



Florida Department of Environmental Protection
Water Quality Restoration Program

Upper Ocklawaha Basin Working Group

July 10, 2015

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Agency Updates



TMDL Status

- Marshall Lake, Lake Roberts, Lake Denham, Lake Weir.
- Lake Weir (south Marion County):
 - Revised TMDL to better reflect number of OSTDS.
 - Second workshop held May 27.
- Lochloosa Lake.
 - Workshop held March 31.



TMDL Rule Adoption

- Pathway to adoption:
 - Revise TMDL reports based on comments from the general public and EPA.
 - Post the revised reports by the end of July.
 - Publish Notices of Proposed Rule by the end of August.
 - TMDLs to become effective in late October.



Florida Department of Environmental Protection

Land Use Changes





Land Use Evaluation

- Compared 2009 and 1995 land use acreage.
 - Difficulties encountered:
 - Small shifts in land use--
 - May be result of interpretation and not true change.
 - Interpretation of photos changes over time.
 - Time period when photos were taken influences interpretation.
 - 1995 date not as complete as 2009.
 - Holes in the data.



Procedure

- Composited Florida Land Use and Cover Classification System (FLUCCS) codes based on TMDLs. (SJRWMD PLRG)
- Compared 1995 coverage to 2009.
 - Identify and map places where change occurred.
 - Series of unions of data layers.
 - Included wastewater spray fields and muck farms/restoration area.



TMDL Land Use Categories

Category	FLUCCS Code
Low density residential	1100-1199
Medium density residential	1200-1299
High density residential	1300-1399
Low density commercial/institutional	1700-1799, 1830, 1840, 8200-8999
High density commercial	1400-1499
Industrial	1500-1599
Mining	1600-1699
Open land /recreation	1480, 1800, 1810, 1850, 1890, 1900-1999, 7000+, 1860
Water (includes lake area)	5000-5999
Wetland	6000-6999
Muck farm/restoration area	Delineated area
Wastewater spray field	Delineated area
Forest / rangeland	3000-3999, 4000-4999, 2240



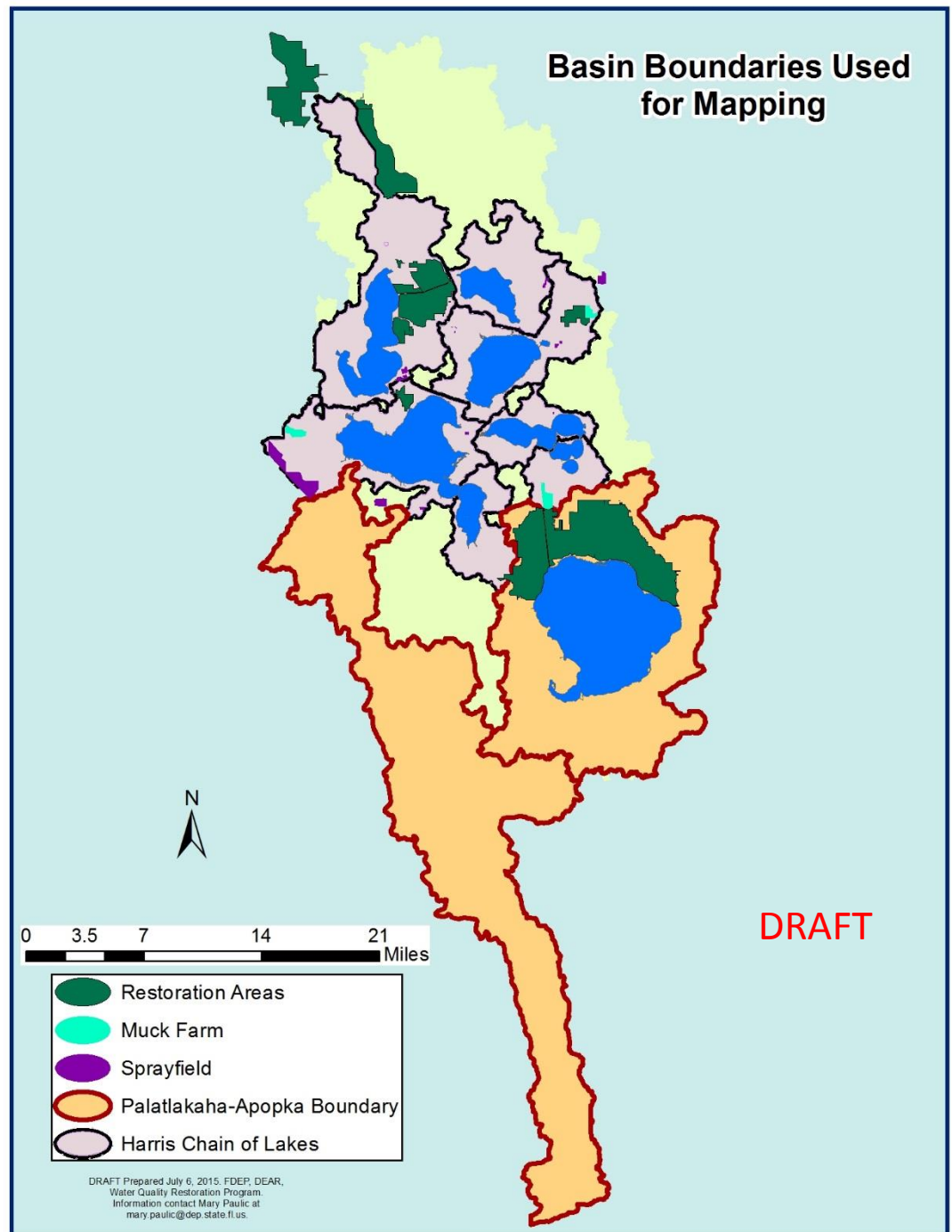
TMDL Agriculture Categories

Agriculture Category	FLUCCS Code
Pasture	2110-2139, 2500, 2510
Cropland	2140-2169, 2600-2619
Tree crops	2200-2290, except 2240
Feeding operations	2300-2399, 2500, 2522, 2520
Other agriculture	1820,2400-2499,2540



Mapping Area

- Area in green is the Upper Ocklawaha Basin.
- Areas between delineated basins are considered non-contributing to TMDL waterbodies.

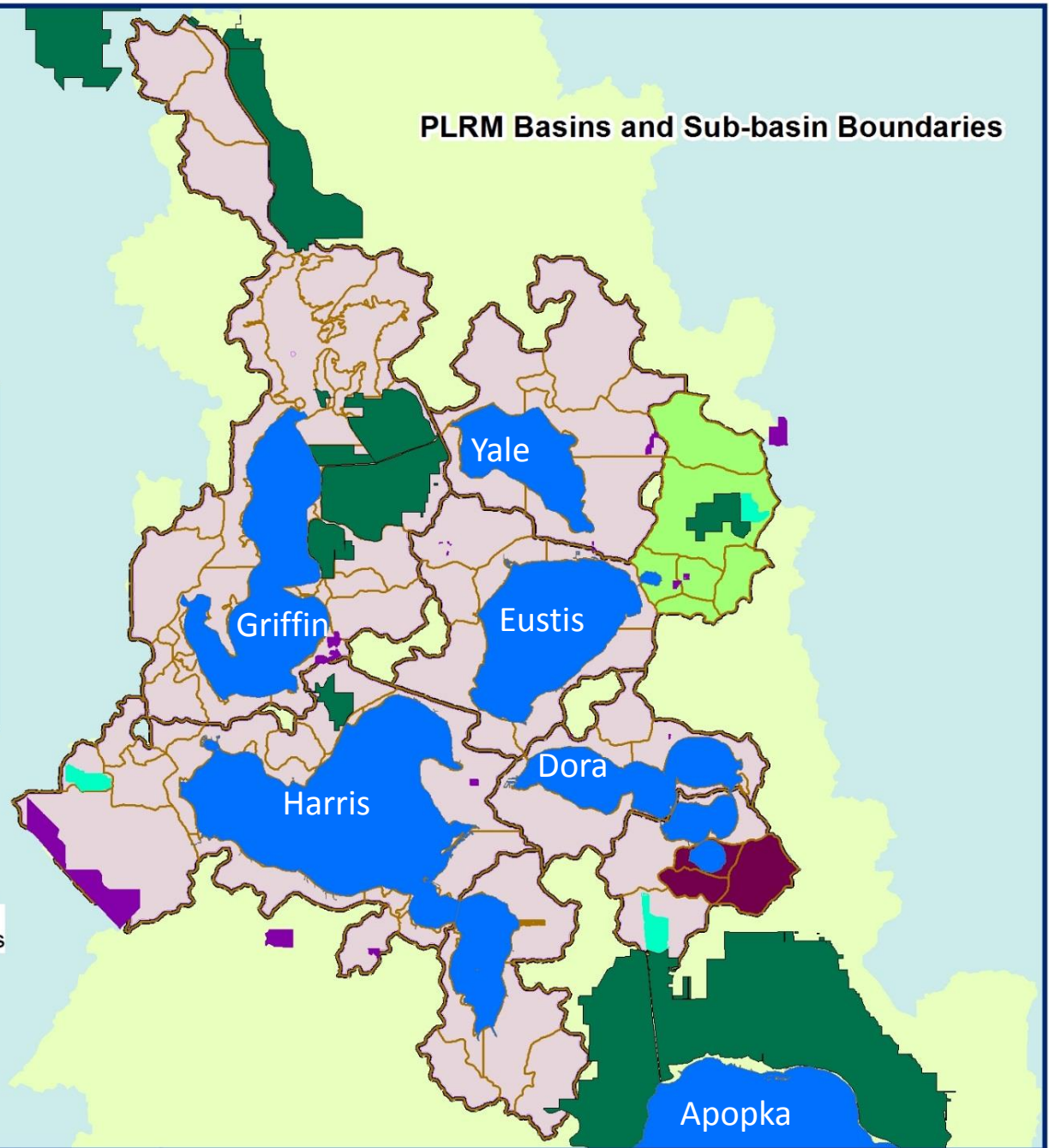


PLRM Basins and Sub-basin Boundaries

DRAFT



DRAFT Prepared July 6, 2015. FDEP, DEAR,
Water Quality Restoration Program.
Information contact Mary Paulic at
mary.paulic@dep.state.fl.us.





Draft Lake Yale Land Use Summary

Land Use Category	Yale 2009 (acres)	Yale 1995 (acres)	Difference (acres)	Percent Difference	Percent of Watershed
Cropland	169.82	483.33	-313.51	-184.61%	-2.04%
Feeding Operations	113.25	5.70	107.55	94.96%	0.70%
Forest/Rangeland	2439.09	2833.99	-394.90	-16.19%	-2.56%
High density commercial	163.45	106.06	57.40	35.12%	0.37%
High density residential	184.91	275.54	-90.63	-49.02%	-0.59%
Industrial	110.50	111.70	-1.19	-1.08%	-0.01%
Low density commercial/institutional	105.56	84.32	21.24	20.12%	0.14%
Low density residential	886.11	713.99	172.12	19.42%	1.12%
Medium density residential	600.18	258.33	341.85	56.96%	2.22%
Mining	0.00	12.66	-12.66	--	-0.08%
Muck farm	--	--	0.00	--	0.00%
Open land/recreation	52.52	185.62	-133.10	-253.45%	-0.86%
Other agriculture	197.00	133.60	63.40	32.18%	0.41%
Pasture	1405.03	1193.08	211.95	15.09%	1.38%
Sprayfield	65.72	65.72	0.00	0.00%	0.00%
Tree crops	977.94	1034.48	-56.55	-5.78%	-0.37%
Water	4387.86	4553.00	-165.14	-3.76%	-1.07%
Wetlands	3545.67	3353.50	192.17	5.42%	1.25%
	0.00	0.00	0.00	0.00%	0.00%
Grand Total	15404.62	15404.62			



Draft Land Use Change Summary

Waterbody	Total Acreage Changed	Total Watershed Acreage	Percent Change (based on watershed acres)
Lake Apopka	37132.3	117038.9	31.7%
Palatlakaha River	57304.6	137284.5	41.7%
Non contributing area	41479.8	142549.9	29.1%
Lake Beauclair	2879.1	9309.8	30.9%
Lake Dora	2090.7	11426.4	18.3%
Lake Eustis	3825.6	27897.3	13.7%
Lake Griffin	6501.9	50607.7	12.8%
Lake Harris	6745.0	53358.7	12.6%
Lake Yale	2335.4	15404.6	15.2%
Trout Lake	1166.4	9690.3	12.0%
Lake Carlton	1132.8	3218.5	35.2%



Land Use Checks

- Checks made for land use changes:
 - Compared LU acreage between 1995 and 2009.
 - Compared by category used in TMDLs.



Land Use Changes

- 1995 forest / range / open land converted to urban in 2009.
- 1995 forest /range / open land converted to agriculture in 2009.
- 1995 wetland converted to urban in 2009.
- 1995 urban converted to forest / range / open land in 2009.

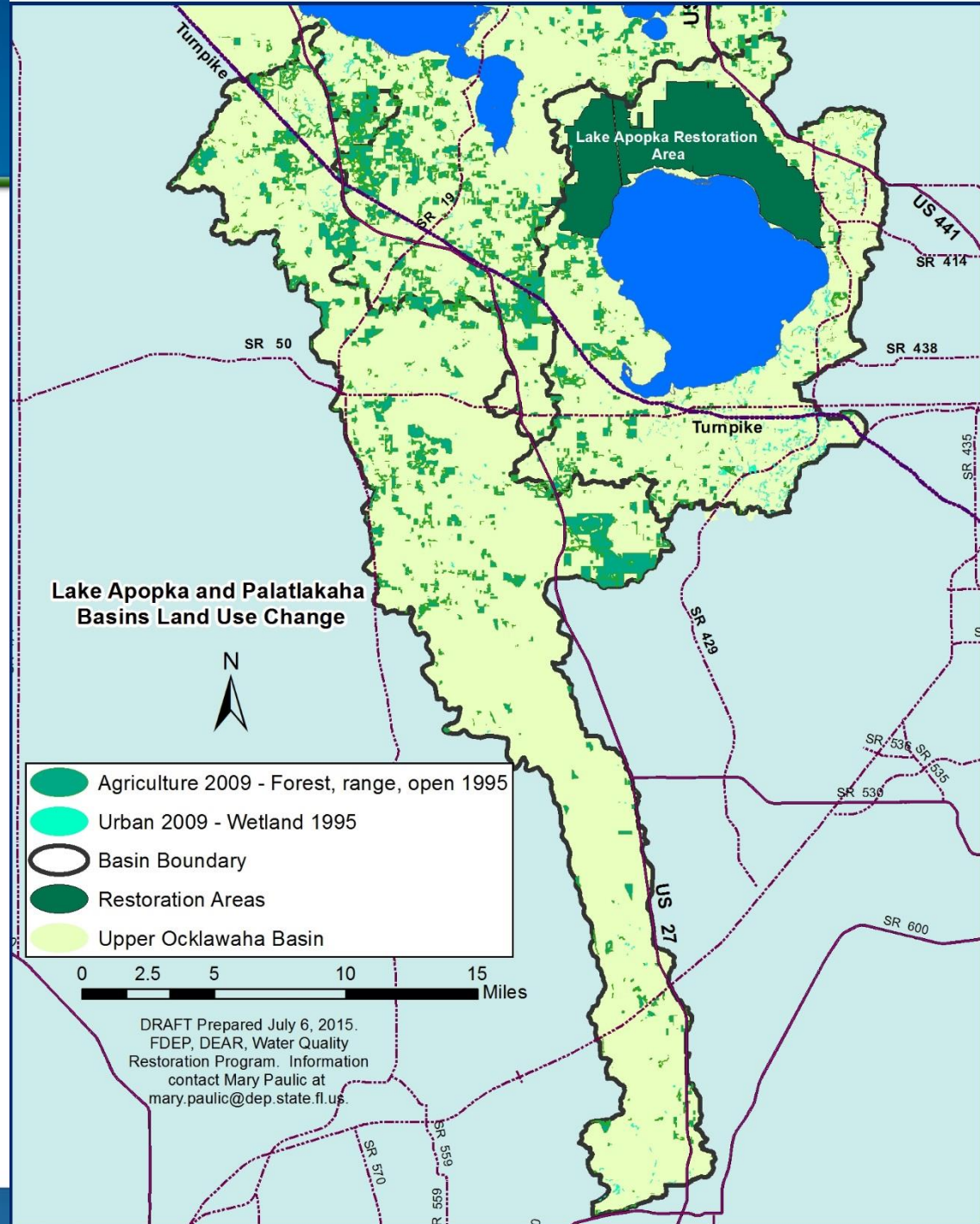


Method

- Harris acreage includes Little Lake Harris.
- Urban composite of:
 - Low density residential
 - Medium density residential
 - High density residential
 - Low density commercial/institutional
 - High density commercial
- Agriculture composite of all agriculture categories.

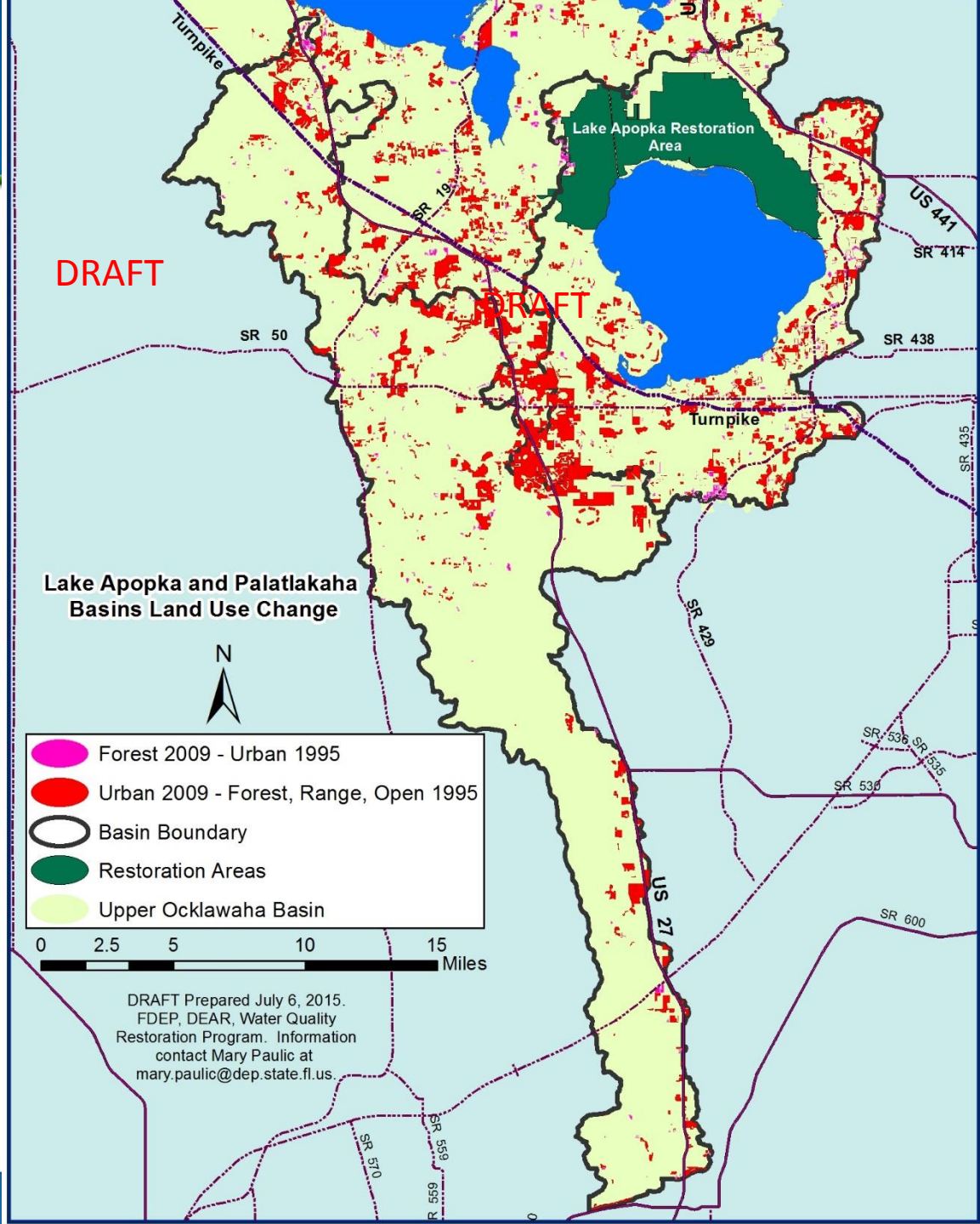


Lake Apopka and Palatlakaha



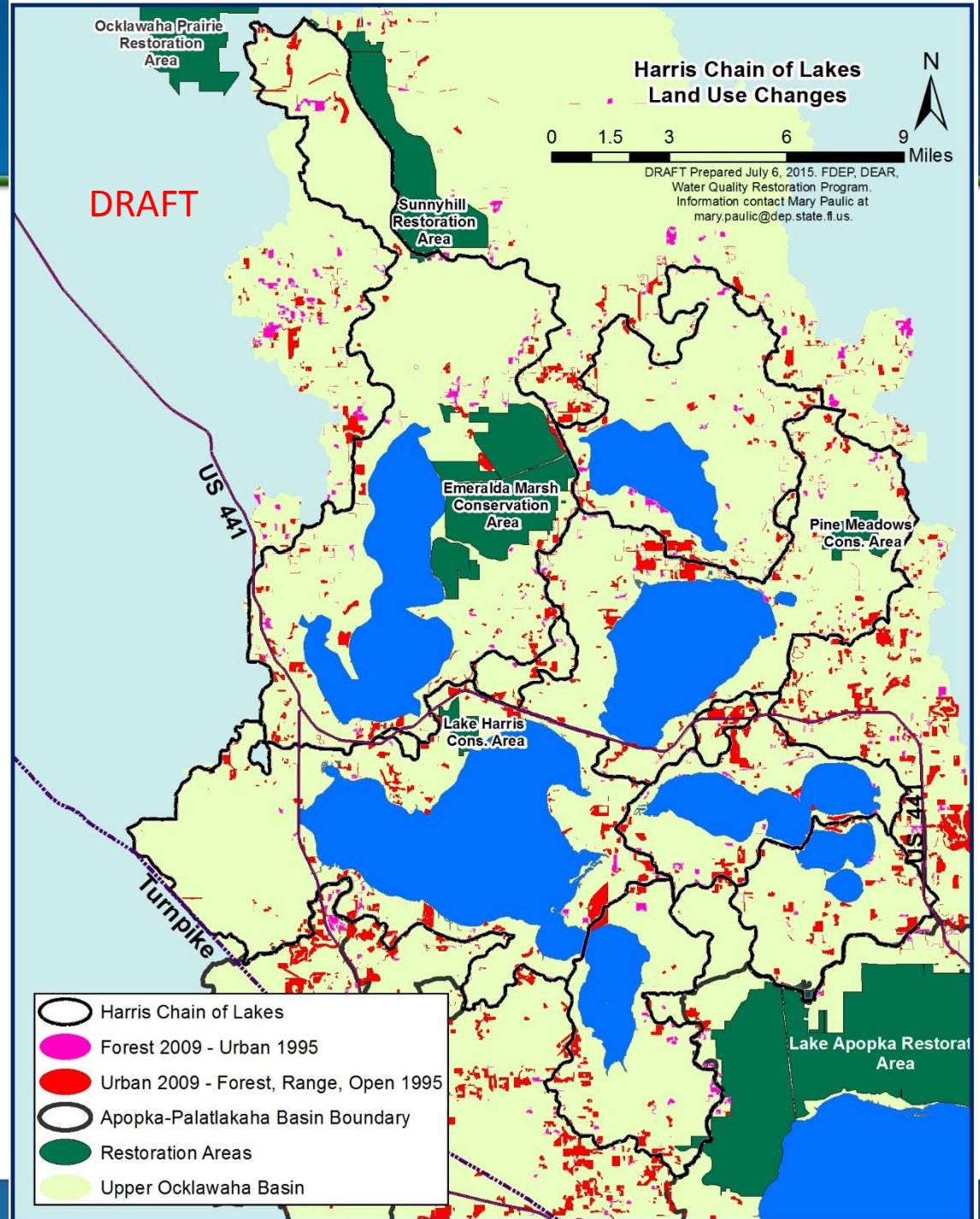


Lake Apopka and Palatlakaha



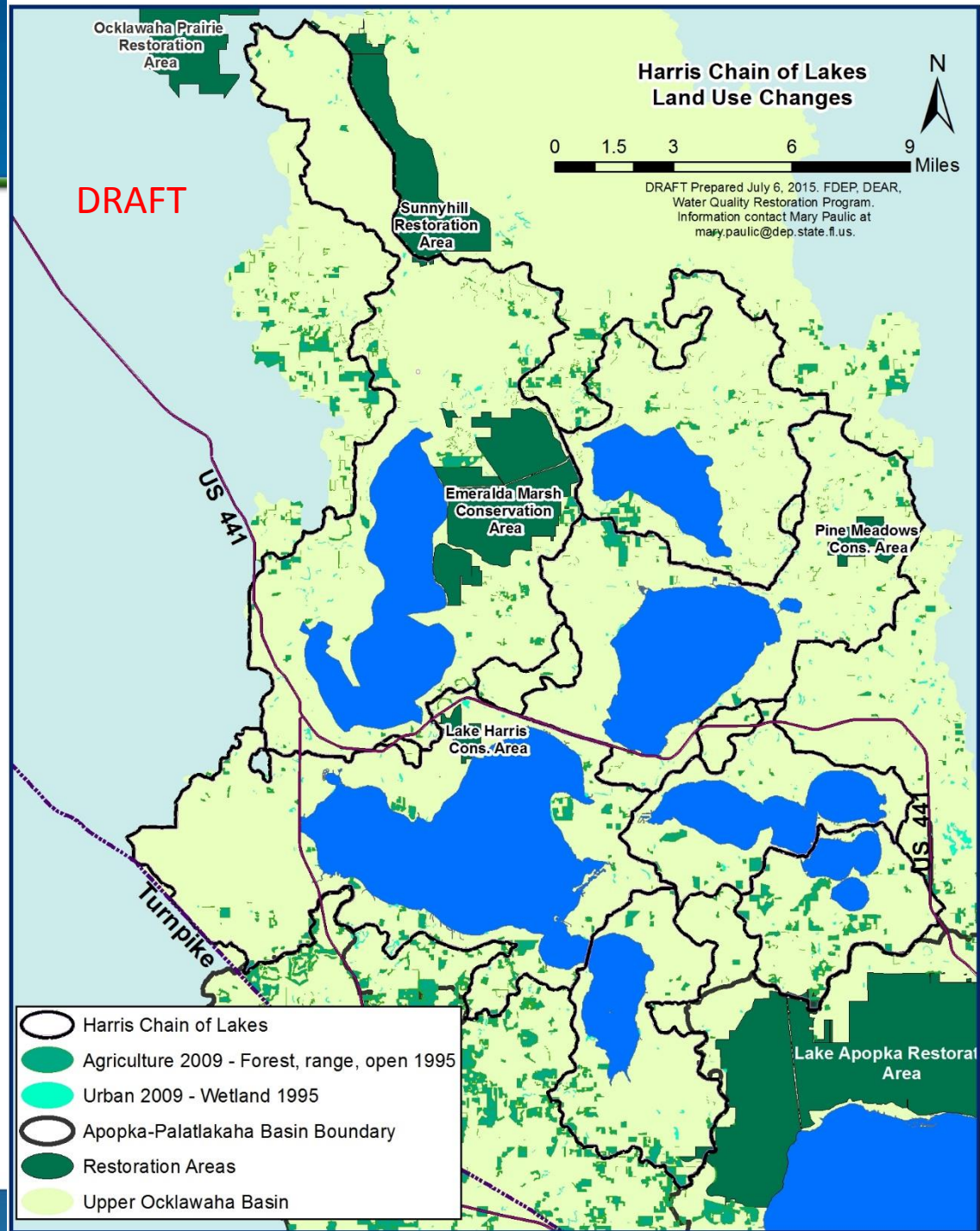


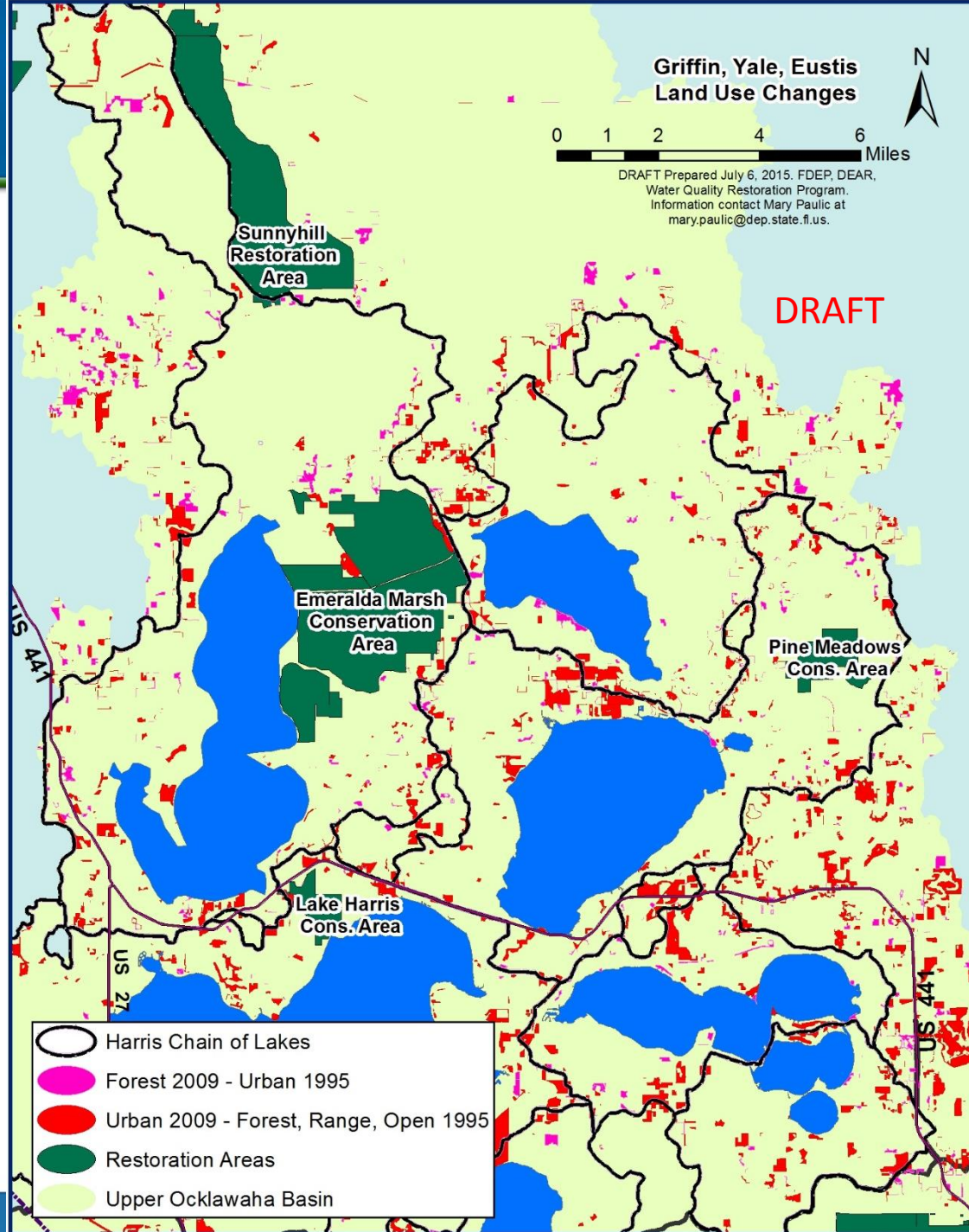
Harris Chain of Lakes





Harris Chain of Lakes





Ocklawaha Prairie
Restoration
Area



Griffin, Yale, Eustis
Land Use Changes

0 0.5 1 2 3
Miles



Sunnyhill
Restoration
Area

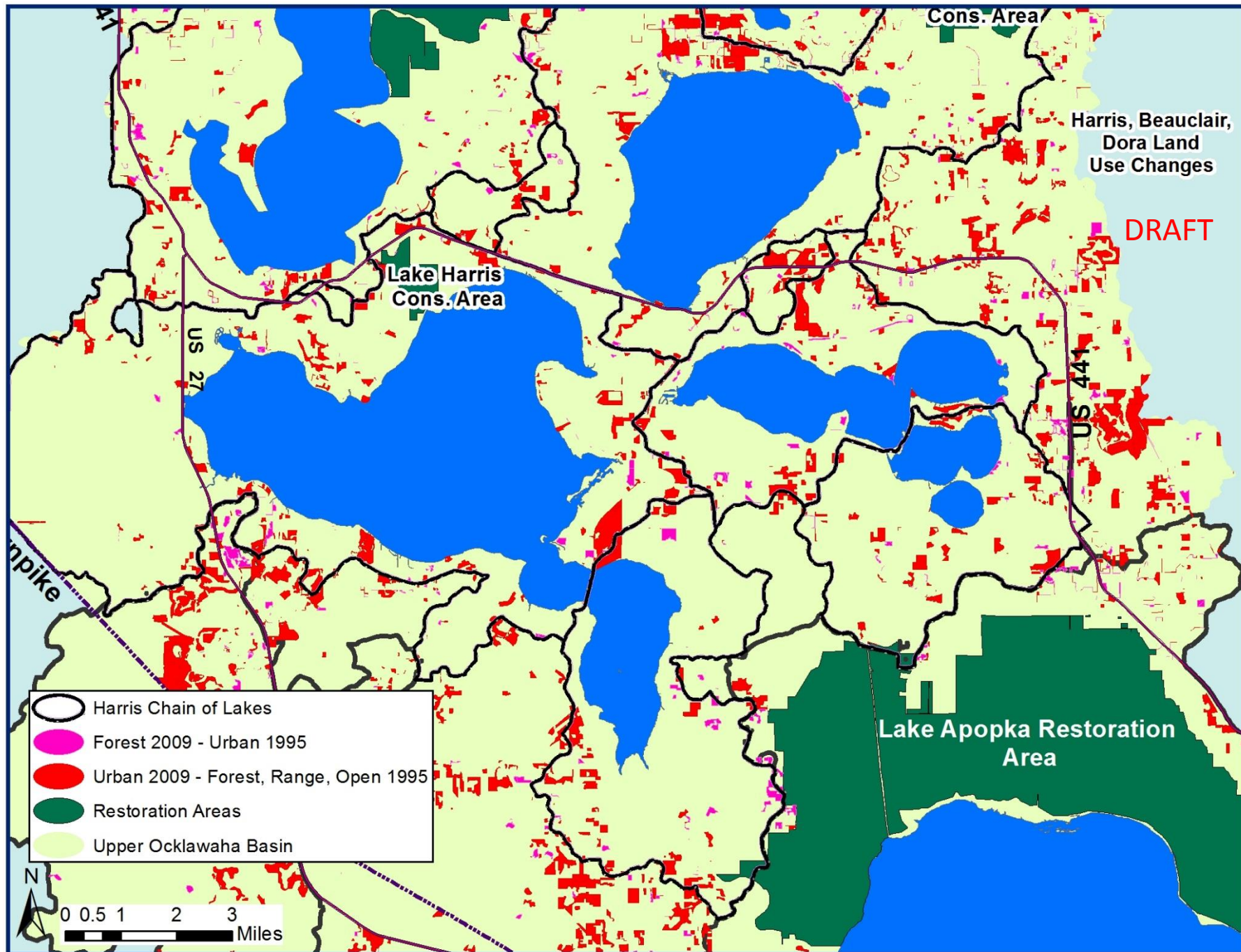
US 441

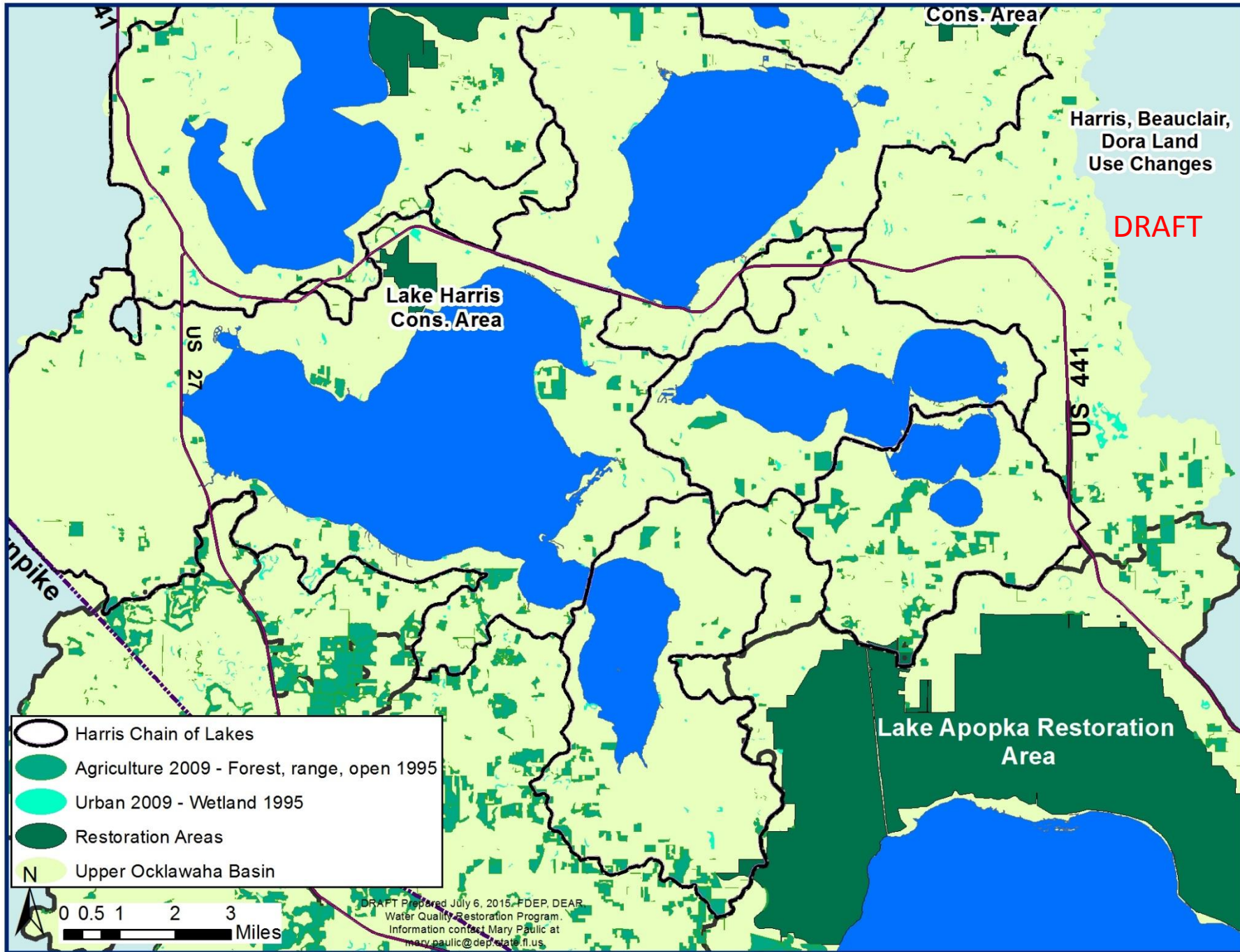
Emeralda Marsh
Conservation
Area

Pine Meadows
Cons. Area

Lake Harris
Cons. Area

DRAFT Prepared July 6, 2011, FDEP, DEAR,
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Draft Forest/Rangeland Land Use Changes

- Forest and rangeland in 1995 converted to urban 2009.

Waterbody	Acres
Apopka	8,506.9
Palatlakaha River	7,794.3
Beauclair	400.4
Dora	533.4
Eustis	916.9
Harris	1,711.4
Griffin	1,085.9
Yale	447.5
Trout	277
Carlton	202.4
Total	21,876.1



Draft Wetland Land Use Changes

- Wetland/water 1995 converted to urban 2009.

Waterbody	Acres
Apopka	498
Palatlakaha River	141.8
Beauclair	7.6
Dora	5.7
Eustis	29.5
Harris	92.8
Griffin	54.5
Yale	1.3
Trout	15.8
Carlton	1.7
Total	848.8



Draft Forest/Rangeland to Agriculture Land Use

- Forest/range in 1995 converted to agriculture 2009.

Waterbody	Acres
Apopka	4,475.3
Palatlakaha River	12,693.8
Beauclair	788.7
Dora	275.1
Eustis	506.5
Harris	1674
Griffin	1,010.5
Yale	412.1
Trout	142.2
Carlton	238.6
Total	22,216.8

A photograph of an empty lecture hall with rows of blue seats. The seats are arranged in a tiered fashion, facing towards the front of the room. The background is a plain, light-colored wall.

• Any comments or questions???



Florida Department of Environmental Protection

Nutrient Loading Estimate Changes





Nutrient Loadings Summary

Type of Criteria	Lake Carlton	Lake Beauclair	Lake Dora	Lake Eustis	Lake Harris	Lake Griffin	Lake Yale	Lake Apopka*	Palatlakaha River	Trout Lake
Average Annual Loading 1991-2000 lbs/yr (Baseline)	476	46,721	40,059	35,519	27,597	78,885	3,354	137,451*	NA	2,604
TMDL Loading Target lbs/yr	195	7,056	13,230	20,286	18,302	26,901	2,844	35,052	2,207	521
Average Annual Loading 2001-2011 lbs/yr (Post)	410	14,106	13,410	22,422	20,161	28,652	3,538	47,813	Not applicable	Not available
Percent Reduction Between Baseline and Post Periods	14.6% (+)	70% (+)	67% (+)	37% (+)	27% (+)	64% (+)	-5.5% (-)	65% (+)	Not applicable (-)	Not available (-)
Reduction Needed to Meet TMDL Based on 2001-2011 lbs /yr	215	7,050	180	2,136	1,859	1,751	694	12,761	Not applicable	Not available
Average Annual Loading 2007-2011 lbs/yr	499 (-)	4,669 (+)	7,996 (+)	16,38 (+)	18,779 (+)	19,649 (+)	4,205 (-)	40,249* (+)	Not applicable (-)	Not available (-)
Reduction Needed to Meet TMDL Based on 2007-2011 lbs/yr	304	-2,387.4	-5,234.2	-3,904.3	476.6	-7,252.5	1,361.2	5,197.0	Not applicable	Not available
Number of Projects Adopted	<5 (-)	<5 (-)	30 (+)	>30 (+)	17 (-)	24 (+)	<5 (-)	22 (+)	20 (+)	<5 (-)
Trend in TP concentration	Decrease (+)	Decrease (+)	Decrease (+)	Small decrease (+)	Small decrease (+)	Decrease (+)	No change (-)	Decrease (+)	Increase (-)	Increase (-)
Waterbodies expected to need additional effort	Carlton	Not applicable	Not applicable	Not applicable	Harris	Not applicable	Yale	Not applicable	Palatlakaha River	Trout

Not applicable – expected to meet TMDL with current level of effort.



Draft Lake Yale TP Budget

Sources of total phosphorus (loading in lbs/yr)	TMDL Baseline loading*	TMDL Controllable baseline loading	Controllable baseline % contribution	Proportional reduction needed to meet TMDL**	Expected load change from current projects	Remaining phosphorus load	Expected load change from future projects	Remaining phosphorus load	Estimated load change from growth (2001-2010)	Net estimated TP load
Atmospheric deposition (wet/dry)	1,442	0	0.0%	0		1,442		1,442	0	1,442
Point sources	109	109	9.3%	29	-109	0		0	0	0
Stormwater runoff								0		
Natural area runoff	547	0	0.0%	0		547		547	-47	500
Runoff from developed uses	483	483	41.3%	130		483	-58.2	425	298	723
Industrial	111	111	9.5%	30		111	0	111		111
Mining	0					0				
YALE04 Lake Yale Priority Reuse							-58.2			
YALE02 Washington Avenue and Side Streets Drainage Improvements (phase 3 and 4)										
YALE03 Old Chisholm Trail Drainage Improvement										
project 4										
project 5										
Hazardous waste sites										
Seepage/groundwater										
Septic tanks	292	292	25.0%	78		292		292	355	647
project 1										
project 2										
project 3										
project 4										
project 5										
Agriculture	174	174	14.9%	47	0	174	0	174		174
Loading information										
Total P-loading (lbs/yr)	3,158	1,169	100.0%	314	-109	3,049	-58	2,991	606	3,597
Total Maximum Daily Load (lbs/yr)	2,844					2,844		2,844		2,844
Reduction needed in P-loading (lbs/yr)	314					205		147		753



Florida Department of Environmental Protection

Project Collection and Reporting Questions





Reminder

- Annual meeting scheduled for September 10.
- Request for updates sent June 16.
- Opportunity to highlight accomplishments.
- Shift in time frame.
 - Covers year plus since BMAP adoption.
 - January 1, 2015 to June 30, 2015
- Basin delineations available at:
http://publicfiles.dep.state.fl.us/DEAR/BMAP/Upper_Ocklawaha/GIS/



Annual Meeting Prep

- Water quality update.
 - Confirm monitoring locations.
 - Station list sent to DEP Central District, Lake County, Orange County, Lake County Water Authority (LCWA), and St. Johns River Water Management District (SJRWMD).
- Water quality summary.
 - Update presented in February.
 - Include in annual report.
- Potential changes in monitoring.



Updated Schedule

Date	Entity	Activity
June 16	DEP	Complete project collection materials and send out to stakeholders (current project updates and new project submittal form) describing a due date of July 14 th .
June 16	DEP	Complete monitoring update materials and send out to monitoring entities describing a due date of July 14 th .
July 14	Management Entities	Project updates and new project information due to Mary Paulic, DEP.
July 17	Monitoring Entities	Monitoring updates due to Mary Paulic, DEP.
July 9 -31	DEP	Prepare Annual Report; follow up with stakeholders if there are questions about their submittals.
August 1-14	DEP	Internal review of report.
August 17-September 2	DEP	Edits to the report based on internal comments.
September 3	DEP	Send report to stakeholders (one week before the annual meeting).
September 10	All	Annual meeting and report review.
September 30	All	All comments due on report.
October 15	DEP	Final version of the report is posted.



New Projects

- Potential future projects (such as low impact development, ordinances) that address second BMAP phase loading reductions.
- Focus on projects that address priority waterbodies.
 - Meet required allocations.



Next Steps

- Questions?
- Public Comments.
- Follow-up assignments.
- Future meetings.