

ENVIRONMENTAL ACCOUNT
2019 WATER YEAR ANNUAL OPERATING PLAN
November 15, 2018 - Draft Plan

SUMMARY

This upcoming 2019 water year, the U.S. Fish and Wildlife Service (Service) lists the spring and fall whooping crane, and the spring channel maintenance releases as high priorities. The releases should assist the National Weather Service (NWS) in determining whether the North Platte flood stage will increase to 6.5 feet. Two other Service goals this year are to release, at the minimum, the volume gained in the Environmental Account (EA) during the water year (WY) and, if possible, to bring the EA volume to between 30,000 to 40,000 acre-feet by the end of the WY. These later goals are intended to maximize the use of EA and minimize the chances of operational losses (e.g., evaporation, seepage, and account reset). It is estimated that the EA will gain approximately 80,000 acre-feet in Water Year 2019, which includes the Pathfinder EA and Municipal accounts deliveries (some of which may occur in September 2018). Priority releases during the upcoming water year are listed in Table 1. Estimates of the EA credits, losses, and volume at the end of the water year (without any releases) are listed in Table 2.

Table 1: Priority EA releases for WY19

<i>Date</i>	<i>Target Flow (cubic feet/sec [cfs])</i>		<i>Purpose</i>	<i>Priority</i>
	<i>Normal</i>	<i>Wet</i>		
Oct 1-Nov 15¹	1,800	2,400	Whooping crane, waterfowl	High
Feb 15-Mar 15	3,350	3,350	Channel maintenance, wet meadow recharge	Medium
Mar 23-May 10	2,400	2,400	Whooping crane	High
May 11-Sept 15	1,200	1,200	Terns and plovers, aquatic community	Medium
May 20- June 20²	>3,000	>3,000	Channel maintenance, test chokepoint	High

¹This release is now completed, with a total release of 36,102 acre-feet.

² Flows in excess of 3,000 cfs should be maintained for the duration of 7 to 30 days.

Table 2: EA carryover accounting for WY2019

<i>Source</i>	<i>Volume (acre feet)</i>
WY2018 Carry-Over (estimated)	58,888
Pathfinder (EA and Municipal) delivered ¹	25,486
CPNRD Lease (Delivered 10/1/2018)	14,200
NCCW (Delivered 10/1/2018)	314
CNPPID Lease (Delivered 10/1/2018, estimated)	1,541
10% Storable Natural Inflows (projected)	47,000
Evaporation & Seepage Loss (median 2000-2017)	-8,989
Estimated WY19 EA Carryover(without releases)	138,440

¹Estimate of total delivered to Lake McConaughy, in both September and October, 2018.

BACKGROUND

An Environmental Account of water in Lake McConaughy in Nebraska was established on October 1, 1999, as per Central Nebraska Public Power and Irrigation District (CNPPID) and Nebraska Public Power District (NPPD) (collectively, Districts) Federal Energy Regulatory Commission (FERC) licenses, for Project 1417 and Project 1835, respectively.

The EA, managed by an EA Manager appointed by the U.S. Fish and Wildlife Service, was established primarily to benefit four federally listed threatened or endangered “target” species (*i.e.*, whooping crane, interior least tern, piping plover, and pallid sturgeon). The EA Manager is required to develop an Annual Operating Plan (AOP) for releases from the EA in coordination with the EA Committee (a subcommittee of the Platte River Recovery Implementation Program [PRRIP or Program]) by the end of October of each year.

Guidelines and operating rules for the EA are described in the FERC licenses and in Attachment 5, *An Environmental Account for Storage Reservoirs on the Platte River System in Nebraska*, of the *Platte River Recovery Implementation Program*.

Release priorities for the EA are based on the 1994 Service document titled: “*Instream flow recommendations for the Central Platte River, Nebraska (Instream Flow document)*.”

WATER YEAR 2019 RELEASE PRIORITIES

High priority releases for the upcoming water year are: the fall (October 1 to November 15) and spring (March 23 to May 10) whooping crane releases; and late spring (May 20 to June 20) channel maintenance release. Medium priority releases, which will be performed if there is EA water available, are the late winter (February 15 to March 15), and the summer (May 11 to September 15) target periods.

In addition, this year the Program will have the opportunity to test the chokepoint conveyance at North Platte. The test, to determine if the flood stage may be increased to 6.5 feet, will be first attempted with the May 20 to June 20 release, if the test is not possible due to weather, outages or other factors, then the May 11 to September 15 release may be used for this purpose.

Information, listed in chronological order, about both the high and medium priority releases is summarized below.

October 1 to November 15 (Whooping Crane) Release Priority - High

Purpose A flow of 1,800 cfs is expected to maintain in-channel habitat for the whooping crane in a normal year will limit steep declines in weighted usable area. A flow of 2,400 cfs is expected to optimize in-channel habitat for the whooping crane under wet year conditions.

Good Neighbor Conflicts and Other Conflicts - Release could be affected by the capacity limited

at the North Platte chokepoint. The Service will coordinate with CNPPID to ensure releases do not exceed flood stage at North Platte. The release will not require bypass at the CNPPID diversion. Flow releases will maintain ramp rates at safe levels for the Keystone Canal and the North Platte River. The release will not require the retiming of water at Lake Maloney, Jeffrey Reservoir, or Johnson Lake.

Both the NPPD and CNPPID are performing maintenance tasks on their canals and projects from mid-September to mid-October. This work should end in time to allow the EA release to bring the flow to 1,800 cfs, at Grand Island, by October 20 when the peak of the whooping crane migration historically begins.

Note: This has been completed, with a total release of 36,102 acre-feet.

February 15 to March 15 (Channel Maintenance/Wet Meadow Recharge) Release
Priority - Medium

Purpose - Referencing the Service's Target Flow document, the February 15 to March 15 EA release is based on the Service priorities to: a) redistribute sediment in the active channel and maintain the geomorphology of the channel to target bird species, migratory birds and aquatic community; b) scour vegetation from the channel islands; and c) recharge wet meadows to benefit migratory birds.

Good Neighbor Conflicts and Other Conflicts - The release will not require bypass at the CNPPID diversion. Flow releases will maintain ramp rates at safe levels for the Keystone Canal and the North Platte River. The priority release will not require the retiming of water at Lake Maloney, Jeffrey Reservoir, or Johnson Lake.

The release has the potential to impact canal operators along the upper reaches of the central Platte River. In addition, this release will not be made if there is presence of ice on the river that may result in ice jamming and subsequent flooding.

Estimate of EA water required- The amount of water that may be used can be very high, in a normal year, the median amount that could be used is nearly 100,000 acre-feet according to spreadsheet analysis of past years. However, the EA volume actually used is limited due to several factors, including ice in the river that may delay the release. The actual releases use significantly less volume, for example in 2016 19,000 acre-feet of EA water was used.

March 23 to May 10 (Whooping Crane) Release
Priority - High

Purpose – A flow of 2,400 cfs is expected to optimize in-channel habitat for the whooping crane under normal and wet year types.

Good Neighbor Conflicts and Other Conflicts - The priority release will not require bypass at the CNPPID diversion. Flow releases will maintain ramp rates at safe levels for the Keystone Canal and the North Platte River. The release will not require the retiming of water at Lake Maloney, Jeffrey Reservoir, or Johnson Lake.

Estimate of EA water required- In a normal year it's estimated, by spreadsheet analysis of past years, that the median volume required for this release may be 89,000 acre-feet. In practice the release volume is less, one reason is that the release is terminated when whooping cranes are no longer on the central Platte and have moved north. In 2018, this release used approximately 53,000 acre-feet.

May 11 to September 15 (Tern and Plover/Aquatic Community) Release
Priority – Medium

Purpose - Referencing the Service's 1994 Instream Target Flow document, the target flow of 1,200 cfs under normal and wet year types is required to: a) prevent least terns and piping plovers from nesting on low elevation sandbars; b) maintain high diversity of aquatic habitats for the aquatic community; c) reduce the frequency of lethal water temperature maximums to protect aquatic organisms; d) maintain habitat for the fish community; and e) prevent encroachment of non-native aquatic species. An additional operational benefit of this release is assessing flow conveyance at flood stage near the City of North Platte.

Good Neighbor Conflicts and Other Conflicts - The May 11 to September 15 release represents an alternate time period to assess the North Platte chokepoint flow conveyance at 6.5 feet. The May 20 to June 20 release is the Service's desired flow release to evaluate the flow conveyance. The Service will coordinate with CNPPID, NPPD, NWS, and the Program before making the release to ensure that evaluation of the flow conveyance is appropriate.

The flow release will maintain ramp rates at safe levels for the Keystone Canal and the North Platte River. The release will not require the retiming of water at Lake Maloney, Jeffrey Reservoir, or Johnson Lake. The release would not require bypass at the CNPPID diversion.

Estimate of EA water required- In a normal year it is estimated, spreadsheet analysis of past years, that the medium volume needed for this release may be approximately 174,000 acre-feet. In practice the release volume is capped at a lower level that attempts to maximize benefit with the available water.

May 20 to June 20 (Channel Maintenance, Test Chokepoint) Release
Priority – High

Purpose – Referencing the Service's 1994 Instream Target Flow document, the target pulse flow from May 20 to June 20 is intended to: a) maintain and enhance the physical structure of wide, open, unvegetated, and braided river channel, b) maintain and rehabilitate aquatic characteristics of large river habitats in the lower Platte River for animals such as the endangered pallid sturgeon; c) maintain and enhance the occurrence of soil moisture and pooled water for lower trophic levels of the food chain in lowland grasslands; and d) maintain and rehabilitate backwaters and side channels as spawning and nursery habitats for the aquatic community. An additional operational benefit of this release is evaluating flow conveyance at flood stage near the City of North Platte.

The pulse target under normal and wet conditions attempts to maintain a flow greater than 3,000 cfs for 7 to 30 days; however, channel capacity on the North Platte River at North Platte, and other factors, may limit the duration of this release.

Good Neighbor Conflicts and Other Conflicts – Recent improvements in flow conveyance within North Platte River near the City of North Platte are intended to increase the flood stage from 6.0 feet to 6.5 feet. The increase in flood stage has the potential to increase the safe channel capacity from 2,032 cfs to 2,875 cfs. If there is an opportunity to assess flow conveyance during this time period, the Service will coordinate with CNPPID, NPPD, NWS, and the Program to monitor flow and potential flood impacts.

The release will not require bypass at the CNPPID diversion. Flow releases will maintain ramp rates at safe levels for the Keystone Canal and the North Platte River. The release will not require the retiming of water at Lake Maloney, Jeffrey Reservoir, or Johnson Lake.

Conversations with NPPD and CPNRD in 2018 indicated that their sand dam diversion structures would require 5,000 cfs, or more, of flow before they start seeing damage. The table below lists the sand dams and the maximum amount of flow they can withstand. The May 20 to June 20 release made in 2017 reached a maximum flow of 4,066 cfs at Maxwell, which was mainly a result of high flows originating from the South Platte, there was no flow contribution at Maxwell from the EA release.

Table 3. Sand Dams and estimated flow to begin damage

<i>Sand Diversion Dam</i>	<i>Flow (cfs)</i>
Gothenburg	5,000
Dawson County	5,000
Cozad	10,000 to 15,000
Thirty-Mile	10,000 to 15,000
Orchard & Alfalfa	~5,000

Estimate of EA water required- It is estimated by spreadsheet analysis of past years that the median volume require to meet this target may be nearly 175,000 acre-feet. In practice, this release in generally has shorter duration with the aim to maintain flows above 3,000 cfs for at least 7 days. In 2017, the release resulted in 20 days of above 3,000 cfs and used approximately 49,000 acre-feet.