Everglades Monitoring Report

prepared for

U.S. Department of the Interior

by

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This report updates calculations of phosphorus limits & levels, BMP performance, and other aspects pertaining to the State/Federal Consent Decree based upon data available from SFWMD as of January 11, 1999.

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Everglades Monitoring Report - Summary

**Inflow Phosphorus Limits - Shark River Slough**
Results for 12-Month Pd: 9710 thru 9809
Basin Total Flow 737.6 kac-ft/yr

<table>
<thead>
<tr>
<th>Variable</th>
<th>Interim</th>
<th>Interim</th>
<th>Longterm</th>
<th>Longterm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flow-weighted Mean Conc.</td>
<td>9.8</td>
<td>7.7</td>
<td>10.7</td>
<td>7.4</td>
</tr>
<tr>
<td>Frequency &gt; 10 ppb (%)</td>
<td>55.6</td>
<td>27.0</td>
<td>48.1</td>
<td>-</td>
</tr>
</tbody>
</table>

**Inflow Phosphorus Limits - ENP Taylor Slough & Coastal Basins**
Results for 12-Month Pd: 9710 thru 9809
Basin Total Flow 294.0 kac-ft/yr

<table>
<thead>
<tr>
<th>Variable</th>
<th>Interim</th>
<th>Interim</th>
<th>Longterm</th>
<th>Longterm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flow-Weighted-Mean Conc</td>
<td>10.5</td>
<td>5.8</td>
<td>11.0</td>
<td></td>
</tr>
<tr>
<td>Frequency &gt; 10 ppb (%)</td>
<td>32.1</td>
<td>12.1</td>
<td>53.1</td>
<td></td>
</tr>
</tbody>
</table>

**Marsh Phosphorus Levels - Loxahatchee National Wildlife Refuge**
Last Sampling Date 10/13/98
Stage 16.74 ft
Stations Sampled: 10 / 14

<table>
<thead>
<tr>
<th>Variable</th>
<th>Interim</th>
<th>Interim</th>
<th>Longterm</th>
<th>Longterm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Geometric Mean P (ppb)</td>
<td>8.49</td>
<td>6.2</td>
<td>10.1</td>
<td>5.3</td>
</tr>
</tbody>
</table>

Summary for 12-Month Period 11/12/97 to 10/13/98
No. of Sampling Rounds 12
Interim Limit Exceeded 1
Longterm Limit Exceeded 1

**Phosphorus Load Reductions - Everglades Agricultural Area**
Results for 12-Month Period Ending: 199806

<table>
<thead>
<tr>
<th>Variable</th>
<th>Interim</th>
<th>Interim</th>
<th>Longterm</th>
<th>Longterm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Rainfall</td>
<td>inches</td>
<td>47.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Adjusted Rainfall</td>
<td>inches</td>
<td>43.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Observed Load</td>
<td>mtons</td>
<td>139.2</td>
<td>Last 36 Months</td>
<td>56%</td>
</tr>
<tr>
<td>Target Load</td>
<td>mtons</td>
<td>116.4</td>
<td>Last Water Year*</td>
<td>34%</td>
</tr>
<tr>
<td>Limit Load</td>
<td>mtons</td>
<td>172.6</td>
<td>Last 3 Water Years*</td>
<td>55%</td>
</tr>
<tr>
<td>Runoff</td>
<td>inches</td>
<td>24.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Flow-Wtd-Mean Conc</td>
<td>ppb</td>
<td>108.9</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**EAA Runoff Volume Reductions - BMP Replacement Water Rule**
Current Water Year 1998 Ending September 30
Rainfall 48.9 inches 5-y % South 97.1%
1-Yr Runoff Reduction 3.4% 5-Yr Runoff Reduction 11.1%

**Performance of Everglades Nutrient Removal Project**
Update 9809 Months of Operation 50

<table>
<thead>
<tr>
<th>Variable</th>
<th>Interim</th>
<th>Interim</th>
<th>Longterm</th>
<th>Longterm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water Load</td>
<td>m/yr</td>
<td>5.5</td>
<td>6.1</td>
<td>7.5</td>
</tr>
<tr>
<td>Inflow Conc</td>
<td>ppb</td>
<td>121.4</td>
<td>99.3</td>
<td>119.7</td>
</tr>
<tr>
<td>Outflow Conc</td>
<td>ppb</td>
<td>17.5</td>
<td>16.1</td>
<td>20.8</td>
</tr>
<tr>
<td>Load Reduc</td>
<td>%</td>
<td>84%</td>
<td>82%</td>
<td>83%</td>
</tr>
<tr>
<td>Load Reduc</td>
<td>g/m2-yr</td>
<td>0.57</td>
<td>0.51</td>
<td>0.74</td>
</tr>
<tr>
<td>Settling Rate</td>
<td>m/yr</td>
<td>10.7</td>
<td>11.1</td>
<td>13.1</td>
</tr>
</tbody>
</table>
Inflow Phosphorus Limits

ENP Shark River Slough
Combined Inflows from S12A, S12B, S12C, S12D, & S333

01/12/99

12-Month Period: 9710 thru 9809

<table>
<thead>
<tr>
<th>Sample Dates</th>
<th>Base Pd</th>
</tr>
</thead>
<tbody>
<tr>
<td>Observed</td>
<td>Basin Maximum</td>
</tr>
<tr>
<td>9710</td>
<td>737.6</td>
</tr>
</tbody>
</table>

Flow-Wtd-Mean Conc. (Interim) 9.8 Target 7.7 Limit 10.7 ppb
Flow-Wtd-Mean Conc. (Long-term) 9.8 Target 7.4 Limit 9.2 ppb
Frequency > 10 ppb (Guideline) 55.6 Target 27.0 Limit 48.1 %

Interim Limits

Longterm Limits

Frequency > 10 ppb

12-Month Rolling Statistics, Water Years Ending September 30

Basin Flow

100 80 60 40 20 0 0 89 90 91 92 93 94 95 96 97 98 99

Limit Target

Flow (Kac-ft/yr)

Thousands

Base Pd Maximum

Flow Year

Water Year

Water Year
Results for 12-Month Pd: 9710 thru 9809

Basin Total Flow: 294.0 kac-ft/yr
Sample Dates: 28

Sampled Flow: 20.8 kac-ft/yr

Variable | Units | Observed | Target | Limit | Status
--- | --- | --- | --- | --- | ---
Flow-Wtd-Mean Conc. | ppb | 10.5 | 5.8 | 11.0 | OK
Frequency > 10 ppb | % | 32.1 | 12.1 | 53.1 | OK

Long-term Limits

12-Month Rolling Values, Water Years Ending September 30
Marsh Phosphorus Levels  Loxahatchee National Wildlife Refuge  01/12/99

<table>
<thead>
<tr>
<th>Last Sampling Date</th>
<th>10/13/98</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stage</td>
<td>16.74 ft</td>
</tr>
<tr>
<td>Stations Sampled</td>
<td>10 out of 14</td>
</tr>
<tr>
<td>Geometric Mean TP</td>
<td>8.5 ppb</td>
</tr>
<tr>
<td>Standard Error</td>
<td>0.5 ppb</td>
</tr>
<tr>
<td>Interim Target</td>
<td>6.2 ppb</td>
</tr>
<tr>
<td>Interim Limit</td>
<td>10.1 ppb OK</td>
</tr>
<tr>
<td>Longterm Target</td>
<td>5.3 ppb</td>
</tr>
<tr>
<td>Longterm Limit</td>
<td>8.6 ppb  OK</td>
</tr>
</tbody>
</table>

Summary for Last 12 Months
- First Date: 11/12/97
- Last Date: 10/13/98
- Number of Sampling Events: 12
- Interim Limit Exceeded: 1
- Longterm Limit Exceeded: 1

Data Set: SFWMD

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Note: Results for June 1998 would not be considered in determining compliance because stage was below 15.42 ft
EAA Runoff Volumes

BMP Replacement Water Rule

Runoff (kac-t/yr)


Water Year

Observed  Predicted

5-Year Average Flow Reduction (%)

1983 1985 1987 1989 1991 1993 1995 1997

Water Year

Deliveries from Lake Okeechobee to WCA's

Monthly Flow (kac-ft)

9410 9506 9510 9602 9606 9610 9702 9710 9806 9810 9902

Year-Month

Rule Allocation  Actual Delivery

Water Years Ending September 30