`Special Investigation: 2010 Case Study with 1995 Base Demands

June 30, 1999

Definition of Simulation

The simulation of the components that would be implemented by 2010, also referred to as the 2010 Case Study (2010CS) was rerun with 95 Base water supply demands. First, only the Lower East Coast Utility water supply demands were set back to the 95 Base demand levels and then in addition to the 95 Base demands in the LEC, the Lake Okeechobee service area demands were set back to the 95 Base demand levels. In this investigation the 2010CS with 95 Base demands in the LEC (95DMLEC) and the 2010CS with 95 base demands in both the LEC and LOSA (95DMALL) are compared with the 2010 Case Study simulation. In some cases, comparison is also made with respect to the selected Restudy alternative, D13R, to provide an additional point of reference.

Assumptions

In the 95DMLEC simulation, water supply demands were set equivalent to the 95 Base demands in the Lower East Coast service area. This represents a total reduction in demand of approximately 450,000 ac-ft/yr. The location of wellfield extractions and the quantity of demands for the 2010CS and 95 Base are shown in Fig. 1 and Fig. 2 respectively, and the demands are summarized by service area in Table 1. Fig. 3 shows the difference in average daily wellfield demands between the 2010CS and 95 Base.

Table 1. Wellfield demands by service area.

	2010CS		**95 Base Demands**	
	MGD	1,000 ac-ft/yr	MGD	1,000 ac-ft/yr
North Palm Beach County	69	77	40	45
LECSA1	290	325	158	177
LECSA2	330	370	237	265
LECSA3	527	590	380	426
Total	**1216**	**1,362**	**815**	**913**

In the 95DMALL simulation, water supply demands were set equivalent to the 95 Base demands in the Lower East Coast as in Table 1 above, and Lake Okeechobee service area demands were set to the 95 Base demand level of 90,000 ac-ft/yr for the Caloosahatchee Basin compared with the 2010CS demand of 125,000 ac-ft/yr. In the St Lucie basin the 2010CS and 95 Base demands were the same at 28,000 ac-ft/yr, and the Big Cypress Seminole Indian irrigation demand remained set at future demand levels (58,000 ac-ft/yr) in both the 2010CS and both 95 Base demand simulations.

For both the 95DMLEC and 95DMALL simulations, environmental demands and runoff in the St. Lucie and Caloosahatchee estuaries were left as in the 2010 Case Study to make use of - a.) local basin storage features that reduced demands on Lake Okeechobee and, b.) future environmental targets. Furthermore, the LEC irrigation demands were assumed the same as the 2010CS in both simulations.

Summary of results

Overall, reducing water supply demands to 95 Base levels improved performance in Everglades National Park (NSM hydroperiod matches improved from 75 to 84 %) and increased the discharge of water to tide by 265,000 ac-ft/yr (or 12 percent). Of the additional 265,000 ac-ft/yr, Biscayne Bay received 156,000 ac-ft/yr which can be considered beneficial while the remainder could be considered a loss to tide.

In the 95DMLEC simulation, by running the 2010CS with 95 base demands in the LEC service areas, the supply of water from Lake Okeechobee to the LEC was reduced leaving more water in Lake Okeechobee and raising low lake stages. As a result there were more regulatory releases to the WCAs and Estuaries; however, damaging releases to the Estuaries remained the same as in the 2010CS.

The reduced water demands raised stages in WCA-1, increasing the acreage with hydroperiods 30-90 days longer than NSM. WCA-3B was slightly improved by higher stages which reduced the acreage with hydroperiods 30-90 days shorter than NSM. Impacts on the other WCAs were negligible as they acted as a through flow system, passing more flow down to the ENP but maintaining stages and hydroperiods very similar to the 2010 Case Study in the WCAs themselves. The ENP benefited from increased net inflow and slightly higher stages throughout. Outflows to tide increased with the increase in flow to Biscayne Bay approximately the same as the reduction in demand in LEC service area 3.

With reduced demand, water supply performance improved in the Lower East Coast service areas with a reduction in phase I induced cutbacks.

In the 95DMALL simulation, by reducing Lake Okeechobee service area (LOSA) demands to the 95 Base demand levels in addition to the LEC service area demands being set at the 95 Base levels, the supply of water from Lake Okeechobee to LOSA was reduced raising low lake stages further than the 95DMLEC simulation. Regulatory releases to the WCAs and Estuaries were more than the 2010CS and 95DMLEC simulation increasing the number of damaging high volume releases to the St. Lucie Estuary.

Performance in the WCAs and ENP was essentially the same in the 95DMALL simulation as in the 95DMLEC simulation.

With further reduced demands on the lake, water supply performance improved in both the Lake Okeechobee and Lower East Coast service areas. There were fewer years with significant cutbacks in the lake Okeechobee service area and lake induced phase I induced cutbacks were further reduced in the LECSA's.

Detailed evaluation

Lake Okeechobee

The Lake Okeechobee stage hydrograph (Fig. 4) and duration curve (Fig. 5) show that both the 95DMLEC and 95DMALL simulations had higher lake stages than those of the 2010CS, particularly low lake stages which were approximately a quarter (95DMLEC) and half 995DMALL) a foot higher for 30% of the time (60th to 90th percentile in Fig. 5).

There were small increases in regulatory releases (Fig. 6) to the EAA storage area and directly to WCA-3A in both the 95DMLEC (+ 7,000 ac-ft/yr or 2 %) and the 95DMALL (+20,000 ac-ft/yr or 5%) simulations, due to higher Lake Okeechobee stages.

Caloosahatchee and St. Lucie Estuaries

In the 95DMLEC simulation, Lake Okeechobee (LOK) regulatory discharges (Fig. 6) to the St. Lucie remained the same as for the 2010C while discharges to the Caloosahatchee increased very little (2,000 ac-ft/yr). In the 95DMALL simulation (LOK) regulatory releases to the Caloosahatchee were 6,000 ac-ft/yr more than in the 2010CS (Fig. 6), however performance in terms of the number of times the Caloosahatchee Estuary salinity envelope criteria was not met remained the same as both the 2010CS and 95DMLEC simulation (Fig. 7). The relatively small increase (+2,000 ac-ft/yr) in regulatory releases from the lake to the St. Lucie estuary in the 95DMALL simulation resulted in 2 more LOK caused exceedences of the high flow criteria for the St. Lucie Estuary than the 2010 CS (Fig. 8). The number of exceedences due to local basin discharges was also increased by 2 in both 95 Base demand simulations.

Water Conservation Areas

Performance in the WCAs was very similar in both the 95DMLEC and 95DMALL simulations. Total flow into WCA-3A increased by 15-16%, from 1,069,000 ac-ft/yr in 2010CS to 1,231,000 ac-ft/yr in 95DMLEC and 1,244,000 ac-ft/yr in 95DMALL. In WCA-1, the length of hydroperiods increased slightly (Table 6, Inundation Duration Summary,) increasing the acreage with hydroperiods 30-90 days longer than NSM hydroperiods and resulting in a decrease in NSM hydroperiod matches from 75% in the 2010CS to 68% in both of the 95 base demand simulations (Fig. 9). Stages were very similar except for lower stages (70th to 100th exceedence percentile) where the 95 Base simulations had higher stages (Fig. 10). High water exceedences were increased slightly (Table 7) in the 95 Base demand simulations.

In WCA-2A (Fig. 11), WCA-2B (Fig. 12), South WCA-3A (IR-14, Fig. 13), South Central WCA-3A (IR-17, Fig. 14), and NE WCA-3A (IR-21, and Fig. 15) stages were very similar to the 2010CS in both 95 Base demand simulations. Hydroperiods (Table 6) as well as both the low (Table 8) and high (Table 7) water exceedences for the 95 Base demand simulations were similar to those of the 2010CS simulation.

In WCA-3B the slightly higher stages (IR-15, Fig 16) increased (by 1%) the average annual duration of high water exceedences (Table 7) and reduced the acreage with hydroperiods 30-90 days shorter than NSM, improving hydroperiod matches from 67% in the 2010CS to 70% in the 95DMDS simulation (Fig. 17).

Everglades National Park

Net inflow to the ENP was on average 89,000 ac-ft/yr more in the 95DMLEC and 98,000 ac-ft/yr more in the 95DMALL simulation than the 2010CS, which expressed as a % of NSM45 flows is an increase from 77% (2010CS) to 83% (both 95 Base demand simulations). This is greater than the alternative D13R net inflow of 80% of NSM45. The values used to compute these percentages are shown in Table 2 and the flow transects used are shown in Fig. 18.

Table 2. Total Net Inflows to Everglades National Park
(values are mean annual flows for the 31-yr simulation in units in 1000ac-ft/yr except as noted)

Simulation	S12's	TT-W (R23,C17-21)	TT-E (R23,C22-26)	TT-gw	S356's+ max(S332's-LvSpg,0)	Total Net Inflow (% of NSM)
NSM45	-	467	739	6	425 (overland flow)	1637 (100%)
D13R	-	478	485	7	342	1312 (80%)
2010CS	602	-	276	15	369	1262 (77%)
95DMLEC	626	-	281	14	430	1351 (83%)
95DMALL	632	-	282	14	432	1360 (83%)

TT-W = Tamiami Trail west (40-mile bend to L-67)
TT-E = Tamiami Trail east (L-67 to L-31N)
TT-gw = groundwater inflow from WCA-3 to ENP

Flows delivered to the Shark River Slough (SRS) headwater transects (as defined in Fig. 18) increased from 64% of NSM45 flows in the 2010CS to 68% in the 95DMLEC and 70% in the 95DMALL simulation, while flows across the same transects were 71% for Alternative D13R. The distribution of flows to the SRS headwaters was similar in the 2010CS and both 95 Base demand simulations, namely approximately 45% to NWSRS and 55% to NESRS (Table 3). Shark River Slough outflows toward Whitewater and Florida Bays (across transect as defined in Fig. 18) were increased from 66% of NSM45 in the 2010CS to 69% in the 95DMLEC and 70% in the 95DMALL simulations (Table 3).

Table 3. Inflows to Shark River Slough (SRS) headwaters inflows and outflows toward Whitewater and Florida Bays.
(values are mean annual flows for the 31-yr simulation in units in 1000ac-ft/yr)

Simulation	Inflow to SRS headwater			SRS outflow toward Whitewater and Florida Bays (% of NSM)
	NWSRS	NESRS	Total (% of NSM)	
NSM45	579	1030	1609 (100%)	1566 (100 %)
D13R	436	702	1138 (71%)	1110 (71%)
2010CS	459	574	1033 (64%)	1037 (66%)
95DMLEC	480	609	1089 (68%)	1087 (69%)
95DMALL	514	619	1133(70%)	1095 (70%)

Hydroperiod matches (Fig. 19) for ENP increased from 75% in the 2010CS to 84% in both the 95 Base demand simulations due to slightly higher stages which result in slightly longer inundation durations throughout much of the park (Table 6). The stage duration curve for NE Shark River Slough (Indicator Region 11, Fig. 20) gives an example of the slightly higher stages in the park.

Biscayne Bay

Inflow to Biscayne Bay (Fig. 21) for the both 95 Base demand simulations increased approximately 156,000 ac-ft/yr relative to the 2010CS. Well pumpage in LEC service area 3 was 165,000 ac-ft/yr less in both the 95 Base demand simulations than the 2010CS so the increase in flow to Biscayne Bay can be attributed to a decrease in well pumpage in SA-3. Note that neither the 2010CS nor the 95DMLEC and 95DMALL simulations implement the wastewater reuse component.

Other Tidal outflows

In addition to the increase in outflow to Biscayne Bay, outflow to tide was increased in the other service areas in the 95 Base demand simulations relative to the outflow to tide in the 2010CS (Table 4). In north Palm Beach County the increase in flow to tide of 19,000 ac-ft/yr matched closely the reduction in water supply demand of 22,000 ac-ft/yr. In SA-1 the increase in flow to tide of 61,000 ac-ft/yr was less than the reduction in demand of 148,000 ac-ft/yr. Similarly in SA-2 the increase in flow to tide of 29,000 ac-ft/yr was less than the reduction in water supply demand.

Table 4. Lower East Coast tidal outflows. Values in ( ) indicate increase relative to the 2010CS.

	2010CS	**95DMALL**
	1,000 ac-ft/yr	1,000 ac-ft/yr
North Palm Beach County	509	528 (+19)
LECSA1	470	531 (+61)
LECSA2	464	493 (+29)
To Biscayne Bay	792	948 (+156)
Total	**2,235**	**2,500 (+265)**

Water Supply:

Lake Okeechobee Service Area
Irrigation demands not met for the Lake Service Area were on average 1 % lower (improved, Fig. 22) and in selected dry years 2 % lower (Fig. 23) in both the EAA and other LOSA areas for the 95DMLEC simulation when compared to the 2010CS. In the 95DMALL simulation LOSA irrigation demands not met were about 3% lower (better) than 2010CS on average (Fig. 22) and in selected dry years 4% (Fig. 23). In the LOSA there were only 4 years in the 95DMALL simulation where cutbacks in water supply were greater than 40% due to Supply Side Management, compared with 7 years with cutbacks in water supply greater than 40% in both the 95DMLEC and 2010CS. The volume of cutbacks were slightly reduced in the 95DMLEC simulation and more significantly reduced in the 95DMDS simulation (Table 5).

Lower East Coast Service Areas
Since 1995 Base demands in the Lower East Coast service areas were used in both the 95 Base demand simulations, water supply to the LECSAs was similar in both cases (Fig. 24). Water supply from the WCA's and ASR was reduced in Service Area 1, and water supply from the lake and WCA's was reduced in service areas 2 and 3 (Fig 24). In the 95 Base demands simulations, ASR supplied 24,000 ac-ft/yr less than the 2010CS in SA1, and the WCA's supplied a total of approximately 38,000 ac-ft/yr less to all three service areas while the lake supplied 26,000 ac-ft/yr less to the three service areas (Fig. 24).

The number of months of Lake Okeechobee triggered phase I water restrictions was reduced by about one third (from 15 to 11) in the 95DMLEC simulation and cut in half (from 15 to 7) in the 95DMALL simulation for all the Lower East Coast service areas (Fig. 25). Locally-triggered phase I water restrictions increased in NPB County and SA's 1 and 2 while decreasing in SA3.

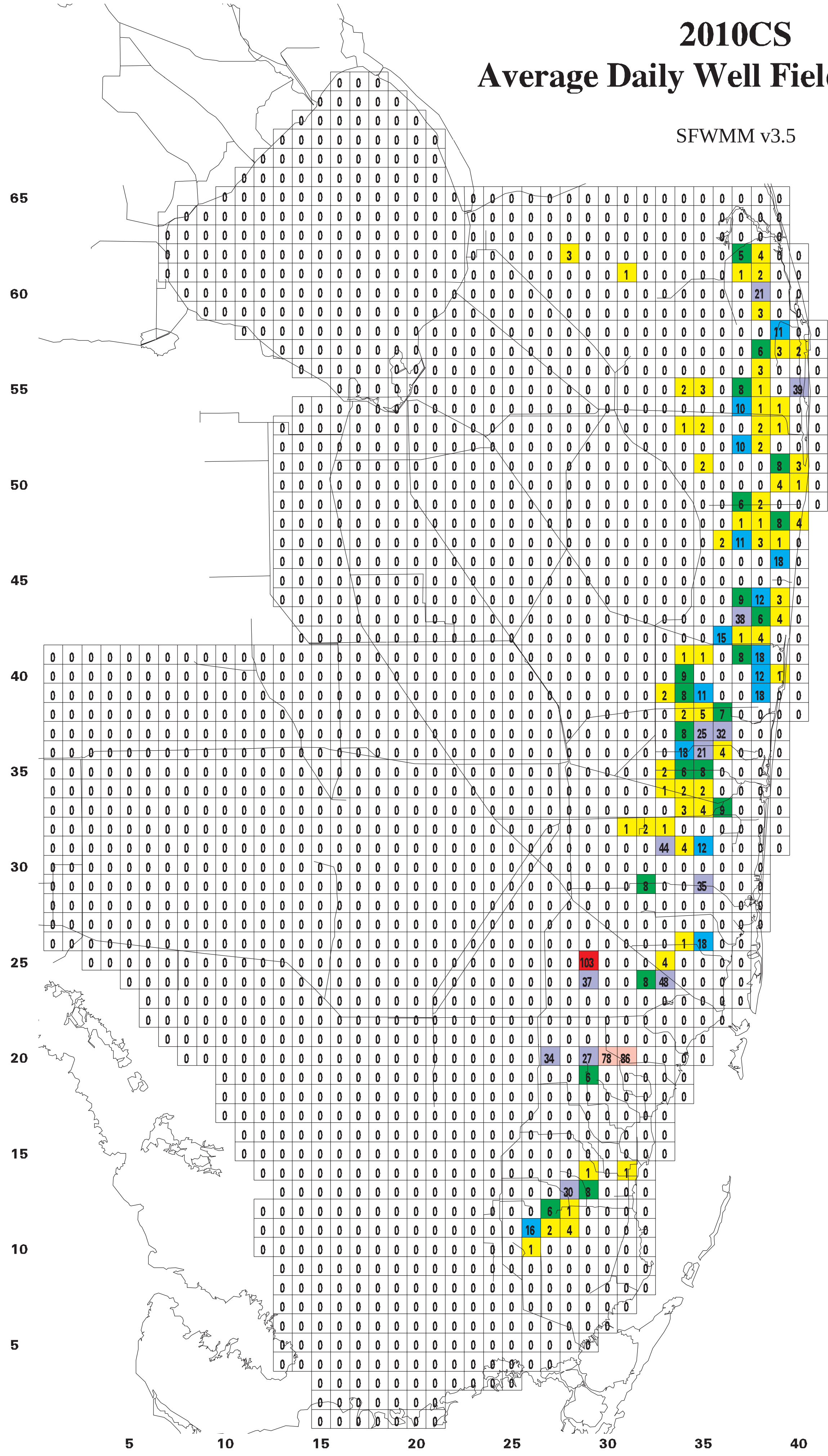
The increase in locally-triggered water restrictions was due to the relocation of some wellfields closer to trigger wells in the 95 base demand simulations. In Fig.3 blue and green cells along the east coast indicate where wellfield pumpages were greater in the 95 Base demands than the 2010CS, triggering restrictions more frequently in the 95 Base demand simulations than the 2010CS, even though the total water supply demands were less.

Table 5. Lake Okeechobee service area supply side management cutbacks.
Cutbacks of greater than 40% are shaded.

	2010 CS		95DMLEC		95DMALL	
Year	Cutback volume 1000-ac-ft/yr	Cutback %	Cutback volume 1000-ac-ft/yr	Cutback %	Cutback volume 1000-ac-ft/yr	Cutback %
1965	1	0	1	0	1	0
1966	0	0	0	0	0	0
1967	1	0	1	0	1	0
1968	200	45	191	43	155	38
1969	0	0	0	0	0	0
1970	0	0	0	0	0	0
1971	7	1	0	0	0	0
1972	71	19	59	16	43	13
1973	229	52	221	49	145	38
1974	434	58	429	57	392	57
1975	50	9	20	4	0	0
1976	273	48	262	46	203	40
1977	78	16	46	10	22	5
1978	0	0	0	0	0	0
1979	3	1	3	1	3	1
1980	0	0	0	0	0	0
1981	509	51	506	50	442	47
1982	201	47	200	47	185	47
1983	0	0	0	0	0	0
1984	0	0	0	0	0	0
1985	2	0	2	0	2	0
1986	0	0	0	0	0	0
1987	0	0	0	0	0	0
1988	0	0	0	0	0	0
1989	71	9	10	1	3	0
1990	353	53	301	46	143	27
1991	22	9	10	4	3	2
1992	0	0	0	0	0	0
1993	0	0	0	0	0	0
1994	0	0	0	0	0	0
1995	0	0	0	0	0	0

2010CS
Average Daily Well Field Demands

SFWMM v3.5



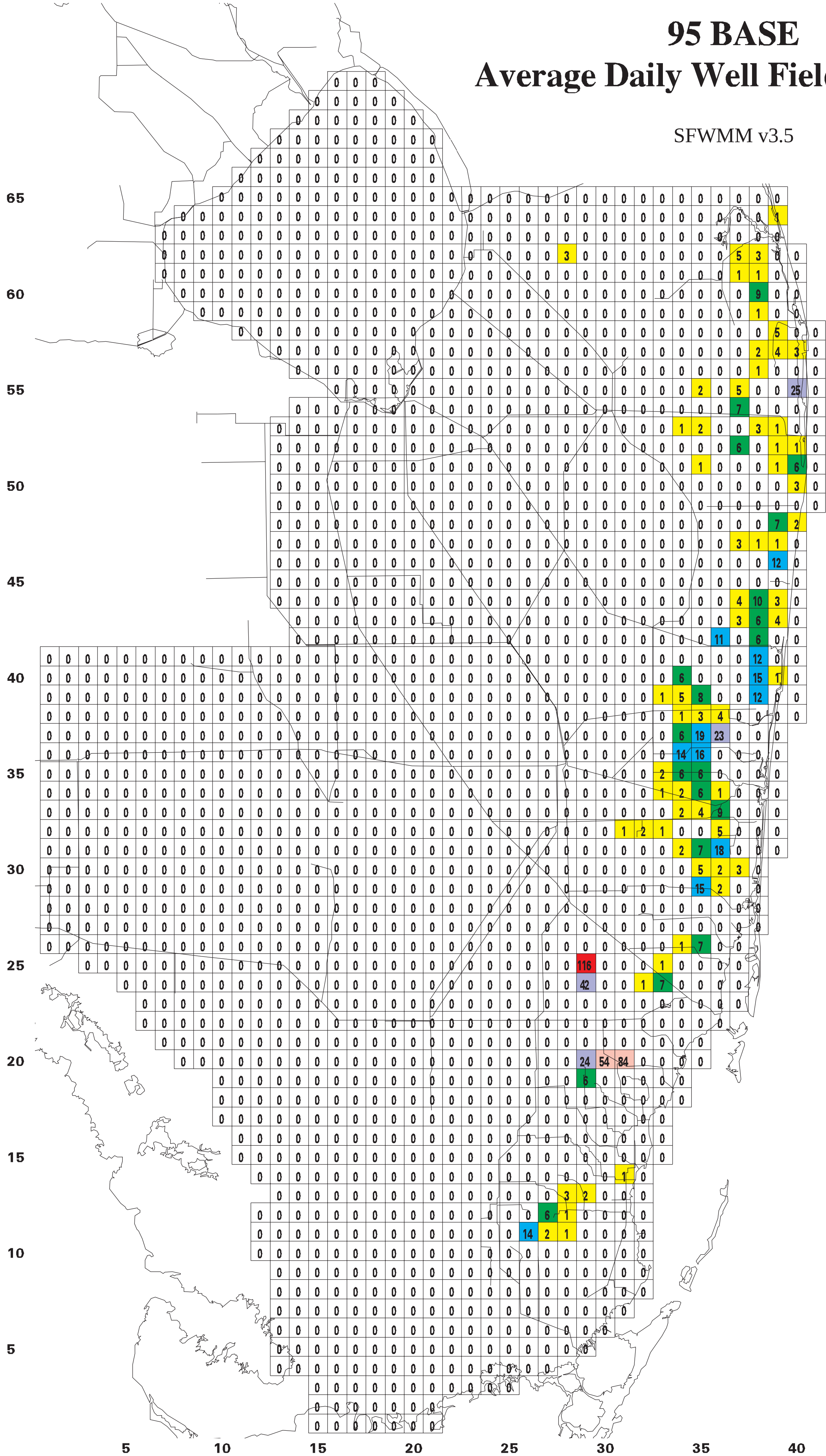
Average Demand
MGD

1–5
5–10
10–20
20–50
50–100
> 100

28 Jun 99 16:55:35 Monday

95 BASE
Average Daily Well Field Demands

SFWMM v3.5

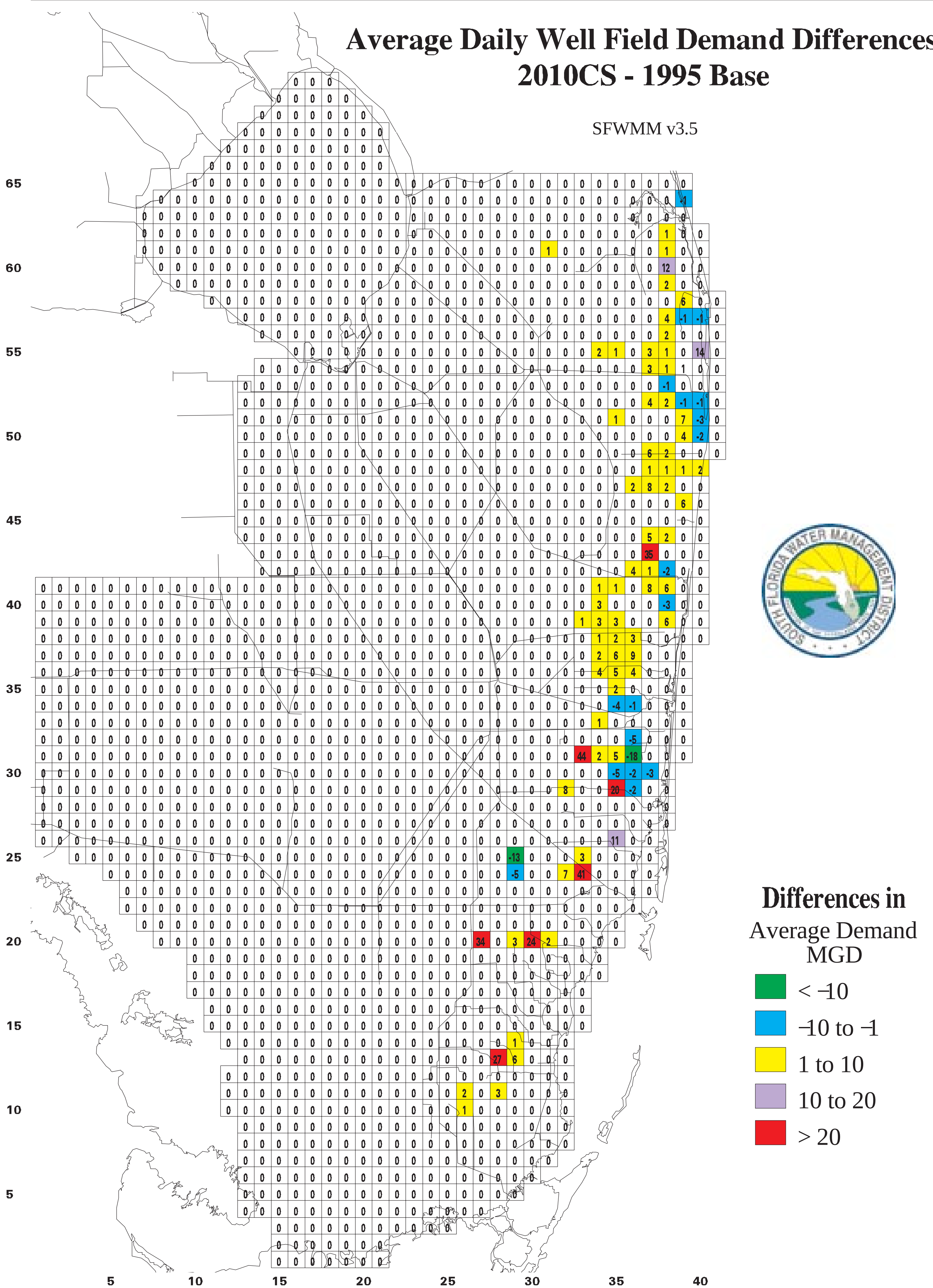


Average Demand
MGD

- 1–5
- 5–10
- 10–20
- 20–50
- 50–100
- > 100

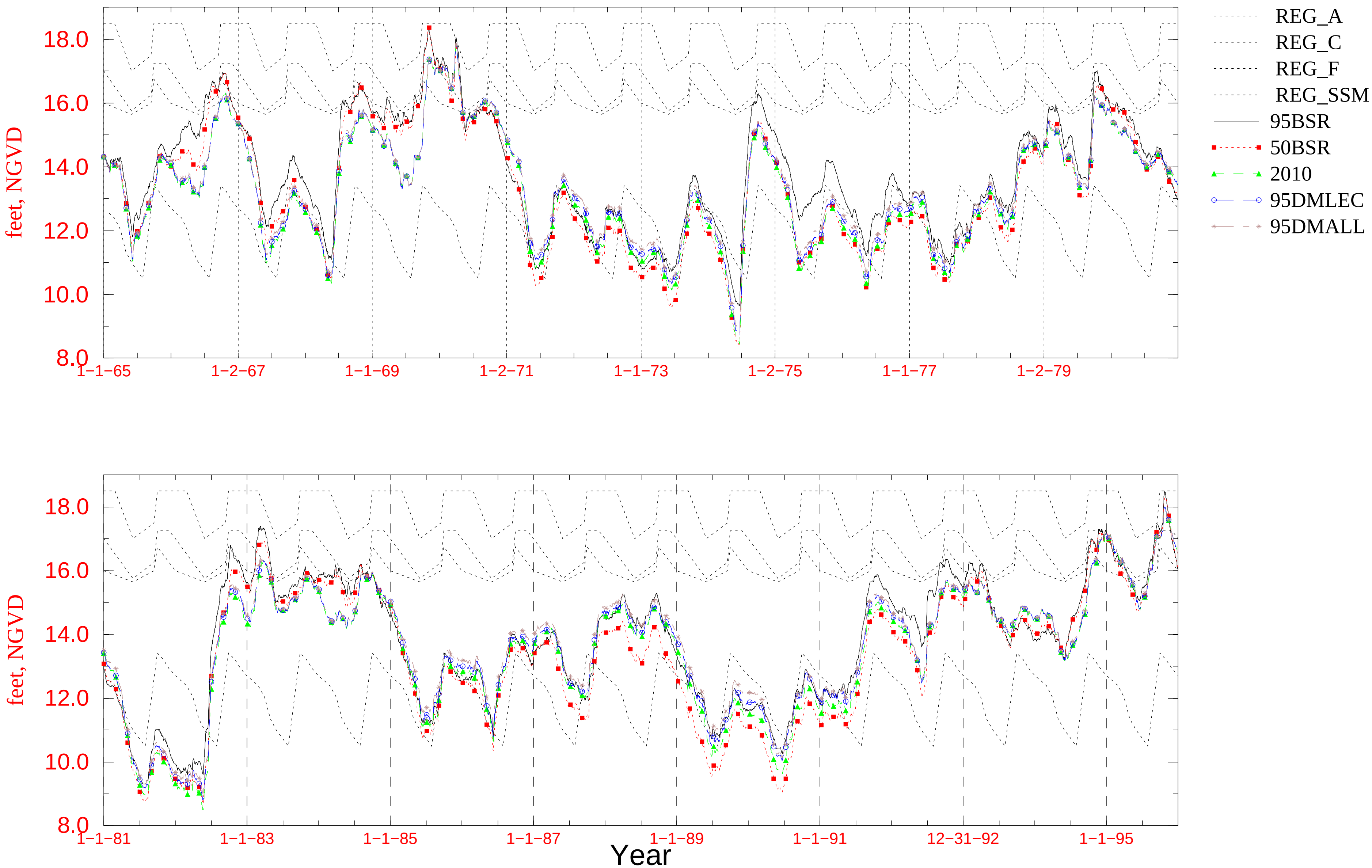
28 Jun 99 16:55:35 Monday

Average Daily Well Field Demand Differences
2010CS - 1995 Base



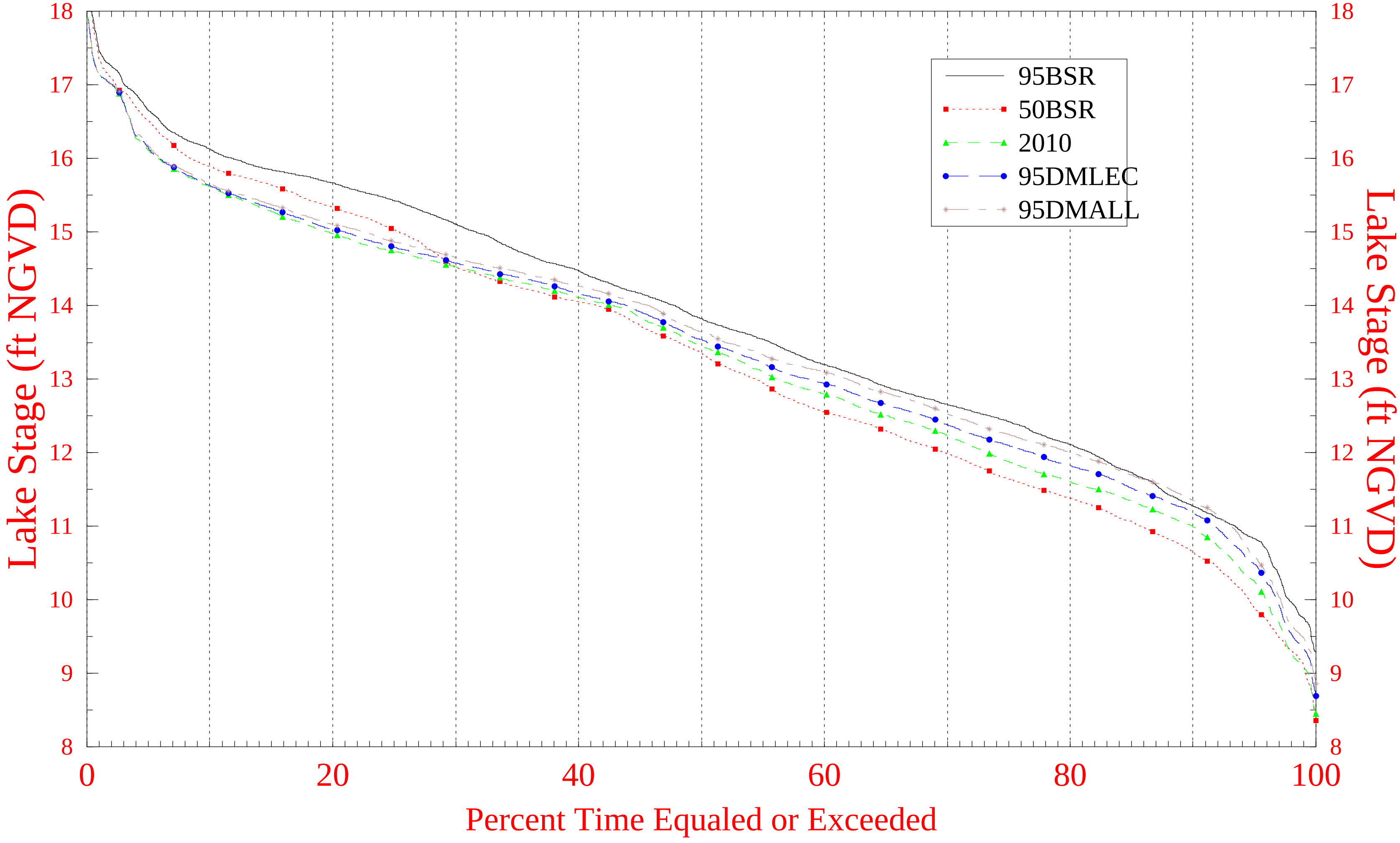
29 Jun 99 15:33:16 Tuesday

Fig.4 Daily Stage Hydrographs for Lake Okeechobee



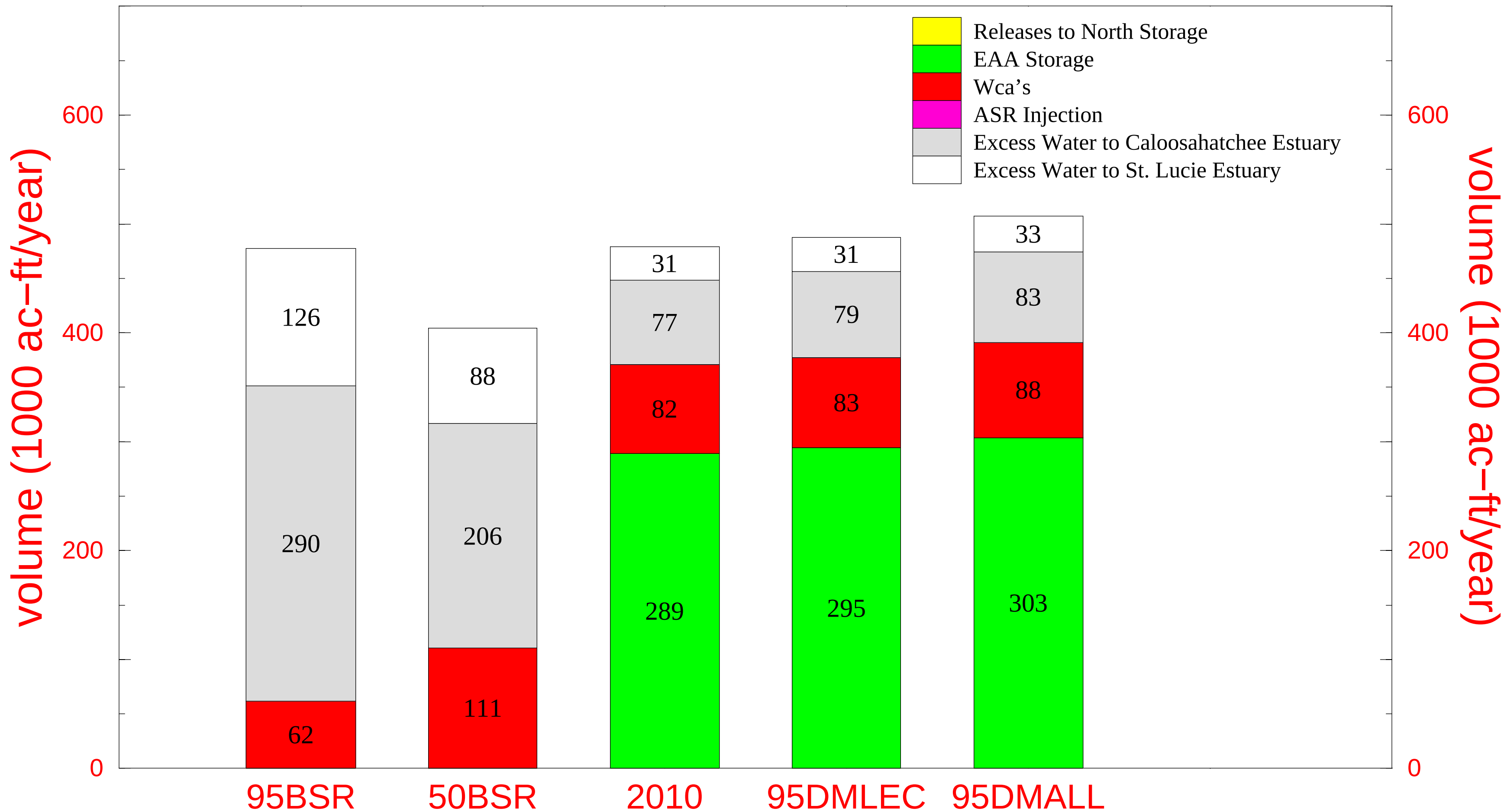
Run date: 06/26/99 02:50:49
For Planning Purposes Only
SFWMM V3.5

Fig.5 Lake Okeechobee Stage Duration Curves



Run date: 06/26/99 02:51:48
For Planning Purposes Only
SFWMM V3.5

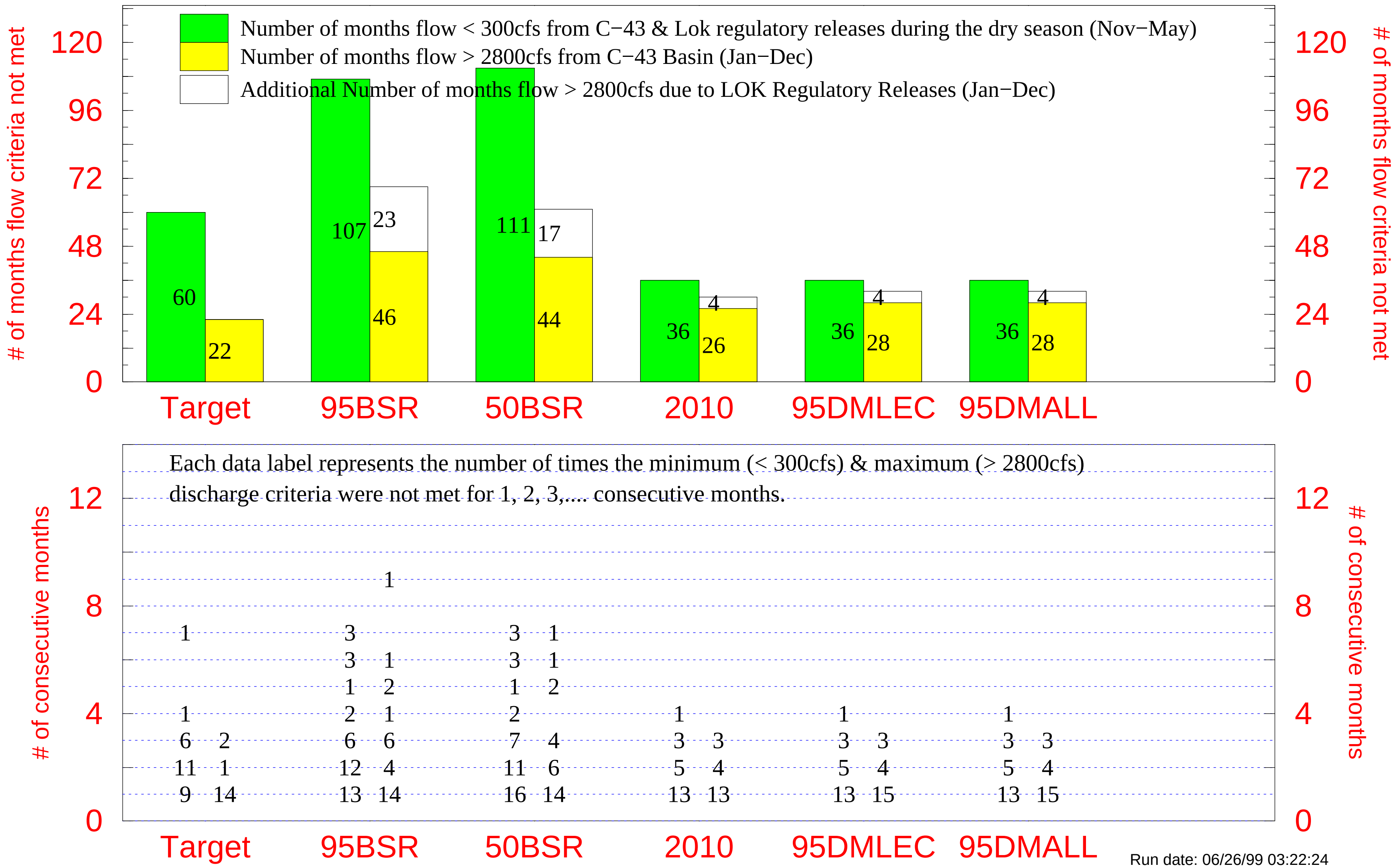
Fig.6 Mean Annual Flood Control Releases from Lake Okeechobee for the 31 yr (1965 − 1995) Simulation



Note: Although regulatory (flood control) discharges are summarized here in mean annual values, they do not occur every year. Typically they occur in 2−4 consecutive years and may not occur for up to 7 consecutive years.

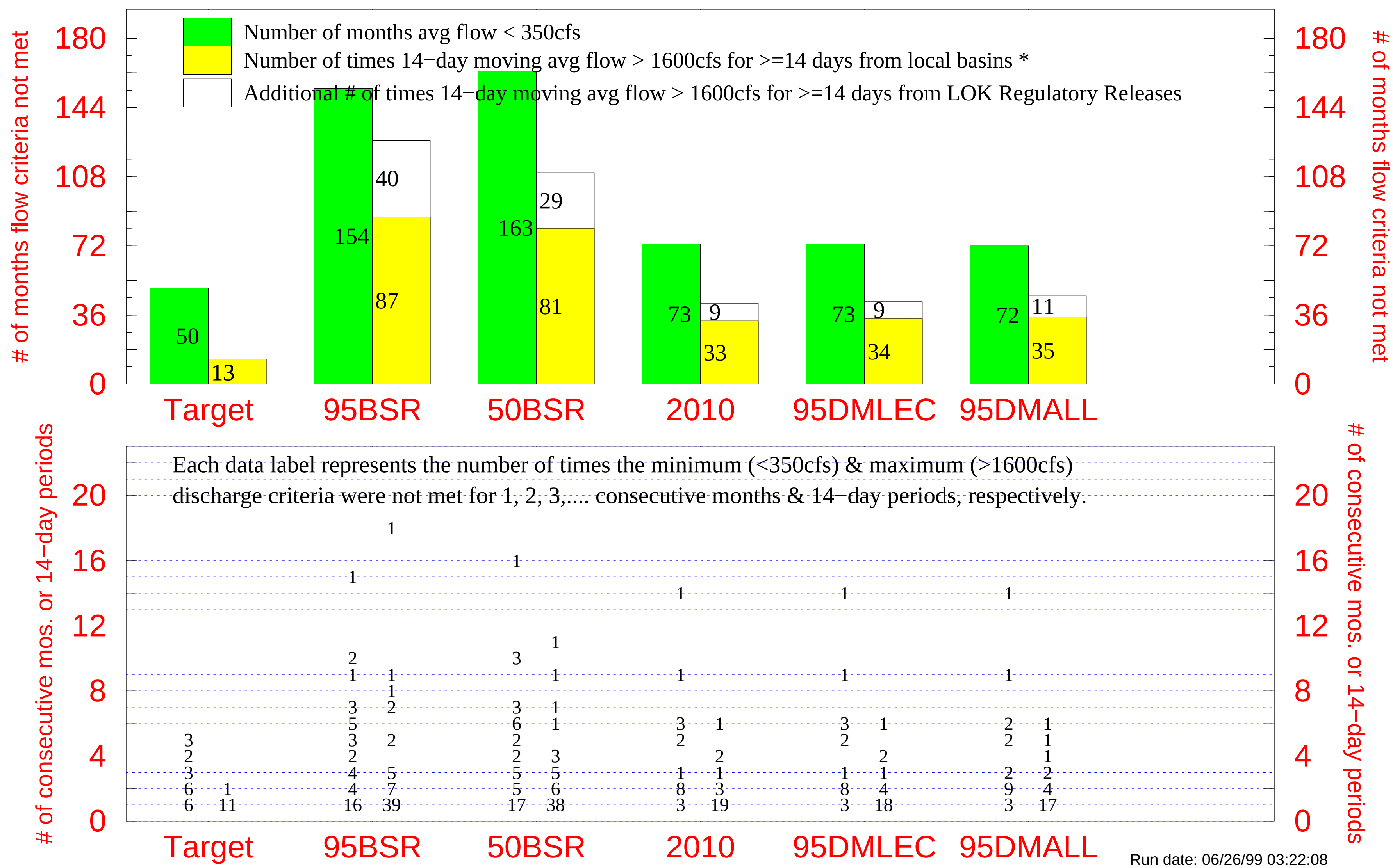
Run date: 06/26/99 02:55:48
For Planning Purposes Only
SFWMM V3.5

Fig.7 Number of times Salinity Envelope Criteria were NOT met for the Caloosahatchee Estuary (mean monthly flows 1965 − 1995)



Run date: 06/26/99 03:22:24
For Planning Purposes Only
SFWMM V3.5

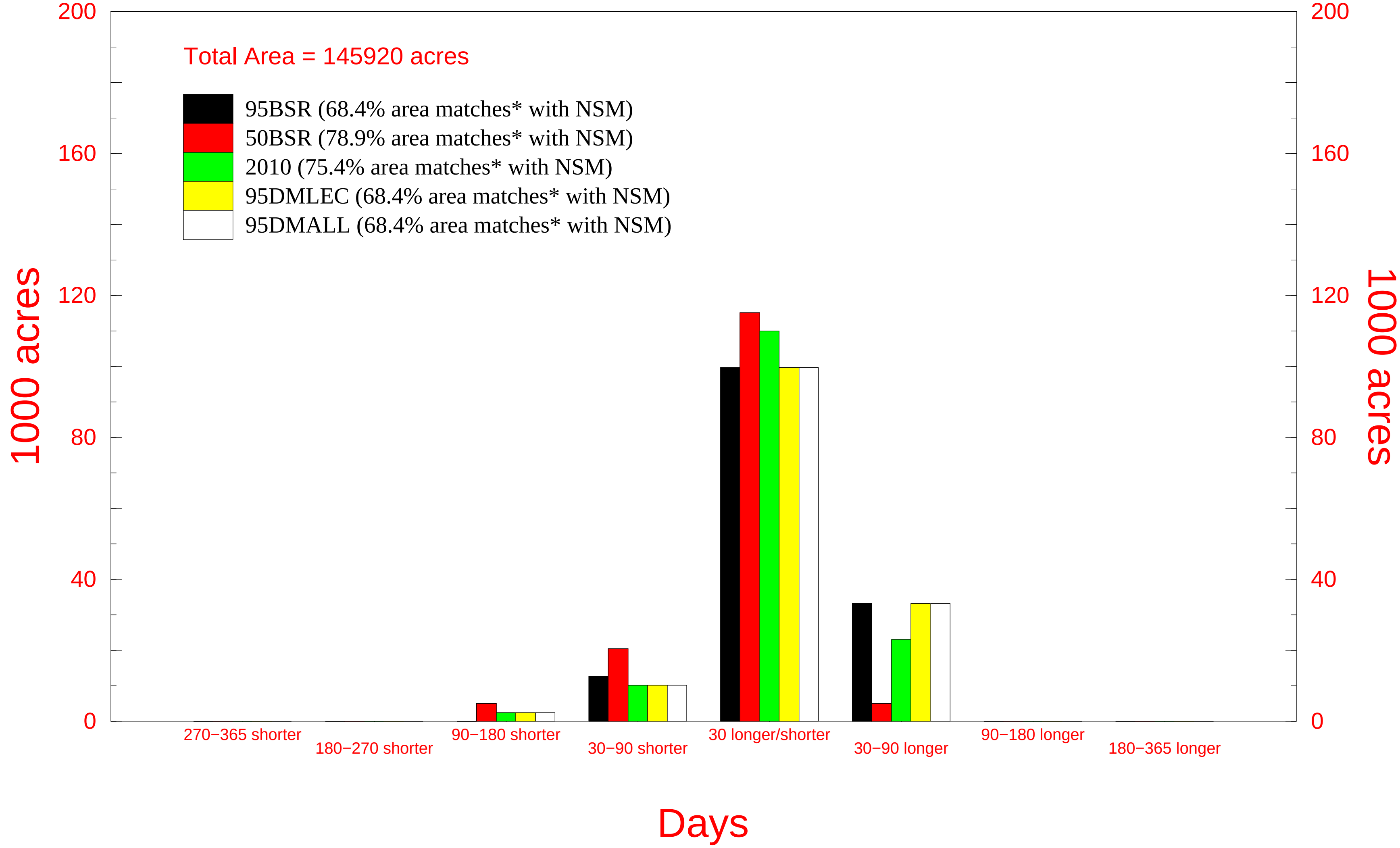
Fig.8 Number of times Salinity Envelope Criteria were NOT met for the St. Lucie Estuary



Run date: 06/26/99 03:22:08
For Planning Purposes Only
SFWMM V3.5

Note: local basins include the C−44, C−23, C−24, North Fork, and South Fork Basins

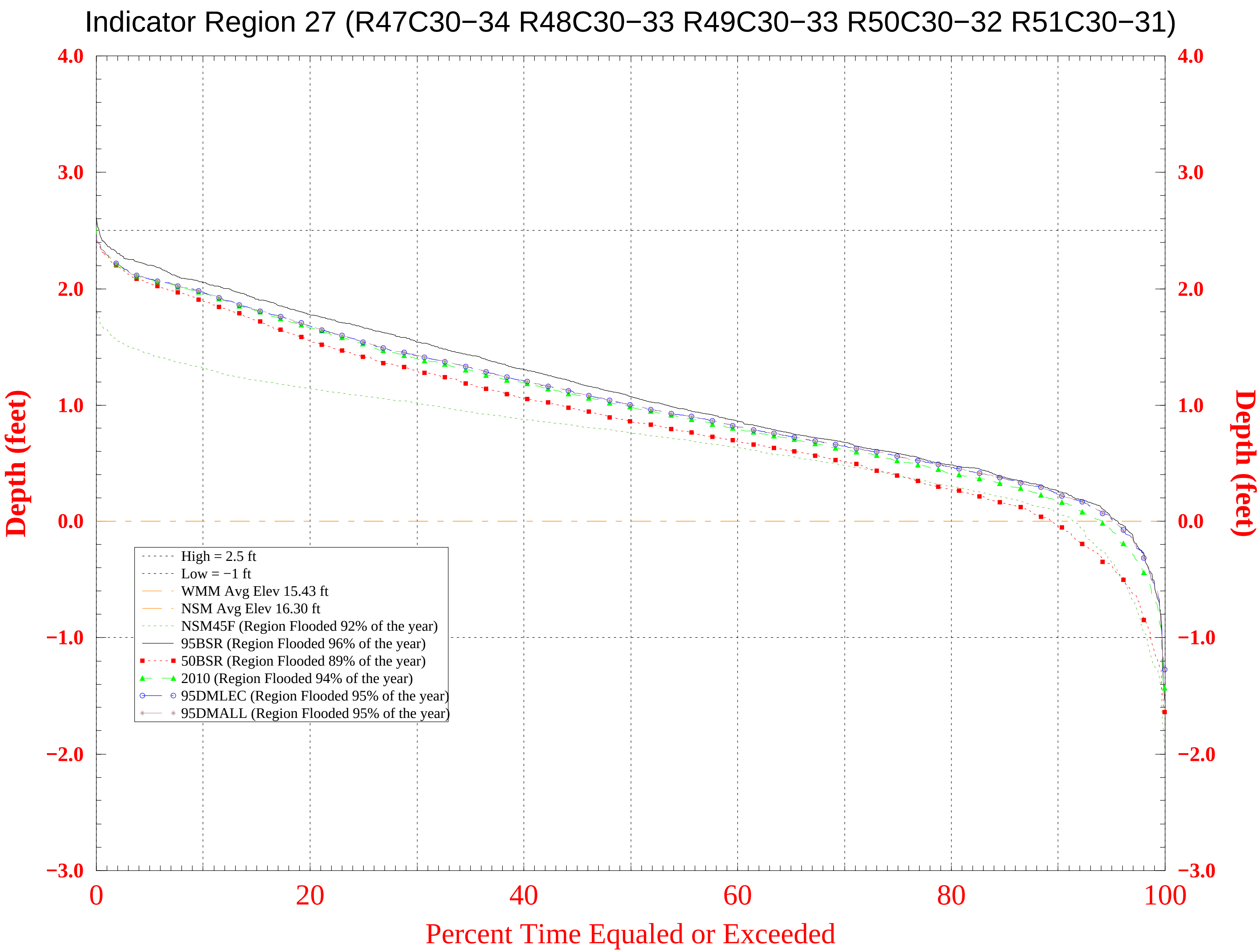
Fig.9 Mean NSM hydroperiod matches for WCA−1 for the 31 yr. simulation



Note: xaxis represents hydroperiod days shorter or longer as compared to NSM
*Match corresponds to 30 hydroperiod days shorter or longer than NSM.

Run date: 06/26/99 04:07:19
For Planning Purposes Only
SFWMM V3.5

Fig.10 Normalized Weekly Stage Duration Curves for North LNWR (WCA−1)

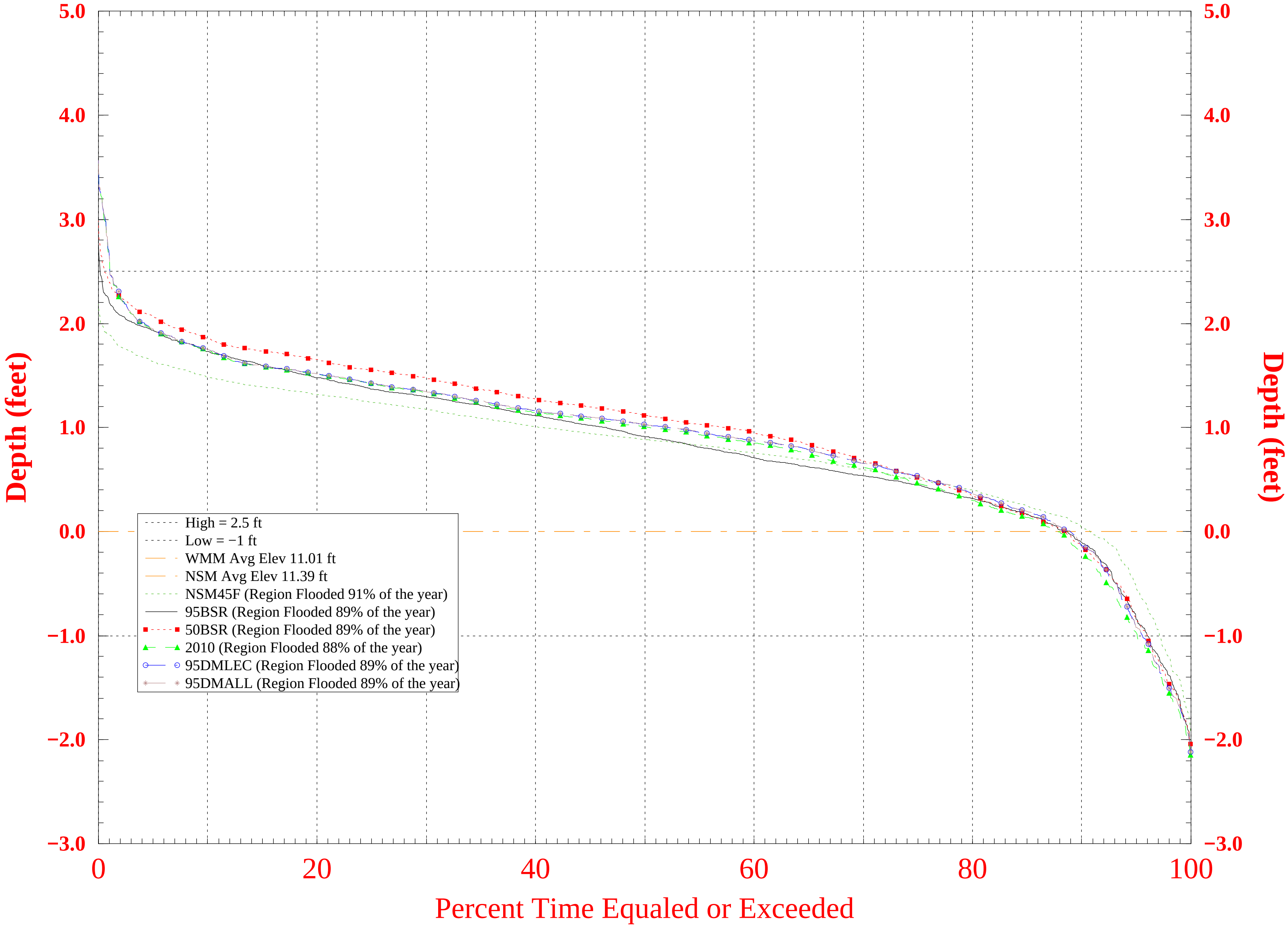


Note: Normalized stage is stage referenced to Land Elevation. Thus, values above zero indicate ponding while values below zero indicate depth to the water table.

Run date: Sat Jun 26 06:03:43 EDT 1999
For Planning Purposes Only
SFWMM V3.4

Fig.11 Normalized Weekly Stage Duration Curves for South WCA−2A

Indicator Region 24 (R39C29−31 R40C28−31 R41C28−28)

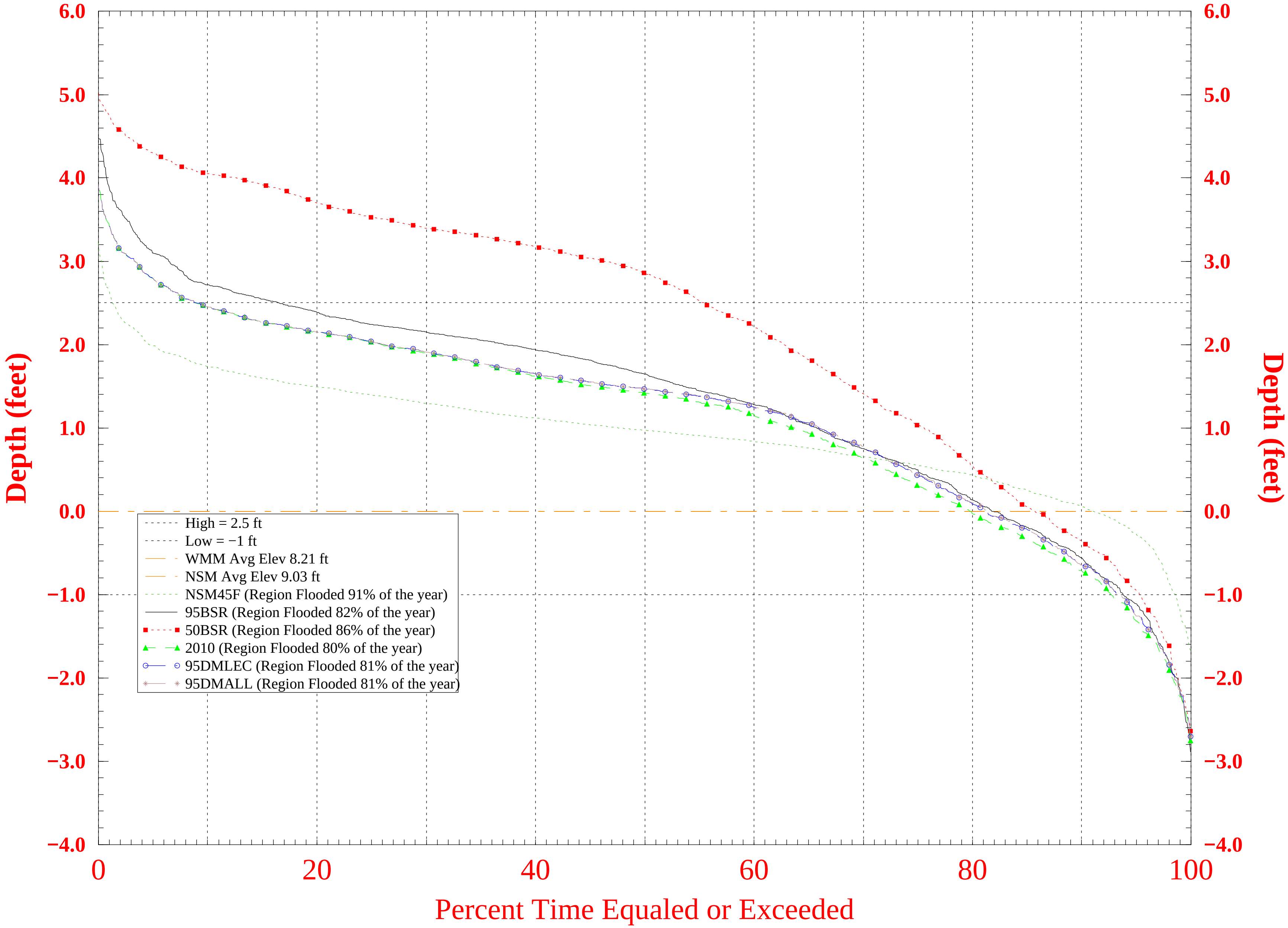


Note: Normalized stage is stage referenced to Land Elevation. Thus, values above zero indicate ponding while values below zero indicate depth to the water table.

Run date: Sat Jun 26 06:03:05 EDT 1999
For Planning Purposes Only
SFWMM V3.4

Fig.12 Normalized Weekly Stage Duration Curves for WCA−2B

Indicator Region 23 (R36C29−31 R37C30−32)

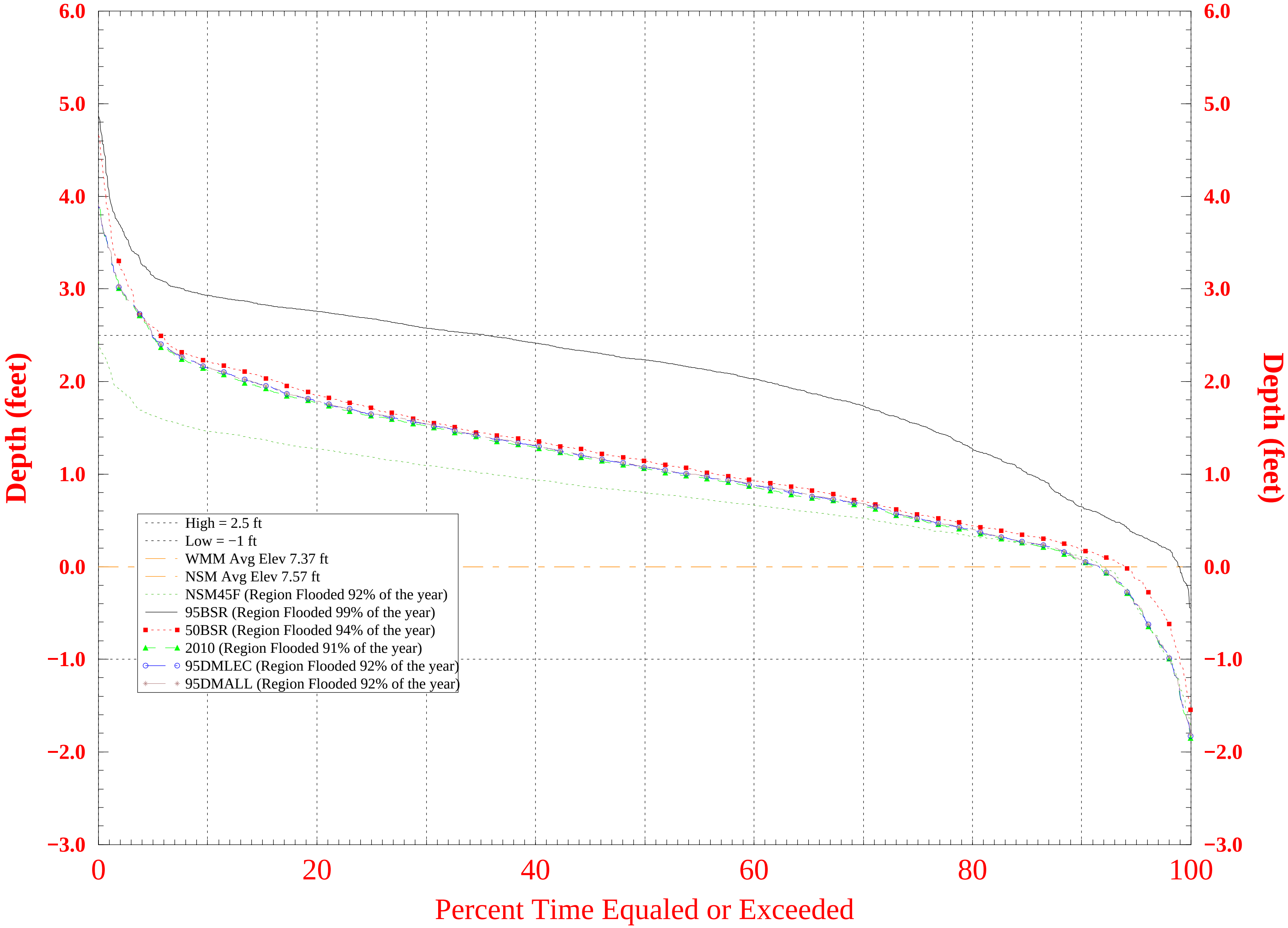


Note: Normalized stage is stage referenced to Land Elevation. Thus, values above zero indicate ponding while values below zero indicate depth to the water table.

Run date: Sat Jun 26 06:02:54 EDT 1999
For Planning Purposes Only
SFWMM V3.4

Fig.13 Normalized Weekly Stage Duration Curves for South WCA−3A

Indicator Region 14 (R23C17−20 R24C17−20 R25C17−21)

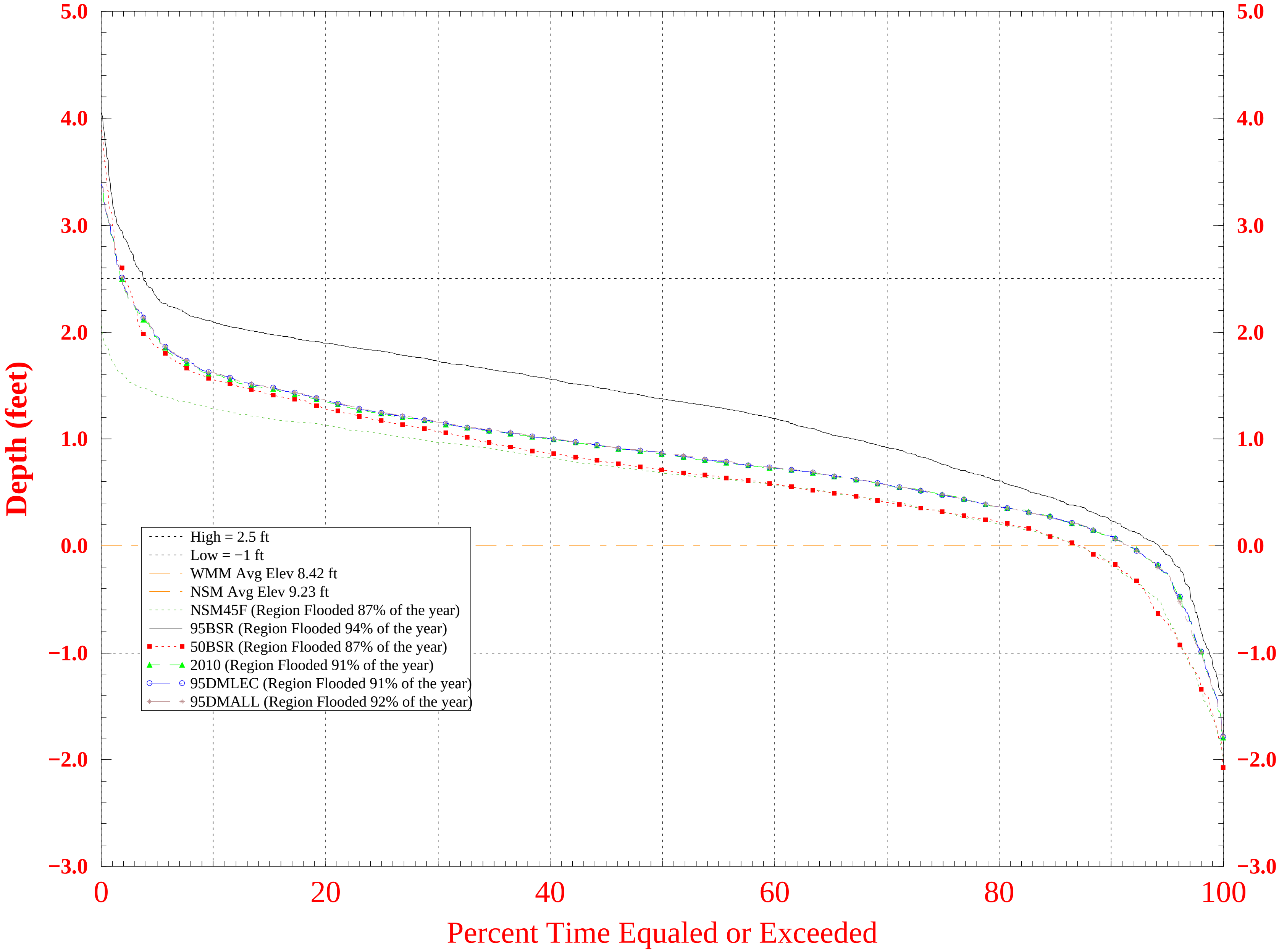


Note: Normalized stage is stage referenced to Land Elevation. Thus, values above zero indicate ponding while values below zero indicate depth to the water table.

Run date: Sat Jun 26 06:01:13 EDT 1999
For Planning Purposes Only
SFWMM V3.4

Fig.14 Normalized Weekly Stage Duration Curves for South Central WCA−3A

Indicator Region 17 (R28C17−21 R29C17−22 R30C18−22 R31C18−22)

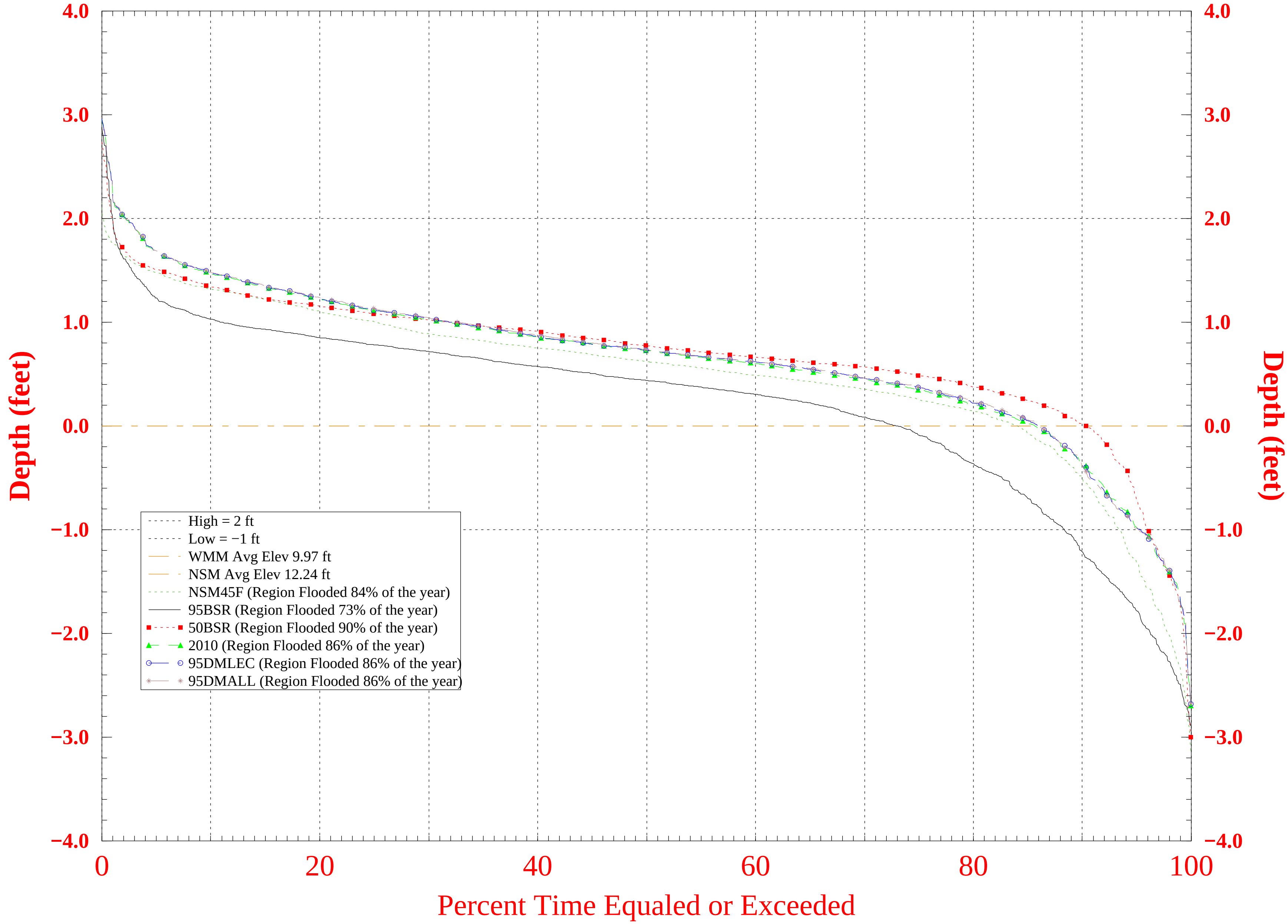


Note: Normalized stage is stage referenced to Land Elevation. Thus, values above zero indicate ponding while values below zero indicate depth to the water table.

Run date: Sat Jun 26 06:01:52 EDT 1999
For Planning Purposes Only
SFWMM V3.4

Fig.15 Normalized Weekly Stage Duration Curves for NE WCA−3A

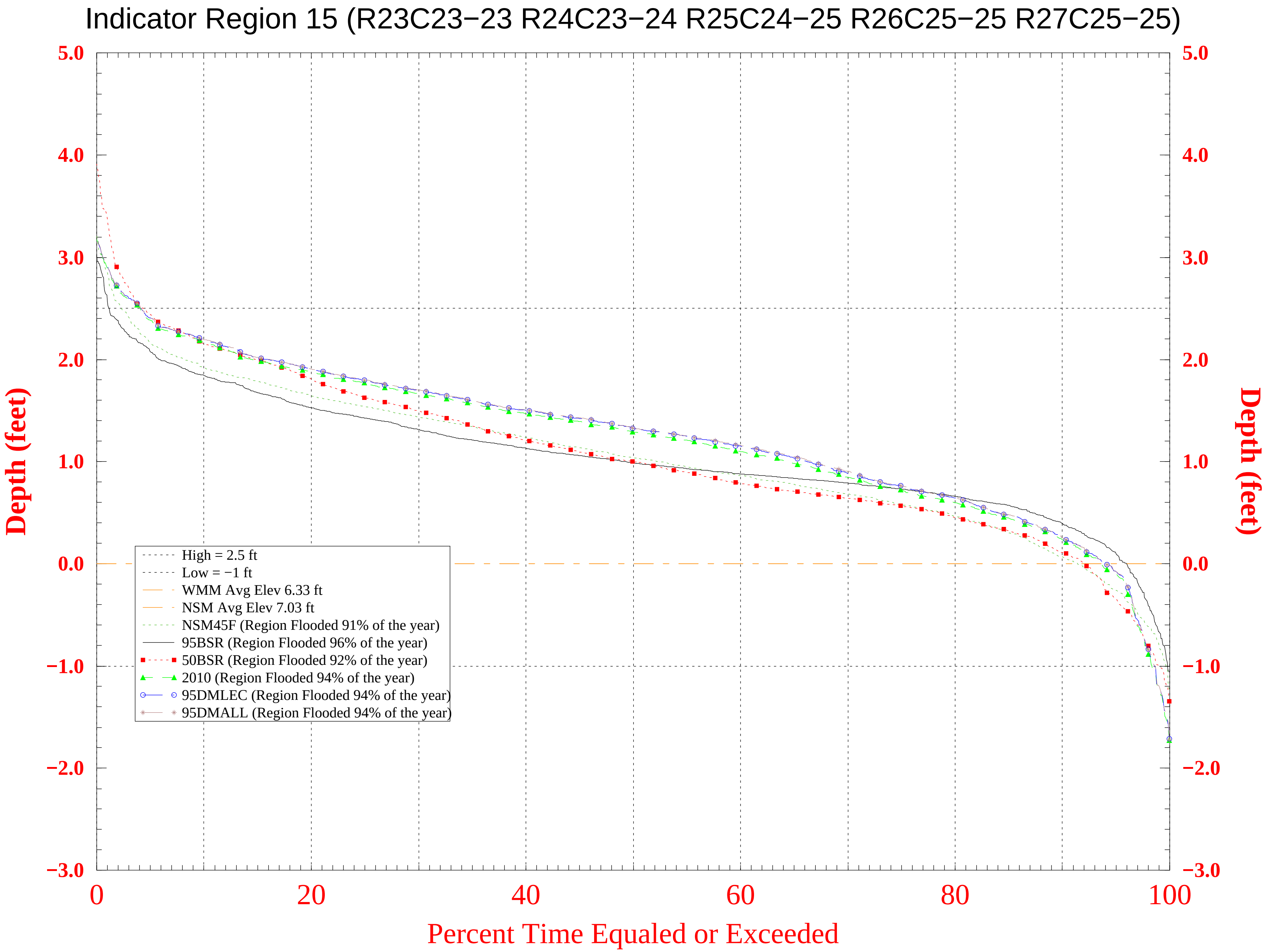
Indicator Region 21 (R38C23−24 R39C23−25 R40C22−25)



Note: Normalized stage is stage referenced to Land Elevation. Thus, values above zero indicate ponding while values below zero indicate depth to the water table.

Run date: Sat Jun 26 06:02:35 EDT 1999
For Planning Purposes Only
SFWMM V3.4

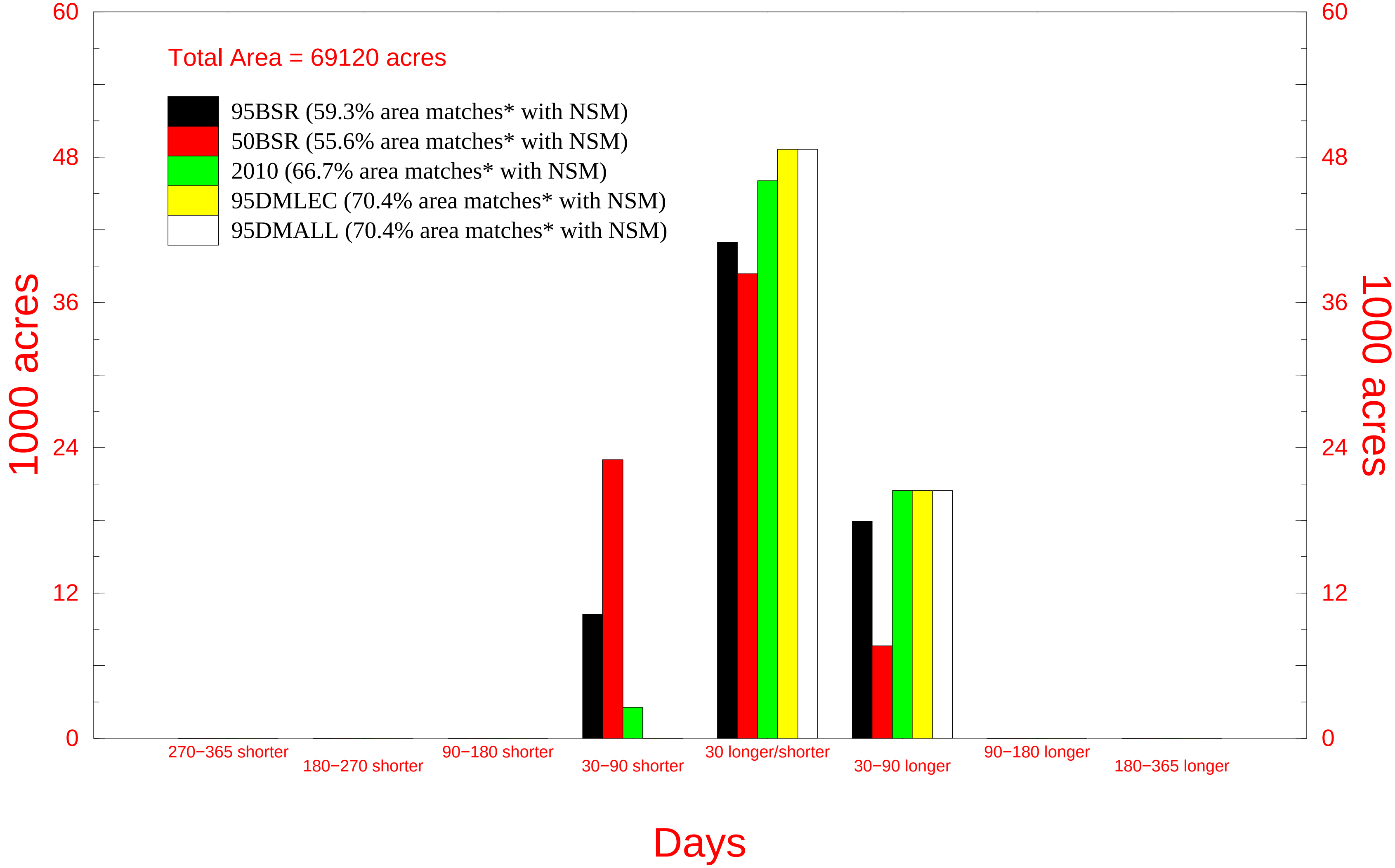
Fig.16 Normalized Weekly Stage Duration Curves for West WCA−3B



Note: Normalized stage is stage referenced to Land Elevation. Thus, values above zero indicate ponding while values below zero indicate depth to the water table.

Run date: Sat Jun 26 06:01:23 EDT 1999
For Planning Purposes Only
SFWMM V3.4

Fig.17 Mean NSM hydroperiod matches for WCA−3B for the 31 yr. simulation



Note: xaxis represents hydroperiod days shorter or longer as compared to NSM
*Match corresponds to 30 hydroperiod days shorter or longer than NSM.

Run date: 06/26/99 04:07:51
For Planning Purposes Only
SFWMM V3.5

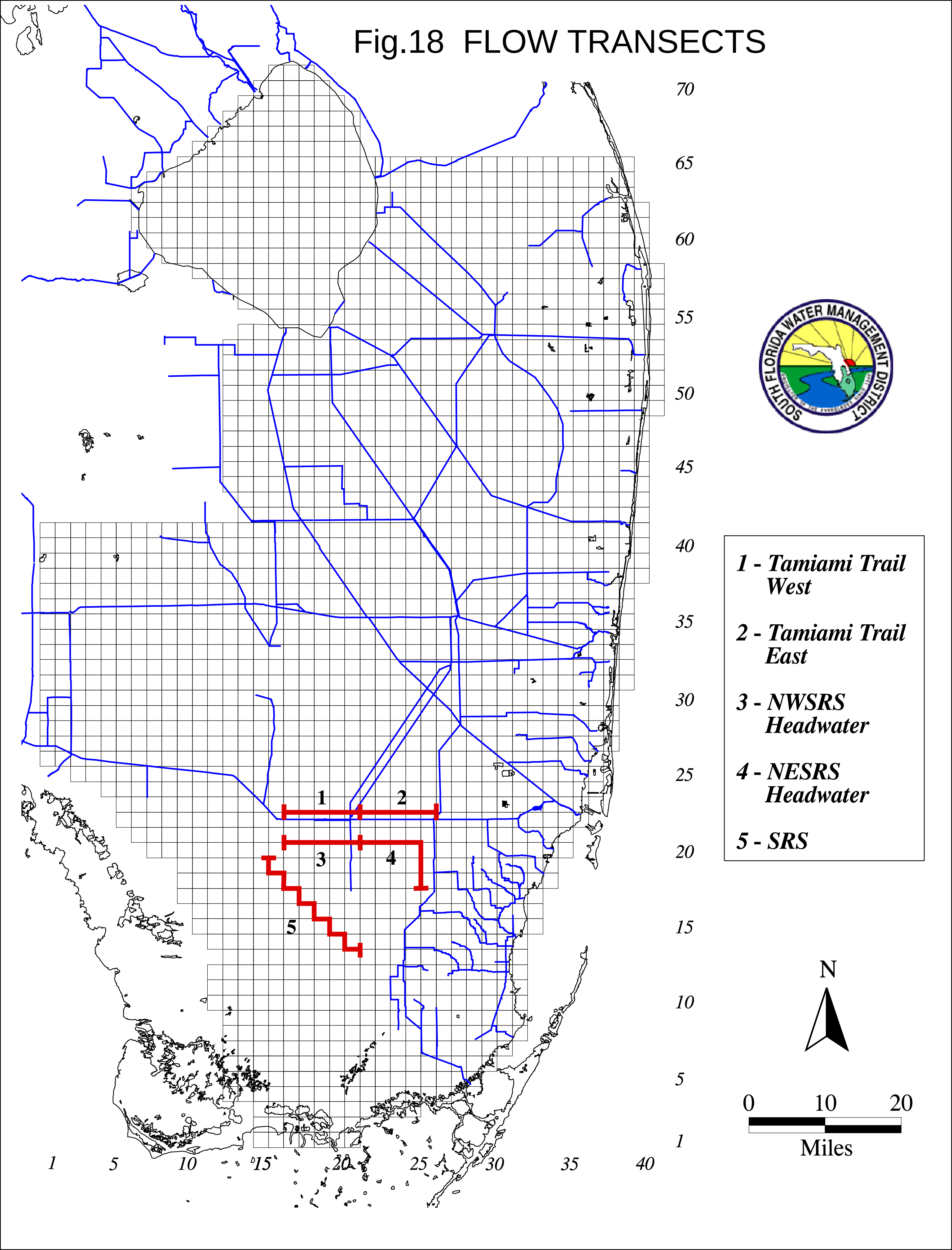
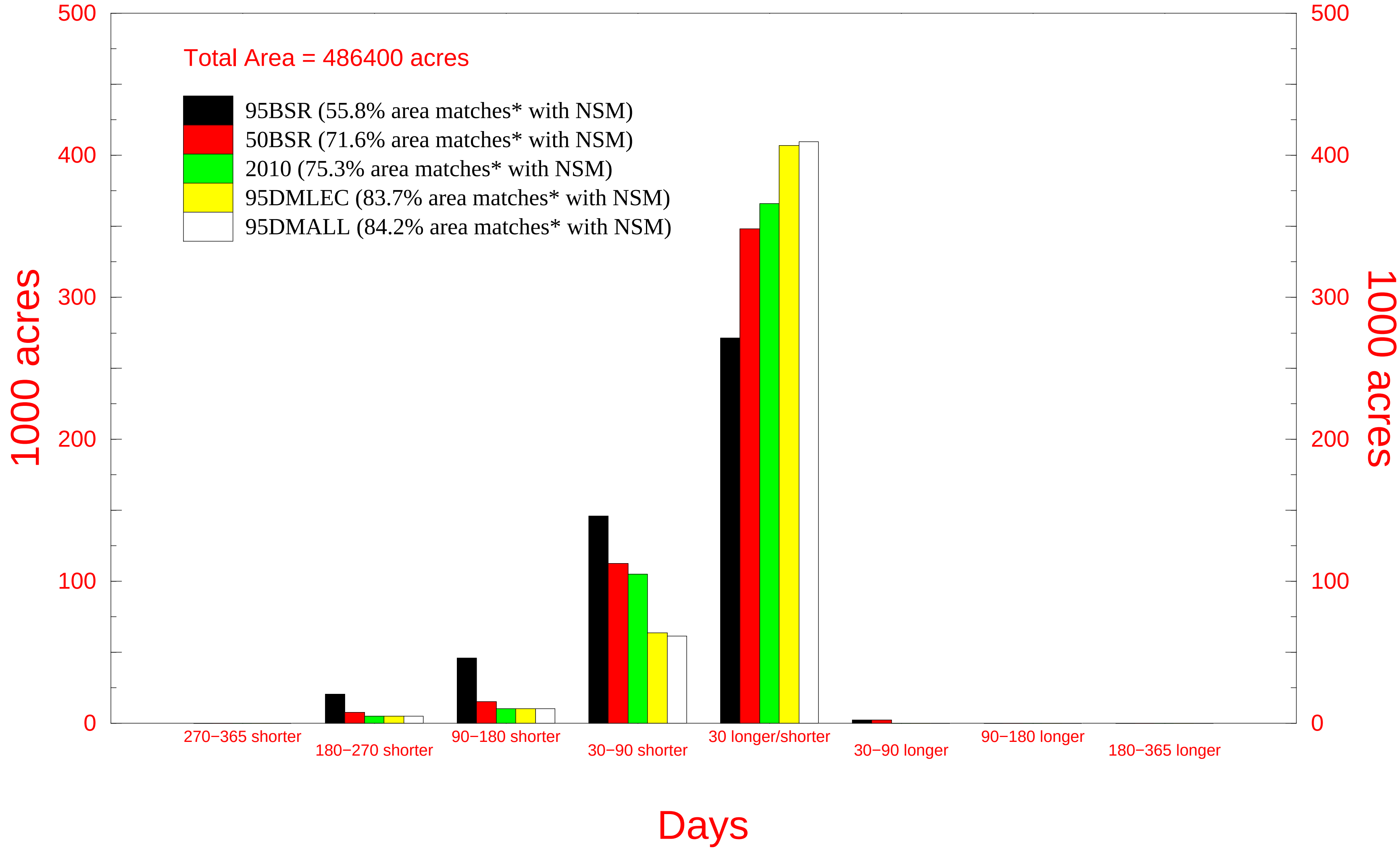


Fig.18 FLOW TRANSECTS

Fig.19 Mean NSM hydroperiod matches for the Everglades National Park for the 31 yr. simulation

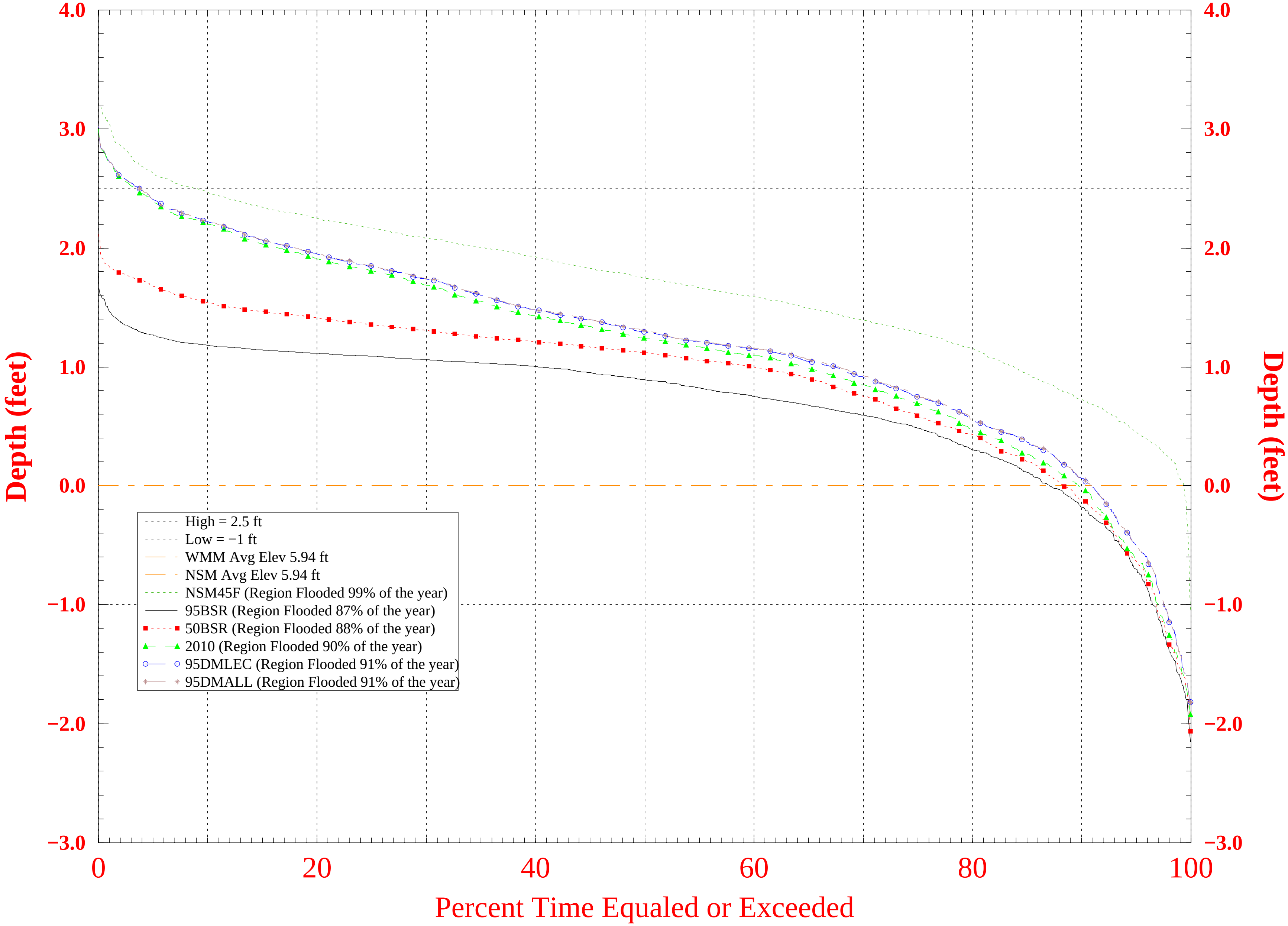


Note: xaxis represents hydroperiod days shorter or longer as compared to NSM
*Match corresponds to 30 hydroperiod days shorter or longer than NSM.

Run date: 06/26/99 04:07:57
For Planning Purposes Only
SFWMM V3.5

Fig.20 Normalized Weekly Stage Duration Curves for NE Shark River Slough

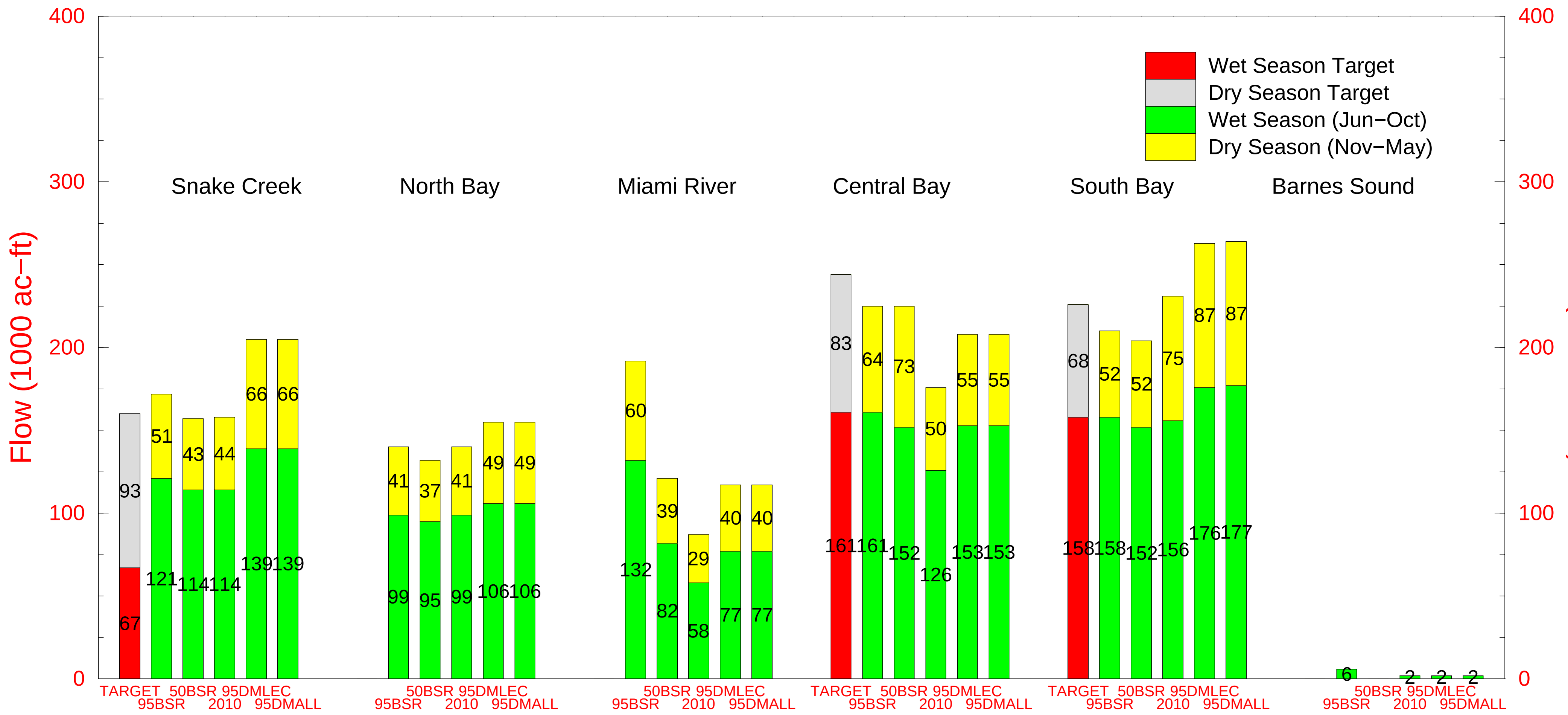
Indicator Region 11 (R19C22−23 R20C22−26 R21C22−26)



Note: Normalized stage is stage referenced to Land Elevation. Thus, values above zero indicate ponding while values below zero indicate depth to the water table.

Run date: Sat Jun 26 06:00:41 EDT 1999
For Planning Purposes Only
SFWMM V3.4

Fig.21 Simulated Mean Annual Surface Flows Discharged into Biscayne Bay for the 1965 − 1995 simulation period



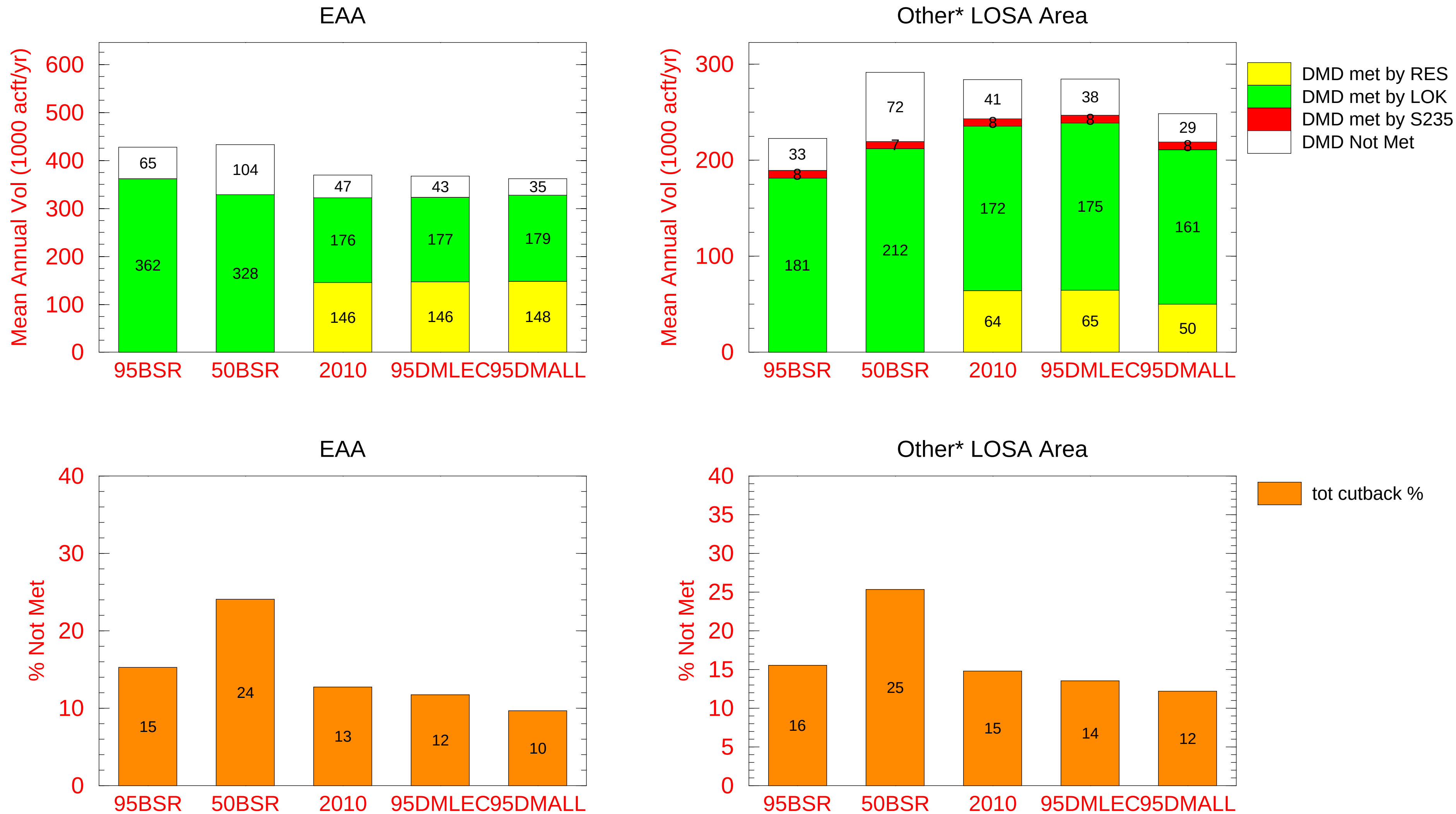
Note: Snake Creek=S29; North Bay=G58+S28+S27; Miami River=S26+S25B+S25; Central=G97+S22+S123; South=S21+S21A+S20F+S20G; Barnes Sound=S197

Targets for Central and South Bay reflect a 30% increase in mean annual dry season flows over the 95 Base
Targets for Snake Creek reflect a minimum monthly flow volume of 13,300 ac−ft (x 5 months for wet season and x 7 months for dry season) to maintain salinity levels below 20 ppt.

Run date: 06/26/99 03:25:13
For Planning Purposes Only
SFWMM V3.5

Fig.22 Mean Annual EAA/LOSA Supplemental Irrigation: Demands and Demands Not Met

for the 1965 − 1995 Simulation Period



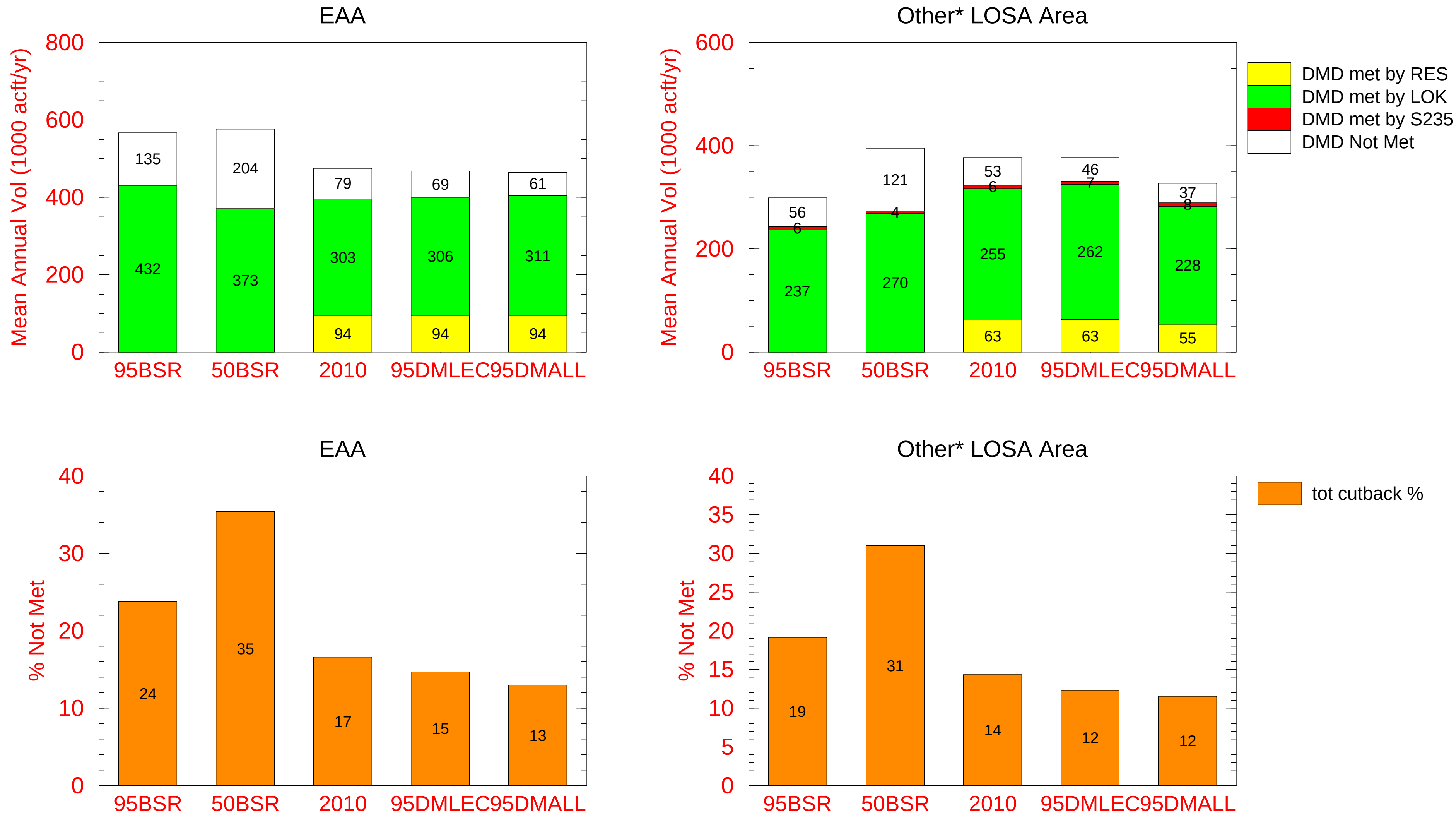
*Other Lake Service SubAreas (S236, S4, L8, C43, C44, and Seminole Indians (Brighton & Big Cypress)).

Run date: 06/26/99 02:59:25
For Planning Purposes Only
SFWMM V3.5

Fig.23 Mean Annual EAA/LOSA Supplemental Irrigation:

Demands and Demands Not Met for the Drought Years:

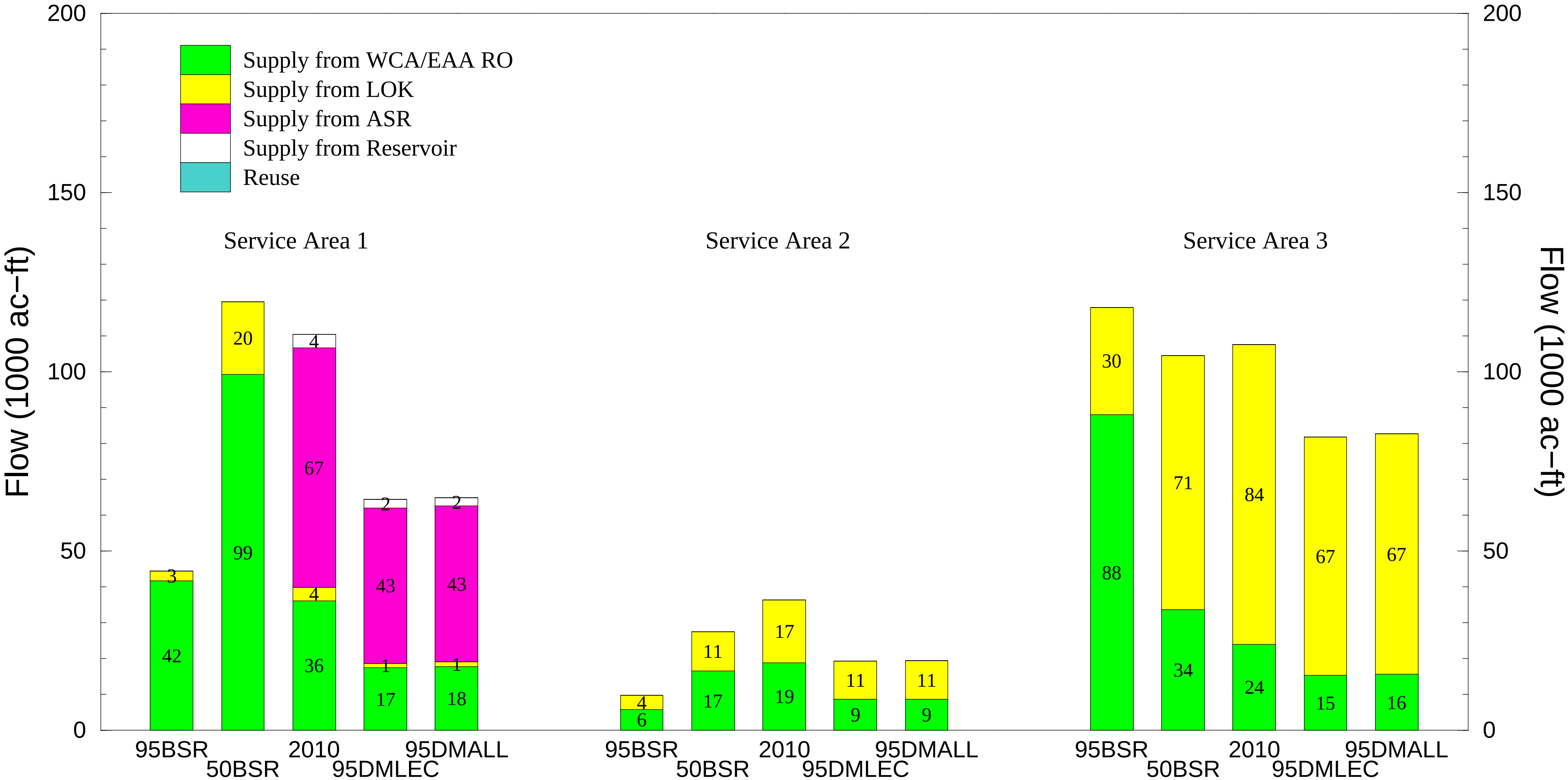
1971, 1975, 1981, 1985, 1989 within the 1965 − 1995 Simulation Period



*Other Lake Service SubAreas (S236, S4, L8, C43, C44, and Seminole Indians (Brighton & Big Cypress)).

Run date: 06/26/99 03:03:25
For Planning Purposes Only
SFWMM V3.5

Fig.24 Average Annual Regional System Water Supply Deliveries to LEC Service Areas for the 1965 − 1995 simulation

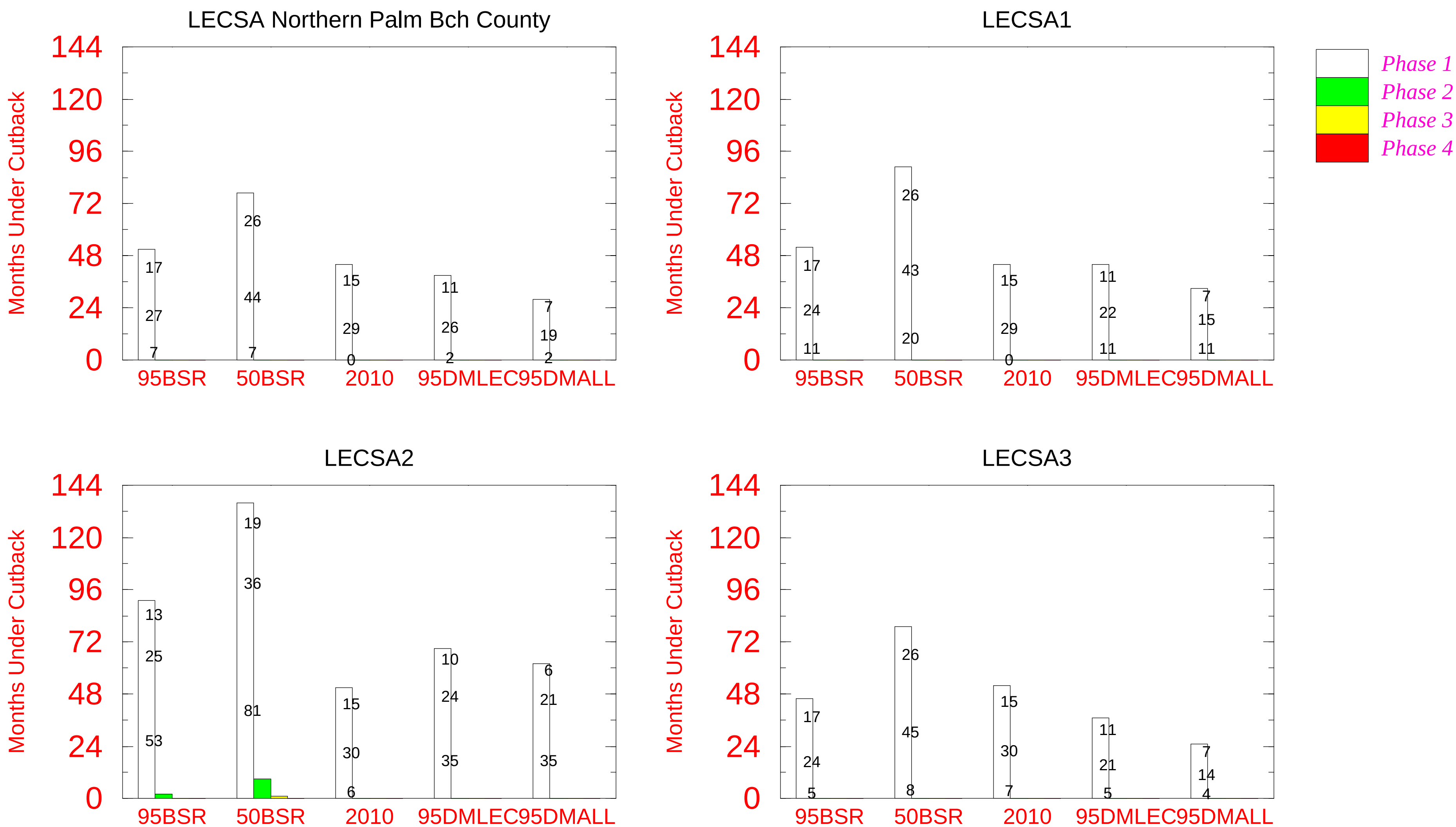


Note: Structure flows included: SA1=S39+LWDD+ADDSLW+ACMEWS+WSL8S+HLFASR+C51FAS+WSC1+S1ATHL+CPBRWS+BPRL8S
SA2=S38+S34+NNRFAS; SA3=S31+S334+S337+BRDRWS+LBTC6+LBTDBL+LBTL30+LBTSC+LBTC9+LBTC2+C9RWS
Supply RECEIVED from LOK may be less than what is DELIVERED at LOK due to conveyance constraints.
Regional System is comprised of LOK and WCAs.

Run date: 06/26/99 03:11:24
For Planning Purposes Only
SFWMM V3.5

Fig.25 Number of Months of Simulated Water Supply Cutbacks

for the 1965 − 1995 Simulation Period



Note: Phase 1 water restrictions could be induced by a) Lake stage in Supply Side Management Zone (indicated by upper data label), b) Local Trigger well stages (lower data label), and c) Dry season criteria (indicated by middle data label).

Run date: 06/26/99 03:15:13
For Planning Purposes Only
SFWMM V3.5