Figure 2. District Contributions to the Grant Program

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### APPLICATION AND GRANT AWARD PROCESS

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The application process, eligibility criteria, cost-reimbursement process, and deadlines are described in a handbook prepared by the District and distributed to all interested parties. To evaluate applications and to select projects to be funded, a selection committee, composed of two District staff members and one member of each NRCS and FDACS, has been formed. The selection committee evaluates the proposed BMP implementation projects using the eligibility criteria defined in the handbook. Based on the information submitted by the applicant with respect to the project scope and cost, and on a fair and



equitable formula developed by the District, the HSWCD, and NRCS, the committee determines eligible costs to be funded by the program. The combined awards from the participating agencies vary based on the number of applicants and available funds, but have generally been about 80 percent of the total project cost.

Inspections are conducted regularly during the implementation phase to verify that BMPs are being implemented according to the approved conceptual plan and design, and to determine progress for reimbursement. These inspections and documentation of eligible expenses are the basis for cost reimbursement.

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### **PROJECTS FUNDED BY THE GRANT PROGRAM**

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The grant program has funded numerous BMP projects to date, ranging from canal-cleaning operations and installation of water-control structures to construction of surface water reservoirs where discharges are routed before leaving the farm. The grant program has also funded a demonstration project to determine the role of sediments on phosphorus transport in the two canals that are primary discharge points from the C-139 basin, the Deer Fence and S&M Canals. The following sections describe the various contracts and amendments executed throughout the life of the program. The Appendix provides a detailed description of the demonstration project.

#### **FY03 - Contract No. C-13345**

During the first application cycle, only three eligible project applications were received and funded. Table 3 itemizes projects funded in 2003 under the original contract, including a description of the project, the amount that the District contributed, the amount of NRCS participation under EQIP, the total cost to the applicant or the portion to receive contribution-match credit, and the total project cost. All of the projects listed have been completed.

Table 3. Grants Awarded in FY03 under Original Contract C-13345<sup>3</sup>

| GRANTEE AND<br>PROJECT DESCRIPTION   | BASIN        | SFWMD<br>\$    | EQIP <sup>1</sup><br>\$ | APPLICANT <sup>2</sup><br>\$ | TOTAL<br>\$    |
|--|--------------|----------------|-------------------------|------------------------------|----------------|
| J-7 Ranch<br><i>Thirteen reservoirs to be completed in phases</i>  | C-139        | 91,408         | 75,000                  | 107,000                      | 273,408        |
| Howell Farms<br><i>Canal cleaning; culverts with risers - project forms the headwaters of the Lard Can Canal</i> | Feeder Canal | 43,277         | 0                       | 14,500                       | 57,777         |
| Toney Strand Regional BMP Project<br><i>Canal cleaning; culverts with risers</i>                                 | Feeder Canal | 49,538         | 0                       | 16,500                       | 66,038         |
| HSWCD<br><i>Administration Fees</i>  |              | 10,000         | 0                       | 0                            | 10,000         |
| <b>TOTAL</b>   |              | <b>194,223</b> | <b>75,000</b>           | <b>138,000</b>               | <b>407,223</b> |

<sup>1</sup> EQIP only funded one project due to the limited funds available during FY03. The project selected for EQIP funding was based on the location that would benefit the largest region.

<sup>2</sup> This column represents the sum of the invoices that the applicant provided in order to demonstrate their participation in the project. Frequently, the total applicant costs incurred are higher than the sum of the invoices submitted.

<sup>3</sup> Contract period is from August 2002 to July 2004.

### FY04 - Phase I (Contract No. C-13345, Amendment A01)

There was a significant increase in program participation for this application cycle with eight projects being funded, as itemized in Table 4. As of the date of this report, all of the projects listed have been completed.

Table 4. Grants Awarded in FY04 Phase I

| GRANTEE AND<br>PROJECT DESCRIPTION  | BASIN           | SFWMD<br>75%<br>\$ | APPLICANT <sup>1</sup><br>25%<br>\$ | TOTAL<br>\$    |
|---|-----------------|--------------------|-------------------------------------|----------------|
| Zipperer Farms<br><i>Partial construction of reservoir; re-sized ditches to provide additional storage capacity</i> | C-139           | 50,900             | 17,000                              | 67,900         |
| Jackman Ranch<br><i>Partial construction of reservoir; culverts with risers</i>                                     | C-139           | 47,450             | 15,817                              | 63,267         |
| Little Cypress Grove<br><i>Partial construction of reservoir (dikes)</i>  | C-139           | 25,000             | 8,333                               | 33,333         |
| J-7 Ranch<br><i>Continue construction of 13 reservoirs</i>  | C-139           | 78,580             | 26,193                              | 104,773        |
| Howell Farms<br><i>Culverts with risers</i>   | Feeder<br>Canal | 9,014              | 3,000                               | 12,014         |
| Toney Strand Regional Project<br><i>Canal cleaning; culverts with risers</i>  | Feeder<br>Canal | 87,900             | 29,300                              | 117,200        |
| Point of Cypress<br><i>Reservoir; culverts with risers</i>  | Feeder<br>Canal | 73,044             | 24,348                              | 97,392         |
| McDaniels' Ranch<br><i>Construction of reservoir; culverts with risers</i>  | Feeder<br>Canal | 68,756             | 22,920                              | 91,676         |
| HSWCD<br><i>Administration Fees</i>   |                 | 8,928              | 0                                   | 8,928          |
| <b>TOTAL</b>  |                 | <b>449,572</b>     | <b>146,911</b>                      | <b>596,483</b> |

<sup>1</sup> This column represents the sum of the invoices that the applicant provided in order to demonstrate their participation in the project. Frequently, the total applicant costs incurred are higher than the sum of the invoices submitted.

#### FY04 - Phase II (Contract No. C-13345, Amendment A02)

Eight projects were also funded during this application cycle, as itemized in Table 5. Four projects did not receive funding from NRCS or FDACS because applications were not submitted for those programs. As of the date of this report, the projects funded in this cycle are approximately 60 percent complete.

Table 5. Grants Awarded in FY04 Phase II

| GRANTEE AND<br>PROJECT DESCRIPTION  | BASIN           | SFWMD<br>23.4%<br>\$ | EQUIP<br>44%<br>\$ | FDACS<br>12.5%<br>\$ | APPLICANT <sup>1</sup><br>20.1%<br>\$ | TOTAL<br>\$    |
|---|-----------------|----------------------|--------------------|----------------------|---------------------------------------|----------------|
| Zipperer Farms<br><i>Partial construction of reservoir, including control structures; re-sized ditches to provide additional storage capacity</i> | C-139           | 18,720               | 35,165             | 10,000               | 16,115                                | 80,000         |
| Jackman Ranch<br><i>Partial construction of reservoir; water control structures</i>   | C-139           | 18,032               | 0                  | 0                    | 4,981                                 | 23,013         |
| Little Cypress Grove<br><i>Partial construction of reservoir, including water control structure; culverts with risers</i>                         | C-139           | 43,120               | 0                  | 0                    | 11,910                                | 55,030         |
| J-7 Ranch<br><i>Continue construction of reservoirs</i>   | C-139           | 35,100               | 65,934             | 37,500 <sup>2</sup>  | 30,216                                | 168,750        |
| ABC Ranch<br><i>Culverts with risers</i>  | C-139           | 11,699               | 21,978             | 6,250                | 10,073                                | 50,000         |
| McDaniels' Ranch<br><i>Construction of reservoir; culverts with risers</i>  | Feeder<br>Canal | 40,950               | 76,923             | 9,615                | 35,252                                | 162,740        |
| Frank Smith<br><i>Canal cleaning; culverts with risers</i>  | Feeder<br>Canal | 27,421               | 0                  | 0                    | 7,579                                 | 35,000         |
| Demonstration Project – Clean Watershed Fund <sup>3</sup><br><i>Evaluate the role of sediments in the Deer Fence S&amp;M Canals</i>               | C-139           | 50,000               | 0                  | 0                    | 0                                     | 50,000         |
| HSWCD<br><i>Administration Fees</i>   |                 | 5,000                | 0                  | 0                    | 0                                     | 5,000          |
| <b>TOTAL</b>  |                 | <b>250,042</b>       | <b>200,000</b>     | <b>63,365</b>        | <b>116,126</b>                        | <b>629,533</b> |

<sup>1</sup> This column represents the sum of the invoices that the applicant provided in order to demonstrate their participation in the project. Frequently, the total applicant costs incurred are higher than the sum of the invoices submitted.

<sup>2</sup> An additional \$18,750 was awarded to this project by FDACS for FY03.

<sup>3</sup> See the Appendix for a detailed description of this project.

**FY05 – Phase I (Contract No. OT050184)**

Seven projects were funded in this application cycle, as itemized on Table 6. Projects were funded at 77 percent of the estimated cost of the project. To date, all the contracts with landowners have been signed, and work has commenced on two of the projects.

Table 6. Grants Awarded in FY05 Phase I

| GRANTEE AND<br>PROJECT DESCRIPTION  | BASIN           | SFWMD<br>77%<br>\$ | APPLICANT <sup>1</sup><br>23%<br>\$ | TOTAL<br>\$    |
|---|-----------------|--------------------|-------------------------------------|----------------|
| Zipperer Farms<br><i>Partial construction of reservoir; re-sized ditches to provide additional storage capacity</i> | C-139           | 77,232             | 23,069                              | 100,301        |
| District-Recommended Project (100%) <sup>2</sup><br><i>Sediment trap at bridge; canal cleaning</i>                  | C-139           | 22,000             | 0                                   | 22,000         |
| Jackman Ranch<br><i>Partial construction of reservoir; culverts with risers</i>                                     | C-139           | 71,163             | 21,257                              | 92,420         |
| Little Cypress Grove<br><i>Partial construction of reservoir (dikes); ditch cleaning</i>                            | C-139           | 37,545             | 11,215                              | 48,760         |
| J-7 Ranch<br><i>Continue construction of 13 reservoirs</i>  | C-139           | 120,266            | 35,924                              | 156,190        |
| ABC Ranch<br><i>Canal cleaning; culverts with risers</i>  | C-139           | 30,768             | 9,190                               | 39,958         |
| Howell Farms<br><i>Culverts with risers</i>   | Feeder<br>Canal | 14,290             | 4,269                               | 18,559         |
| HSWCD<br><i>Administration Fees</i>   |                 | 26,129             | 0                                   | 26,129         |
| <b>TOTAL</b>  |                 | <b>399,393</b>     | <b>104,924</b>                      | <b>504,317</b> |

<sup>1</sup> This column represents the sum of the invoices that the applicant provided in order to demonstrate their participation in the project. Frequently, the total applicant costs incurred are higher than the sum of the invoices submitted.

<sup>2</sup> This project received additional funding (13 percent) per the handbook criteria. Projects recommended by District staff may receive additional funding, not to exceed 100 percent of implementation costs, based on water quality concerns ("hot spots") identified through sampling at various locations in the C-139 basin between 1999 and 2003.

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## WATER QUALITY MONITORING

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With only two effective years of BMP implementation within the C-139 basin, limited water quality data are available that may be used to evaluate the impact of the grant program on the phosphorus discharges from the C-139 and Western basins. To meet EFA mandates, phosphorus concentration and flow data are collected at the basin inflow and outflow points at District structures. However, limited water quality data are available within the basins themselves. For the C-139 basin, phosphorus concentrations have been measured at selected sampling locations within the basin by obtaining grab samples during discrete rainfall events. At this time, available data are insufficient to measure program success. Additional time and data are necessary before the District has an indicator of how the BMP grant program projects, concurrent with mandatory and voluntary initiatives, affect phosphorus levels in basin discharges.

In an effort to evaluate the effectiveness of specific grant funded BMPs, a long-term program to monitor farm-level water quality at the project is being developed and will be implemented in the second quarter of 2005. This information will serve to better prioritize future funding allocations and to identify areas that demand more effort. It is recognized that accurately quantifying the effectiveness of a BMP requires an intensive and scientifically defensible data gathering effort under controlled conditions. At this time in the life of the grant program, the time and cost associated with such an intensive water quality tracking effort may become prohibitive or unnecessary when considering the number of participating farms, the variability of site-specific conditions, external factors affecting BMP performance (e.g., weather), and changes in farming practices from year to year. The goal of the monitoring program therefore, is to qualitatively compare the trend of phosphorus concentrations in water quality discharges before BMPs are implemented with the trend after BMPs are implemented on a project-specific basis. This information will be used in conjunction with the results from BMP demonstration projects to refine the direction of the grant program for the future.

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## SUCCESS INDICATORS AND FUTURE DIRECTION

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Farmers in the C-139 and Western basins have welcomed the support from the District to implement BMPs to improve water quality. Table 7 provides a comprehensive summary of projects that have been funded since inception of the program. To date, the District has shared in the cost to construct 12 reservoirs, 8 of which are complete and functional. The District has also shared in the cost to clean approximately 34 miles of canals and to replace 130 culverts with risers and mud boards. The risers control water levels on the farm and the mud boards trap the sediments, preventing them from discharging off-site. The District continues to visit the projects regularly to verify that BMPs are implemented according to the approved plans. Selected project pictures are shown on page 15.

The District will continue to support voluntary BMP initiatives for water quality improvement by providing economic incentives to the farming communities in the C-139 and Western basins. As more knowledge is acquired regarding BMPs, hydrologic information, and site-specific farming practices, the grant program will focus on those source controls that provide the most water quality benefit. The District will and will collaborate with the farming community and partnering agencies to ensure that water delivered to the Everglades meets mandated water quality standards. The District is committed to allocating time, energy, and funds to projects that will result in expanding the body of knowledge in the area of farming BMPs, such as demonstration projects, innovative projects, and outreach efforts.

Table 7. Projects Funded by the Grant Program from August 2002 to March 2005

| GRANTEE AND<br>PROJECT DESCRIPTION  | BASIN           | SFWMD<br>\$      | EQIP<br>\$     | FDACS<br>\$   | APPLICANT <sup>1</sup><br>\$ | TOTAL<br>\$      |
|---|-----------------|------------------|----------------|---------------|------------------------------|------------------|
| Zipperer Farms<br><i>Partial construction of reservoir, including water control structures; re-sized ditches to provide additional storage capacity</i> | C-139           | 168,852          | 35,165         | 10,000        | 56,184                       | 270,201          |
| Jackman Ranch<br><i>Partial construction of reservoir; water control structures</i>   | C-139           | 136,645          | 0              | 0             | 42,055                       | 178,700          |
| Little Cypress Grove<br><i>Partial construction of reservoir; water control structures; culverts with risers; ditch cleaning</i>                        | C-139           | 105,665          | 0              | 0             | 31,458                       | 137,123          |
| J-7 Ranch<br><i>Partial construction of thirteen reservoirs</i>   | C-139           | 325,354          | 140,934        | 37,500        | 199,333                      | 703,121          |
| ABC Ranch<br><i>Culverts with risers; ditch cleaning</i>  | C-139           | 42,467           | 21,978         | 6,250         | 19,263                       | 89,958           |
| Howell Farms<br><i>Culverts with risers</i>   | Feeder<br>Canal | 66,581           | 0              | 0             | 21,769                       | 88,350           |
| Toney Strand Regional BMP Project<br><i>Canal cleaning; culverts with risers</i>  | Feeder<br>Canal | 137,438          | 0              | 0             | 45,800                       | 183,238          |
| Point of Cypress<br><i>Reservoir; culverts with risers</i>  | Feeder<br>Canal | 73,044           | 0              | 0             | 23,348                       | 97,392           |
| McDaniels' Ranch<br><i>Construction of reservoir; culverts with risers</i>  | Feeder<br>Canal | 109,706          | 76,923         | 9,615         | 58,172                       | 254,416          |
| Frank Smith<br><i>Canal cleaning; culverts with risers</i>  | Feeder<br>Canal | 27,421           | 0              | 0             | 7,579                        | 35,000           |
| Demonstration Project – Clean Watershed Fund<br><i>Evaluate the role of sediments in the Deer Fence S&amp;M Canals</i>                                  | C-139           | 50,000           | 0              | 0             | 0                            | 50,000           |
| HSWCD<br><i>Administration Fees</i>   |                 | 50,057           | 0              | 0             | 0                            | 50,057           |
| <b>TOTAL</b>  |                 | <b>1,293,230</b> | <b>275,000</b> | <b>65,365</b> | <b>505,961</b>               | <b>2,137,556</b> |

<sup>1</sup> This column represents the sum of the invoices that the applicant provided in order to demonstrate their participation in the project. Frequently, the total applicant costs incurred are higher than the sum of the invoices submitted.





**Completed reservoirs**



**Completed reservoir and dike construction in progress**



**Culverts with risers for water management and with mud boards for sediment control**



**Culvert delivery**



**Clean canals**



**Figure 3. Project Photos**

**QUESTIONS OR COMMENTS?**

Your input is appreciated! Please contact Marta Edwards, Everglades Regulatory Program, South Florida Water Management District, at (561) 682-2928 with questions or comments.

## **APPENDIX – DEMONSTRATION PROJECT**

### **PARTICULATE P AND THE SEDIMENTS IN THE C-139 BASIN CANALS**

Demonstration projects to provide recommendations on how to more effectively implement BMPs are also supported by the grant program at both the individual farm level and in areas that have a potential impact on regional water quality compliance results. One such demonstration project was funded during the second amendment to Contract No. C-13345, and is currently being conducted. The primary objective of this investigation is to determine whether canal sediments are serving as sinks or sources of phosphorus, and thus contributing to, or reducing the overall export of phosphorus from the basin. The role of flow and hydraulic conveyance structures on the re-suspension and transport of phosphorus will also be determined. The study concentrates on the S&M and the Deer Fence Canals located at the southern boundary of the C-139 basin. The investigation will yield recommendations for canal management, including dredging, canal widening, canal operations, and other BMPs. The specific phases of this project include:

- review of all available water quality, sediment, and hydrologic data for all stations within the Deer Fence and S&M canals;
- preparation of a Sampling and Analysis Plan for collection of water quality and sediment samples at discrete locations within the Deer Fence and S&M Canals.
- collection of water quality and sediment samples at discrete locations within those canals during periods of flow and during quiescent periods;
- assessment of floating vegetation at sampling locations concurrent with water quality and sediment sampling; and ultimately,
- canal management recommendations.

The first and second tasks of the demonstration project, e.g., review of all available water quality, sediment and hydrologic data for all stations within the Deer Fence and S&M Canals and the preparation of a Sampling and Analysis Plan, have been completed to date. The final report should be completed by September 2005.