

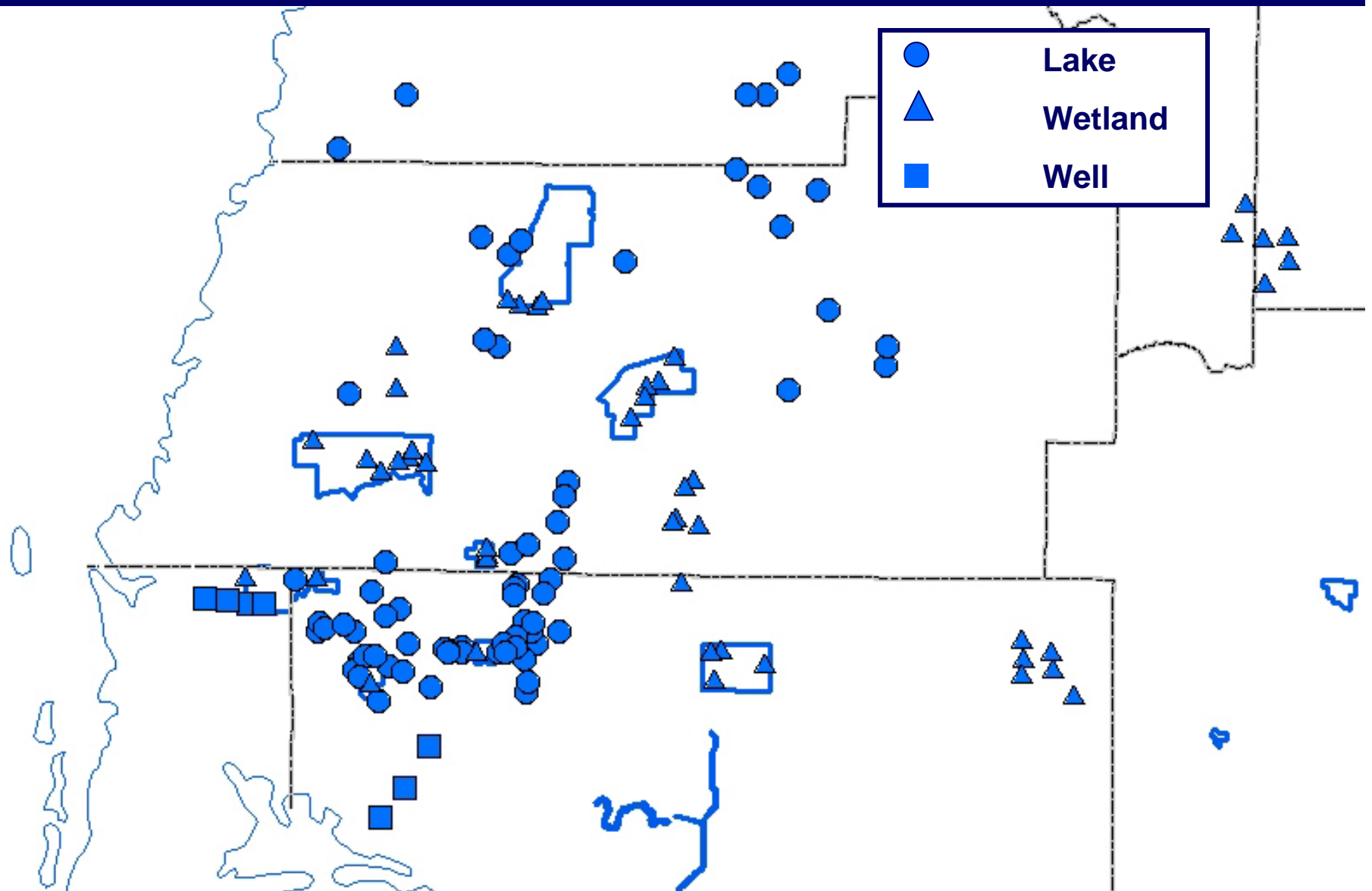


Northern Tampa Bay LTPRG
2008 MFL Review
August 5, 2008

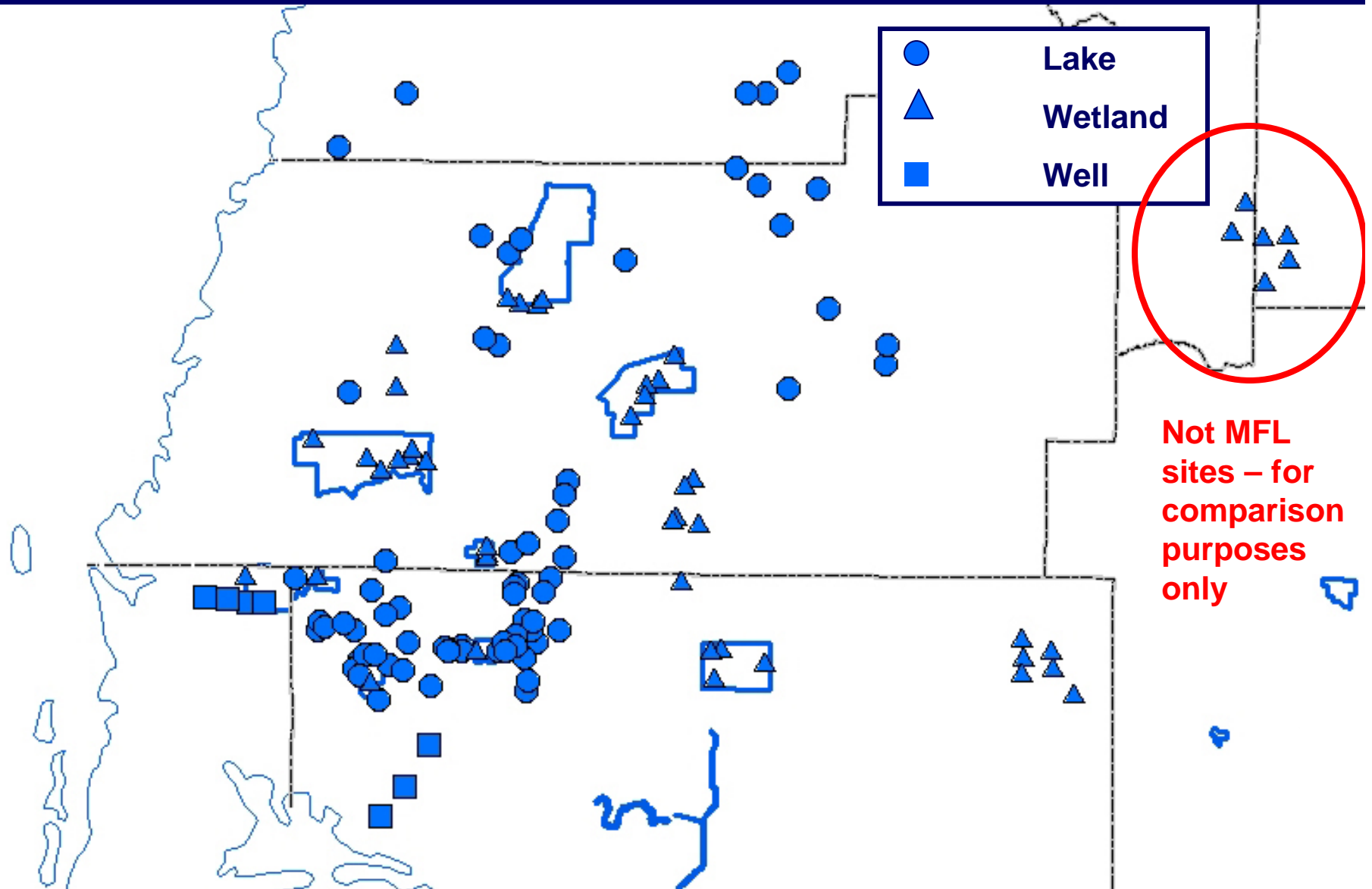
Minimum Flows and Levels

- In 1998 – the District adopted 41 cypress wetlands, 15 lakes, and 7 Floridan aquifer wells as minimum level sites
- Since then, we've added 86 additional lakes (101 total – 69 in NTB area)
- Eight rivers (or river segments) adopted – including the Upper and Lower Hillsborough River
- Two springs adopted (Crystal and Sulphur)
- The plan for further MFL adoption is revised and approved each year

Current MFL Sites in NTB area



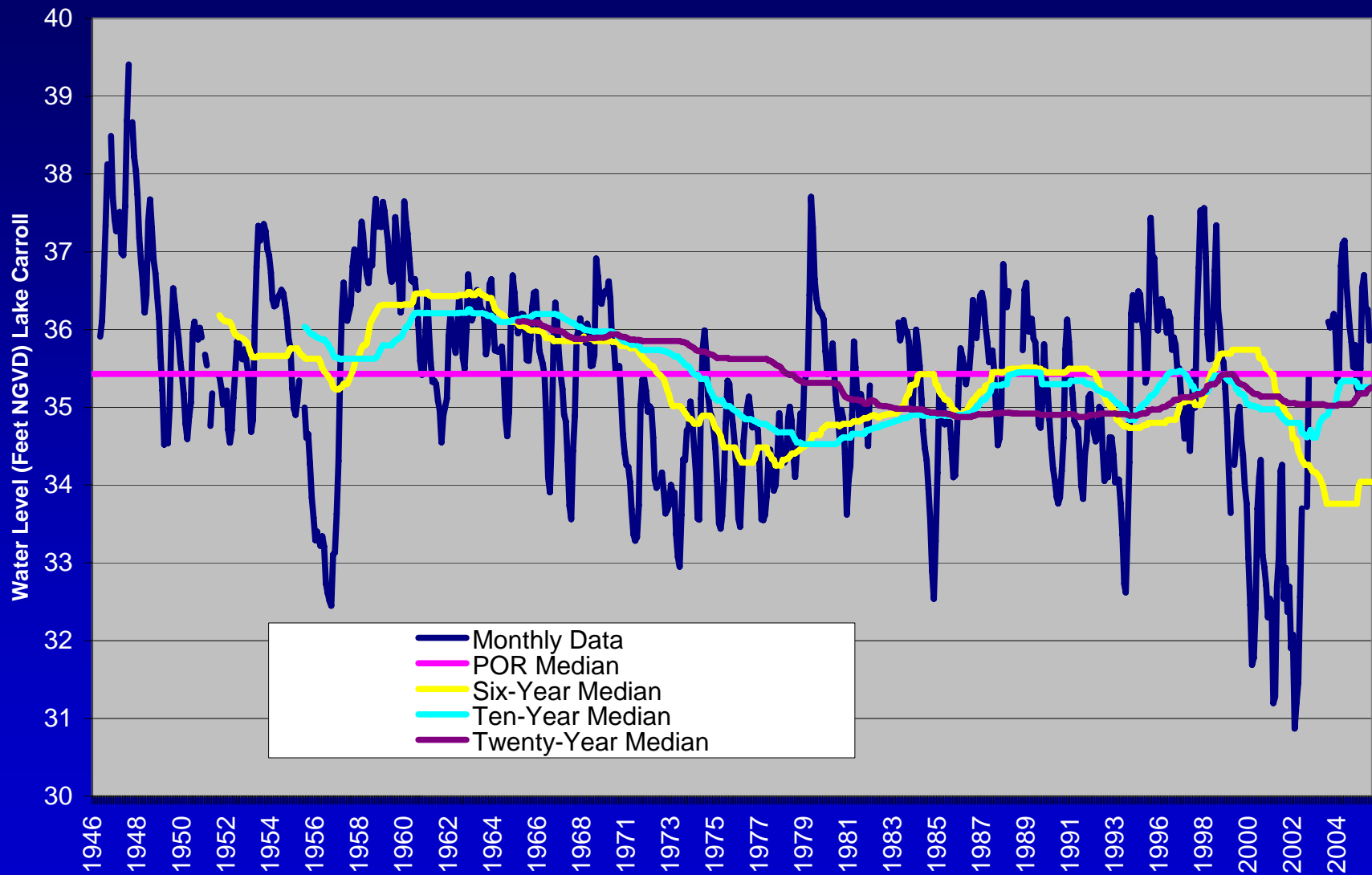
Current MFL Sites in NTB area



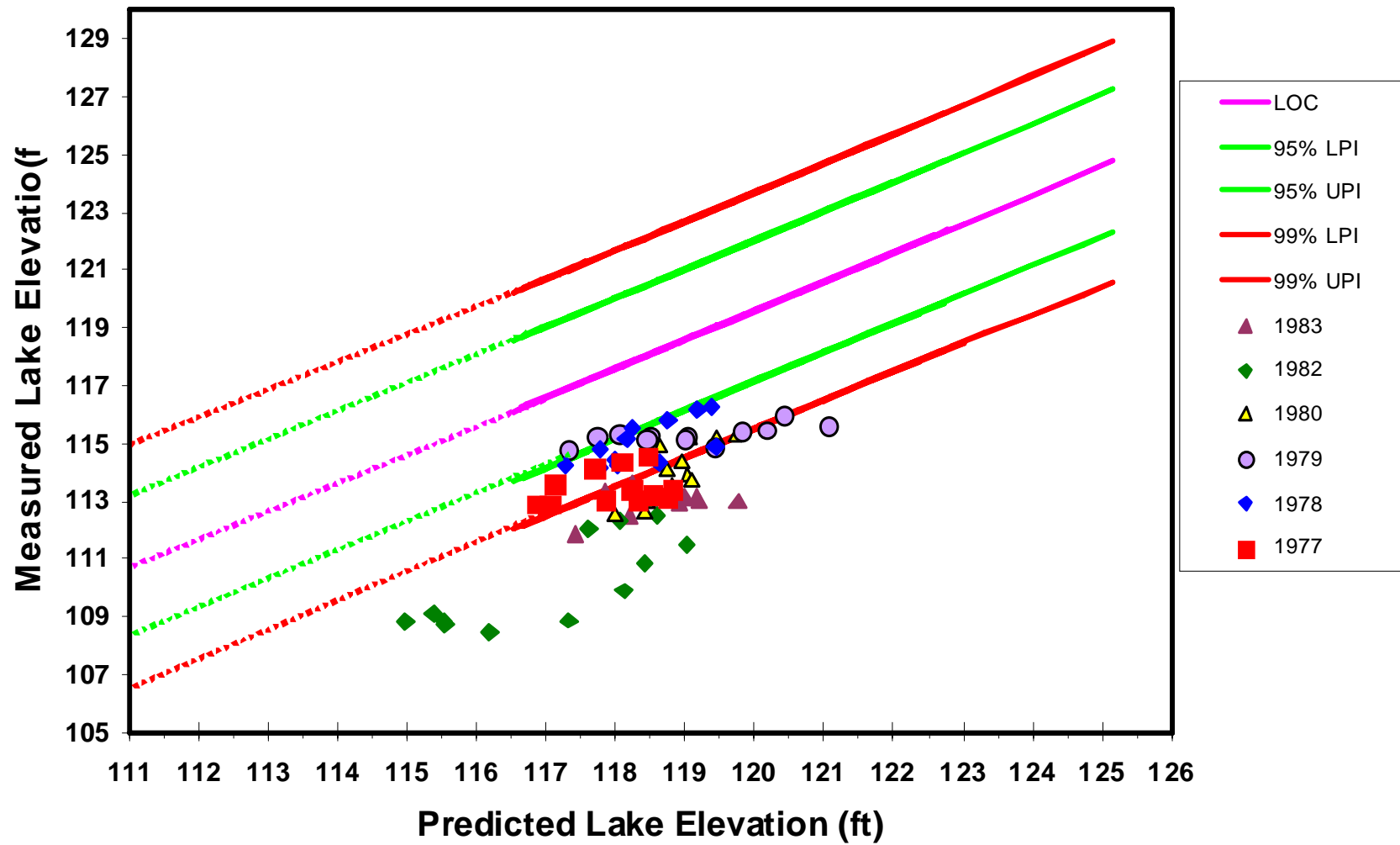
Assessment of MFLs

- Long-term median for lakes and wetlands
- Long-term average for seawater intrusion wells
- Lakes, wetlands and wells assessed for 6 and 10 -year periods for the ending years 1999-2007

Lake Carroll



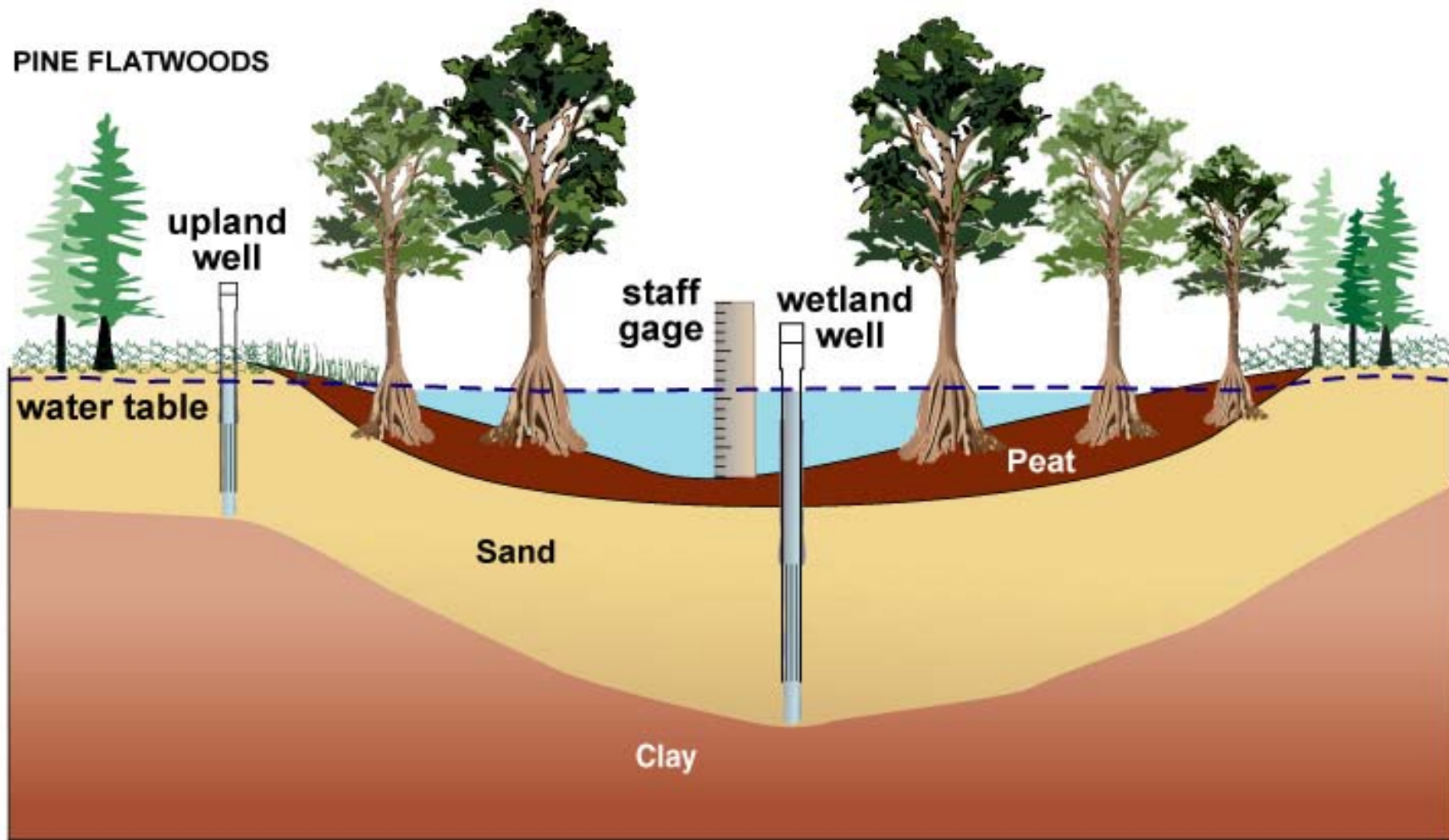
Crooked Lake 1977-1983



2008 MFL Assessment

- Assessment through calendar year 2007
- Rule of thumb (not the final definition of compliance) –
 - > 0.5 feet above MFL value – meeting MFL
 - > 0.5 feet below MFL value – not meeting MFL
 - In between – “close”

Wetland Monitoring Instrumentation



Wetlands – 2007 Results

10-year

- 8 wetlands meeting minimum level
- 15 wetlands not meeting minimum level
- 3 wetlands close to meeting minimum level
- 14 wetlands without enough data to determine
- 1 wetland lost in 2007

Wetlands – 2007 Results

6-year

- 14 wetlands meeting minimum level
- 13 wetlands not meeting minimum level
- 12 wetlands close to meeting minimum level
- 1 wetland without enough data to determine
- 1 wetland lost in 2007

Wetlands – 2007 Results

2-year *

- 4 wetlands above minimum level elevation *
- 31 wetlands below minimum level elevation *
- 4 wetlands close to meeting minimum level *
- 1 wetland lost in 2007

* Two years is not enough data for a minimum level determination

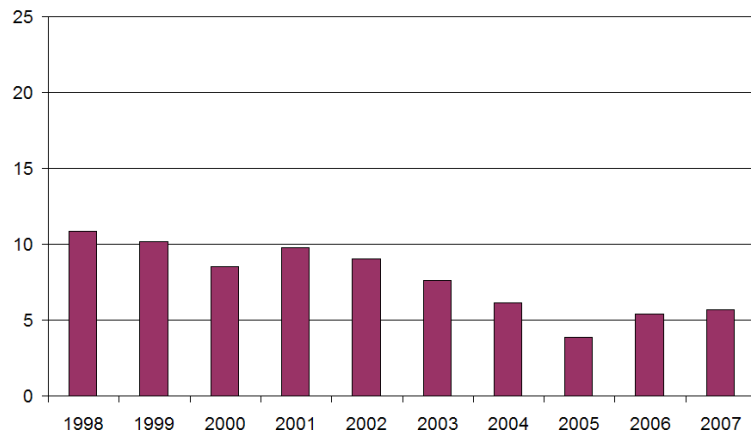
NTB Wetlands (2- year)

	2006	2007
Meeting MFL	14	4
Not Meeting MFL	15	31
Close	12	4
N/A	0	1
Total	41	41

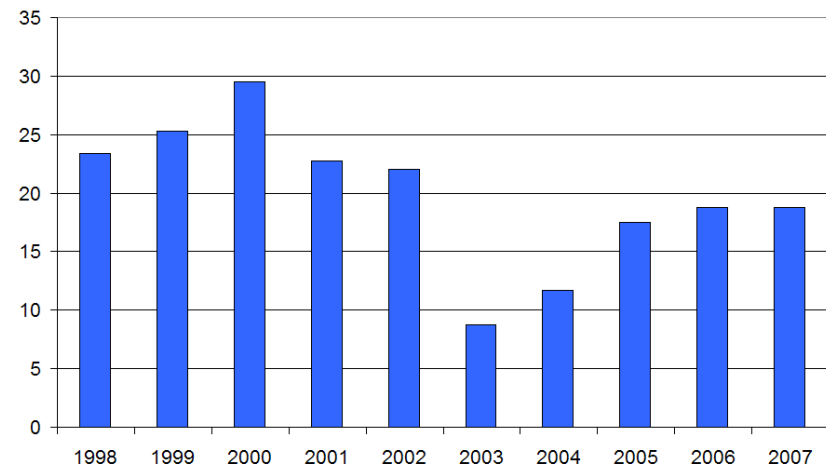
* Two years is not enough data for a minimum level determination

Variable Distribution of Withdrawals

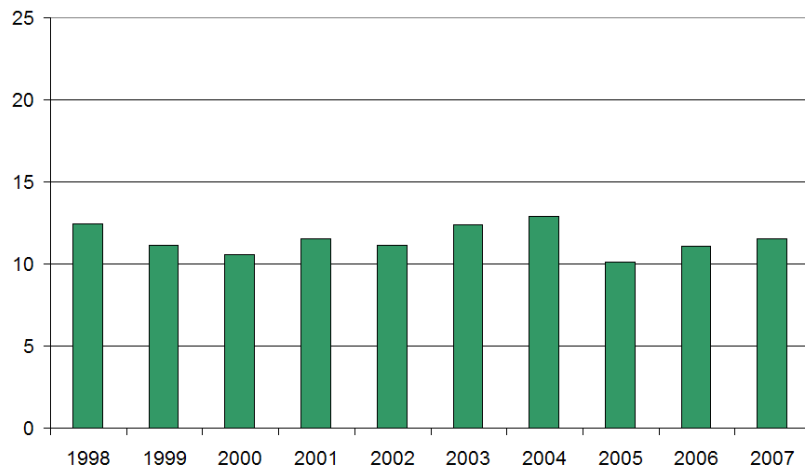
Section 21



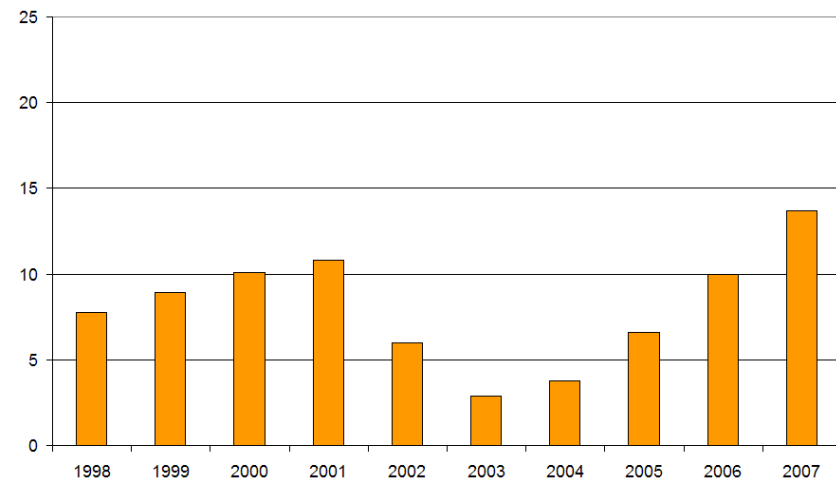
Cypress Creek



Starkey



Cypress Bridge



NTB Wetlands (10- year)

	2001	2002	2006	2007
Meeting MFL			10	8
Not Meeting MFL			14	15
Close			2	3
N/A			15	15
Total			41	41

NTB Wetlands (10- year)

	2001	2002	2006	2007
Meeting MFL	6	7	10	8
Not Meeting MFL	13	14	14	15
Close	4	3	2	3
N/A	18	17	15	15
Total	41	41	41	41

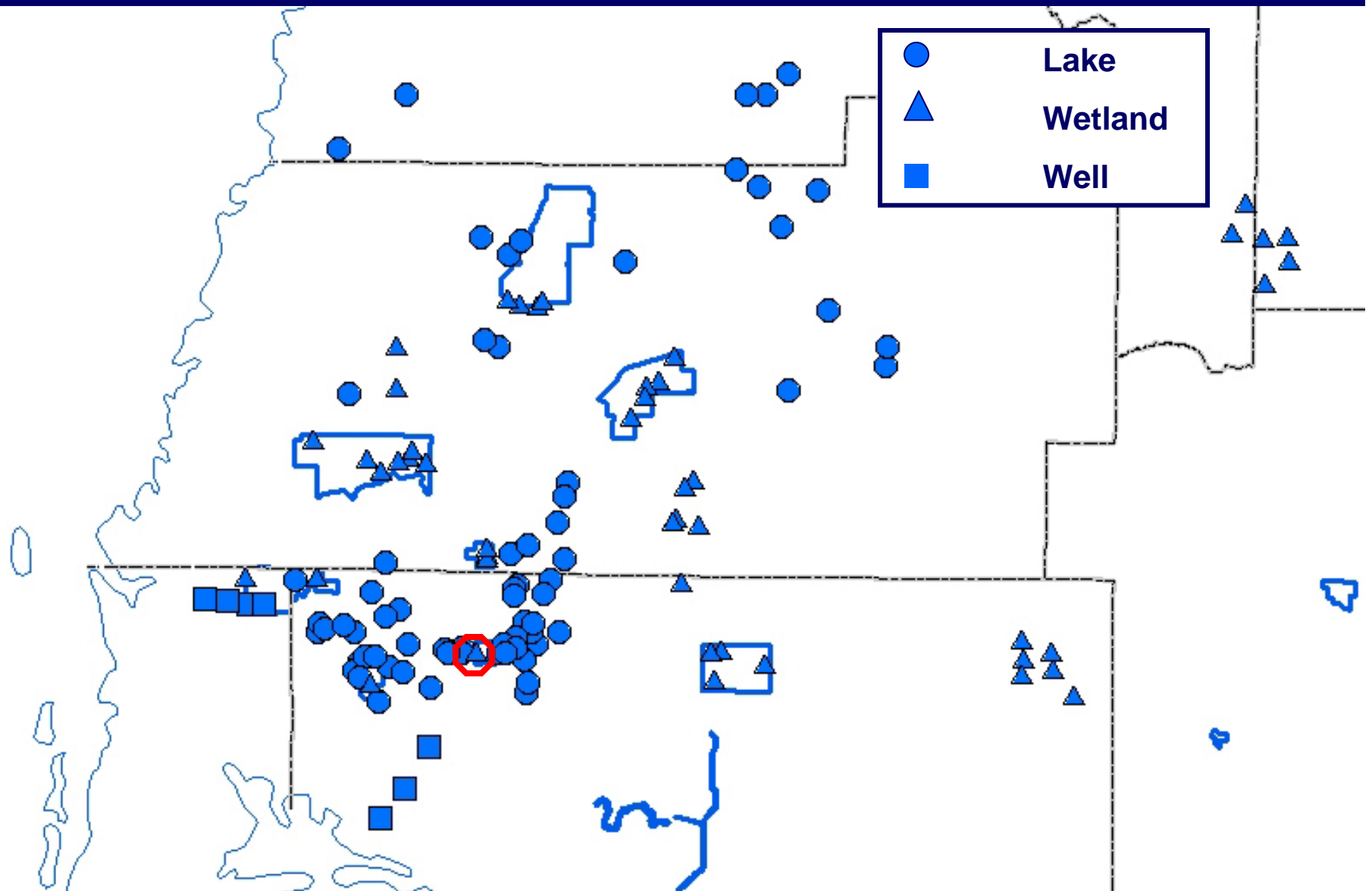
NTB Wetlands (6- year)

	2001	2002	2006	2007
Meeting MFL			14	14
Not Meeting MFL			10	13
Close			13	12
N/A			4	2
Total			41	41

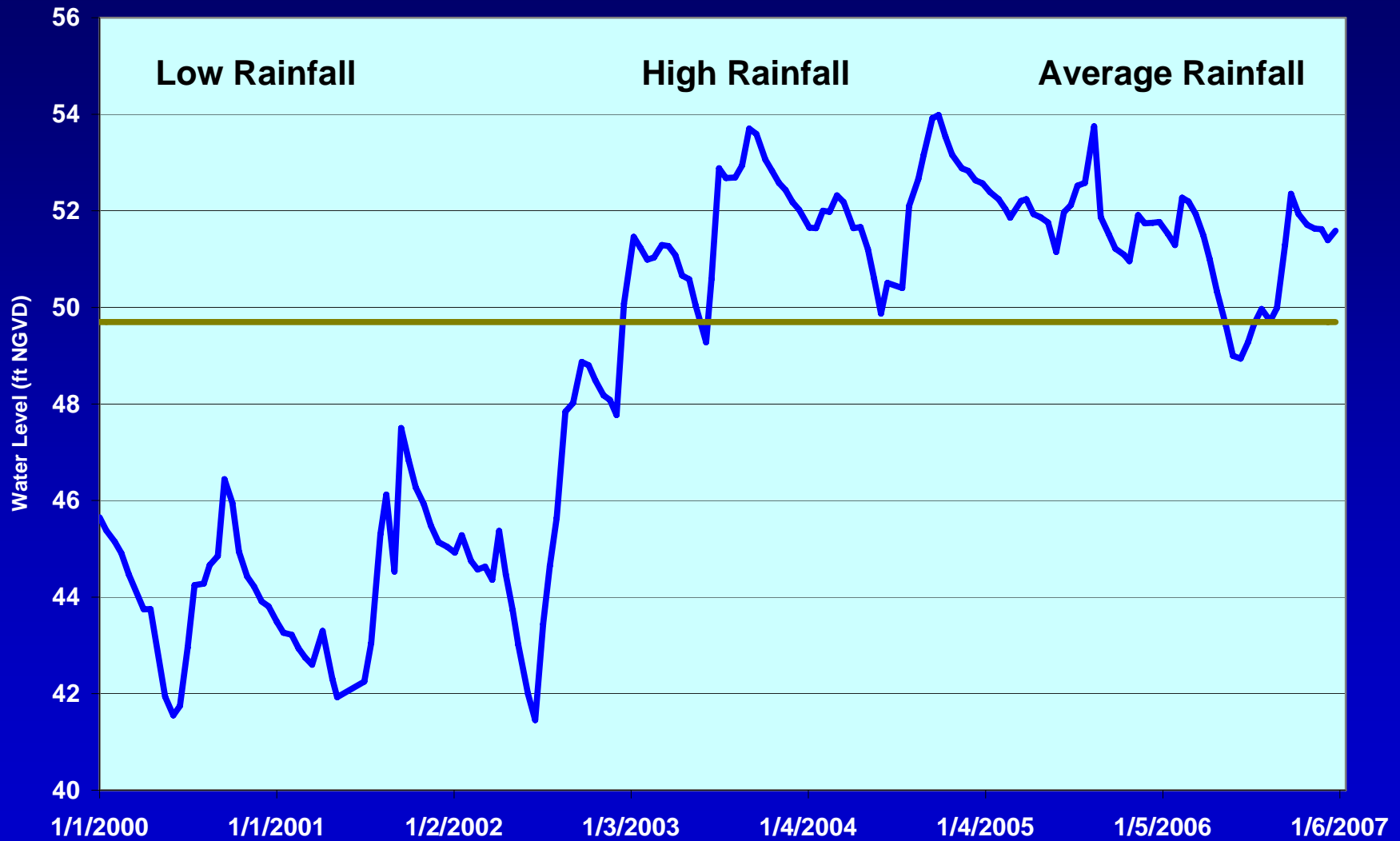
NTB Wetlands (6- year)

	2001	2002	2006	2007
Meeting MFL	4	3	14	14
Not Meeting MFL	15	18	10	13
Close	5	4	13	12
N/A	17	16	4	2
Total	41	41	41	41

Current MFL Sites in NTB area



Section 21 MFL Wetland



Lakes – 2007 Results

10-year

- 11 lakes meeting minimum level
- 31 lakes not meeting minimum level
- 26 lakes close to meeting minimum level
- 1 lake without enough data to determine

Lakes – 2007 Results

6-year

- 27 lakes meeting minimum level
- 15 lakes not meeting minimum level
- 26 lakes close to meeting minimum level
- 1 lake without enough data to determine

Lakes – 2007 Results

2-year *

- 6 lakes above minimum level elevation *
- 43 lakes below minimum level elevation *
- 20 lakes close to meeting minimum level *

* Two years is not enough data for a minimum level determination

NTB Lakes (2- year)

	2006	2007
Meeting MFL	34	6
Not Meeting MFL	9	43
Close	26	20
N/A	0	0
Total	69	69

* Two years is not enough data for a minimum level determination

NTB Lakes (10- year)

	2001	2002	2006	2007
Meeting MFL			11	11
Not Meeting MFL			31	31
Close			26	26
N/A			1	1
Total			69	69

NTB Lakes (10- year)

	2001	2002	2006	2007
Meeting MFL	5	5	11	11
Not Meeting MFL	51	52	31	31
Close	9	6	26	26
N/A	4	4	1	1
Total	69	69	69	69

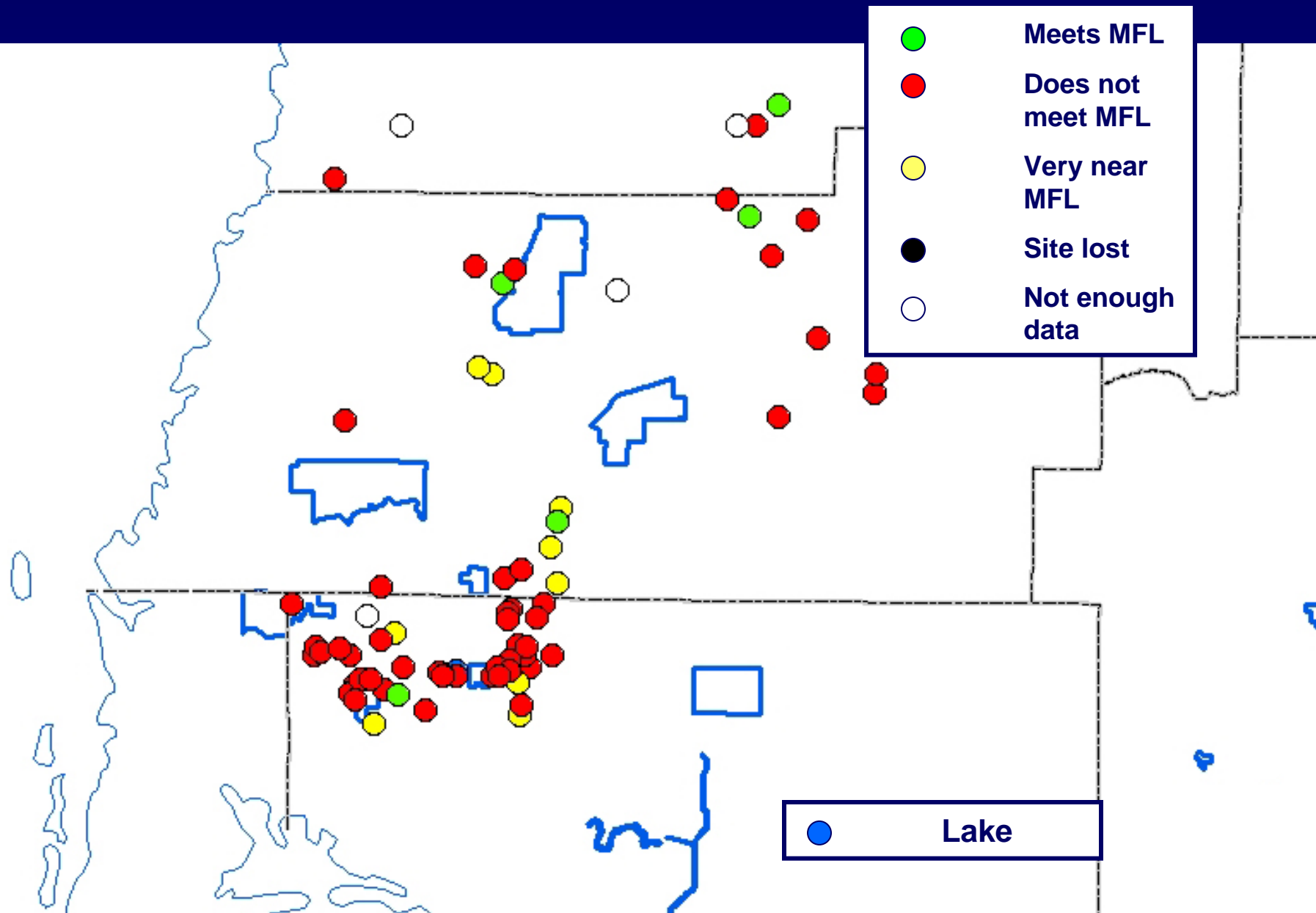
NTB Lakes (6- year)

	2001	2002	2006	2007
Meeting MFL			28	27
Not Meeting MFL			16	15
Close			24	26
N/A			1	1
Total			69	69

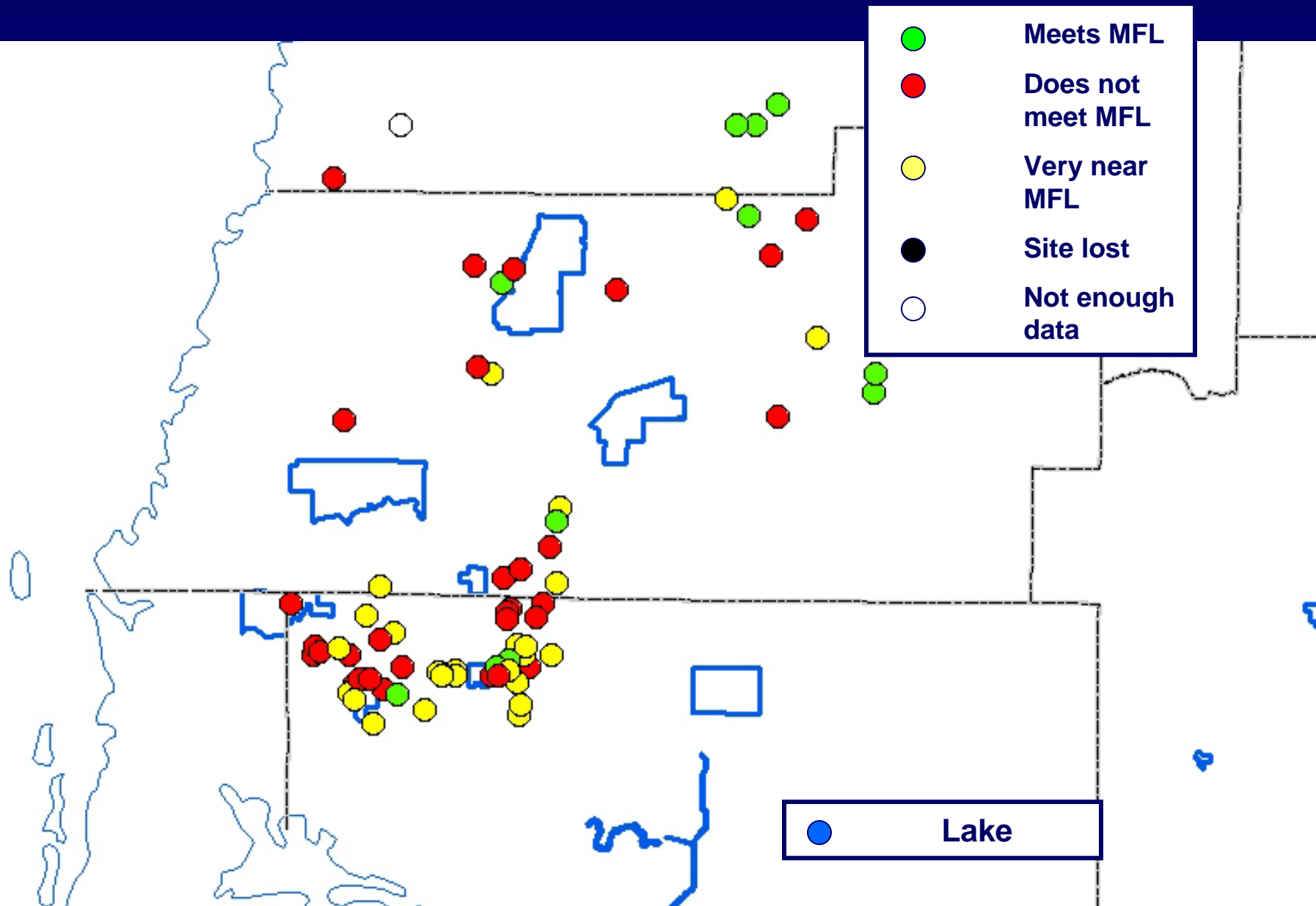
NTB Lakes (6- year)

	2001	2002	2006	2007
Meeting MFL	5	6	28	27
Not Meeting MFL	52	59	16	15
Close	11	4	24	26
N/A	1	0	1	1
Total	69	69	69	69

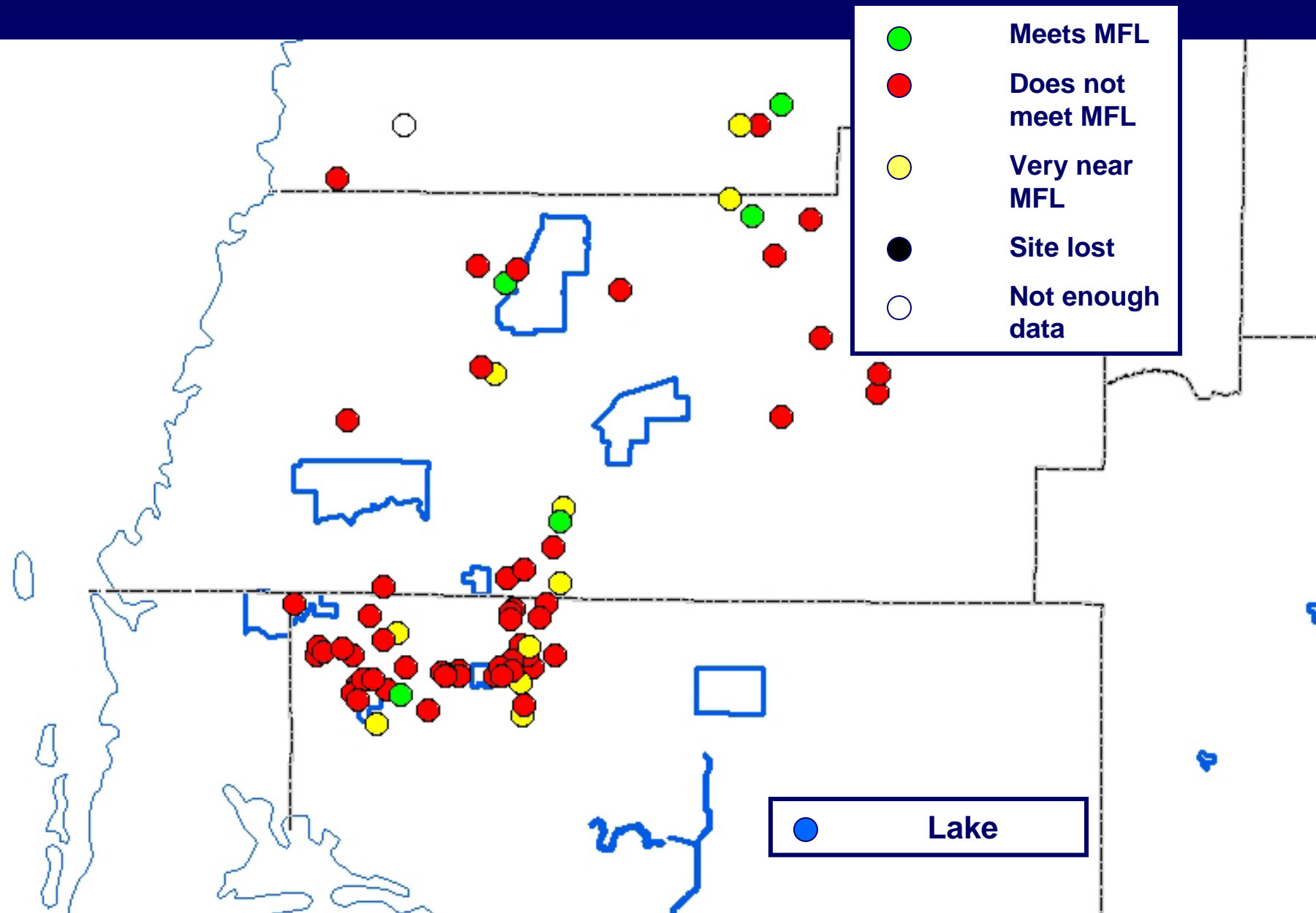
Lake MFL Status 2001 – 10 Year



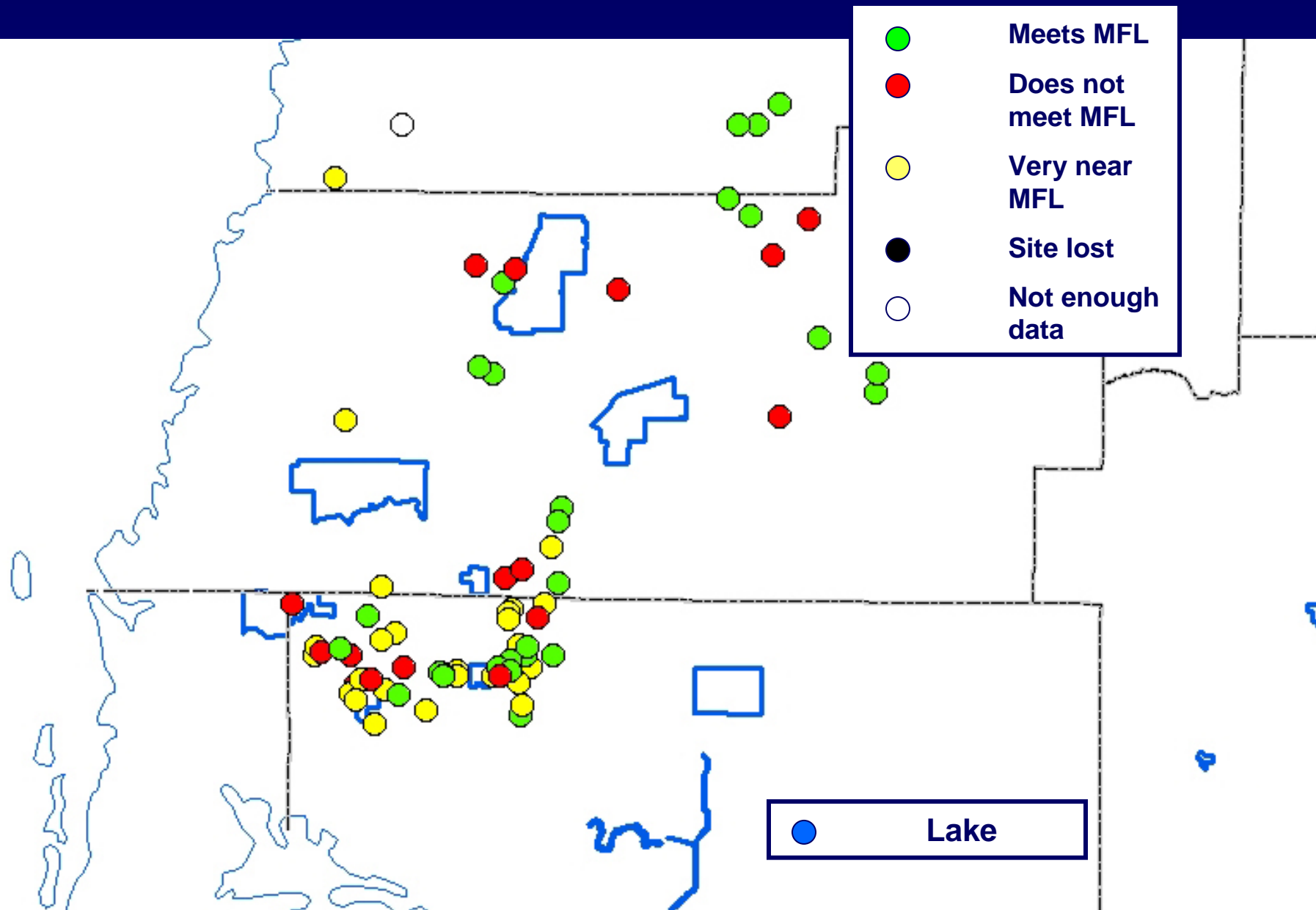
Lake MFL Status 2007 – 10 Year



Lake MFL Status 2001 – 6 Year



Lake MFL Status 2007 – 6 Year



NTB Lakes (10- year)

	2000	2007
Meeting MFL	5	11
Not Meeting MFL	42	31
Close	7	26
N/A	15	1
Total	69	69

NTB Lakes (6- year)

	2000	2007
Meeting MFL	7	27
Not Meeting MFL	40	15
Close	15	26
N/A	7	1
Total	69	69

MFL Wells – 2007 Results

10-year

- 3 wells meeting minimum level
- 4 wells close to meeting minimum level

MFL Wells – 2007 Results

6-year

- 3 wells meeting minimum level
- 4 wells close to meeting minimum level

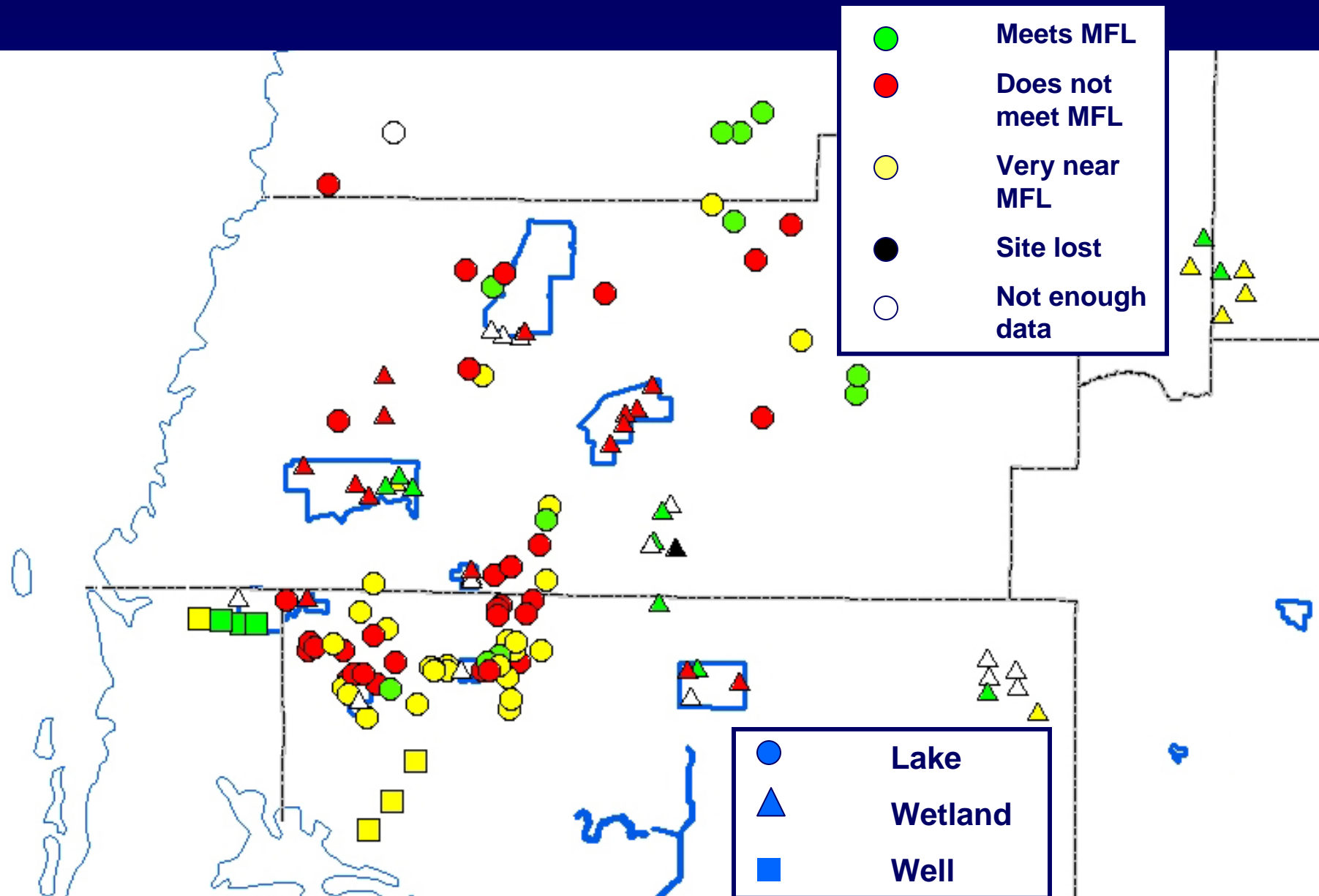
MFL Wells – 2007 Results

2-year *

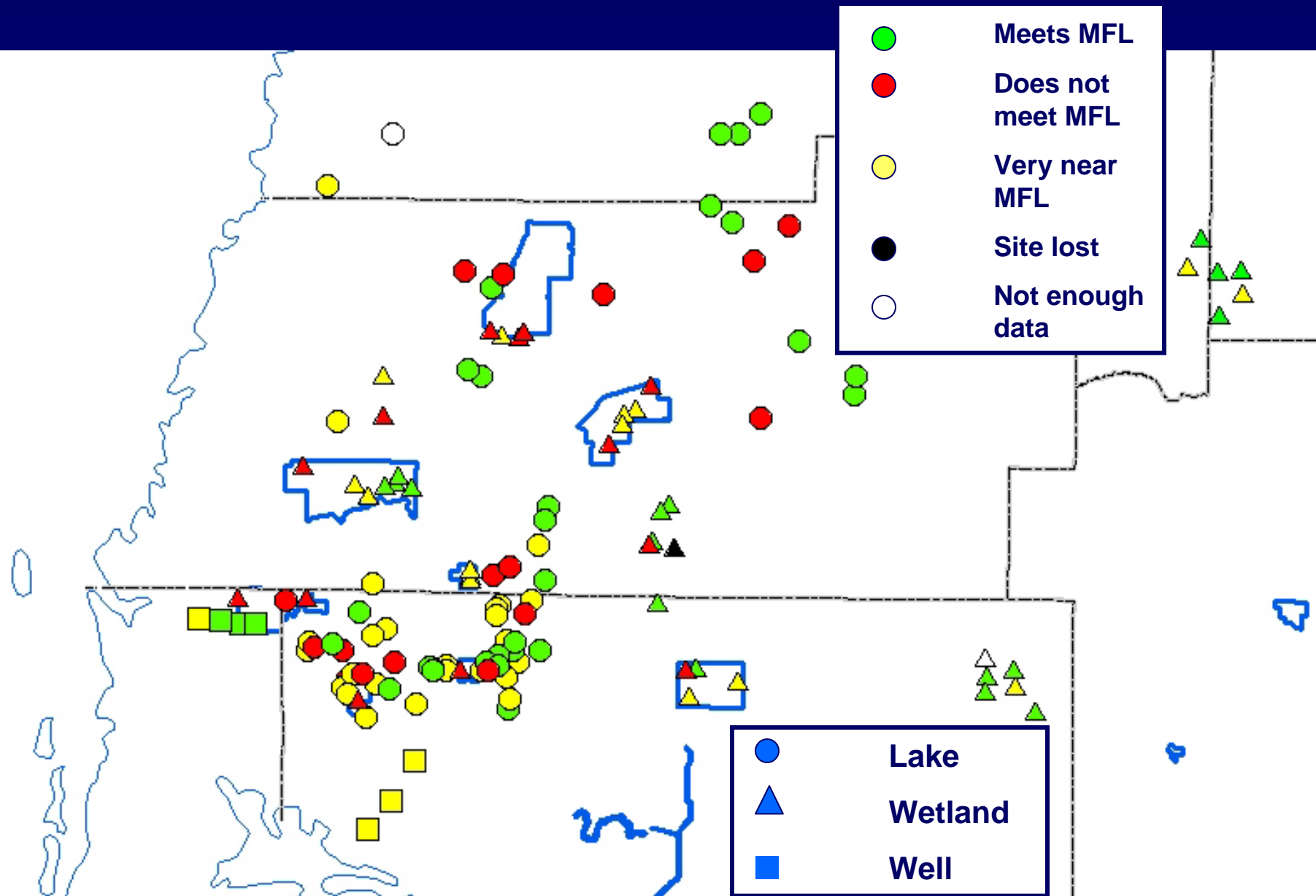
- 3 wells meeting minimum level *
- 1 well not meeting minimum level *
- 3 wells close to meeting minimum level *

* Two years is not enough data for a minimum level determination

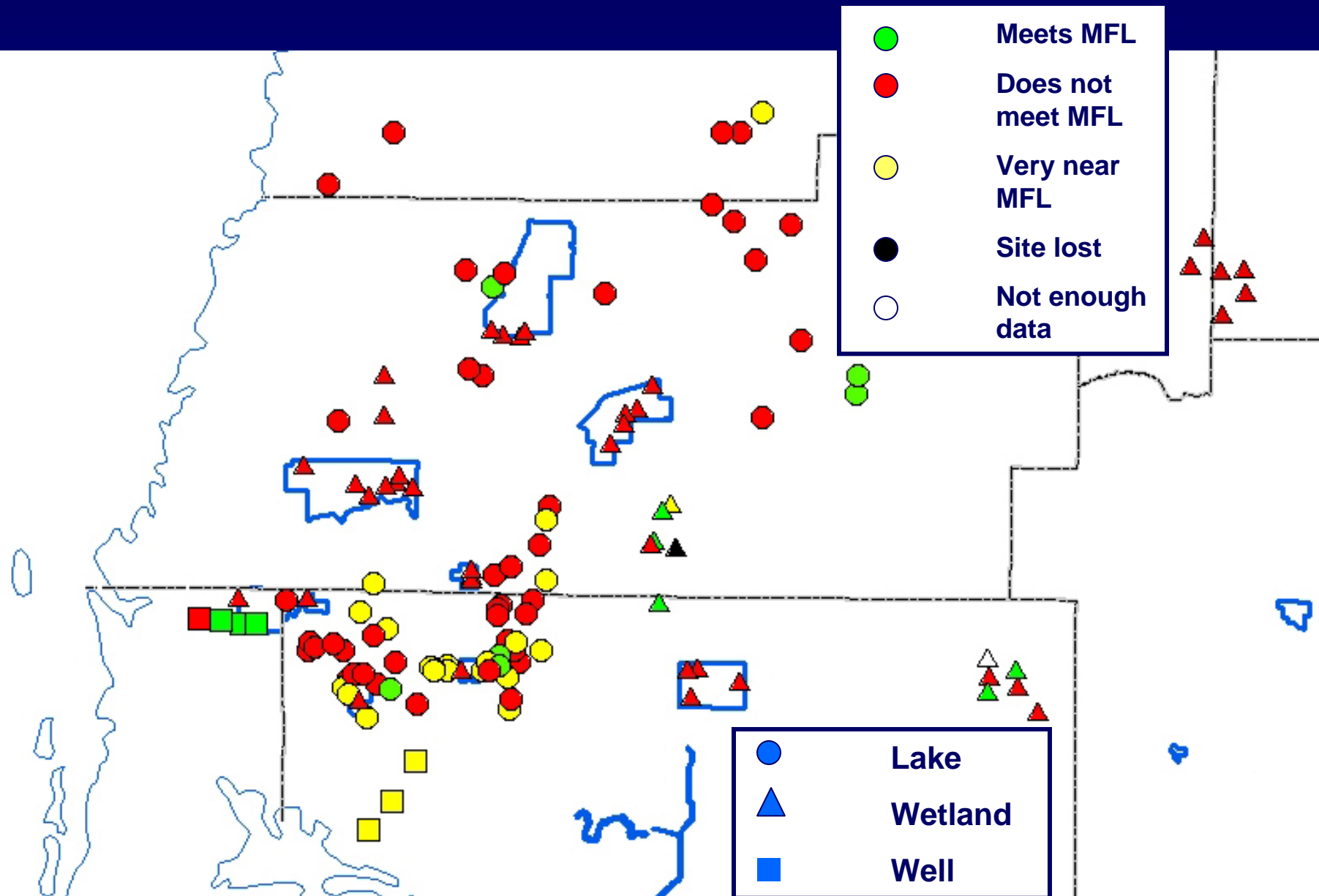
MFL Status 2007 – 10 Year



MFL Status 2007 – 6 Year



MFL Status 2007 – 2 Year



MFL Site Evaluations

- Since 1998, staff has continued to evaluate, collect data, install additional instrumentation, and maintain instrumentation at all sites
- Wetlands are particularly complicated due to multiple instrumentation needs, maintenance, remoteness, etc.
- In many wetlands, issues include survey discrepancies, access issues, development effects, and reconsideration of site status.

2008 Assessment of Recovery Levels

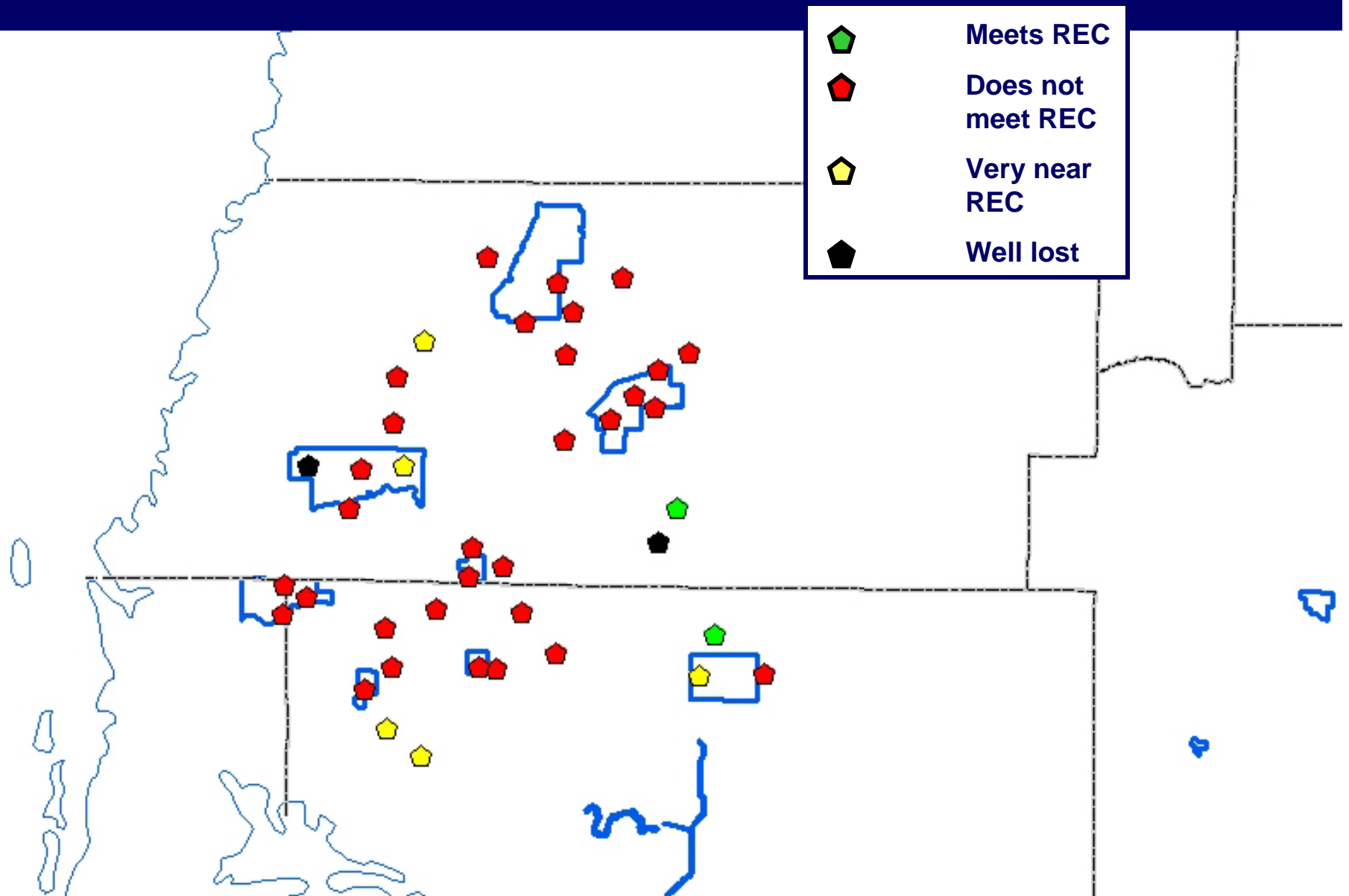
- Recovery Levels meant to serve as guidelines as to what the Floridan aquifer levels would be at 90 mgd, based on the District's recovery assessment
- 40 original wells – 2 since destroyed
- Based on long-term average

Recovery Wells – 2007

Results - 10-year

- 2 wells meeting recovery level
- 31 wells not meeting recovery level
- 5 wells close to meeting their recovery level
- 2 wells lost

Recovery Status 2007 – 10 Year

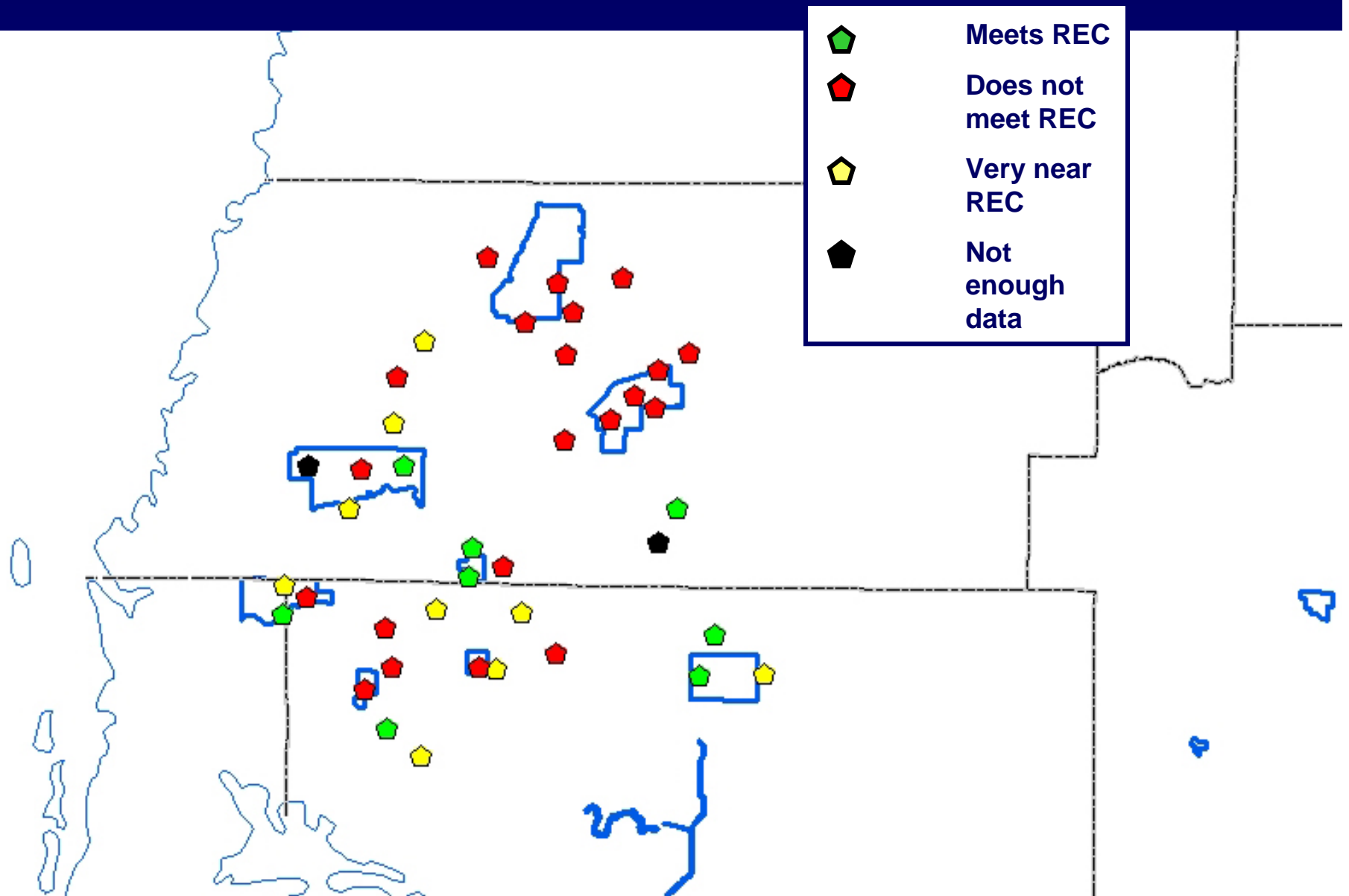


Recovery Wells – 2007

Results - 6-year

- 8 wells meeting recovery level
- 21 wells not meeting recovery level
- 9 wells close to meeting their recovery level

Recovery Status 2007 – 6 Year



Recovery Wells – 2007

Results - 2-year *

- 1 well above recovery level elevation *
- 33 wells below recovery level elevation *
- 4 wells close to meeting their recovery level *

* Two years is not enough data to do a recovery level determination

Recovery Status 2007 – 2 Year



General Conclusions

- MFLs (and other data/observations) continue to show regional improvement
- Compliance of MFLs not achieved yet due to:
 - Cutbacks and distribution of withdrawals not complete
 - Methodologies still in development
 - Limited time for assessment

Upcoming Recovery and MFL Issues

- Evaluate the need for adjustments to MFL rules
 - Additions or replacement to sites
 - Additions or alterations to methodologies
- Recovery Assessment Analyses
- Peer Review