



**AGENDA**

**WATER RESOURCES ADVISORY COMMISSION**

Thursday, February 8, 2007, 9:00 AM  
 District Headquarters - B-1 Auditorium  
 3301 Gun Club Road  
 West Palm Beach, FL 33406

1. **Welcome and Introductions** - Michael Collins, Chair 5m
2. Update on Regional Water Availability Rulemaking - Chip Merriam, Deputy Executive Director, Water Resources, SFWMD 15p 15d
3. Overview of Floridan Aquifer in South Florida - Chip Merriam, SFWMD 20P/30D
4. \* Public Comment 20m
5. **ACTION ITEM:** Lower East Coast Water Supply Plan Update - John Mulliken, Dir., Water Supply Planning Div., SFWMD 20p 20d
6. \* Public Comment 20m
7. WRAC Recreation Issues Workshop Report, January 22 Meeting: David Lithgow, Recreation Issues Chair 15p 15d  
 See supporting document: [WRAC Rec Iss WS 1 22 07 Sum \\_2\\_.pdf](#)
8. Lunch - 12:15 - 1:00 p.m. 45m
9. Lake Okeechobee Committee Report and Proposed Committee Recommendations Status - Bubba Wade, Chair, WRAC Lake Okeechobee Committee 15p 15d  
 See supporting document: [Lk O Com Rpt 1 24 07.pdf](#)  
 See supporting document: [LK O Com Rnk sum 1 24 07.pdf](#)  
 See supporting document: [LO Recom Prior Rank Sum 1 31 07.pdf](#)
10. Lake Okeechobee Protection Plan Evaluation Report - Response to Comments - Susan Gray, Ph.D., Deputy Director, Watershed Mgt. Dept., SFWMD 10p 20d
11. Lake Okeechobee Regulation Schedule Revisions - Update: Peter Milam, Sr. Project Manager, USACE, Jacksonville, District 30p 30d  
 See supporting document: [lorss milam presen wrac 2 8 07.pdf](#)

**12.** \* Public Comment

15m

**13.** Adjourn: 3:15 p.m



1. **Welcome and Introductions** - Michael Collins, Chair

5m



2. Update on Regional Water Availability Rulemaking - Chip Merriam, Deputy Executive Director, Water Resources, SFWMD 15p 15d



**3. Overview of Floridan Aquifer in South Florida - Chip Merriam, SFWMD**

20P/30D



4. \* Public Comment

20m



5. **ACTION ITEM:** Lower East Coast Water Supply Plan Update - John Mulliken, Dir., Water Supply Planning Div., SFWMD

20p 20d



**6. \* Public Comment**

20m



7. WRAC Recreation Issues Workshop Report, January 22 Meeting: David Lithgow, Recreation Issues Chair 15p 15d

See supporting document: [WRAC Rec Iss WS 1 22 07 Sum \\_2\\_.pdf](#)

**WRAC RECREATION ISSUES WORKSHOP SUMMARY  
FOR WRAC MEETING, FEBRUARY 8, 2007  
DAVID LITHGOW, CHAIR**

- **Chair: This group should meet throughout the District a few times/year**
- **Workshop participants and staff agreed this would help reach others not now participating.**
- **Workshop participants pleased to see SFWMD Governing Board/Collier County agreement on ORV use. It is excellent progress on a difficult issue.**
- **Group also pleased to learn that according to FWCC the Lake Trafford fishery is in good shape. The FWCC plans to stock large-mouth bass and threadfin shad in Lake Trafford, and will revegetate the littoral zone.**
- **Group pleased to learn about the Div. of Land Stewardship's Recreation Management and Partnership Plan that is working its way through senior management. The Division is doing good job administering the vacant lands policy. Working through some issues.**
- **Stakeholders need to work with the FWCC on establishing a Wildlife Management Area at Allapattah Ranch and on the waterfowl and other appropriate hunting regulations for that area.**
- **SFWMD has agreed that there should be a boat ramp at Taylor Creek Reservoir.**
- **Group pleased to see District using new rules to open vacant lands to recreational use, including fishing, on an interim basis.**
- **WCA-3B at S-12D: boat ramp access and possible reopening of old air boat ramp. Need to ask contractors to help remove boulders and other debris preventing access to boat ramp and to remove boulders from the roads and from the water at the boat ramp.**
- **Lower Kissimmee Chain of Lakes Issues Assessment Report by Florida Conflict Resolution Consortium: Stakeholders and SFWMD identified many issues that will be addressed. First stakeholder meeting will be 2/22/07 at River Ranch.**

**WRAC Recreation Issues Workshop  
Summary, Continued; 2/8/07:**

- **Some participants requested hunting approval on STA-1E. STA-1E is wholly within the City of Wellington and coordination with Wellington would be required.**
- **Three Stormwater Treatment Area (STA) public access sites will be ready in Fiscal Year 2008. American Bald Eagle nest in STA-2 is an important issue for the duck hunt next season. Will need FWCC and U.S. FWS approvals. Hope to have alligator hunts on STAs 5 and 1W next year.**
- **Acceler8 Projects: This is an important time for recreational interests to provide advice on the design of Acceler8 projects re: recreation. SFWMD staff looking for local partners to help with operation and maintenance of recreation facilities.**
- **Fishing on SFWMD areas:**
  - **Has become a hot issue because fishermen are not seeing plans for creating new fishing areas for loss of access (L-67s and L-67 Extension)**
  - **EAA Reservoir will be 5<sup>th</sup> largest body of water in FL when both phases are completed. Will be very bad if those areas cannot be used for fishing and other recreation.**
  - **SFWMD needs to quickly evaluate possibility of boardwalk/pier fishing in deepwater parts of STAs**
  - **Need a quarterly update on fishing at this meeting and need EPA and DEP staff knowledgeable about the water quality issues to be present and explain what needs to be done to move forward**
  - **Precedent has already been set: Stick Marsh and Anton/Garcia. EPA and DEP need to be made aware of this**
  - **Need to know why only 4 miles of L-67 Extension was removed.**
  - **Need to know results of modeling that was to have been done on options for continued access to L-67s.**
  - **Need littoral zone/fish habitat enhancements built into design of SFWMD/USACE CERP and other projects.**
  - **Need full access to exterior, rim canals.**
  - **Need more than one boat ramp on EAA Reservoir**
  - **Need alternatives for possible loss of access at L-67s as part of Decomp project**
  - **Need better aquatic plant management**

- **Staff will provide an e-mail update on fishing to WRAC Recreation group and others interested, well-before the April 2007 meeting, and will ensure a quarterly fishing update is provided on the agenda.**



8. Lunch - 12:15 - 1:00 p.m.

45m



9. Lake Okeechobee Committee Report and Proposed Committee Recommendations Status - Bubba Wade, Chair, WRAC Lake Okeechobee Committee 15p 15d

See supporting document: [Lk O Com Rpt 1 24 07.pdf](#)

See supporting document: [LK O Com Rnk sum 1 24 07.pdf](#)

See supporting document: [LO Recom Prior Rank Sum 1 31 07.pdf](#)

**SOUTH FLORIDA WATER MANAGEMENT DISTRICT (SFWMD)  
WATER RESOURCES ADVISORY COMMISSION (WRAC)  
LAKE OKEECHOBEE COMMITTEE MEETING  
Wednesday, January 24, 2007  
Lower West Coast Service Center, SFWMD, 2301 McGregor Boulevard  
Ft. Myers, FL  
9:00 a.m. – 3:00 p.m.**

**MEETING REPORT**

**INTRODUCTION:**

- Committee Chair Malcolm “Bubba” Wade called the meeting to order. Committee Member Roland Ottolini welcomed the committee to Ft. Myers.
- **Agenda Items:**
  - Lake Okeechobee Water Conditions Update
  - Lake Okeechobee Status Update
  - Lake Okeechobee Regulation Schedule Update
  - Herbert Hoover Dike Rehabilitation Update
  - Committee Discussion – Review Draft Recommendations Paper
- Presentations to the committee on 1/24/07 have been posted to <http://my.sfwmd.gov/wrac>, Lake Okeechobee Committee tab.

**ISSUES/DISCUSSION BY COMMITTEE:**

- **Member Issues:**
  - The Caloosahatchee/St. Lucie Rivers Corridors Council recommended to the Florida Department of Environmental Protection, amendments to the Lake Okeechobee Protection Act. The proposed amendments would add a new section to protect the Caloosahatchee and St. Lucie estuaries and establish a dedicated source of funding for estuary recovery.
  - Several members requested that the WRAC Lake Okeechobee Committee support this legislation.
  - Copies of the preliminary bill were provided to committee members.
- **Lake Okeechobee Water Conditions Update – Cal Neidrauer:**
  - Despite earlier forecasts about an El Niño driven “wetter than normal” dry season, the dry season so far (November to January) is below normal. In addition, the 2006 calendar year was the sixth driest year on record.
  - Committee members asked questions about:
    - lake regulation schedule water shortage triggers;
    - triggers for operation of the forward pumps;

- whether permits have been obtained for remediation work and controlled burning;
  - status of El Niño;
  - whether water would be available to the pumps due to shoaling;
  - impacts of releasing minimum flows to the Caloosahatchee estuary
  - several questions and discussion related to the later presentation by Peter Milam, U.S. Army Corps of Engineers, on the Lake Okeechobee Regulation Schedule Revisions)
- **Lake Okeechobee Status – Susan Gray:**
    - Members discussed recent findings that the lake continues to struggle toward recovery and submerged aquatic vegetation is not recovering quickly but bull rush is doing better. Total suspended solids and total phosphorous remain high.
    - Discussion by members and a comment from the public centered on obtaining permits for controlled burning, doing something about discharges from the lake to the L-8 and Lake Worth Lagoon, and the need to have the SFWMD Water Shortage Management Plan rules match the operating scheme in the Lake Okeechobee Regulation Schedule Environmental Impact Statement.
    - **Action Item:** Staff was asked to provide a graph of submerged aquatic vegetation abundance since May 2004 to the present.
- **Lake Okeechobee Regulation Schedule Update – Peter Milam, USACE:**
    - Comments by members included: Current operations pertaining to environmental water deliveries are not reflected in the modeling and there is too much leeway in the Operational Guidelines. Not certain what happens with the schedule when the lake level drops into the water shortage management zone.
    - SFWMD will fill in the gaps between the Base Flow Line and Water Shortage Line.
    - The water supply management plan rule needs to match the revised Lake Okeechobee Regulation Schedule and the SFWMD will go into rule making probably in May, 2007.
    - The modeling included in the draft schedule revisions is important to the Endangered Species Consultation being conducted by the U.S. Fish and Wildlife Service.
    - Questions were asked about cost/benefit of additional water storage. Comments: in wet years, need many, smaller storage sites.
    - Impacts of additional storage in the Holeyland and Rotenberger areas need to be included.

- Need to go forward with the Environmental Impact Statement but make sure the impacts of the Tentatively Selected Plan are assessed and adequately modeled.
  - USACE staff stated the EIS for the revised lake regulation schedule will assess impacts of the lake regulation schedule on environmental and economic resources.
  - Lee County urged the USACE to inform stakeholders of any changes in performance measures because the Project Delivery Team work on Caloosahatchee restoration is saying that it will take a great deal of effort just to bring the estuary back to status quo. Encouraged the SFWMD to look for additional lands for water storage to reduce peak flows during very wet years.
  - **Action Item:** SFWMD staff will provide information about basin rainfall, lake discharges and local basin runoff, including Lake Worth Lagoon area.
  - **Action Item:** The SFWMD, US Fish and Wildlife Service and USACE staff should sort through questions about what should be included in the Lake Regulation Schedule EIS before the 2/8/07 WRAC meeting.
- **Herbert Hoover Dike Rehabilitation Update – Peter Milam, USACE:**
    - Questions were asked about which agency is responsible for land acquisition, estimated costs and source of funds. An estimated \$40 million of the \$500 million budget would be for land acquisition.
    - The Project Delivery Team for the project will assess impacts to homes, the highway and surrounding area, to find ways to reduce impacts on lands and facilities.
    - Questions asked about source of funding and whether the dike rehabilitation costs would come out of CERP funding. Dike rehabilitation funding is expected to come from different sources.
- **Committee Draft Recommendations Paper:**
    - On November 29, 2006, the Committee amended the draft recommendations and members were asked to score the strategies from 1-5 with 5 being of highest importance and 1 being the lowest. The new draft, presented at this meeting, 1/24/07, with “Importance Ranking” results, is attached to this report and it has been included in the Agenda backup for the February 8, 2007 regular monthly meeting of the WRAC.
    - The Committee asked that the staff analyze the draft recommendations and add information on strategies already underway, not underway and estimated costs (if known).
    - Chair Wade asked the Committee to think about the strategies and be prepared to discuss whether we’re recommending the right strategies or whether we need to change course and recommend new approaches.

**WRAC LAKE OKEECHOBEE COMMITTEE  
DRAFT RECOMMENDATIONS  
PRIORITY RANKING SUMMARY  
January 24, 2007**

<b>Committee members voting:</b>	<b>17</b>
<b>Number of Strategies:</b>	<b>50</b>
<b>Total Points:</b>	<b>3,359</b>
<b>Average Score:</b>	<b>67.15</b>
<b>Average Vote (Scale 5-1)</b>	<b>3.95</b>
<b>Max. Score:</b>	<b>85</b>
<b>Min. Score:</b>	<b>17</b>
<b>Pt. Spread:</b>	<b>70</b>
<b>Integer (rounded):</b>	<b>14</b>

<b>Scale:</b>	<b>Distribution:</b>
<b>A = 73 - 85</b>	<b>13</b>
<b>B = 59 - 72</b>	<b>29</b>
<b>C = 45 - 58</b>	<b>7</b>
<b>D = 31- 44</b>	<b>1</b>
<b>F = 17 - 30</b>	<b>0</b>

**D R A F T**  
**RECOMMENDATIONS TO PROTECT AND RESTORE LAKE**  
**OKEECHOBEE AND THE CALOOSAHATCHEE AND ST. LUCIE ESTUARIES**  
**South Florida Water Management District Water Resources Advisory**  
**Commission, Lake Okeechobee Committee**  
**November 29, 2006**

**WRAC and Lake Okeechobee Committee Members: Please Note: This is the “Importance” Ranking Voting Summary.**

- **“Score” is the total of points for each strategy.**
- **“# Votes” is the number of 5, 4, 3, 2 and 1 votes for each strategy.**
- **Strategies have been rearranged according to priority rankings made by the Committee.**
- **Committee agreed on 1/24/07 that this exercise was to assign relative importance to each strategy, not rank in priority order.**
- **Committee asked staff to determine which strategies are underway, which are not, and the estimated costs.**
- **This information will be provided at the 2/28/07 in Stuart, FL.**
- **The committee will then discuss how to rank the recommended strategies in order of priority.**

**GOAL I: Restore and maintain the ecological health of Lake Okeechobee and ensure its continued protection.**

**OBJECTIVE A: Better manage lake water levels by means of a revised Lake Okeechobee water level regulation schedule.**

<b>Score</b> <b><u>81</u></b>	<b><u>Strategy 1: Revise the Lake Okeechobee Regulation schedule to benefit the lake and estuarine ecosystems while providing for appropriate water supply and flood protection and to take into account long term climate trends.</u></b>				
<b># votes</b>	5: 15	4: 0	3: 2	2: 0	1: 0
<b>Score</b> <b><u>67</u></b>	<b><u>**Strategy 3: Determine whether pulse releases or continuous releases are appropriate for each estuary receiving Lake Okeechobee water and implement appropriate changes to the Lake Okeechobee Regulation Schedule.</u></b>				
<b># votes</b>	5: 9	4: 2	3: 5	2: 1	1: 0
<b>Score</b> <b><u>65</u></b>	<b><u>Strategy 2: Develop an action plan and criteria to periodically lower the water level of Lake Okeechobee to 12’ for a minimum of 12 weeks.</u></b>				
<b># votes</b>	5: 8	4: 1	3: 5	2: 0	1: 2

**OBJECTIVE B: Restore and protect the biodiversity of the lake ecosystem including plant and animal communities and fisheries.**

<b>Score</b> <b><u>72</u></b>	<b>**Strategy 4:</b> Evaluate methods to reduce harmful exotic species and replenish native species to benefit the lake ecosystem.				
<b># votes</b>	5: 7	4: 8	3: 1	2: 1	1: 0
<b>Score</b> <b><u>70</u></b>	<b>Strategy 1:</b> Create measurable objectives for the conservation of plant and animal communities and fisheries in the lake.				
<b># votes</b>	5: 10	4: 2	3: 2	2: 3	1: 0
<b>Score</b> <b><u>69</u></b>	<b>**Strategy 3:</b> Vegetation management: Improve coordination and communication between spraying agencies and the public. Evaluate the impact of aquatic plant control activities, including controlled burning, on the health of the lake ecosystem with opportunities for stakeholder input. More closely monitor the spraying activities of independent contractors and post such activities on the appropriate WEB sites.				
<b># votes</b>	5: 9	4: 3	3: 3	2: 1	1: 1
<b>Score</b> <b><u>61</u></b>	<b>Strategy 2:</b> Continue to assess seed bed viability for submerged aquatic vegetation.				
<b># votes</b>	5: 5	4: 2	3: 8	2: 2	1: 0

**OBJECTIVE C: Evaluate other possible solutions to improve water management within the lake and in the lake and tributary watersheds.**

<b>Score</b> <b><u>81</u></b>	<b>Strategy 1:</b> Evaluate options to store water north of Lake Okeechobee, including the evaluation of operational plans and regulations schedules for all basins north of the Lake. Also evaluate Aquifer Storage and Recovery, and Lake Okeechobee and Estuary Recovery Plan components.				
<b># votes</b>	5: 15	4: 0	3: 2	2: 0	1: 0
<b>Score</b> <b><u>79</u></b>	<b>**Strategy 4:</b> Evaluate, and implement if feasible, additional storage, conveyance and treatment options in the EAA, Caloosahatchee Basin, St. Lucie Basin, and other basins to reduce harmful discharges				
<b># votes</b>	5: 14	4: 0	3: 3	2: 0	1: 0
<b>Score</b> <b><u>71</u></b>	<b>**Strategy 3:</b> Evaluate, and implement if feasible, additional water storage on private and public lands				
<b># votes</b>	5: 9	4: 3	3: 4	2: 1	1: 0
<b>Score</b> <b><u>40</u></b>	<b>Strategy 2:</b> Investigate the feasibility of constructing levees within the Lake Okeechobee dike to create compartments				

	within the lake to enable more efficient water and nutrient management.				
# votes	5: 3	4: 2	3: 2	2: 2	1: 9

**OBJECTIVE D: Improve the quality of water in the lake.**

<b>Score</b> <b><u>81</u></b>	<b>Strategy 1: Complete LOER “Fast Track” and water quality improvement components as quickly as possible.</b>				
# votes	5: 14	4: 2	3: 1	2: 0	1: 0
<b>Score</b> <b><u>72</u></b>	<b>Strategy 2: Evaluate feasibility of in-lake sediment dredging as quickly as possible.</b>				
# votes	5: 8	4: 7	3: 0	2: 0	1: 1
<b>Score</b> <b><u>68</u></b>	<b>Strategy 4: Meet the current Lake Okeechobee “Total Maximum Daily Load” (TMDL) an average of 140 metric tons per year of phosphorous. Implement the Lake Okeechobee Protection Plan, which is the implementation plan for the TMDL.</b>				
# votes	5: 10	4: 2	3: 2	2: 1	1: 2
<b>Score</b> <b><u>54</u></b>	<b>Strategy 3: Evaluate alum, calcium carbonate or other appropriate cleanup methods for use in treating appropriate segments of the lake to gain rapid water quality improvement.</b>				
# votes	5: 4	4: 1	3: 8	2: 2	1: 2

**GOAL II: Improve the ecological health of the Caloosahatchee and St. Lucie estuaries by reducing peak flow discharges of freshwater from Lake Okeechobee and by meeting Minimum Flow and Level (MFL) requirements.**

**OBJECTIVE A: Increase water storage and treatment capacity on public and private lands throughout the SFWMD.**

<b>Score</b> <b><u>73</u></b>	<b>Strategy 1: Implement Lake Okeechobee and Estuary Recovery Plan component regarding water storage on public and private lands.</b>				
# votes	5: 12	4: 3	3: 1	2: 1	1: 0
<b>Score</b> <b><u>73</u></b>	<b>Strategy 7: Implement sustainable agricultural practices.</b>				
# votes	5: 11	4: 1	3: 4	2: 1	1: 0
<b>Score</b> <b><u>72</u></b>	<b>Strategy 2: Evaluate and implement Deep Aquifer Recharge Injection wherever feasible, as soon as possible.</b>				
# votes	5: 10	4: 3	3: 2	2: 2	1: 0
<b>Score</b>	<b>Strategy 3: Implement Aquifer Storage and Recovery (ASR)</b>				

<b><u>72</u></b>	well construction to the extent feasible.				
<b># votes</b>	5: 9	4: 5	3: 1	2: 2	1: 0
<b>Score</b> <b><u>70</u></b>	<b>Strategy 4:</b> Assess need to add more water storage and Stormwater Treatment Area capacity to store and treat excess Lake Okeechobee water.				
<b># votes</b>	5: 11	4: 0	3: 4	2: 1	1: 1
<b>Score</b> <b><u>63</u></b>	<b>Strategy 6:</b> Explore additional storage opportunities through programs such as World Wildlife Fund's Florida Ranch Lands Environmental Service Project.				
<b># votes</b>	5: 8	4: 0	3: 5	2: 4	1: 0
<b>Score</b> <b><u>57</u></b>	<b>Strategy 5:</b> Determine the feasibility of and need for reconfiguring discharge structures to enable mid-stage discharge capability so that less sediment is sent downstream to the estuaries.				
<b># votes</b>	5: 5	4: 4	3: 4	2: 2	1: 2

**OBJECTIVE B:** Increase conveyance capacities for Lake Okeechobee outflows through the C&SF project, for environmental restoration, environmental protection and reasonable beneficial uses.

<b>Score</b> <b><u>73</u></b>	<b>Strategy 4:</b> Evaluate the need for and feasibility for additional conveyance capacity, flow ways, reservoirs, etc., to send Lake Okeechobee water to the south (re: Corps of Engineers Reconnaissance Study, mid-1990s).				
<b># votes</b>	5: 11	4: 3	3: 1	2: 1	1: 1
<b>Score</b> <b><u>63</u></b>	<b>Strategy 5:</b> Evaluate a plan, with appropriate conveyance to water utilities, to reduce the harmful discharge of water to tide.				
<b># votes</b>	5: 6	4: 3	3: 6	2: 1	1: 1
<b>Score</b> <b><u>63</u></b>	<b>Strategy 6:</b> Evaluate the feasibility of providing excess Lake Okeechobee water to water utilities as needed.				
<b># votes</b>	5: 5	4: 4	3: 7	2: 0	1: 1
<b>Score</b> <b><u>58</u></b>	<b>Strategy 1:</b> Evaluate existing SFWMD plans and projects to determine the need for conveyance of Lake Okeechobee water to the C-23, C-24, and C-25 basins for beneficial uses when there is excess water in Lake Okeechobee.				
<b># votes</b>	5: 7	4: 3	3: 0	2: 4	1: 3
<b>Score</b> <b><u>56</u></b>	<b>Strategy 3:</b> Interbasin/Interdistrict Transfers: Determine the feasibility of using excess Lake Okeechobee water in the SFWMD Big Cypress basin, and the Southwest Florida and St. Johns River Water Management Districts.				
<b># votes</b>	5: 6	4: 1	3: 5	2: 2	1: 3
<b>Score</b> <b><u>54</u></b>	<b>Strategy 2:</b> Evaluate the need to create works necessary to reestablish a more natural distribution and timing of water				

	from the C-25 basin to the St. Johns River Water Management District when there is excess water in the system.				
# votes	5: 7	4: 1	3: 2	2: 2	1: 5

**OBJECTIVE C:** Improve water quality in the Caloosahatchee and St. Lucie estuaries to meet Federal and State water standards.

<b><u>Score</u></b> <b><u>76</u></b>	<b><u>Strategy 2:</u></b> Implement LOER water quality improvement programs.				
# votes	5: 12	4: 1	3: 4	2: 0	1: 0
<b><u>Score</u></b> <b><u>71</u></b>	<b><u>Strategy 1:</u></b> Establish and meet estuary Total Maximum Daily Loads (TMDLs) and other water quality standards.				
# votes	5: 11	4: 1	3: 3	2: 1	1: 1

**GOAL III:** Protect land and water resources in the Lake Okeechobee and tributary watersheds while also protecting private property rights, flood protection and water supply needs.

**OBJECTIVE A:** Create incentives for landowners to retain natural areas to reduce runoff, store water and improve water quality.

<b><u>Score</u></b> <b><u>75</u></b>	<b><u>Strategy 6:</u></b> Complete the Long Term Management Plan for the Kissimmee Chain of Lakes to better assess water management needs in that region.				
# votes	5: 10	4: 4	3: 3	2: 0	1: 0
<b><u>Score</u></b> <b><u>72</u></b>	<b><u>Strategy 7:</u></b> Initiate a study to determine watershed storage and nutrient needs in Lake Istokpoga's watershed.				
# votes	5: 10	4: 2	3: 4	2: 1	1: 0
<b><u>Score</u></b> <b><u>70</u></b>	<b><u>Strategy 5:</u></b> Provide credits, compensation or other incentives for landowners who store more water on their land.				
# votes	5: 9	4: 2	3: 5	2: 1	1: 0
<b><u>Score</u></b> <b><u>61</u></b>	<b><u>Strategy 2:</u></b> Determine appropriate phosphorous reduction requirements for conversion of land uses in the Lake Okeechobee and tributary watersheds.				
# votes	5: 7	4: 3	3: 3	2: 1	1: 3
<b><u>Score</u></b> <b><u>59</u></b>	<b><u>Strategy 1:</u></b> Evaluate implementation of transfer of Development Rights and Rural Land Stewardship programs in Lake Okeechobee tributary watersheds.				
# votes	5: 7	4: 2	3: 3	2: 2	1: 3
<b><u>Score</u></b> <b><u>59</u></b>	<b><u>Strategy 3:</u></b> For Lake tributary basin, evaluate leasing vs. acquiring land for storage and treatment, especially in areas impacted by citrus canker.				
# votes	5: 6	4: 3	3: 3	2: 3	1: 2

<b>Score</b> <b><u>54</u></b>	<b>Strategy 4: When leasing lands for storage and treatment, evaluate feasibility of restoring wetlands as a lease provision.</b>				
<b># votes</b>	5: 4	4: 3	3: 4	2: 4	1: 2

**OBJECTIVE B:** Implement alternative water supply development, water reuse and conservation in the Lake Okeechobee watershed, its tributary watersheds, and downstream water users.

<b>Score</b> <b><u>67</u></b>	<b>Strategy 4: Continue efforts to reduce water supply dependence on Lake Okeechobee by creating alternative water supply solutions</b>				
<b># votes</b>	5: 9	4: 2	3: 4	2: 0	1: 2
<b>Score</b> <b><u>67</u></b>	<b>Strategy 2: Need to quickly resolve issue of temporary vs. permanent forward pumps and impacts on water supply and Lake and Estuarine Ecology and recreation.</b>				
<b># votes</b>	5: 9	4: 3	3: 2	2: 1	1: 2
<b>Score</b> <b><u>65</u></b>	<b>Strategy 3: Support desalination plants and water reuse and water conservation programs in coastal counties, to augment public water supply.</b>				
<b># votes</b>	5: 8	4: 4	3: 1	2: 2	1: 2
<b>Score</b> <b><u>59</u></b>	<b>Strategy 1: Rapidly complete and implement the SFWMD Lake Okeechobee Water Shortage Management Plan.</b>				
<b># votes</b>	5: 4	4: 7	3: 1	2: 3	1: 2

**OBJECTIVE C:** Improve quality of water flowing into the lake.

<b>Score</b> <b><u>77</u></b>	<b>**Strategy 4: Rapidly implement the State of Florida's initiative regarding use of phosphorous and nitrogen fertilizers for urban turf applications in Lake Okeechobee and tributary basins.</b>				
<b># votes</b>	5: 12	4: 8	3: 3	2: 0	1: 0
<b>Score</b> <b><u>76</u></b>	<b>**Strategy 7: Evaluate and implement alternatives to the land application of bio-solids in the Lake Okeechobee watershed.</b>				
<b># votes</b>	5: 10	4: 5	3: 2	2: 0	1: 0
<b>Score</b> <b><u>73</u></b>	<b>**Strategy 3: Implement agricultural and urban BMP programs for any water sources flowing into the lake.</b>				
<b>#votes</b>	5: 11	4: 3	3: 1	2: 1	1: 1
<b>Score</b> <b><u>71</u></b>	<b>Strategy 2: Speed up the timeframe for implementation of agricultural and urban "Best Management Practices" (BMPs).</b>				
<b># votes</b>	5: 9	4: 6	3: 1	2: 1	1: 0
<b>Score</b> <b><u>66</u></b>	<b>**Strategy 5: The Florida Department of Environmental Protection should establish Lake Okeechobee tributary Total</b>				

	<b>Maximum Daily Loads and implementation plans to achieve the targets.</b>				
<b># votes</b>	<b>5: 9</b>	<b>4: 2</b>	<b>3: 3</b>	<b>2: 1</b>	<b>1: 2</b>
<b>Score</b> <b><u>64</u></b>	<b><u>Strategy 6:</u> Determine the feasibility of and need for reconfiguring discharge structures to enable mid-stage discharge capability so that less sediment enters the lake.</b>				
<b># votes</b>	<b>5: 5</b>	<b>4: 4</b>	<b>3: 7</b>	<b>2: 1</b>	<b>1: 0</b>
<b>Score</b> <b><u>52</u></b>	<b><u>Strategy 1:</u> Evaluate aeration and chemical treatment in canals at strategic inflow points to settle out nutrients and solids flowing into the lake.</b>				
<b># votes</b>	<b>5: 2</b>	<b>4: 4</b>	<b>3: 6</b>	<b>2: 3</b>	<b>1: 2</b>

**OBJECTIVE D: Assure that the Lake Okeechobee Hoover Dike provides adequate flood protection**

<b>Score</b> <b><u>81</u></b>	<b><u>Strategy 1:</u> Expedite rehabilitation of the Hoover dike and all other appropriate flood protection.</b>				
<b># votes</b>	<b>5: 14</b>	<b>4: 2</b>	<b>3: 1</b>	<b>2: 0</b>	<b>1: 0</b>
<b>Score</b> <b><u>66</u></b>	<b><u>Strategy 2:</u> As soon as possible, reevaluate the outflow capacity of the Lake to assure that the design discharge capacity of Lake outflow structures is maintained.</b>				
<b># votes</b>	<b>5: 7</b>	<b>4: 4</b>	<b>3: 4</b>	<b>2: 1</b>	<b>1: 1</b>



- 10.** Lake Okeechobee Protection Plan Evaluation Report - Response to Comments - Susan Gray, Ph.D., Deputy Director, Watershed Mgt. Dept., SFWMD

10p 20d



11. Lake Okeechobee Regulation Schedule Revisions - Update: Peter Milam, Sr. Project Manager, USACE, Jacksonville, District 30p 30d

See supporting document: [lorss milam presen wrac 2 8 07.pdf](#)



US Army Corps  
of Engineers®



# LOOKS

Lake Okeechobee Regulation Schedule Study

Jan 24, 2007

# Purpose

Provide Information on the Corps  
revised LORSS TSP

# Background Information



# LORSS Goals & Objectives

Implement a new lake regulation schedule supported by a Supplemental Environmental Impact Statement by July 2007 (revised from January 2007)

Objectives of the new regulation schedule:

- Ensure public health and safety
- Manage Lake Okeechobee at lower lake levels
- Reduce high regulatory releases to the estuaries
- Continue to meet Congressionally authorized project purposes

# LORSS Project Delivery Team

- U.S. Army Corps of Engineers
- South Florida Water Management District
- U.S. Fish and Wildlife Service
- National Marine Fisheries Service
- U. S. Environmental Protection Agency
- Florida Fish and Wildlife Conservation Commission
- Florida Department of Environmental Protection
- Lee County
- Martin County
- City of Sanibel

# Study Assumptions

- Assumes 2007 as the existing condition
- Operational Guidelines consider full period of record (1913 - current)
- SFWMD will operate temporary forward pumps
- SFWMD will implement new Lake Okeechobee Water Shortage Management Plan (DRAFT), to replace the current Supply Side Management Plan

# Study Constraints

- Model Simulation period-of-record of 36 years (1965 - 2000)
- Herbert Hoover Dike integrity
- Use of existing C&SF infrastructure (no CERP projects)
- Stormwater Treatment Area (STA) 3 & 4 water quality treatment capacity
  - 64,000 acre-feet annual average, as identified by SFWMD
- Use existing regulation schedules for Water Conservation Areas and Kissimmee River chain of lakes

# Public Comments Summary

## on the Original TSP

- 17.25 high lake constraint
- Acceptable at managing lake lower
- Release more water south
- Increase storm water treatment areas and storage reservoirs
- Use SFWMD lands that are available for emergency Lake water storage
- Water supply concerns
- More equitable discharges to estuaries and WCA
- Concerns due to extreme high releases to Caloosahatchee Estuary
- Release more low flows to reduce high discharges
- Economic costs of high releases
- Account for wet weather cycle

# Additional Work Performed Based on Public Comment

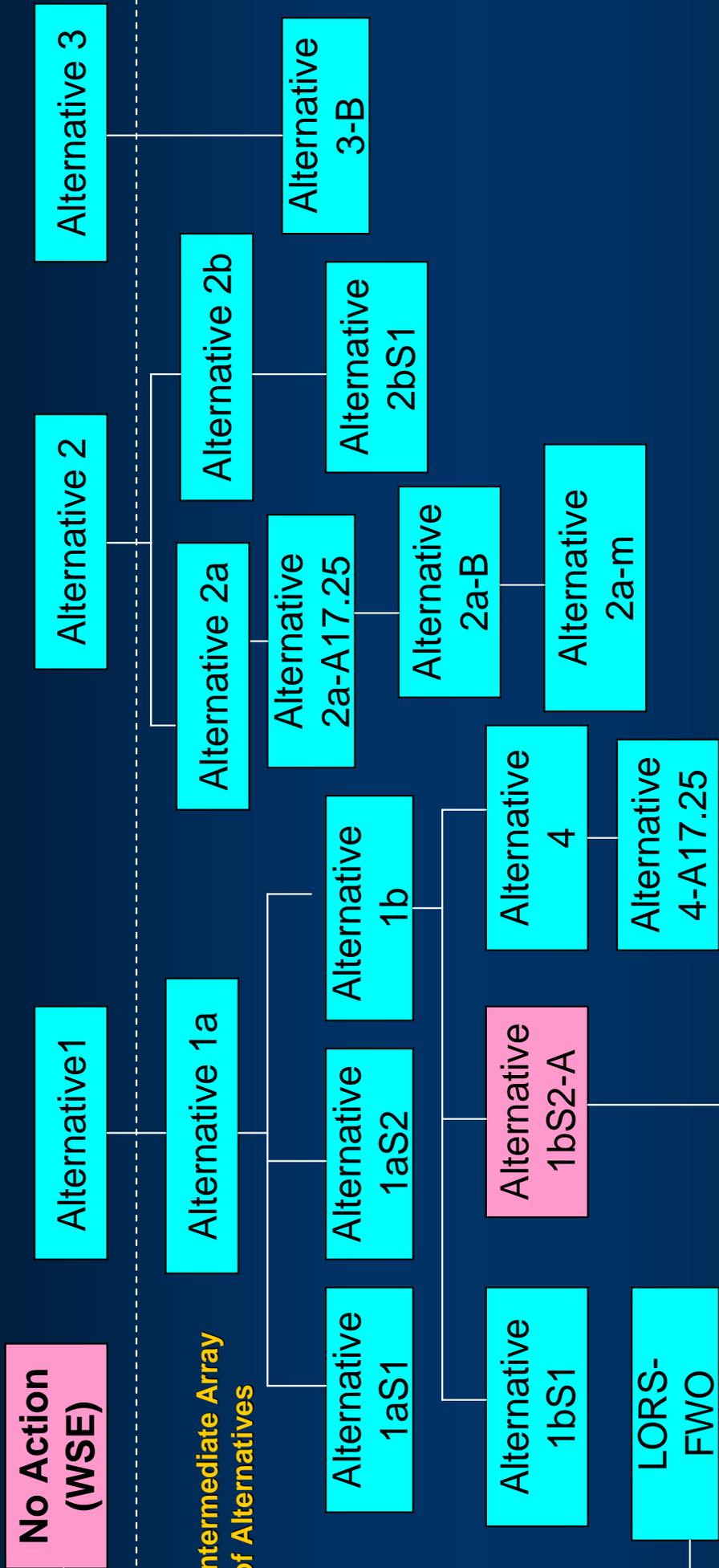
- Evaluate the 17.25 Lake elevation as a performance measure, not as a constraint
- Evaluate additional alternatives to reduce the frequency of >4,500cfs high flows to the Caloosahatchee Estuary
- Evaluate alternatives to obtain an equitable balance between the coastal estuaries, including Lake Worth Lagoon
- Evaluate alternatives to improve the balance between all system-wide performance measures

# Additional Analysis Performed Based on Public Comment

- Analyze TSP performance against the 2003 to 2005 wet weather cycle
- Analyze benefits to coastal estuaries in utilizing SFWMD lands for emergency offsite water storage

# Alternatives Evaluated

Initial Array of Alternatives



# Revised TSP

- Produced best overall balance between study objectives
- Allows for quicker response and operational flexibility to lake conditions and tributary inflows, including late-season tropical events
- Manages the lake at lower elevations
- Improves preferred flow to the coastal estuaries
- Is equal to (extreme) and modestly improves (intermediate) high flow discharges to coastal estuaries
- Provides for environmental base flow to the Caloosahatchee Estuary during dry season
- Provides low volume regulatory flow to St. Lucie Estuary
- Measures pulse releases at S-79

# Lake Okeechobee Stages

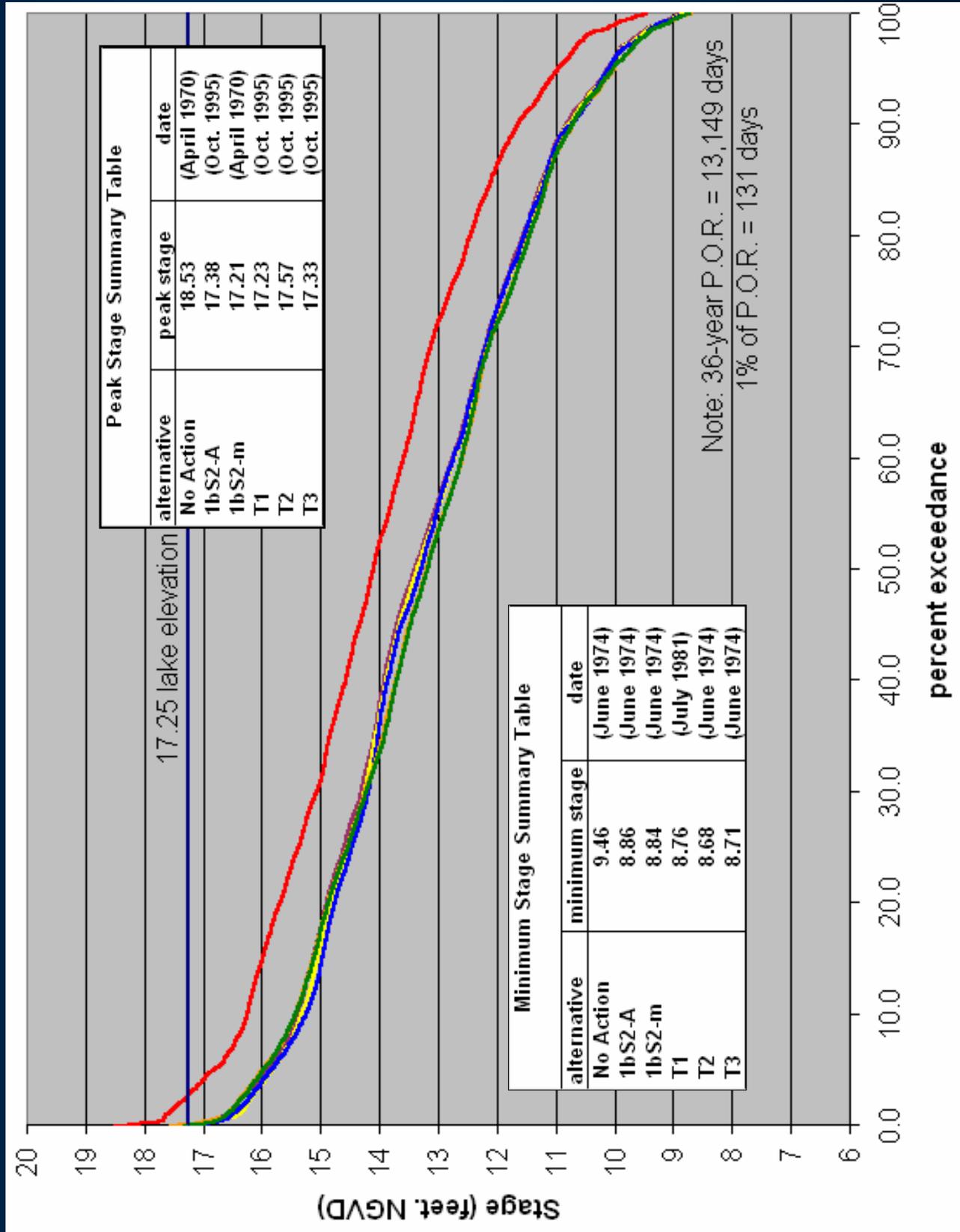
Lake Stages

Stage Envelope

Navigation

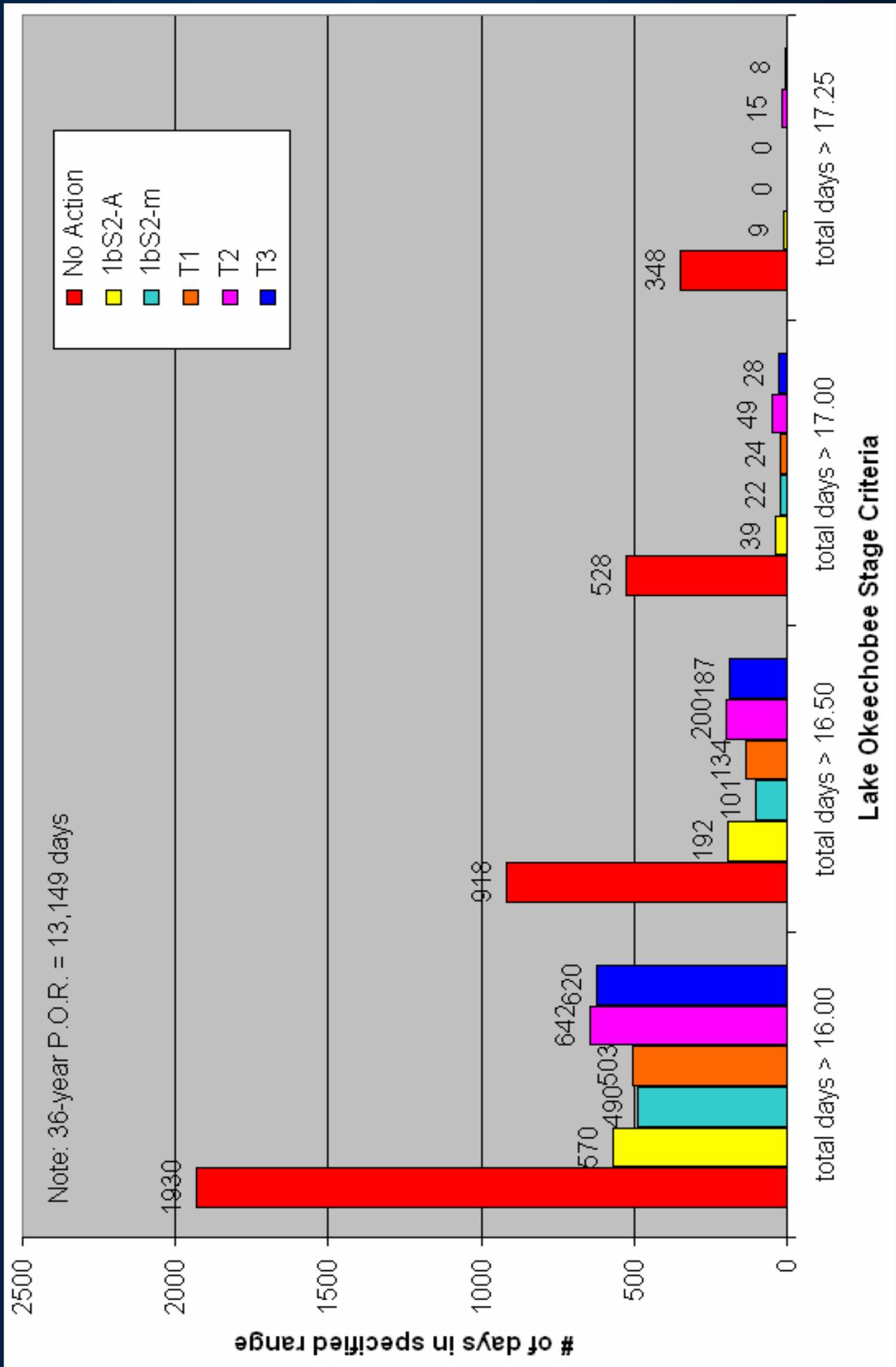
Water Supply

# Lake Stage Duration Curves Simulated Period of Record



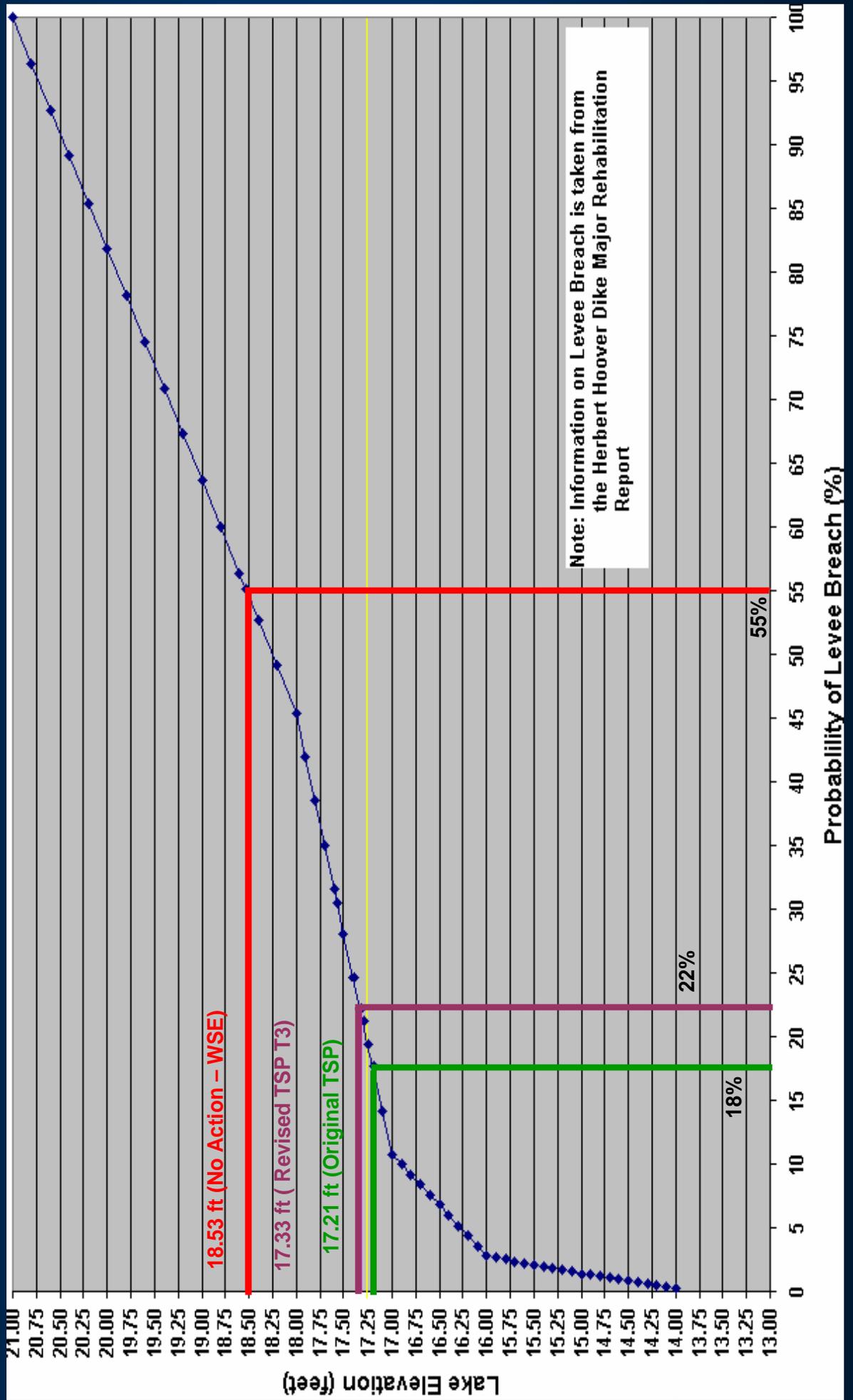
# Summary of Lake High Stages (>16.00)

## 36-year Period of Record



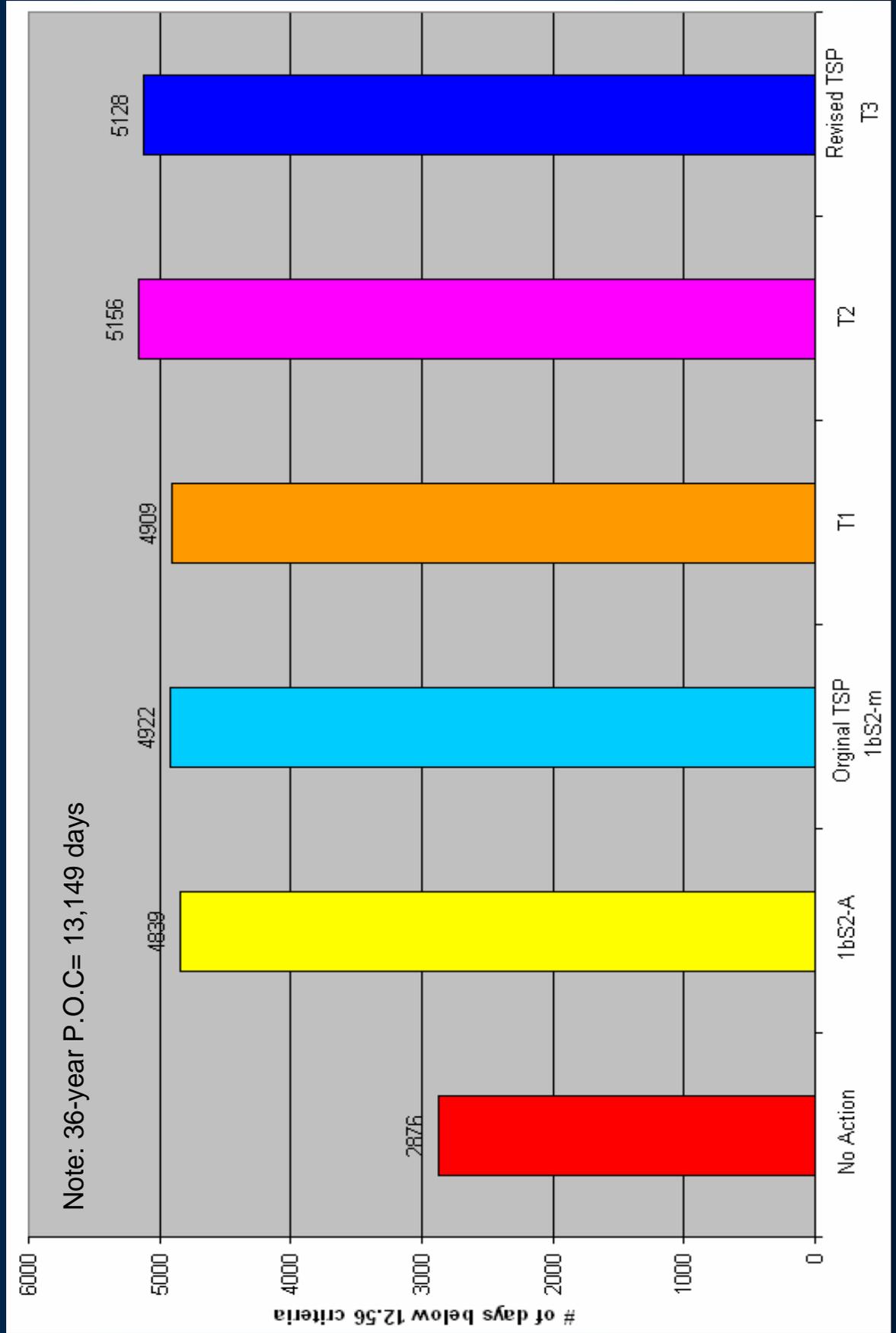
# Combined Probability of Levee Breach

## Selected Lake Stages (without intervention)



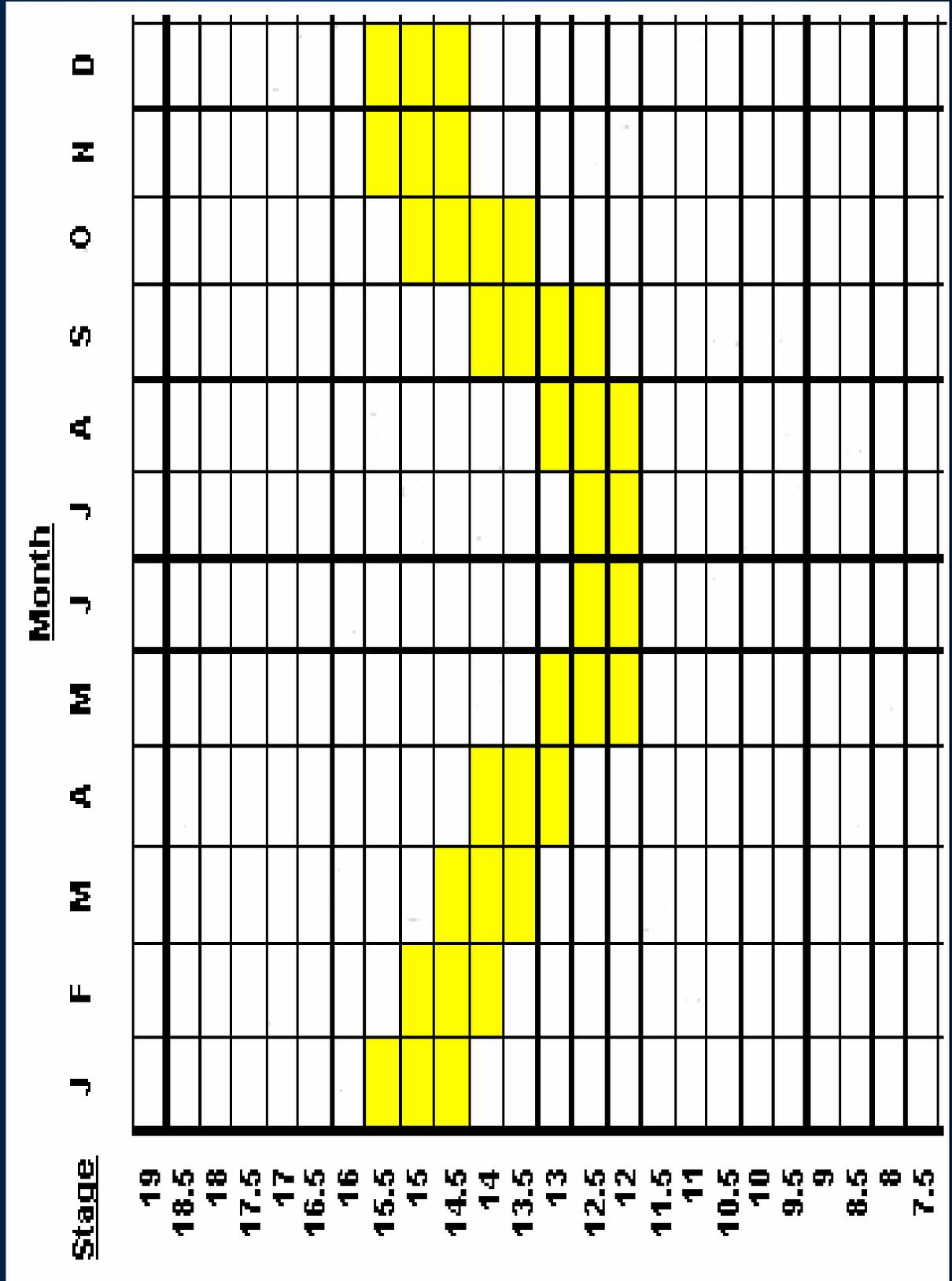
# Summary of Lake Stages

36-Year Simulated POR: Below Navigation Criteria, 12.56 feet

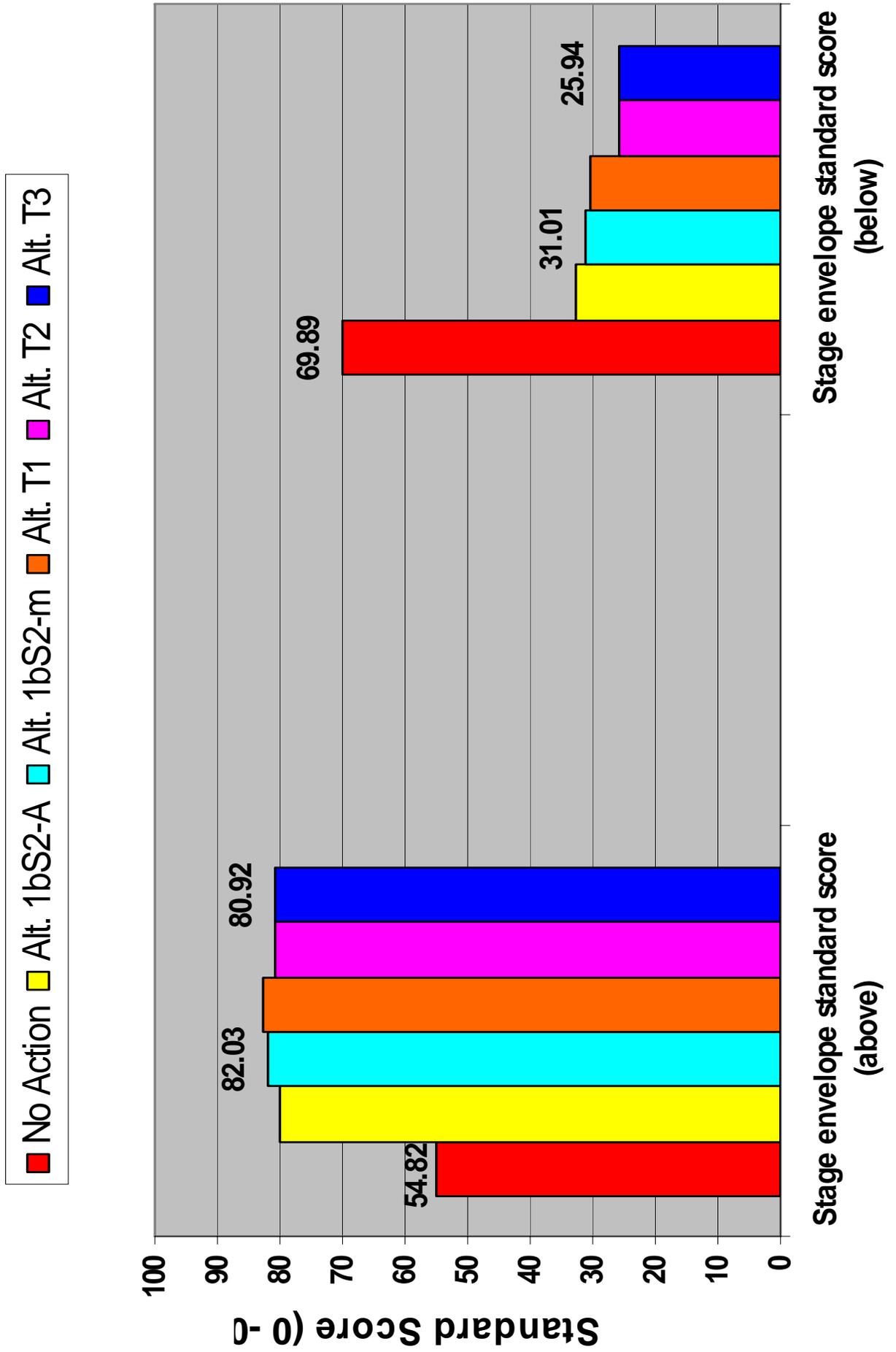


# Lake Okeechobee Stage Envelope

## Optimal Stage Range for Lake Environmental Health



# Stage Envelope Standard Score (Above and Below)



# Mean Annual EAA Supplemental Irrigation

Demands/Demands not met from 1965-2000  
for Drought Years 1971, 1975, 1981, 1985 and 1989



■ DMD NOT MET  
■ DMD met by LOK

# Mean Annual Other LOSA Supplemental Irrigation Demands/Demands not met from 1965-2000 for Drought Years 1971, 1975, 1981, 1985 and 1989



■ DMD NOT MET  
■ DMD met by LOK

# Ecological Condition

Caloosahatchee Estuary

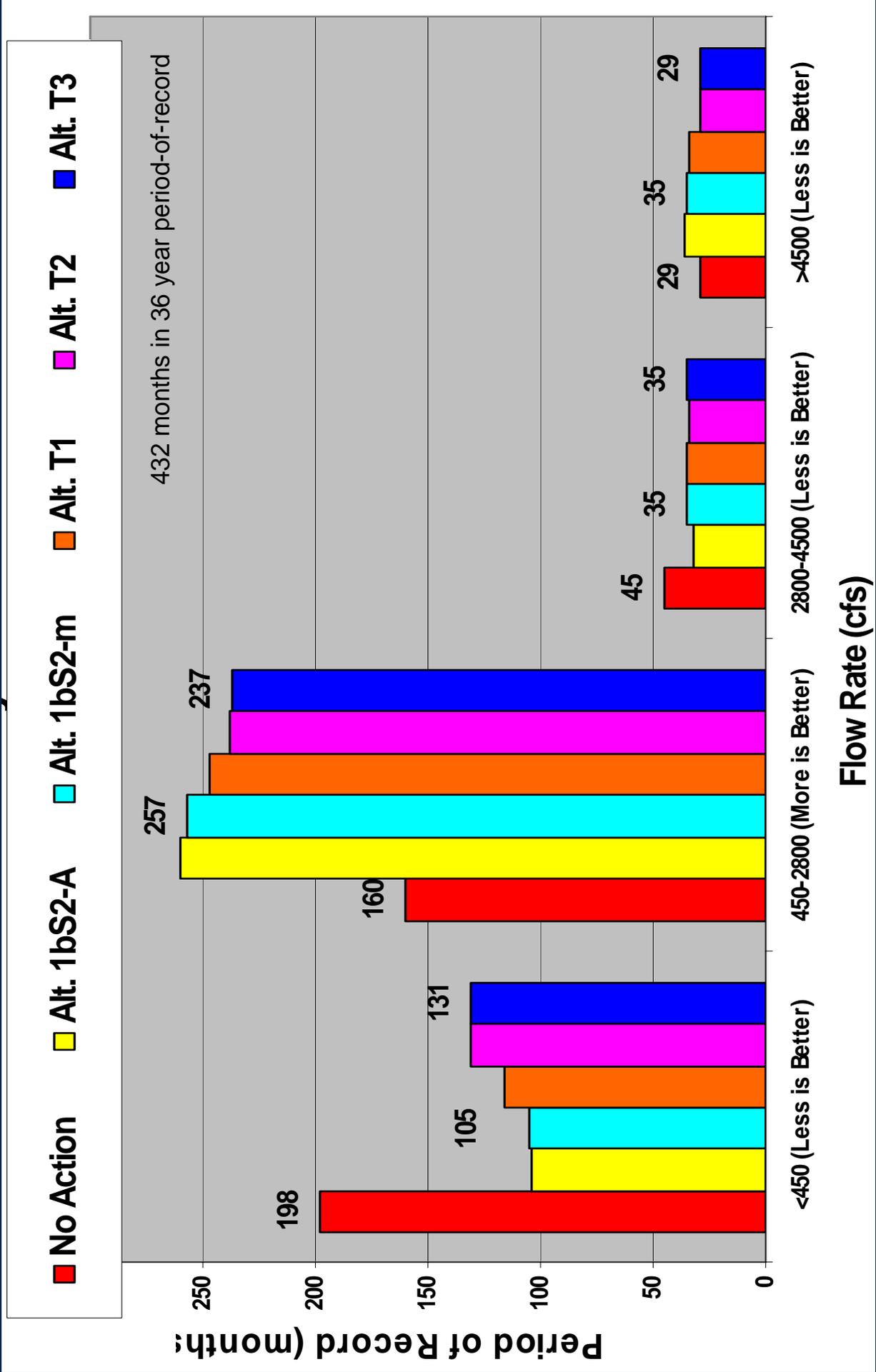
St. Lucie Estuary

Lake Worth

Greater Everglades

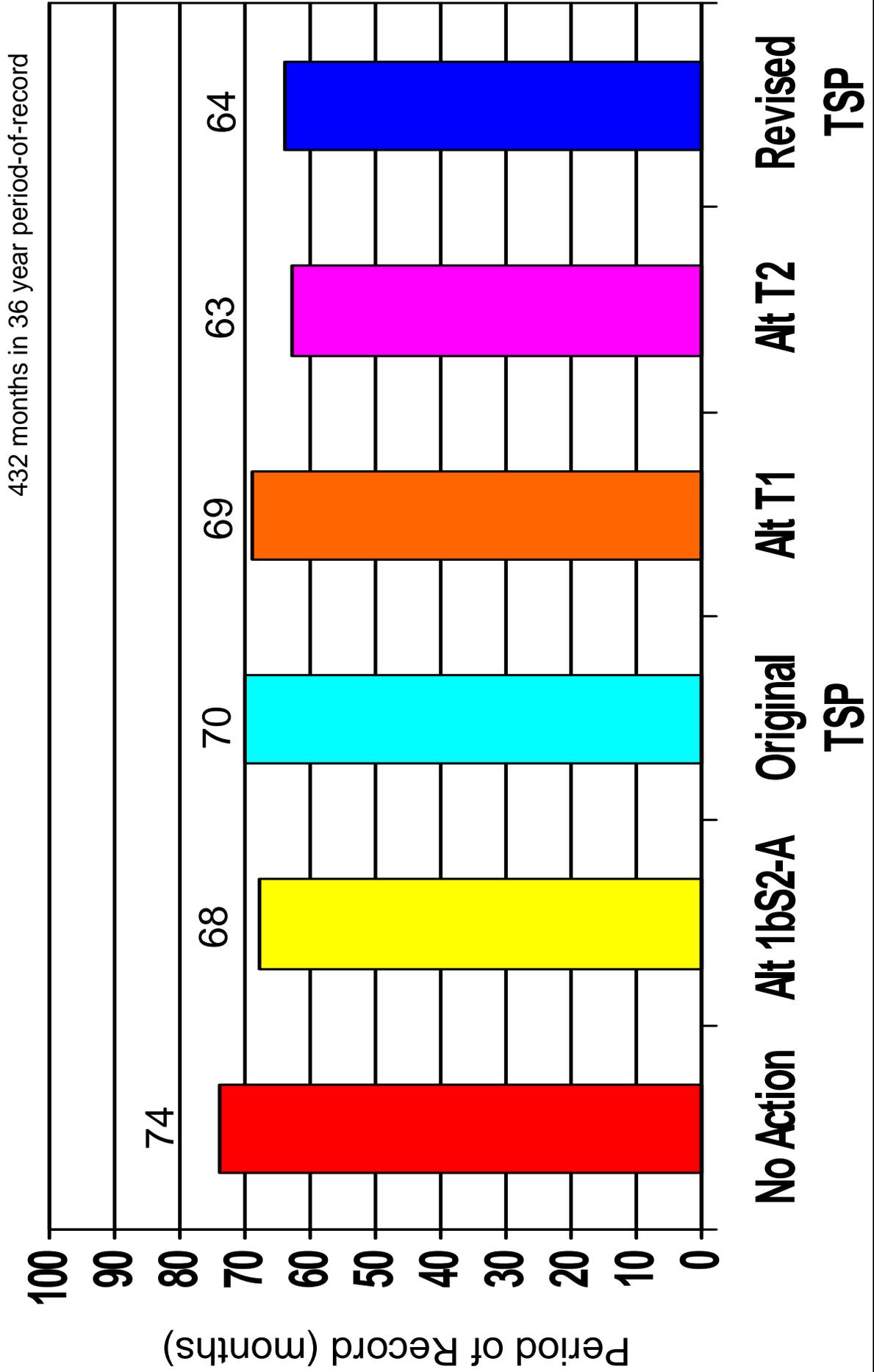
# Caloosahatchee Estuary

## Distribution of Mean Monthly Estuary Inflows



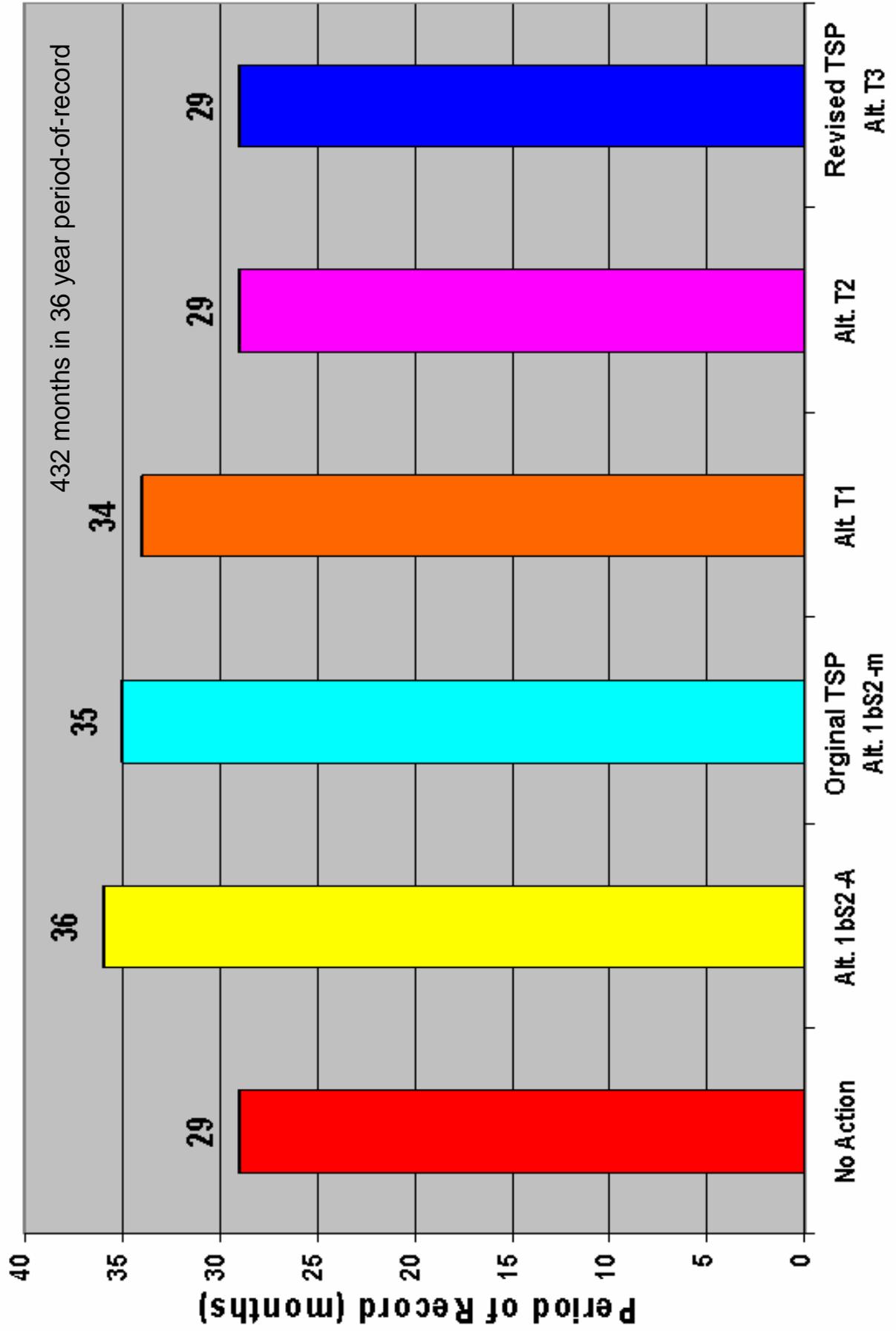
# Caloosahatchee Estuary

## Frequency of Flows > 2800 cfs at S-79



# Caloosahatchee Estuary

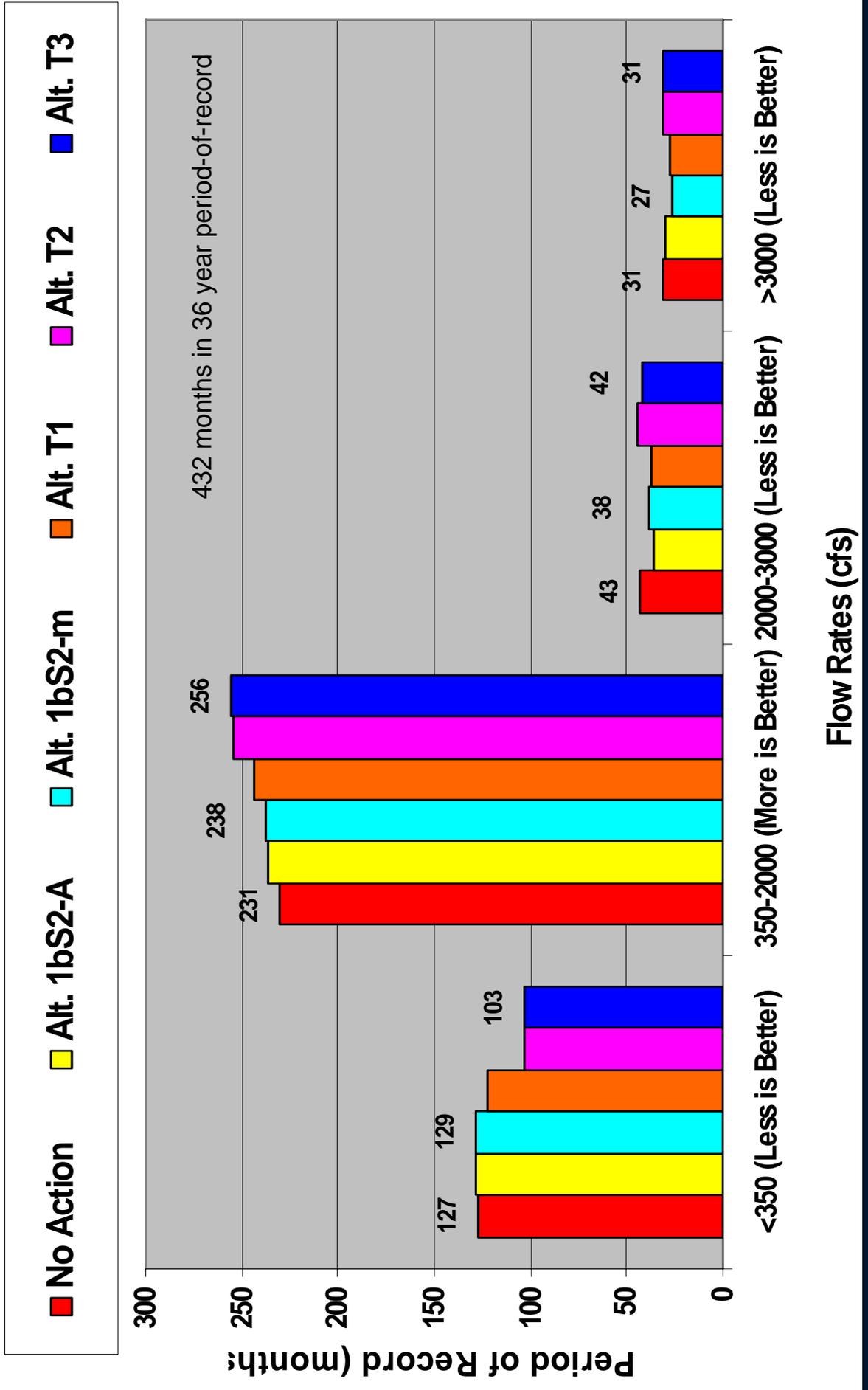
## Frequency of Flows > 4500 cfs at S-79



# St. Lucie Estuary

# St Lucie Estuary

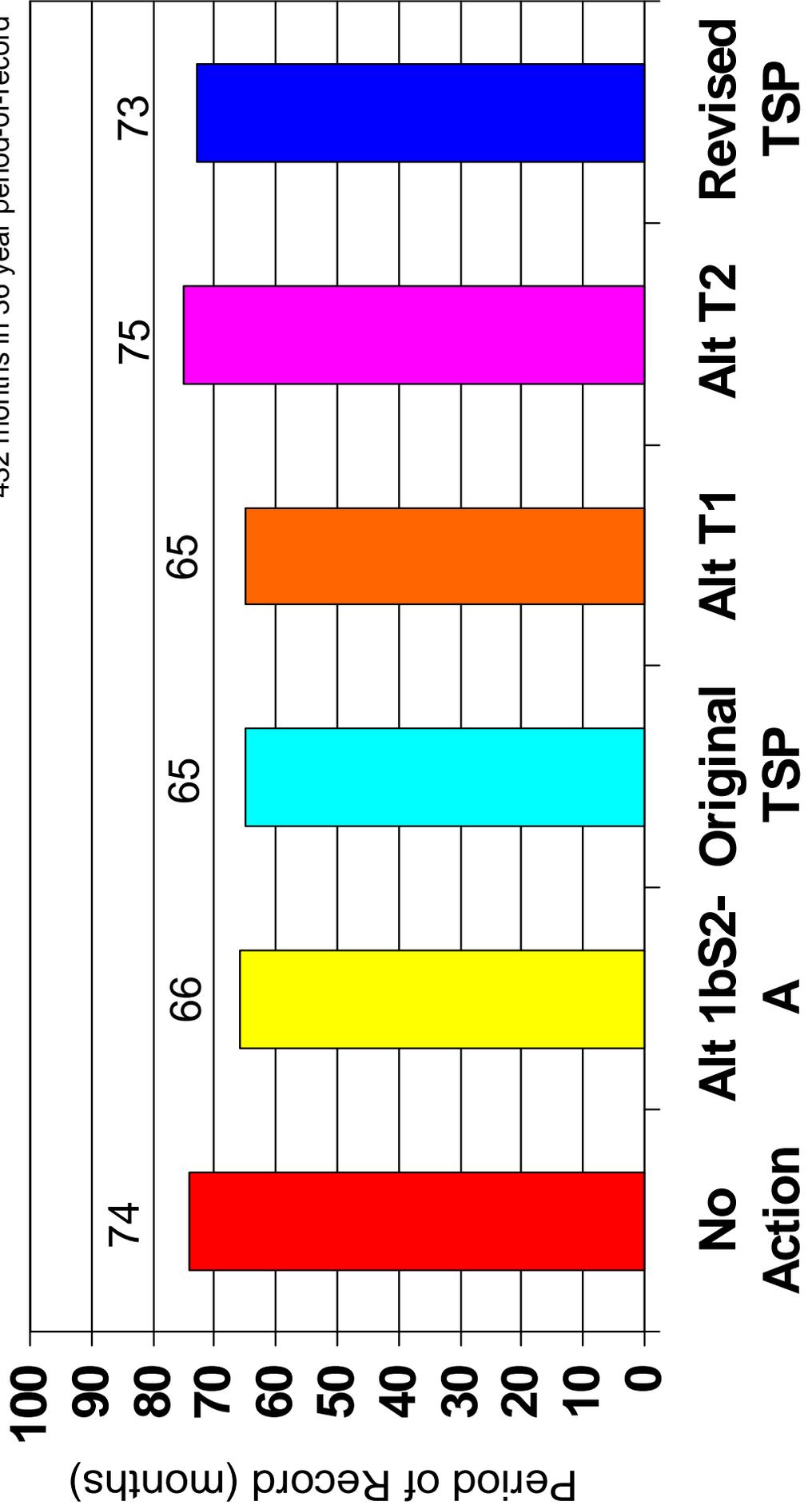
## Distribution of Mean Monthly Estuary Inflows



# St Lucie Estuary

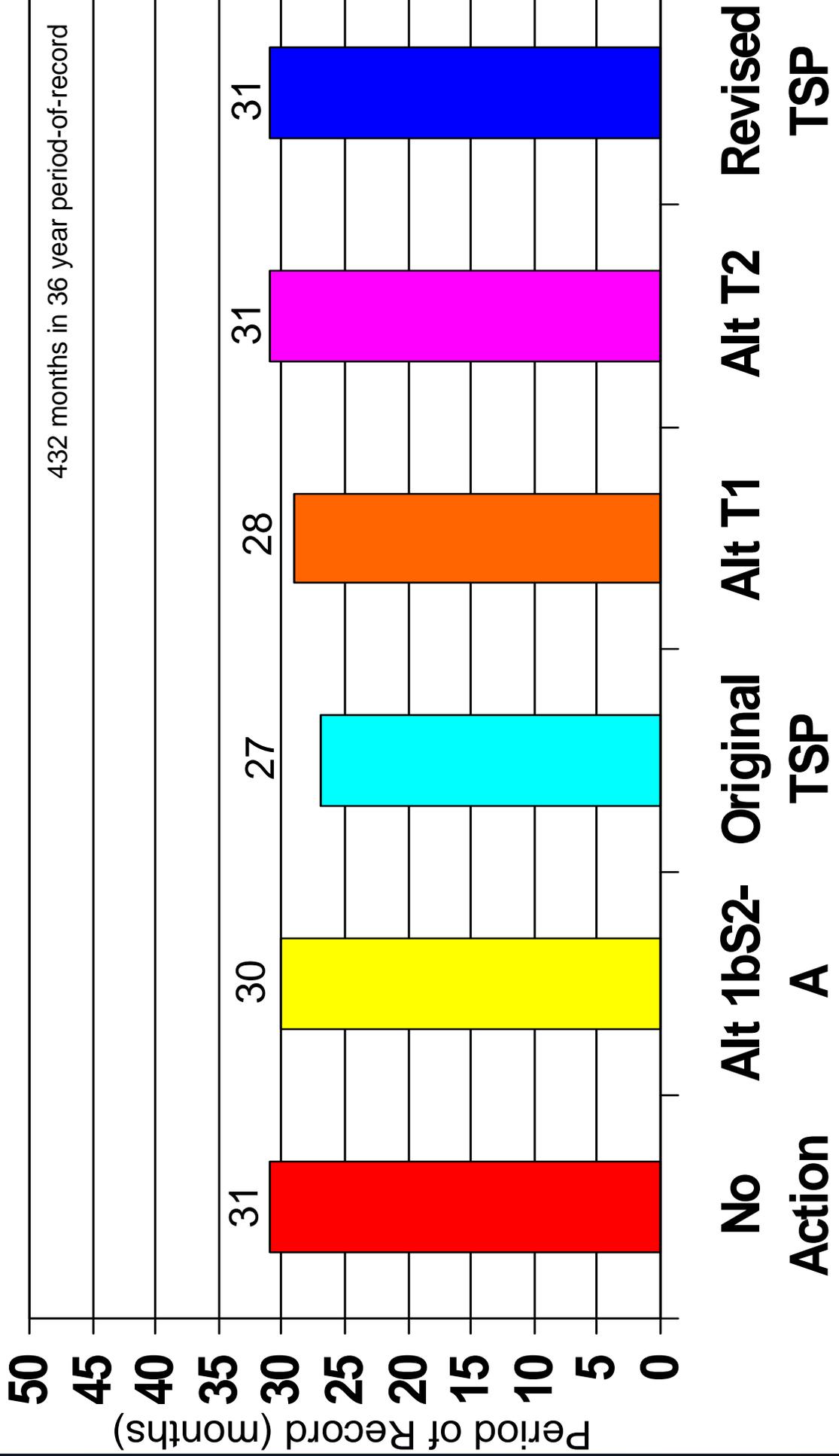
## Frequency of Flows > 2000 cfs

432 months in 36 year period-of-record



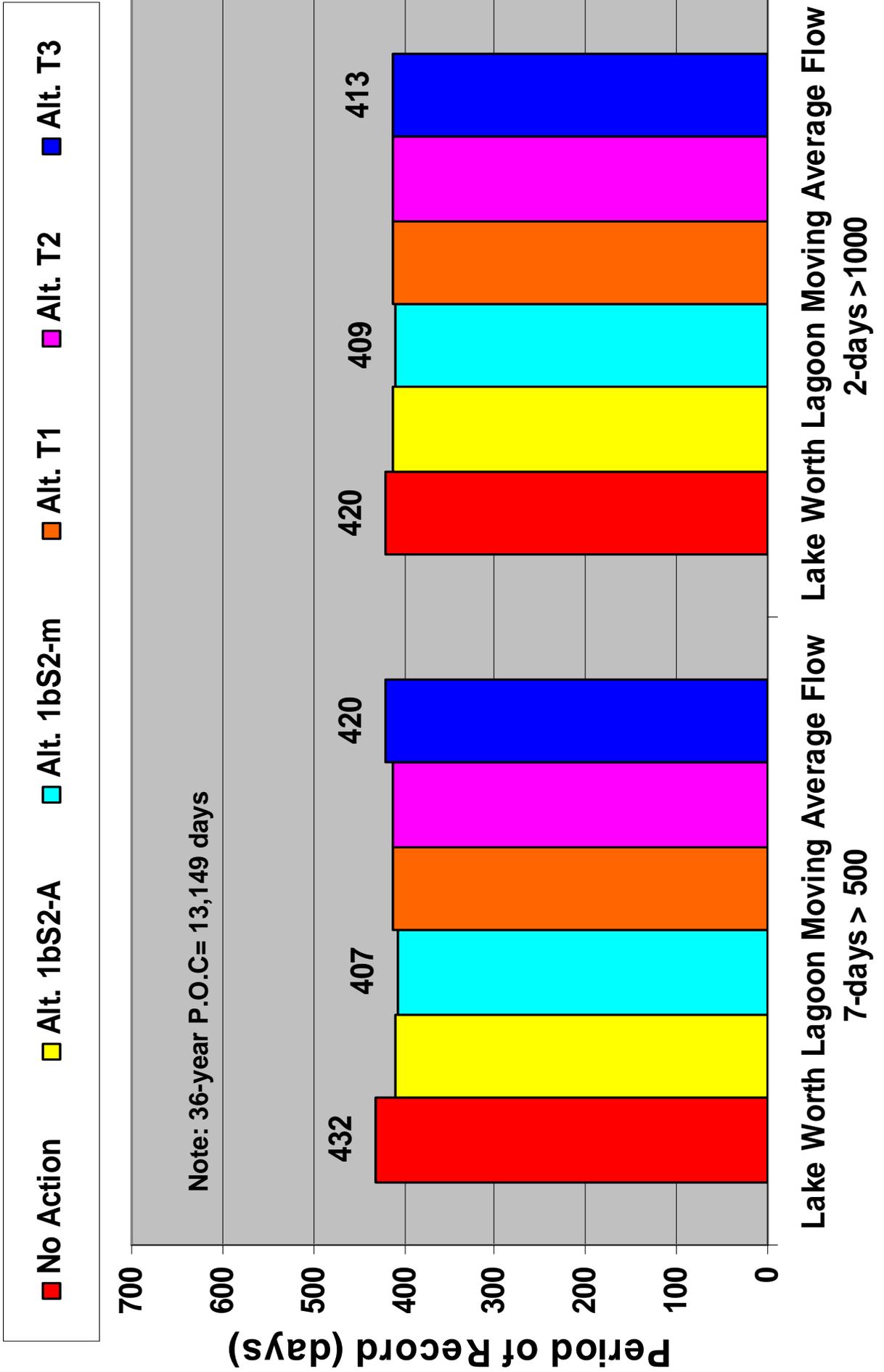
# St Lucie Estuary

## Frequency of Flows > 3000 cfs



# Lake Worth Lagoon

# Lake Worth Moving Average Salinity envelope criteria not met



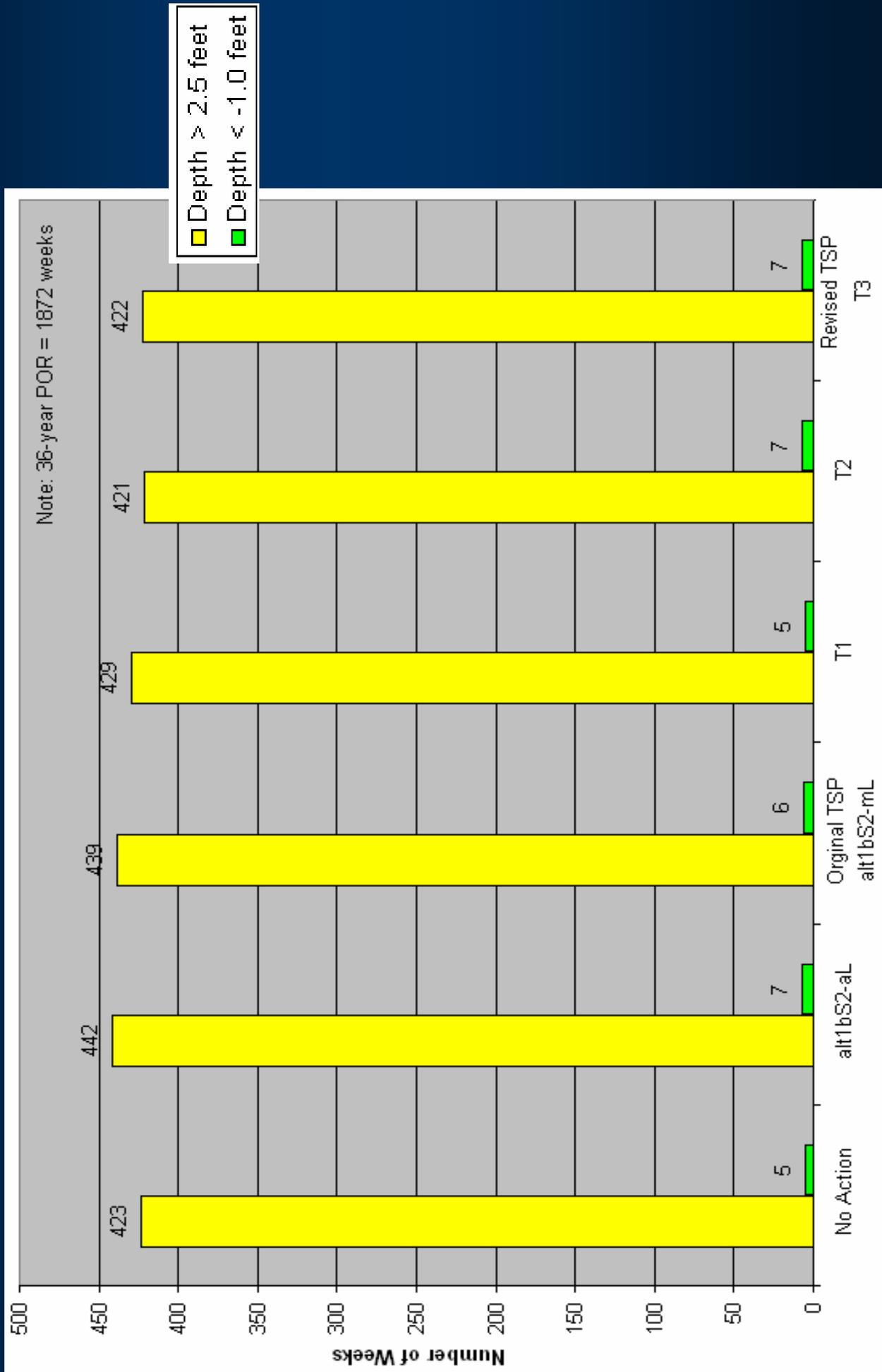
# Greater Everglades

# Greater Everglades Performance Measures

- Peat-dry out, tree island inundation, recession rates, water reversals, and snail kite habitat
- Only minor differences between the alternatives analyzed
- Ecologically, none of the differences are significant

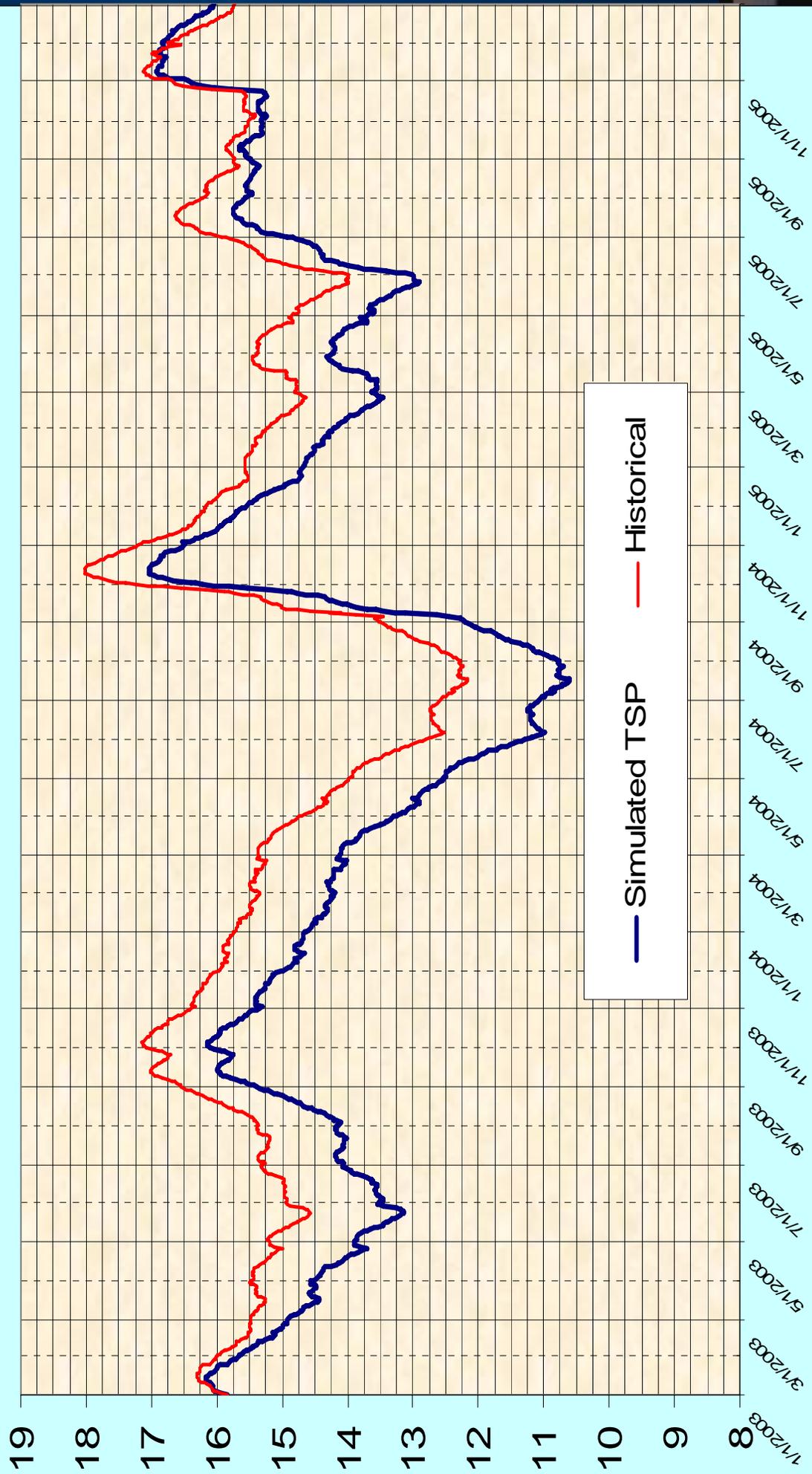
# Water Depths in Southern WCA-3A

# Old South WCA-3A (IR 14) High/Low Depth Criteria Exceeded in Weeks



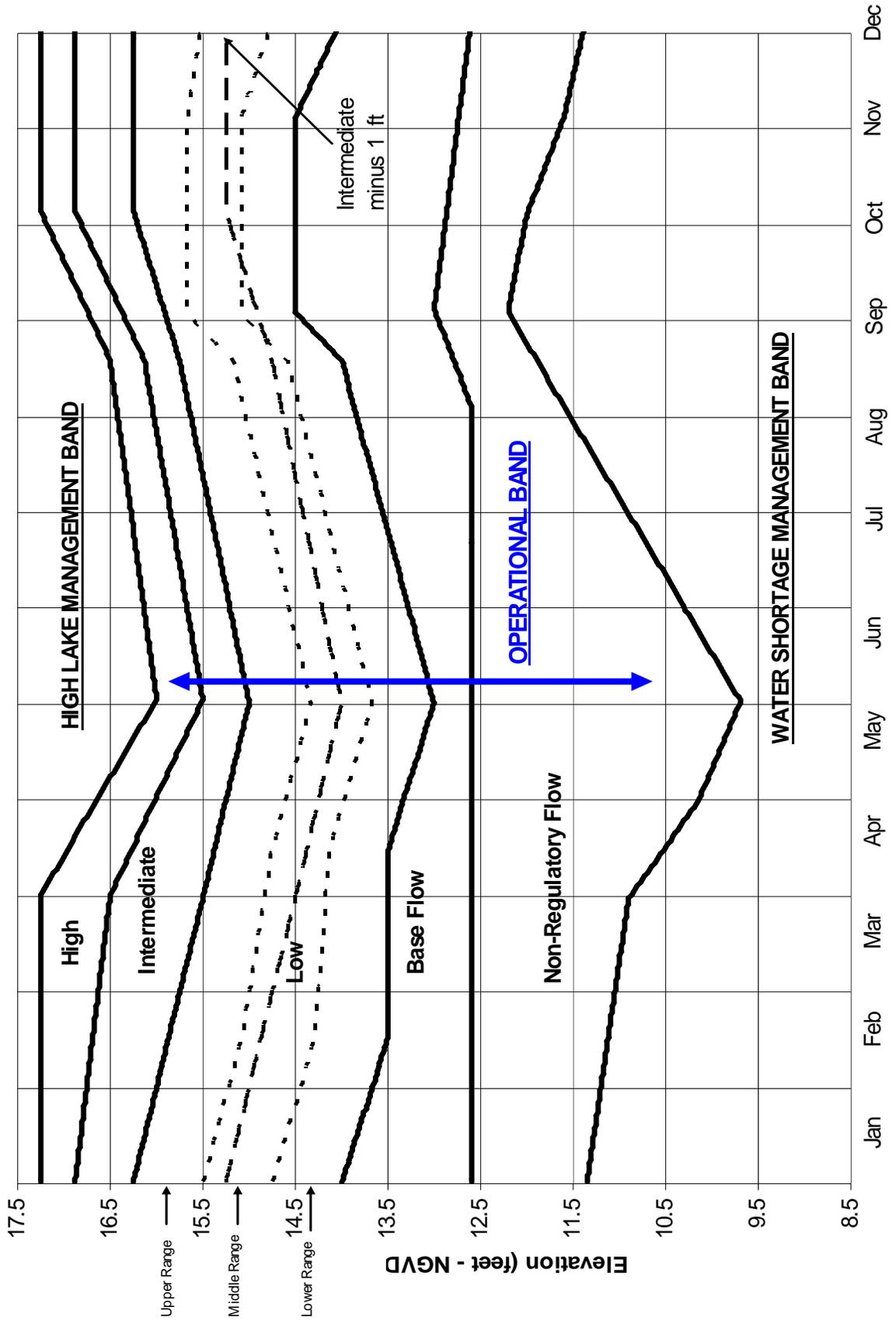
# 2003-2005 Revised TSP Performance

# 2003-2005 Revised TSP Performance

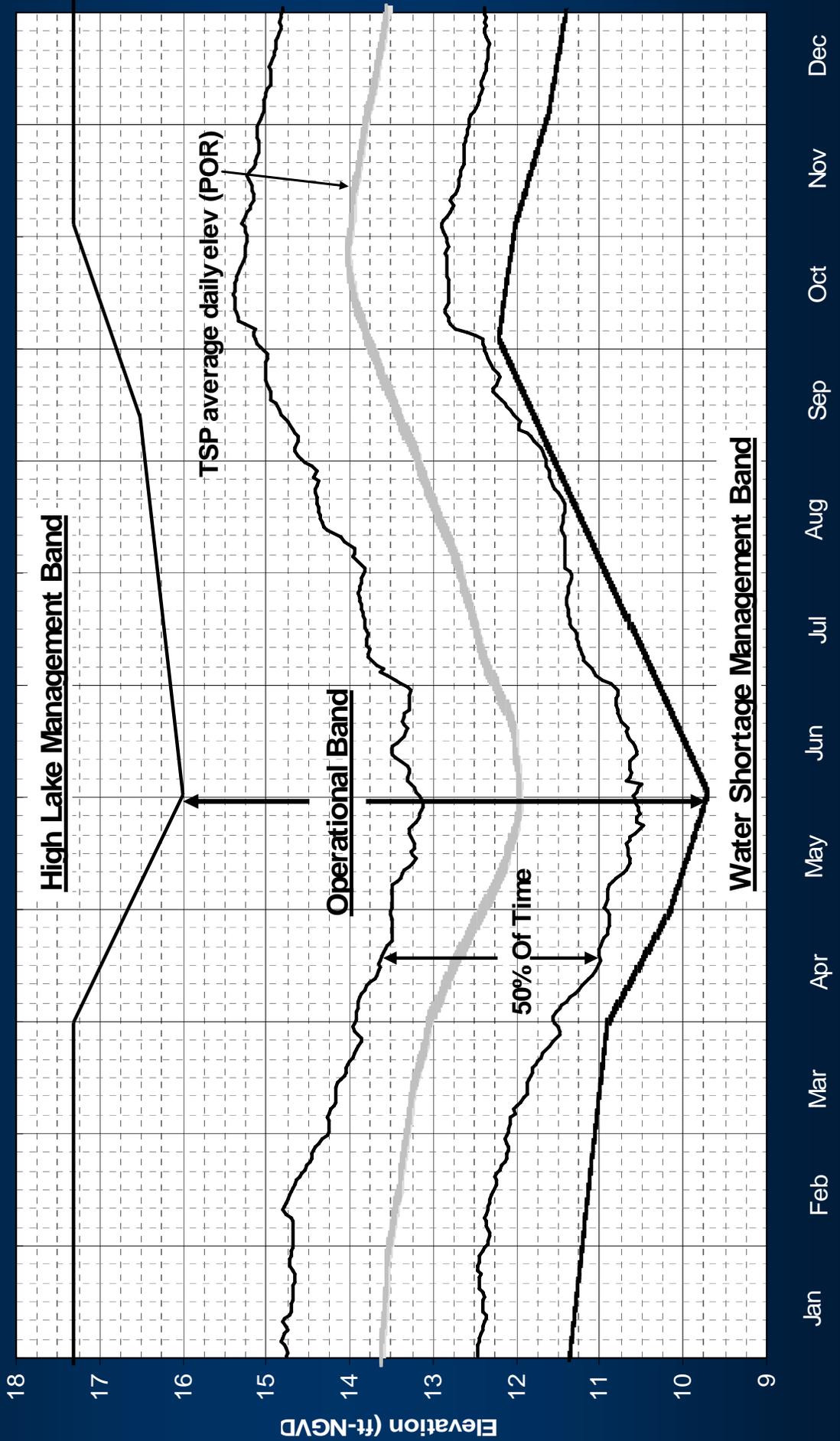


# Revised Regulation Schedule

# TSP Management Bands



# TSP Performance





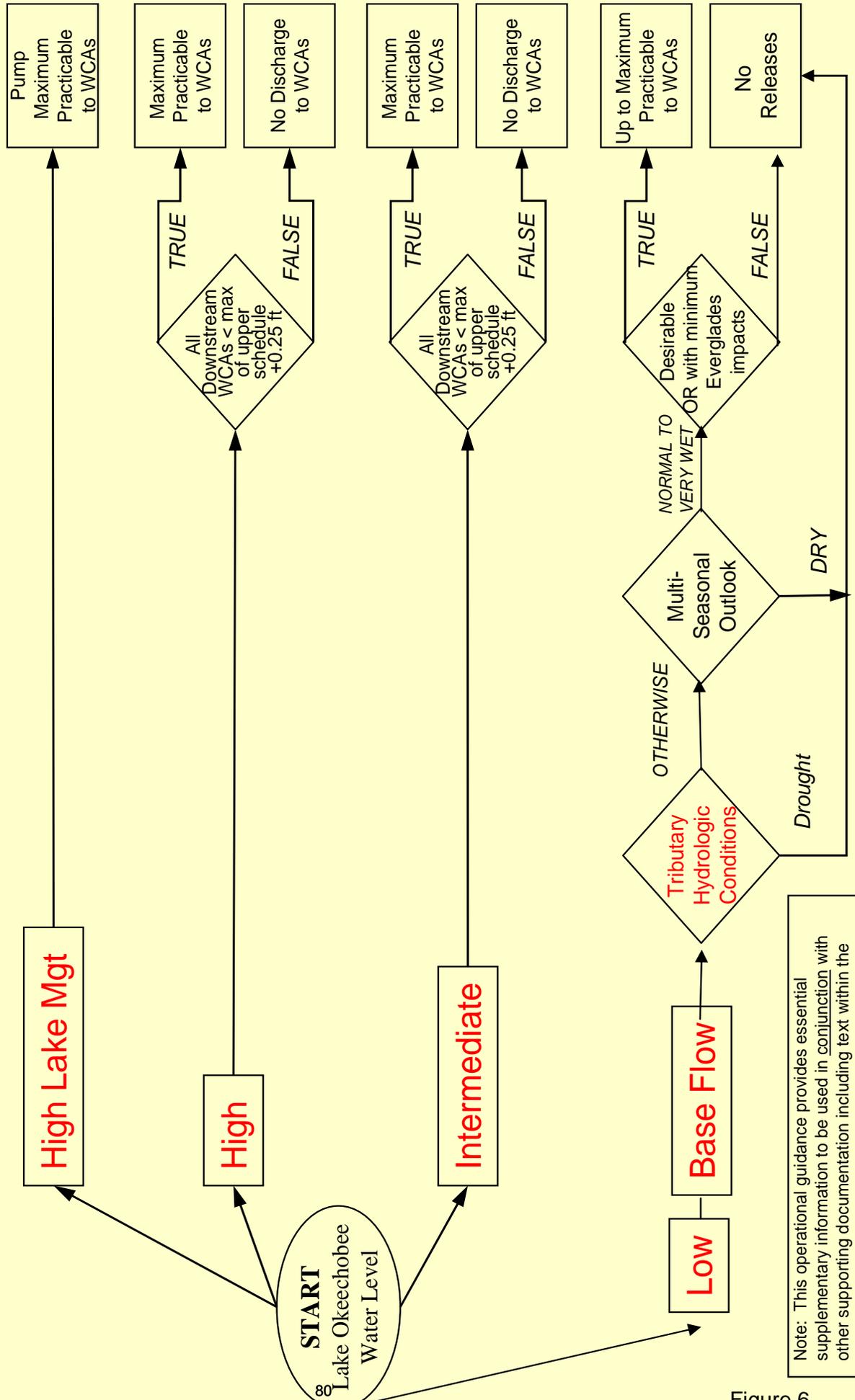
# Lake Okeechobee Operational Guidance

## Part C: Establish Allowable Lake Okeechobee Releases to the Water Conservation Areas

**NEW CONDITIONS**

Apply Multi-Seasonal Climate Outlooks on a Monthly Basis

Apply Tributary Condition Criteria Daily



Note: This operational guidance provides essential supplementary information to be used in conjunction with other supporting documentation including text within the Water Control Plan.

Figure 6

# Benefits Analysis of Emergency Water Storage on SFWMD Lands

# Analysis Assumptions

- LORSS TSP simulation mean monthly flows from the SFWMM were used for the analysis
- SFWMD public lands will be available for water storage, including all necessary conveyance and control infrastructure
- Storage will be used to capture Lake Okeechobee regulatory releases when undesirable 'high' flows are experienced at the St. Lucie below S-80 (SLE) and Caloosahatchee at S-79 (CRE) estuaries
- Storage was not used to capture local runoff in the C-43 and C-44 basins, which also contribute to the undesirable 'high' flows

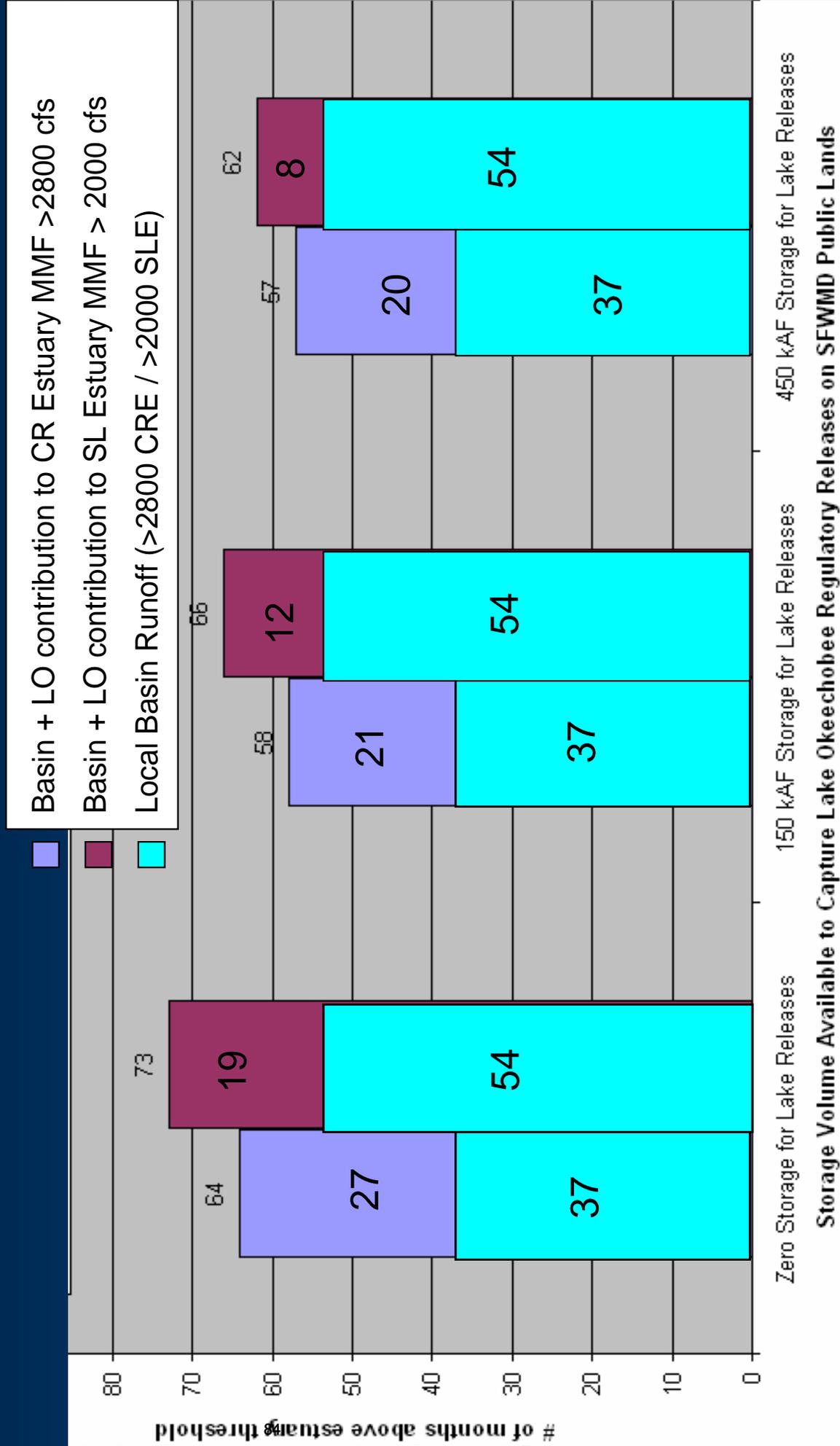
# Analysis Assumptions

(continued)

- Storage volumes are available at the start of each water year
  - Water Year (Oct 1 thru Sept 30) are adjusted when high flow months extend across two years
- Two potential available storage conditions were evaluated
  - 150,000 acre-feet (lands presently identified by SFWMD) and 450,000 acre-feet (stated target of SFWMD)

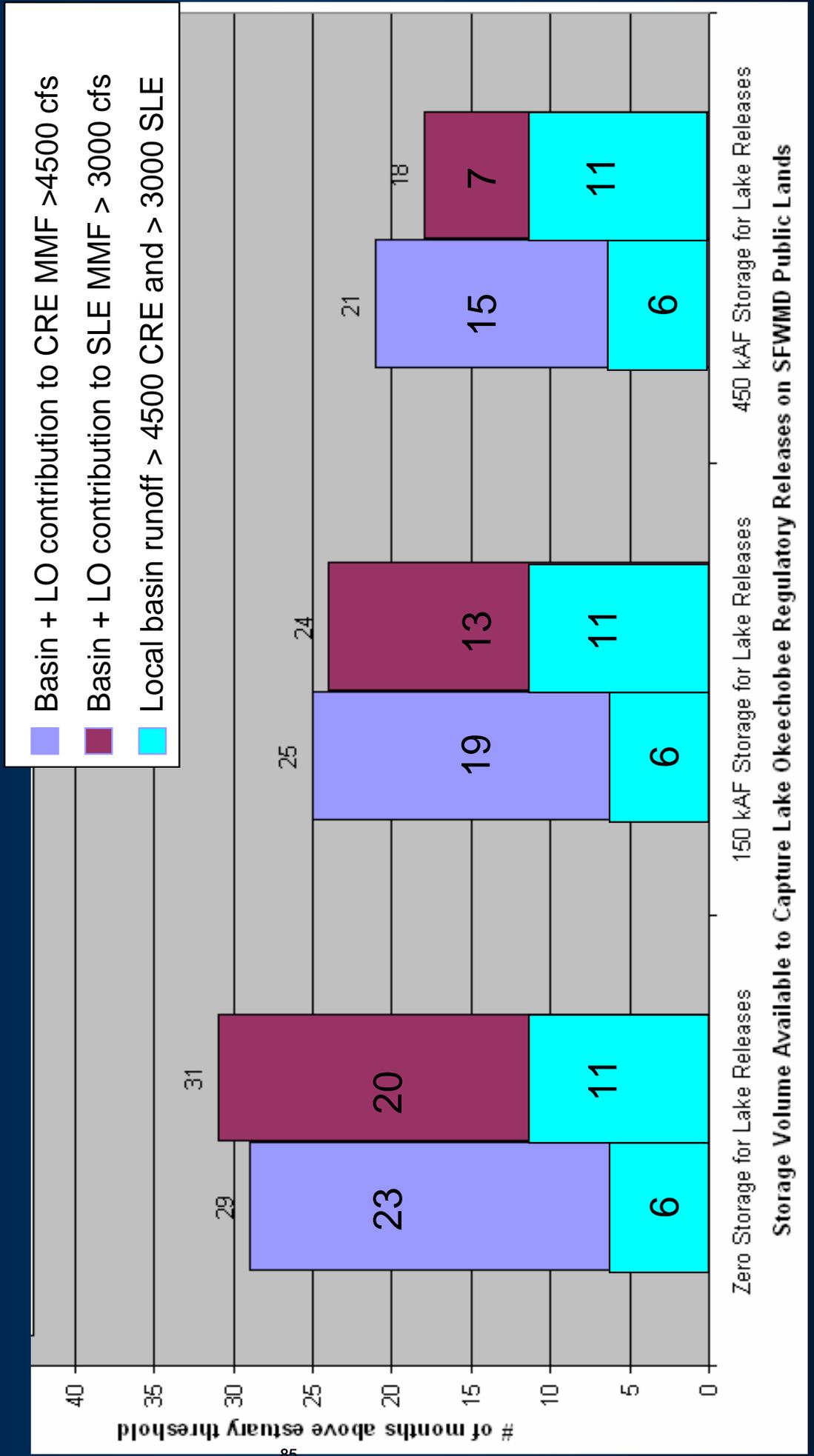
# SFWMD Lands Water Storage Initiative

## CRE flows >2800 cfs and SLE flows >2000 cfs



# SFWMD Lands Water Storage Initiative

## CRE flows >4500 cfs and SLE flows >3000 cfs



# LORSS Schedule

<u>Task</u>	<u>Begin</u>	<u>End</u>
TSP Brief/ Corporate Board Approval		08 Dec. 2006
LORSS Public/Stakeholder Meeting on TSP	24 Jan 2007	08 Feb 2007
Revised Draft SEIS and Operational Guidelines	and	
Revised DSEIS in Fed Register	8 Dec 2006	08 Feb 2007
45 Day Public Comment Period begins	09 Mar 2007	
NEPA and WCP Public Meetings	09 Mar 2007	23 Apr 2007
Final SEIS compiled	02 Apr 2007	05 April 2007
Final SEIS in Fed Register	24 Apr 2007	16 May 2007
30 Day public comment period of FSEIS	01 Jun 2007	30 Jun 2007
FSEIS/ROD & WCP to SAD	01 Jun 2007	
	10 July 2007	

# Public Comments

Jacksonville District website  
[www.saj.usace.army.mil](http://www.saj.usace.army.mil)

Project Manager Pete Milam  
[j.p.milam@saj.usace.army.mil](mailto:j.p.milam@saj.usace.army.mil)

U.S. Army Corps of Engineers  
Jacksonville District  
701 San Marco Blvd.  
Jacksonville, FL 32207-8175

# Questions?





12. \* Public Comment

15m



13. Adjourn: 3:15 p.m