Alternatives 1, 2, 3, and 4 Water Quality Analysis

Draft 10/04/07

Water Quality Summary

- **For the period from 1991-2005**
  - **Average annual phosphorus loading= 514 metric tons**
  - **Average annual phosphorus concentration= 163 ppb**
- **Phosphorus TMDL for Lake Okeechobee**
  - **140 metric tons 5-year rolling average**
  - **35 metric tons attributed to atmospheric deposition**
  - **105 metric tons allowable from all surface water inflows**

Summary of Phosphorus Loading with Alternative 1

Load reduction from Level 1 and 2 Management Measures	-239 mt
Load reduction from remaining Alternative 1 Management Measures	-62 mt
Total Load Reduction from Alternative 1	-301 mt

Initial Annual Average P Load	514 mt
TMDL Allocation	-105 mt
Remaining Load	409 mt
Load reduction from Alternative 1	-301 mt
Remaining Load To Be Addressed	108 mt

Summary of Phosphorus Loading with Alternative 2

Load reduction from Alternative 1	**-301 mt**
Load reduction from remaining Alternative 2 Management Measures	**-15 mt**
Total Load Reduction from Alternative 2	**-316 mt**

Initial Annual Average P Load	**514 mt**
TMDL Allocation	**-105 mt**
Remaining Load	**409 mt**
Load reduction from Alternative 2	**-316 mt**
Remaining Load To Be Addressed	**93 mt**

Summary of Phosphorus Loading with Alternative 3

Load reduction from Alternative 1	**-301 mt**
Load reduction from remaining Alternative 3 Management Measures	**-63 mt**
Total Load Reduction from Alternative 3	**-364 mt**

Initial Annual Average P Load	**514 mt**
TMDL Allocation	**-105 mt**
Remaining Load	**409 mt**
Load reduction from Alternative 3	**-364 mt**
Remaining Load To Be Addressed	**45 mt**

Summary of Phosphorus Loading with Alternative 4

Load reduction from Alternative 1	**-301 mt**
Load reduction from remaining Alternative 4 Management Measures	**-59 mt**
Total Load Reduction from Alternative 4	**-360 mt**

Initial Annual Average P Load	**514 mt**
TMDL Allocation	**-105 mt**
Remaining Load	**409 mt**
Load reduction from Alternative 4	**-360 mt**
Remaining Load To Be Addressed	**49 mt**

Phosphorus Results Summary

	Load Reduction in Lake Inflows	Reduction to In-Lake Load
Alternative 1	301 mt	0 mt
Alternative 2	316 mt	36 mt
Alternative 3	364 mt	0 mt
Alternative 4	360 mt	74 mt

Phosphorus Reduction estimate in Upper Kissimmee

Initial Load= 91 metric tons

- **BMPS**-**
  - **Owner implemented= -7 mt**
  - **Cost-Share BMPs= -8 mt**
  - **Additional Ag BMPs= -7 mt**
  - **BMPs Total= -22 mt**
- **Level 1 and 2 Management Measures= -13 mt**
- **Remaining Alternative 1 Management Measures= -4 mt**
- **Total Alternative 1 Load Reduction= -17 mt****

Load Remaining After Alternative 1= 74 metric tons

****- Reductions from implementing BMPs is not included in total load reduction due to buffering effects of intervening lake**

Phosphorus Reduction estimate in Upper Kissimmee

	Load Reduction (mt)	Remaining Load (mt)
Alternative 1	**-17**	**74**
Alternative 2	**-27***	**65**
Alternative 3	**-17***	**74**
Alternative 4	**-31***	**60**

*- includes Alternative 1 load reduction

Phosphorus Reduction estimate in Lower Kissimmee

Initial Load= 77 metric tons

- **BMPS-**
  - **Owner implemented= -10 mt**
  - **Cost-Share BMPs= -21 mt**
  - **Additional Ag BMPs= -8 mt**
  - **BMPs Total= -39 mt**
- **Level 1 and 2 Management Measures= -18 mt**
- **Remaining Alternative 1 Management Measures= -8 mt**
- **Total Alternative 1 Load Reduction= -63 mt**

Load Remaining After Alternative 1= 14 metric tons

Phosphorus Reduction estimate in Lower Kissimmee

	Load Reduction (mt)	Remaining Load (mt)
Alternative 1	**-63**	**14**
Alternative 2	**-63***	**14**
Alternative 3	**-63***	**14**
Alternative 4	**-63***	**14**

*- includes Alternative 1 load reduction

Phosphorus Reduction estimate in Taylor Creek/Nubbin Slough

Initial Load= 124 metric tons

- **BMPS-**
  - **Owner implemented= -12 mt**
  - **Cost-Share BMPs= -27 mt**
  - **Additional Ag BMPs= -13 mt**
  - **BMPs Total= -52 mt**
- **Level 1 and 2 Management Measures= -30 mt**
- **Remaining Alternative 1 Management Measures= -15 mt**
- **Total Alternative 1 Load Reduction= -98 mt**

Load Remaining After Alternative 1= 26 metric tons

Phosphorus Reduction estimate in Taylor Creek/Nubbin Slough

	Load Reduction (mt)	Remaining Load (mt)
Alternative 1	**-98**	**26**
Alternative 2	**-98***	**26**
Alternative 3	**-110***	**15**
Alternative 4	**-112***	**12**

*- includes Alternative 1 load reduction

Phosphorus Reduction estimate in Lake Istokpoga

Initial Load= 23 metric tons

- BMPS**-
  - Owner implemented= -2 mt
  - Cost-Share BMPs= -3 mt
  - Additional Ag BMPs= -3 mt
  - BMPs Total= -8 mt
- Level 1 and 2 Management Measures= -0 mt
- Remaining Alternative 1 Management Measures= -0 mt
- Total Alternative 1 Load Reduction= -0 mt**

Load Remaining After Alternative 1= 23 metric tons

**- Reductions from implementing BMPs is not included in total load reduction due to buffering effects of intervening lake

Phosphorus Reduction estimate in Lake Istokpoga

	Load Reduction (mt)	Remaining Load (mt)
Alternative 1	-0	23
Alternative 2	-3*	20
Alternative 3	-12*	11
Alternative 4	-9*	14

*- includes Alternative 1 load reduction

Phosphorus Reduction estimate in Indian Prairie

Initial Load= 89 metric tons

- **BMPS-**
  - **Owner implemented= -11 mt**
  - **Cost-Share BMPs= -13 mt**
  - **Additional Ag BMPs= -9 mt**
  - **BMPs Total= -33 mt**
- **Level 1 and 2 Management Measures= -4 mt**
- **Remaining Alternative 1 Management Measures= -36 mt**
- **Total Alternative 1 Load Reduction= -67 mt**

Load Remaining After Alternative 1= 15 metric tons

Phosphorus Reduction estimate in Indian Prairie

	Load Reduction (mt)	Remaining Load (mt)
Alternative 1	-67	15
Alternative 2	-67*	15
Alternative 3	-73*	9
Alternative 4	-68*	14

*- includes Alternative 1 load reduction

Phosphorus Reduction estimate in Fisheating Creek

Initial Load= 55 metric tons

- **BMPS-**
  - **Owner implemented= -5 mt**
  - **Cost-Share BMPs= -7 mt**
  - **Additional Ag BMPs= -3 mt**
  - **BMPs Total= -15 mt**
- **Level 1 and 2 Management Measures= -0 mt**
- **Remaining Alternative 1 Management Measures= -0 mt**
- **Total Alternative 1 Load Reduction= -16 mt**

Load Remaining After Alternative 1= 39 metric tons

Phosphorus Reduction estimate in Fisheating Creek

	Load Reduction (mt)	Remaining Load (mt)
Alternative 1	-16	39
Alternative 2	-19*	37
Alternative 3	-47*	8
Alternative 4	-34*	21

*- includes Alternative 1 load reduction

Phosphorus Reduction estimate in West Lake O Basins

Initial Load= 1 metric ton

- **BMPS***-
  - **Owner implemented= -0 mt**
  - **Cost-Share BMPs= -0 mt**
  - **Additional Ag BMPs= -0 mt**
  - **BMPs Total= -0 mt**
- **Level 1 and 2 Management Measures= -0 mt**
- **Remaining Alternative 1 Management Measures= -0 mt**
- **Total Alternative 1 Load Reductions= -0 mt**

Load Remaining After Alternative 1= 1 metric ton

Phosphorus Reduction estimate in West Lake O Basins

	Load Reduction (mt)	Remaining Load (mt)
Alternative 1	**-0**	**1**
Alternative 2	**-0***	**1**
Alternative 3	**-0***	**1**
Alternative 4	**-0***	**1**

*- includes Alternative 1 load reduction

Phosphorus Reduction estimate in East Lake O Basins

Initial Load= 20 metric tons

- **BMPS-**
  - **Owner implemented= -2 mt**
  - **Cost-Share BMPs= -2 mt**
  - **Additional Ag BMPs= -2 mt**
  - **BMPS Total= -6 mt**
- **Level 1 and 2 Management Measures= -7 mt**
- **Remaining Alternative 1 Management Measures= -0 mt**
- **Total Alternative 1 Load Reduction= -12 mt**

Load Remaining After Alternative 1= 8 metric tons

Phosphorus Reduction estimate in East Lake O Basins

	Load Reduction (mt)	Remaining Load (mt)
Alternative 1	**-12**	**8**
Alternative 2	**-12***	**8**
Alternative 3	**-12***	**8**
Alternative 4	**-12***	**8**

*- includes Alternative 1 load reduction

Phosphorus Reduction estimate in EAA Basins

Initial Load= 33 metric tons

- **BMPS (S-4/Industrial Canal only)-**
  - **Owner implemented= -2 mt**
  - **Cost-Share BMPs= -0 mt**
  - **Additional Ag BMPs= -0 mt**
  - **BMPS Total= -2 mt**
- **Level 1 and 2 Management Measures= -21 mt**
- **Remaining Alternative 1 Management Measures= -0 mt**
- **Total Alternative 1 Load Reduction= -21 mt**

Load Remaining After Alternative 1= 12 metric tons

Phosphorus Reduction estimate in EAA Basins

	Load Reduction (mt)	Remaining Load (mt)
Alternative 1	**-21**	**12**
Alternative 2	**-21***	**12**
Alternative 3	**-24***	**10**
Alternative 4	**-24***	**10**

*- includes Alternative 1 load reduction