Water Management Operations
Dry Season 2010-2011

Technical Oversight Committee
September 14, 2011

Susan Sylvester, Chief
Water Control Operations Bureau
South Florida Water Management District
SFWMD Rainfall Distribution Comparison
(Oct 2010 - Aug 2011)

**DRY SEASON:**
- started early with driest October on record
- 2nd largest deficit on record (80yrs)

**WET SEASON:**
- latest start (June 12) in at least 20 years
- August ended 0.7” (8%) above-average
- 7 of past 11 months were below-average

**Graph Notes:**
- Surplus
- Deficit
- Recorded

**Legend Values:**
- Oct 2010: 0.55
- Nov 2010: 1.50
- Dec 2010: 0.92
- Jan 2011: 2.38
- Feb 2011: 0.34
- Mar 2011: 3.13
- Apr 2011: 1.41
- May 2011: 2.21
- Jun 2011: 6.20
- Jul 2011: 7.08
- Aug 2011: 8.51
- Sep 2011: 0.5
- Oct 2011: 9/5

**2010-11 Dry Season**

**2011 Wet Season**

**As of 9/5**
# U.S. Drought Monitor

## Florida

### May 31, 2011
Valid 7 a.m. EST

#### Drought Conditions (Percent Area)

<table>
<thead>
<tr>
<th></th>
<th>None</th>
<th>D0-D4</th>
<th>D1-D4</th>
<th>D2-D4</th>
<th>D3-D4</th>
<th>D4</th>
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</thead>
<tbody>
<tr>
<td><strong>Current</strong></td>
<td>9.79</td>
<td>90.21</td>
<td>76.31</td>
<td>56.50</td>
<td>31.10</td>
<td>2.32</td>
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<tr>
<td><strong>Last Week</strong></td>
<td>9.79</td>
<td>90.21</td>
<td>75.03</td>
<td>53.73</td>
<td>28.66</td>
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<tr>
<td><strong>3 Months Ago</strong></td>
<td>0.87</td>
<td>99.13</td>
<td>91.30</td>
<td>53.50</td>
<td>13.06</td>
<td>0.00</td>
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<tr>
<td><strong>Start of Calendar Year</strong></td>
<td>0.16</td>
<td>99.82</td>
<td>86.04</td>
<td>50.84</td>
<td>20.21</td>
<td>0.00</td>
</tr>
<tr>
<td><strong>Start of Water Year</strong></td>
<td>54.97</td>
<td>45.03</td>
<td>18.02</td>
<td>4.22</td>
<td>0.00</td>
<td>0.00</td>
</tr>
<tr>
<td><strong>One Year Ago</strong></td>
<td>100.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
<td>0.00</td>
</tr>
</tbody>
</table>

#### Intensity:
- **D0 Abnormally Dry**
- **D1 Drought - Moderate**
- **D2 Drought - Severe**
- **D3 Drought - Extreme**
- **D4 Drought - Exceptional**

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*The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.*

[http://drought.unl.edu/dm](http://drought.unl.edu/dm)

**Released Thursday, June 2, 2011**

Anthony Artusa, NOAA/NWS/NCEP/CPC
Average Storage in Lakes and Water Conservation Areas

- Upper Chain of Lakes
- Lake Kissimme
- Lake Istokpoga
- Lake Okeechobee
- Water Conservation Areas
Lake Okeechobee Water Level Comparison

Current stage is:
at elevation 9.76 ft, NGVD
3.4 ft below average
4.9 ft below 2010
0.4 ft above 2008
0.8 ft above 2007
0.8 ft within Water Shortage Management Band

Historical Daily Average (1965-2007)

Federal Regulation Schedule
LORS-2008 adopted by USACE 28-Apr-2008

Water Shortage Management Band

Record Minimum: 8.82’ (02-Jul-2007)
Record Maximum: 18.77’ (02-Nov-1947)

09-Jun-2011
Stage = 9.76 ft, NGVD
Lake Okee Temp Pumps South installed to help meet Agricultural Water Supply.

Each pump is 100 cfs.

Not installed at S354 (Miami Canal)

Lake Okeechobee

Installed May 27
Removed July 20

Installed June 8
Removed July 22
Regional System Supplemental Water Supply

- Everglades Agricultural Area
  - Lake Okeechobee
- Lower East Coast Service Areas
  - WCAs
  - Lake Okeechobee
- Everglades National Park
  - WCAs
  - Lake Okeechobee
Canal / Groundwater Interaction

Normal Dry Season Operations

Normal rainfall distributed through the dry season months. Water is supplemented from WCAs.

Canal stages facilitate groundwater recharge and assist supplemental irrigation.

Low groundwater levels due to low, dry season rainfall

Prevention of Saltwater Intrusion
Canal / Groundwater Interaction

Water Shortage Management Operations

Landscape irrigation is restricted. Water may not be able to be brought from Lk Oke or WCAs.

Canal stages cannot be held up. Little groundwater recharge.

Groundwater falls low

Saltwater Intrusion

** The problem during a water shortage is that there can be a significant decrease in regional groundwater levels.

Canal stages fall much lower than desirable. Saltwater intrusion can become a concern.
Flood Control Ops: Discharge

Water Supply: Discharge

Conservation: Discharge preceded by equal volume

USACE Regulation Schedules
WPB Canal via LKO via S352 WPB Canal via S5A to WCA1 LWDD via G94 series Hillsboro via S39

WCA-1 – LWDD
Hillsboro Canal to Broward

Water Supply
LKO via S352
WPB Canal via S5A to WCA1
LWDD via G94 series
Hillsboro via S39

Also L8 to CWPB
L8 to C-51
Water Supply
LKO via S351
NNR via G371
S7 to WCA-2A L38Ecanal
L35Acanal
East via S38 to Broward (C14)
Water Supply
LKO via S351
NNR via G371
S150 to (WCA-3A) L38W canal
Under I-75 bridge to L68A canal
To L67A canal to S333 to S334.

Alternate WCA-2 S142 to WCA3A
S151 to S337 to S335 to L31N
LKO via S354
Miami Canal via G373
STA ¾ Discharge canal
S150 to (WCA-3A) L38W canal
Under I-75 bridge to L68A canal
To L67A canal to S333 to S334.

Alternate Miami S339, S340
Or Via WCA3A to WCA-3B
S151 to S337 to S335 to L31N.

Miami Canal - WCA-3A Canals – South Dade
WCA3 Water levels

Normal start of wet season
3rd week in May to Jun 4
The water supply elevations that prompt deliveries for the ENP-South Dade Conveyance System on are shown below:

**Water Supply Design**

<table>
<thead>
<tr>
<th>Structure</th>
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<th>HW</th>
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<tr>
<td>S-176</td>
<td>L31 (N) to C-111</td>
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<td>S-177</td>
<td>C-111</td>
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<tr>
<td>S-18C</td>
<td>C-111</td>
<td>2.0*</td>
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<tr>
<td>S-197</td>
<td>C-111</td>
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</table>

* It is recognized that while the elevation prompts the water supply, that it may not be possible to supply enough water to keep the elevation from falling lower.

Source: Table 7-5; USACE Master Water Control Manual – WCAs – ENP – SDCS (June 1996)
Canal Levels @S176 HW, S18C HW, S197 HW

[Graph showing water levels over time with key points at 3.5 ft NGVD and 2.0 ft NGVD]

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<th>Station</th>
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South Florida Water Management Model v5.0 Topograph