



UNITED STATES  
DEPARTMENT OF THE INTERIOR  
FISH AND WILDLIFE SERVICE

December 1, 1982

TO: Regional Director, FWS, Newton (AWR-C)  
FROM: Refuge Manager, Montezuma Refuge  
SUBJECT: 1983 Water Management Program at Montezuma

I. PROGRAM RELATION TO REFUGE OBJECTIVES

The management of water levels is essential to meet refuge objectives. These objectives are to control water levels to: (1) provide resting and feeding habitat for migratory waterfowl and other birds, (2) provide nesting habitat for local waterfowl and waterbirds, (3) provide wildlife observation opportunities for refuge visitors, and (4) exercise controls over the rate of encroachment of Purple Loosestrife (Lythrum salicaria).

Water level management is one of the most critical and most expensive programs at this refuge. Difficulties arise because of the grossly eutrophic condition of the marshes and subsequent lost storage capacity--as well as deteriorated dikes, undersized water control structures, and the unpredictability of water levels in the New York State Barge Canal outside our dikes. Because of all of these factors, it is obviously not feasible to maximize in any one year for all of the water program's objectives. Therefore, program objective 1 (above) has preeminence; stability and continuity are keys to accomplishing this goal. Manipulation occurs primarily to effect controls upon encroachment by Purple Loosestrife and minimize dike erosion.

II. WATER MANAGEMENT

A. General

Water levels in the three major impoundments (Main, May's Point, and Tschache Pools) are interrelated. Except for periods of heavy precipitation, the May's Point and Main Pools are dependent upon the Tschache Pool for their water supply. Water is diverted from the Tschache Pool to the May's Point Pool through the Connecting Spillway under Route 89. Water is then diverted from May's Point Pool into the Main Pool through two spillways which pass under the New York State Thruway. Excess water in the Main Pool is dumped into the Cayuga-Seneca Canal through the Seneca Spillway.

Water levels in each of the three major impoundments are controlled by use of stoplogs at the water control structures. Use of the Tschache Pool pumping station will be contingent upon climatic conditions.

B. Water Management Problems

The repair of seeps located within the Seneca Spillway water control structure has been repeatedly considered over the last three years. Due to budget limitations, equipment deficiencies and conflicts with BLHP facility construction, the work has not been completed. It is planned again for FY83; it seems unlikely that the repairs will be completed. The related problem of deteriorated dikes (Main and May's Point Pools) has reached a critical stage thus requiring us to lower planned water levels during the fall and winter months. Seasonal flooding problems will, as usual, be contingent upon runoff volume and aggravated by severely undersized water control structures.

C. Vegetation Control

Again, this year, water levels are being held 6 to 10 inches higher in Main, Tschache, and May's Point Pools during the growing season in order to stress Purple Loosestrife communities. Objectives for this program are to insure that maximum stress is placed on loosestrife during stem elongation and during flowering. The long-range goal is to create a niche deficit which will allow cattail "mats" to extend into loosestrife communities, thereby displacing, successionaly, the loosestrife.

D. Carp Control

Carp control will be in accordance with the station Long-Range Water Management Plan. Lower water levels during the winter months should enhance winter kills.

III. UNIT WATER MANAGEMENT

Table I summarizes the proposed impoundment water elevations for CY83. CY83 elevations are consistent with the approved Water Management Plan objectives.


Planned spring water elevations for the Main, Tschache, and May's Point Pools are influenced by runoff volume. Runoff during spring 1981, for example, was below average; stability during the period was relatively great. Spring is most critical--although late fall and winter periods can become difficult if major thaws and rainy periods coincide. As stated in the introduction, our overall capability is modified in all cases by pool eutrophication, upstream land use changes, Barge Canal levels, deteriorated dikes and undersized water control structures.

#### IV. FUNDING AND MANPOWER

Water Level Management . . . . .	\$14,000
(3,400 acres managed; 150 permanent mandays)	
Heavy Equipment . . . . .	1,000
(diesel engine/pump station - 250 hours operation)	
Automotive Equipment . . . . .	700
(trucks; 3,000 miles of operation)	
Miscellaneous Equipment Costs . . . . .	6,000
(four radio sets operated, stoplogs, screens, supplies, structure maintenance, etc.)	
TOTAL COST . . . . .	\$21,700

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Att.

Submitted by: \_\_\_\_\_

  
Refuge Manager

Reviewed by: \_\_\_\_\_

Approved by: \_\_\_\_\_

\_\_\_\_\_  
Date

1-28-83

\_\_\_\_\_  
Date

## PROPOSED WATER ELEVATIONS 1983

	<u>Main Pool</u>	<u>Tschache Pool</u>	<u>May's Point Pool</u>	<u>North Spring Pool</u>	<u>South Spring Pool</u>	<u>Unit 17</u>
Jan 1	382.0	384.5	383.0	388.0	391.9	382.0
Feb 1	382.0	384.5	383.0	388.0	391.9	382.0
Mar 1	381.0	383.5	382.0	388.0	391.9	382.0
Apr 1	381.0	383.5	382.0	388.0	391.9	383.3
May 1	381.0	383.5	382.0	388.0	391.9	383.3
June 1	382.5	385.0	383.5	388.0	391.9	383.3
July 1	382.5	385.0	383.5	388.0	391.9	383.3
Aug 1	382.5	385.0	383.5	388.0	391.9	383.3
Sept 1	382.5	385.0	383.0	388.0	391.9	383.3
Oct 1	382.0	384.5	383.0	388.0	391.9	383.3
Nov 1	382.0	384.5	383.0	388.0	391.9	383.3
Dec 1	382.0	384.5	383.0	388.0	391.9	383.3
Crest Elev	383.0	385.1	383.5	388.0	392.0	
Flow Line	376.5	380.6	376.0	382.8	388.5	



