2.5 AF/acre
5.0 AF/acre

STILLWATER NATIONAL WILDLIFE REFUGE (SNWR)
AND
STILLWATER WILDLIFE MANAGEMENT (SWMA) AREA, FALLON, NEVADA
ANNUAL WATER MANAGEMENT PLAN
CY 1997

ABSTRACT

An estimated 70,000 acre feet(AF) of water are needed annually to maintain 14,000 acres of permanent marsh currently administered by the Stillwater NWR.

The 1997 water projections forecast a 100% irrigation delivery year starting in mid March ending in mid November. Based on projected water storage and precautionary releases from Lahontan Reservoir, releases and return flows to the refuge are estimated to be 53,000-73,000 AF. These flows will be augmented by nearly 8,200 AF of acquired prime water deliveries providing an estimated 61,200-81,200 AF to maintain 12,240-16,240 wetland acres at SNWR.

PURPOSE

The primary goal of the annual water plan is to set strategy for the most efficient use of available water to SNWR an SWMA.

INTRODUCTION

Since 1990 when SNWR received offical refuge status, management has been to maintain and restore natural biological diversity of fish and wildlife; provide for the conservation and management of fish and wildlife and their habitats; and provide opportunities for research, environmental education, and fish and wildlife recreation.

Refuge water requirements are determined from flow data based on past and projected water records, unit size, water levels and monthly evapotranspiration. Unit priority is based on vegetation conditions and anticipated wildlife response.

Successful habitat management is dependent upon the quality and quantity of drain water (return flows), irrigation water spills from the Newlands Project and acquired water deliveries. The Refuge is presently acquiring irrigation water rights from willing sellers within the Project and to date has acquired 11,700 AF of which 8,200 AF has been transferred to the wetlands, with 100 % available for this year's use.

At present the Refuge, has not acquired enough water to effectively manage for 14,000 wetland acres. With the elimination of winter flows since 1967 and the use drain water flows has lead to a long term deterioration of water quality and habitat conditions.

CURRENT CONDITIONS

The drought was shattered with an extraordinary snowpack causing the level of Lake Tahoe to rise above the rim for the first time since 1990. This resulted in increased runoff and releases from Lahontan to the wetlands. Stillwater NWR wetlands began 1997 with 13,000 surface acres flooded. 1997 water projections look for above normal snowpack in the Sierra. The February 1 streamflow conditions forecast 209% of average (435,000 AF) for the Carson River and 214% of average (650,000 AF) in the Truckee River drainages during the March-July period.

1997 flood releases began on January 2 and are planned to continue through July with an estimated 285,000-395,000(AF) for delivery to Lahontan Valley wetlands and the Carson Sink.

"Normal" irrigation operations assumes TCID will release approximately 290,000-350,000 AF from Lahontan Reservoir beginning in March through November. This plan has been developed with the assumptions that the Refuge will receive between 4% and 7% of the water released, as return flows 11,600-21,000 AF. This coupled with the 8,200 AF of prime water provides approximately 19,800-29,200 AF for management within the Refuge and Management Area.

Present Refuge Water and Habitat Conditions, February 1,1997

By February 1997, 22,000 acres were flooded. Only the following units were below capacity: West Marsh (2,832 ac.) and Swan Lake (1,582 ac.). In the Indian Lakes Area, all units were above optimum levels totaling 1000 acres.

OPERATIONAL PLAN: 1997 WATER YEAR

Strategy 1. Maintain the following units at operation levels based on the following priority.

Table 1. Priority Unit Management

PRIMEWATER DELIVERIES
If for any reason the irrigation season does not extend into November the refuge requests 20-30% of our water allocation to be delivered beginning September 1 until the water order is complete.

Primewater Delivery via S-Line(ST-75) to West Canal

March-May	@ 0 cfs	0 days for	0	AF
June-August	@20 cfs	45 days for	1,670	AF
Sept.-Dec.*	@20 cfs	120 days for	3,800	AF
		Total	5,470	AF

* If delivery demand and/or flood releases are available.

REFUGE UNIT	MGMT TYPE	ACRES	AF	DELIVERY DATE
These units receive both prime and drain water.				
1.West Dry Lake	PFM	295	1,475	Apr.-Nov.
2.Goose Lake	PFM/SFM	660/+240	3,900	Apr.-Nov.
3.South Nutgrass	PFM	700	3,500	Apr.-Nov.
4.Swan Check	PFM	300	1,500	Apr.-Nov.
5.East Dry Lake*	PFM*/SFM	270	1,250	June-Nov.
	TOTALS	2,465	11,625	

* If additional water is acquired or available through flood control releases.

Primewater Delivery via Paiute Diversion Canal to West Marsh

April-May	@ 0 cfs	0 days for	0	AF
June-August*	@15 cfs	25 days for	750	AF
Sept.-Dec.*	@15 cfs	120 days for	1,980	AF
		Total	2,730	AF

* If delivery demand and/or flood releases are available.

Precautionary (Flood Control) Releases could be routed to the refuge through the following systems.

1. D-Line Canal: Capacity 120 cfs
2. Outlet of Harmon Reservoir: Capacity 50 cfs
3. L-Line(to the Diagonal Drain): Capacity 200 cfs
4. Diagonal Drain: Capacity 270 cfs
5. Paiute Diversion Canal: Capacity 60 cfs

REFUGE UNIT	MGMT TYPE	ACRES	AF	DELIVERY DATE
<u>These units receive both prime and drain water.</u>				
1.South Lead Lake	PFM	510	2550	April-Nov.
2.North Lead Lake	PFM	385	1925	April-Nov.
3.North Tule	PFM	1035	5175	April-Nov.
4.South Tule*	SFM	210	525	Sept.-Nov.
5.East Lead Lake*	SFM	130	325	Sept.-Nov.
TOTALS		2270*	10500*	

* If additional water is acquired or available through flood control releases.

DRAINWATER DELIVERIES

<u>Diagonal Drain to North and East Marsh via East & West Canals</u>

REFUGE UNIT	MGMT TYPE	ACRES	AF	DELIVERY DATE
1.Stillwater Pt. Res.	PFM	1850	9250	March-Dec.
2.East Upper Foxtail	PFM	70	350	March-Dec.
3.Lower Foxtail	PFM	1085	5425	March -Dec.
4.Doghead	PFM	100	500	March-Dec.
5.South Nutgrass	PFM	700	3500	April -Dec.
6.West Nutgrass	PFM	325	1625	April-Dec.
7.East Alkali	PFM	585	2925	April -Dec.
8.Pintail Bay*	PFM	1500	7575	April -Dec.
9.Cattail	SFM/PFM	265	670/1335	April-Dec.
10.Upper Foxtail*	SFM	300	750	Sept.-Dec.
11.Willow/Millen*	SFM/PFM	2800	14000	March-Dec.
12.Swan Lake*	PFM	1580	7900	March-Dec.
TOTALS		11160*	55135*	

* If additional water is available through flood control releases.

GRAND TOTALS 15,895* 77,260*

Definitions:

Permanently flooded marsh (PFM) managed with *5.0 AF/AC.*

Seasonally flooded marsh (SFM) managed with *2.5 AF/AC.*

Outflows from the Canvasback Club began in late November with unit drawdowns. These flows have been diverted north along the Navy Cabin Drain to maintain Swan Check, Nutgrass and Pintail Bay.

Indian Lakes Area

Upper Lake will be managed at a minimum level to provide maximum flows through to Likes, Papoose and to provide storage and efficient water delivery to the Thirty-one Corporation. Likes and Papoose Lakes will be maintained at maximum pool levels to provide efficient water deliveries and protect recreational fisheries. Any excess flows will be delivered to Twin Lakes and continue through the D-Line to the refuge.

This plan will need revisions based on water actually received. The refuge biologist will continue to monitor water receipts and will coordinate water manipulations with NDOW biologists. Meetings will be held in July and September to reassess the water quantity, quality and status of habitat conditions at which point amendments will be submitted for approval.

Submitted by:_____

William G. Henry, Refuge Biologist(USFWS) Date:_____

Approved by:_____ Date:_____

Dan Walsworth, Project Leader(USFWS)