CENTRAL AND SOUTHERN FLORIDA PROJECT
MODIFIED WATER DELIVERIES TO
EVERGLADES NATIONAL PARK, FLORIDA

8.5 SQUARE MILE AREA

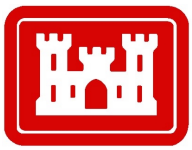
SUPPLEMENTAL ENVIRONMENTAL
IMPACT STATEMENT

BIOLOGICAL ASSESSMENT

ATTACHMENT A

DEPARTMENT OF THE ARMY
JACKSONVILLE DISTRICT, CORPS OF ENGINEERS
JACKSONVILLE, FLORIDA

July 2000



HDR Engineering, Inc.

DEPARTMENT OF THE ARMY
JACKSONVILLE DISTRICT CORPS OF ENGINEERS
P. O. BOX 4970
JACKSONVILLE, FLORIDA 32232-0019

REPLY TO
ATTENTION OF

JUL 18 2000

Planning Division
Environmental Branch

Mr. Stephen W. Forsythe
U.S. Fish and Wildlife Service
P.O. Box 2676
Vero Beach, FL 32961-2676

Dear Mr. Forsythe:

This concerns Endangered Species Act coordination for the 8.5 SMA feature of the Modified Water Deliveries to Everglades National Park project.

Discussions with your staff indicated that the species listed under the Act that might be affected by the project are wood stork, snail kite, eastern indigo snake, Florida panther, and Cape Sable seaside sparrow. Enclosed is our Biological Assessment (BA) of possible effects on these species.

Based on information presented in the BA, we have concluded that the project would not be likely to adversely affect any of the listed species.

Please provide us your concurrence or comments on this determination by July 31, 2000.

Sincerely,

James C. Duck
Chief, Planning Division

Enclosure

BIOLOGICAL ASSESSMENT

Endangered Species Act Coordination on 8.5 SMA/Modified Water Deliveries to Everglades National Park

Project Description. The project is as described for the Recommended Plan (Alternative 6D with conditions) in the July 2000 Final GRR and Supplemental Environmental Impact Statement (SEIS) on the 8.5 SMA,

Project Area. The project area includes the 8.5 Square Mile Area (SMA) and its area of hydrologic influence in Northeast Shark River Slough as delineated by hydrologic models.

Land Use within the 8.5 SMA. The project is not expected to alter the existing land use within the 8.5 SMA east of the flood mitigation levee because of agreements with the South Florida Water Management District (SFWMD) and Miami-Dade County for control of development as discussed in the GRR/SEIS. Lands to the west of the levee will be put into public ownership and managed by the SFWMD as conservation lands.

Listed Species Considered. Species that are known to, or might, occur in the project area are wood stork, snail kite, eastern indigo snake, Florida panther, and Cape Sable seaside sparrow.

Effects on the Wood Stork. The wood stork is a highly mobile species that forages over a very large area in the southern Everglades, perhaps including the wetlands of the project area during certain times of the year. There are no known roosting or nesting sites within the project area. The nearest such site is along the Tamiami Trail (Tamiami West colony) about 5 miles to the north. There is no particular important resource for the species in the project area. It is determined that the project would not be likely to adversely affect the wood stork.

Effects on the Snail Kite. The snail kite is a highly mobile species that forages over a very large area of the southern Everglades, perhaps including the wetlands of the project area during certain times of the year. There are no known roosting or nesting sites within the project area. There is no Designated Critical Habitat for kite within the project impact area. There is no particular important resource for the species in the project area. It is determined that the project would not be likely to adversely affect the snail kite.

Effects on the Eastern Indigo Snake. The indigo snake probably occurs in the upland portions of the project area. It could potentially be affected by construction activities associated with implementation of the project. To prevent any adverse effects, as part of the Federal action the Corps will implement all the standard protection measures that have been jointly

developed with the U.S. Fish and Wildlife Service. These involve monitoring for possible presence of snakes, relocation of any individual snakes found, and education of the construction field crews on snake identification and protection (see attached protocol). Under these conditions, it is determined that the project would not be likely to adversely affect the indigo snake.

Effects on the Florida Panther. Everglades National Park staff have been tracking radio-collared panthers since 1986, and presently have been following an estimated 90% of the individuals in the area. Their records for the 8.5 SMA plus a five kilometer zone outside show that three radio-collared panthers have roamed in the vicinity of the 8.5 SMA (Figure 1). The territory of a 14-year old male panther (#16) that died from natural causes in January 2000 lay south of the 8.5 SMA, with five sitings (about 7%) within the 8.5 SMA. Records for a 15-month old male panther (#85) indicate that he has been sited near, but not within the 8.5 SMA. Similarly for a 4-year old female (#61). Although there are sitings both north (a few) and south (predominantly), there is no indication that the area is an important movement corridor. Nonetheless, the project would not introduce any barrier to panther movements since they are known not to be impeded by levees or canals (Sonny Bass/ENP, pers comm). The nearest known denning area is 15 to 20 miles away. It is therefore concluded that the 8.5 SMA does not provide important habitat for the species. Noise and human presence during the two-year project construction period could divert panther movements from the immediate area, but would produce no long-term effects on utilization of adjacent habitat. Possible recreational access to lands immediately west of the project levee and east of the Park boundary would not be expected to cause an adverse effect because records show that the panther makes very limited use of this area. Under these circumstances, it is determined that the project would not be likely to adversely affect the panther.

Effects on the Cape Sable Seaside Sparrow. Potential adverse effects on the sparrow would involve project-induced changes in hydrological conditions in the portion of Designated Critical Habitat for the sparrow population F, which lies immediately southwest of the 8.5 SMA. Potential adverse hydrologic effects in this area have been identified by the USFWS as follows.

a. On average, less than 60 consecutive days of dry conditions during the breeding season, March 1st through July 15th, which would reduce sparrow nesting success.

b. An average annual hydroperiod greater than six months, which would be damaging to the muhly grass habitat.

c. Excessive water depth on average during the non-breeding season that would be damaging to the muhly grass habitat.

In agreement with the USFWS, hydrologic model (ModBranch) output for the meteorological "average" year (1986) provides the basis for analyzing these conditions (modeling protocol is attached). The agreed upon indicator region is represented by model cells 21891, 21971, 22335, 23325, and 23331. Model output for these cells are shown in the attached weekly stage-hydrographs. Maps of these cell locations are provided in Figures 24 and 26 of the GRR Appendix A, Hydraulic and Hydrogeologic Model Report. Hydrologic modeling shows that, on average, the project would not result in any of the above adverse conditions (Table 1). Accordingly, it is determined that the project would not be likely to adversely affect the Cape Sable seaside sparrow.

Table 1. Average Hydrologic Conditions in Sparrow Habitat F

Criteria	Indicator Region Cell #				
	21891	21971	22335	23325	23331
Hydroperiod (days)	161	230	200	189	140
Breeding Days	77	63	88	60	81
Maximum Depth (ft)	0.5	0.5	0.5	0.5	0.4

STANDARD PROTECTION MEASURES FOR THE EASTERN INDIGO SNAKE

1. An eastern indigo snake protection/education plan shall be developed by the applicant or requestor for all construction personnel to follow. The plan shall be provided to the Service for review and approval at least 30 days prior to any clearing activities. The educational materials for the plan may consist of a combination of posters, videos, pamphlets, and lectures (*e.g.*, an observer trained to identify eastern indigo snakes could use the protection/education plan to instruct construction personnel before any clearing activities occur). Informational signs should be posted throughout the construction site and along any proposed access road to contain the following information:

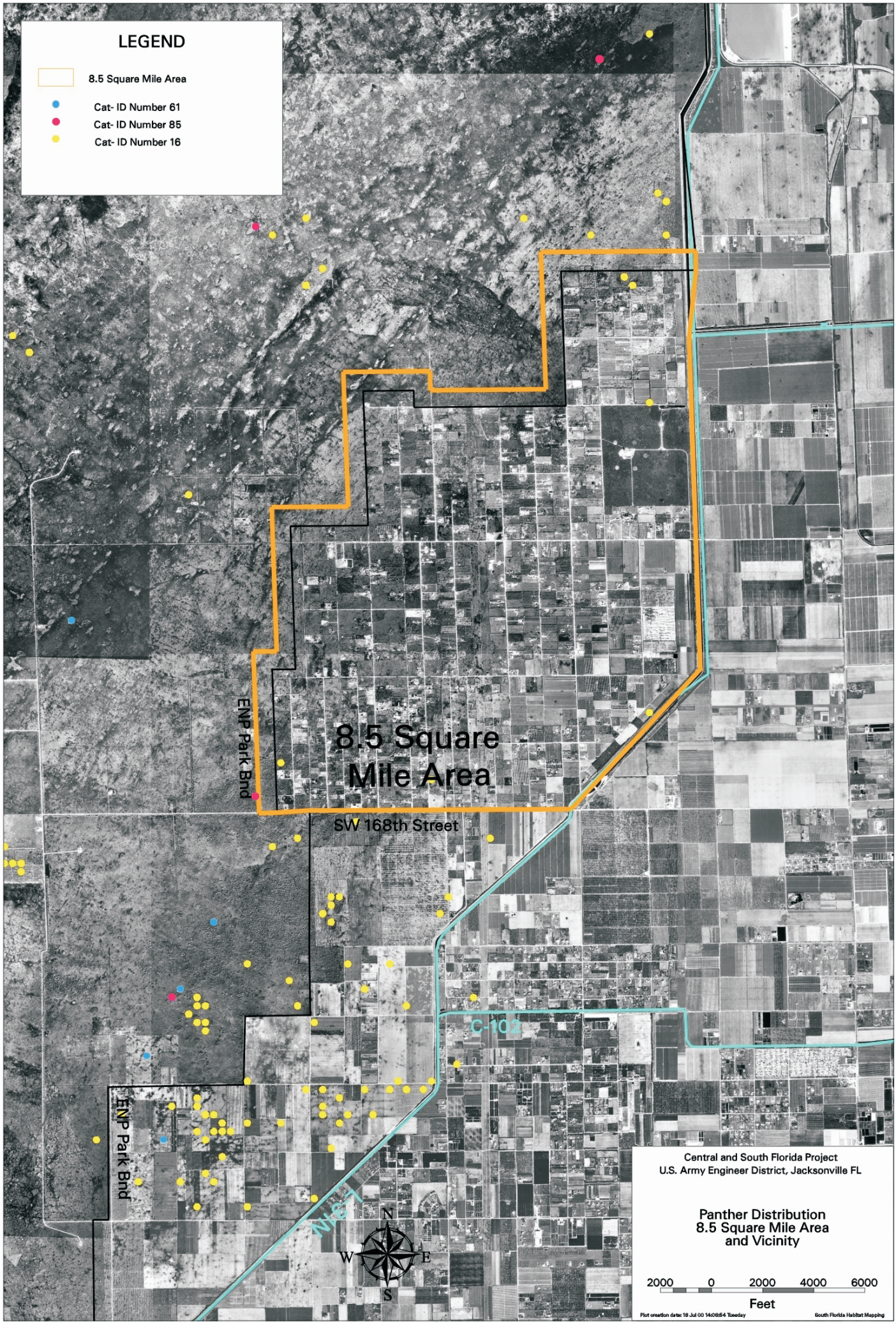
    a. a description of the eastern indigo snake, its habits, and protection under Federal Law;
    b. instructions not to injure, harm, harass or kill this species;
    c. directions to cease clearing activities and allow the eastern indigo snake sufficient time to move away from the site on its own before resuming clearing; and,
    d. telephone numbers of pertinent agencies to be contacted if a dead eastern indigo snake is encountered. The dead specimen should be thoroughly soaked in water, then frozen.

2. If not currently authorized through an Incidental Take Statement in association with a Biological Opinion, only individuals who have been either authorized by a section 10(a)(1)(A) permit issued by the Service, or by the State of Florida through the Florida Fish and Wildlife Conservation Commission for such activities, are permitted to come in contact with or relocate an eastern indigo snake.

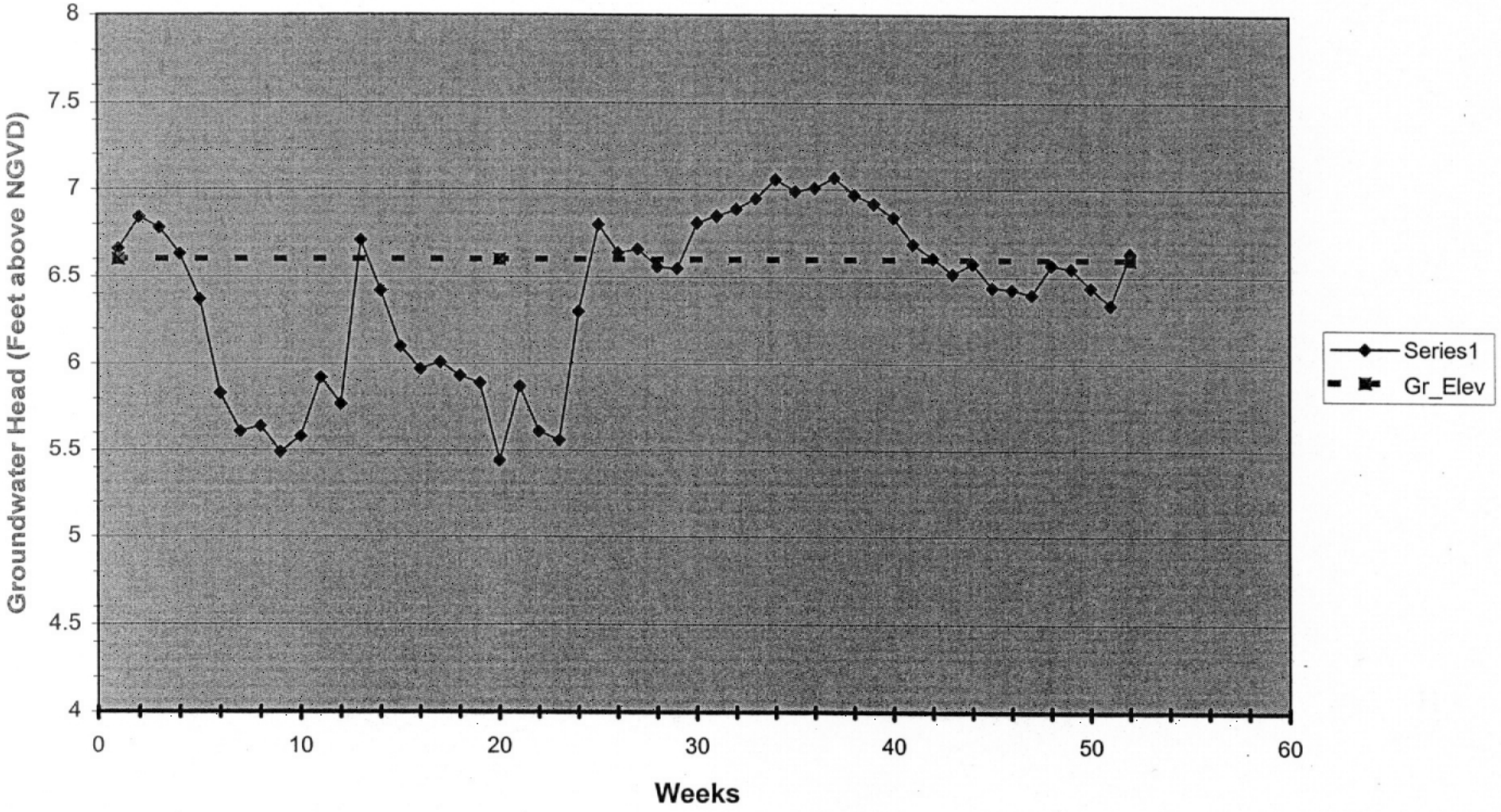
3. If necessary, eastern indigo snakes shall be held in captivity only long enough to transport them to a release site; at no time shall two snakes be kept in the same container during transportation.

4. An eastern indigo snake monitoring report must be submitted to the appropriate Florida Field Office within 60 days of the conclusion of clearing phases. The report should be submitted whether or not eastern indigo snakes are observed. The report should contain the following information:

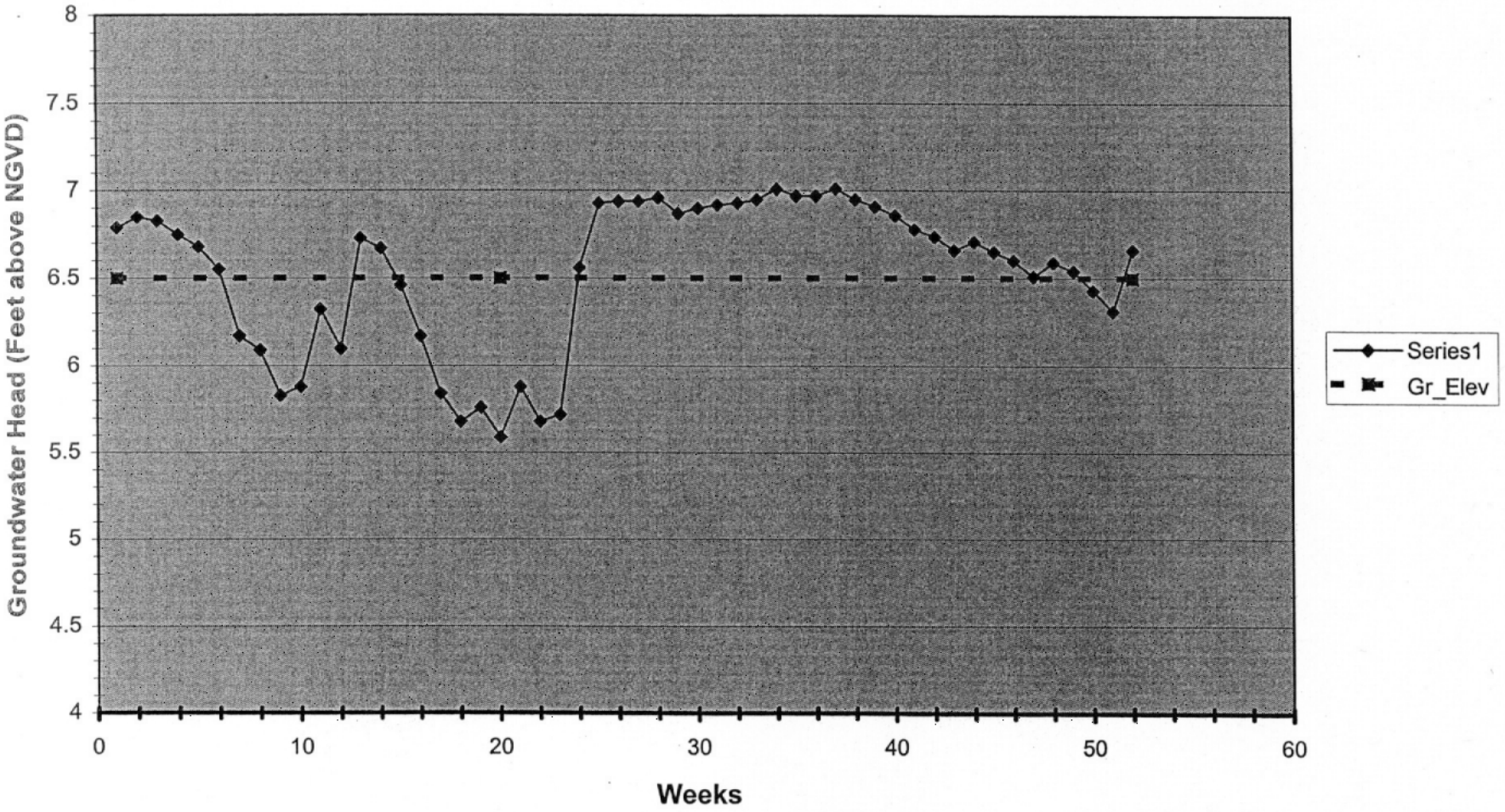
    a. any sightings of eastern indigo snakes;
    b. summaries of any relocated snakes if relocation was approved for the project (*e.g.*, locations of where and when they were found and relocated);
    c. other obligations required by the Florida Fish and Wildlife Conservation Commission, as stipulated in the permit.


LEGEND
8.5 Square Mile Area
Cat- ID Number 61
Cat- ID Number 85
Cat- ID Number 16
8.5 Square Mile Area
ENP Park Bnd
SW 168th Street
C-102
ENP Park Bnd
N9A1
N
W
E
S
Central and South Florida Project
U.S. Army Engineer District, Jacksonville FL
Panther Distribution
8.5 Square Mile Area
and Vicinity
2000 0 2000 4000 6000
Feet
Plot creation date: 18 Jul 00 14:08:54 Tuesday
South Florida Habitat Mapping

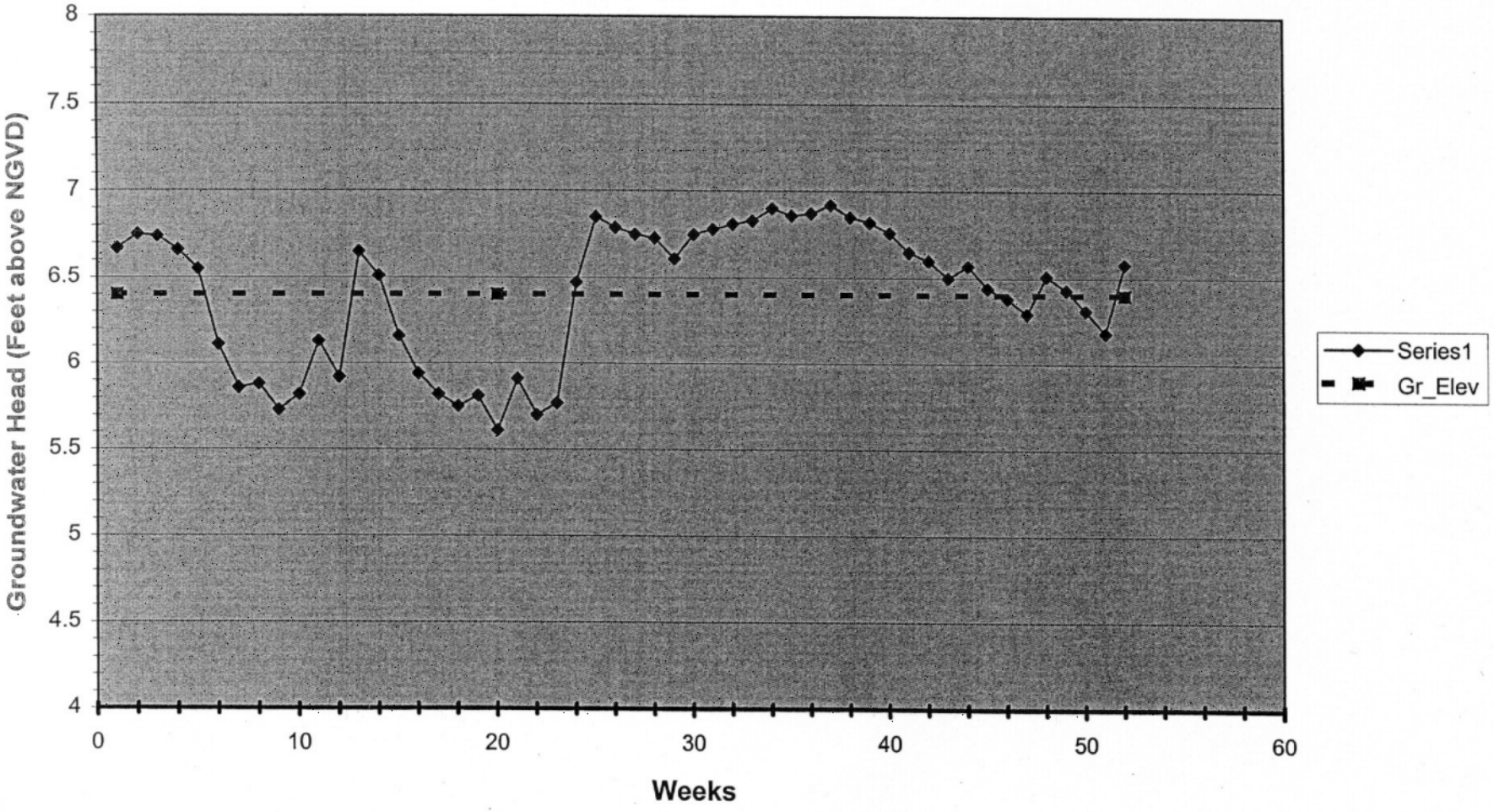
Plan 6D with STA - 1986 Average Year Precipitation Modbranch Model Indicator
Cell 21891
Within 2X2 Model Area "Sparrow Cells of Interest Area 1"



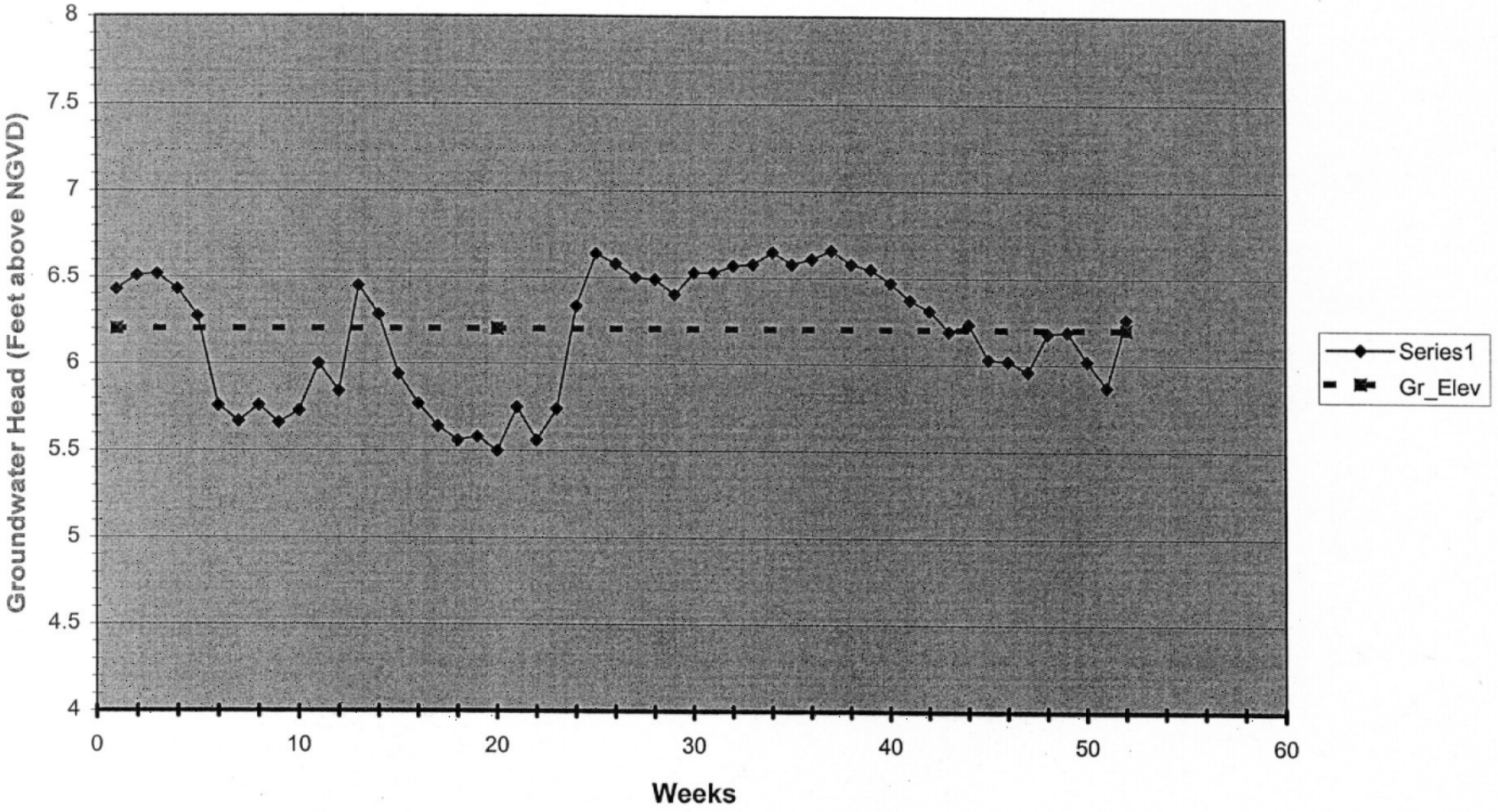
Plan 6D with STA - 1986 Average Year Precipitation Modbranch Model Indicator
Cell 21971
Within 2X2 Model Area "Sparrow Cells of Interest Area 1"



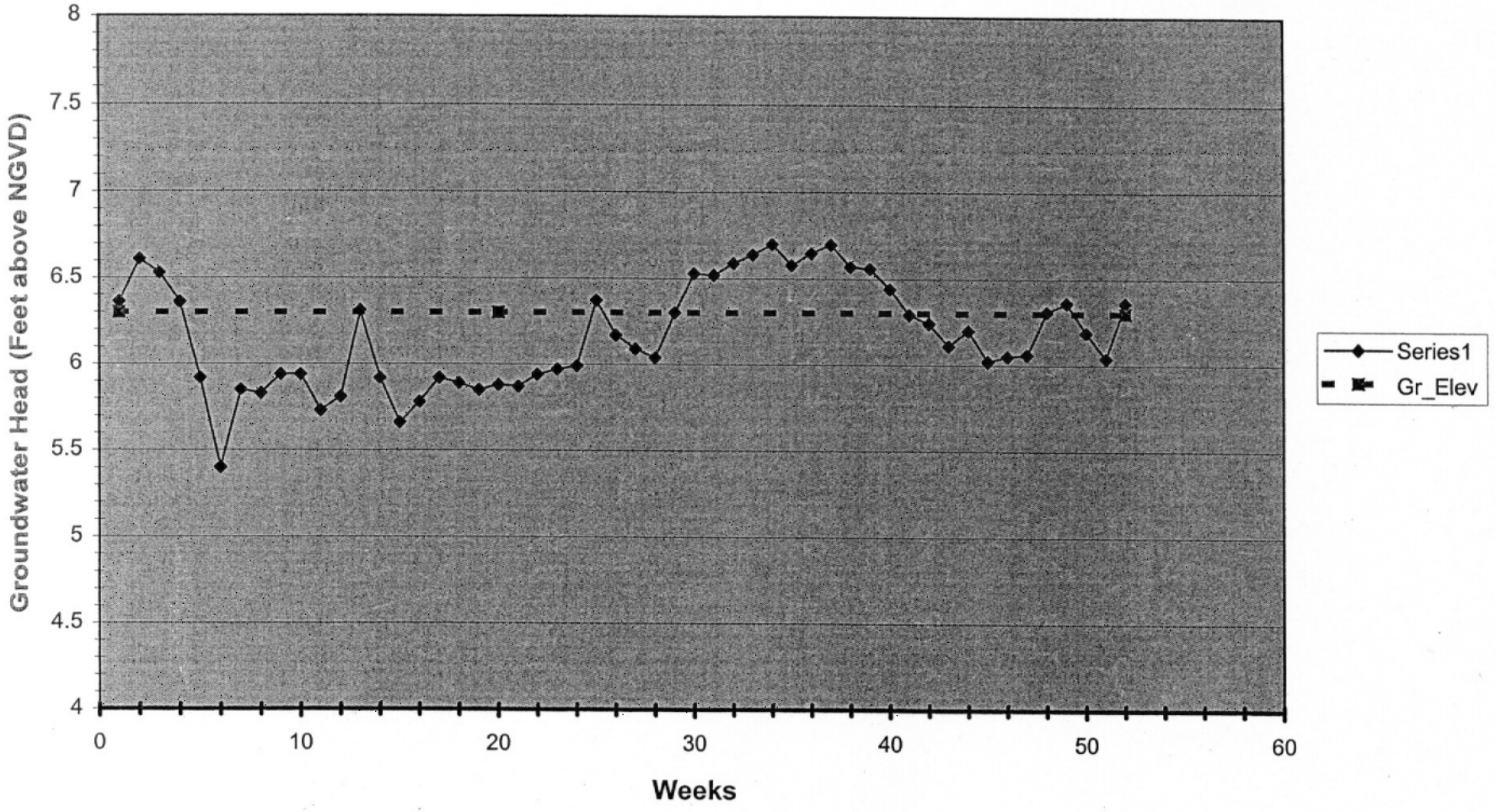
Plan 6D with STA - 1986 Average Year Precipitation Modbranch Model Indicator
Cell 22335
Within 2X2 Model Area "Sparrow Cells of Interest Area 1"



Plan 6D with STA - 1986 Average Year Precipitation Modbranch Model Indicator
Cell 23325
Within 2X2 Model Area "Sparrow Cells of Interest Area 1"



Plan 6D with STA - 1986 Average Year Precipitation Modbranch Model Indicator
Cell 23331
Within 2X2 Model Area "Sparrow Cells of Interest Area 1"



Modeling Protocol for Recommended Plan (Alt # 6D with conditions) for 8.5 SMA

The recommended plan is a flood mitigation alternative with proposed pump station S-357 pumping periodically during periods of higher water. The S-357 pump station which will be located at the southern terminus of the proposed seepage canal will be "triggered" off instrumentation (new monitoring wells) to be located in the northeast corner of the seepage canal approximately 1000 feet west of L-31North Canal. Pump Station S-357 will turn on when the water level at the trigger wells exceeds 6.0 feet NGVD and will turn off when the water level recedes to 5.75 feet NGVD.

The S-357 pump station shall discharge water to a series of swales or pipes with water being conveyed to a proposed Stormwater Treatment Area (STA) to be located on SFWMD lands just south of Richmond Drive. The water then will be treated via periphyton and allowed to slowly seep into the ground. Following the natural treatment, it is expected that the water will be exceptionally clean. The seepage basin will be designed to allow all of the pumped water to seep into the ground rather than discharge through a surface water outfall. The STA will operate in conjunction with the C-111 project features including pumping stations S-332A, S-332B, S-332C and S-332D.

Although the final operations of the whole system (including existing C&SF structures, C-111 structures and Modified Water Deliveries structures) requires further study, it is anticipated that the new set of operations will be compatible with the Cape Sable Seaside Sparrow (CSSS). The operations utilized during the model for S-332A, S-332B and S-332C are also attached as table XX. Note that operations for S-332D were **not changed from current operations** and it is not included in the table as a result. The proposed operations of S-332A, B and C will be triggered off new instrumentation (new monitoring wells) to be located near CSSS sub-population F. It is anticipated that these may have to be modified during the final design of the Modified Water Deliveries and C-111 projects. Sub-population F will be a key design consideration for the final set of operations.

As required by the FWS Biological Opinion, the CSSS must be provided an adequate breeding season in order to reproduce. Data prepared for this submittal clearly shows that during an average precipitation year (1986 was utilized in this case), CSSS sub-population F will be available for breeding during the nesting season. Five Modbranch indicator cells located at the corners of the F population were utilized to show the pertinent information (# consecutive breeding days and predicted hydroperiod) from the model output. In general, # consecutive breeding days is predicted to be slightly less than what is seen today, but hydroperiod of the area is significantly improved for a majority of the sub-population.

This result is not surprising given the fact that the Modified Water Deliveries Project will be introducing additional fresh-water into the Northeast Shark River Slough Study Area (NESRS). Resulting water levels from implementation of the Modified Water Deliveries Project are expected to be at least 0.25 to 0.50 feet higher than those observed today. Therefore, hydroperiods in the NESRS study area will be improved. Eventually, the Modified Water Deliveries Project will be coupled with the C-111 project to provide incremental restoration of the Everglades National Park (ENP). Full restoration will only be realized with the completion of the CERP, however, implementation of both Mod Waters and C-111 will make a huge improvement over conditions seen today. Alternative # 6D will be an integral part of the joint project and shall be operated consistent with the overall goals established by both projects as well as the CERP.

Rule	S-332A	S-332B	S-332C
Off if HW <	5.20	5.20	5.00
On (Q=75cfs) if	gw stage west of pond > pond stage		
On (Q=125 cfs) if HW >	5.40	5.30	5.20
On (Q=250 cfs) if HW >	5.60	5.50	5.50
OFF if spreader canal stage >	7.50	7.25	7.00
On (Q=75 cfs) if spreader canal stage <	7.50	7.00	6.50
On (Q=165cfs) if spreader canal stage <	7.00	6.50	6.00
On (Q=330 cfs) if spreader canal stage <	6.50	6.00	5.00
Off if	gw in pond <bottom of spreader canal		
Off (1 March - 15 July) if gw in Area F > (cell 3,43,15)	5.90	5.90	NA

NOTE: the rules are in a specific order. Each rule can be superseded by the rule below it.