2024 June Water Year Type Categorization – Presented for Informational Purposes

To: Parties to the CSKT-MT Compact

From: CSKT-MT Compact Implementation Technical Team

Date: June 12, 2024

Re: 2024 May Water Year Type Categorization

Background

The Compact Implementation Technical Team (CITT) is tasked with developing or commissioning development of water management planning tools to support Flathead Indian Irrigation Project (FIIP) Water Management and Adaptive Management per Appendix 3.5, 3.e of the CSKT-MT Compact. Appendices referenced in this document are attached to the CSKT-Montana Compact, unless otherwise specified. This document provides a categorization of water year type pursuant to the intent of both the water management coordination schedule in Appendix 3.5 and the procedures outlined in Appendix 3.7 for determination of wet, normal, and dry years.

Interim minimum enforceable instream flows (IMEFs) are currently enforceable but their applicability is not affected by water year type. Because water allocations including minimum enforceable instream flows (MEFs), target instream flows (TIFs), and river diversion allowances (RDAs) are not enforceable at this time, this document was prepared for informational purposes and to meet the CITT's responsibility to provide water management planning.

Water Year Type Projection

Water Year Type

Referred to as Hydrological Condition in Appendix 3.7, this is the CITT determination of wet, normal, and dry year for the Jocko, Mission, and Little Bitterroot Areas based on indicator gage data.

This June 2024 water year type categorization was made using data from the National Resources Conservation Service (NRCS) streamflow forecast for June 1, 2024, the NRCS within-month forecast refinement for June 2024, and the exceedance probability tables in Appendix 3.7. Appendix A of this document contains the relevant portion of the NRCS June 1, 2024 forecast. The water year categorization below includes the five gages listed in Appendix 3.7 that have an associated NRCS forecast. In future years, CITT may expand its forecasting capabilities to include additional gages.

The reference period of 1983-2002 was used to define volumetric wet, normal, and dry year determinations, as outlined in Appendix 3.7. Data from this reference period was used for the five gaging sites to determine the threshold of wet (<20% exceedance level), normal (20%- 80% exceedance) and dry (>80% exceedance) years as shown on the right side of Table 1. The left side of Table 1 shows the NRCS forecast for the 70th, 50th, and 30th percentile exceedance values of the gages listed in Appendix 3.7. The % Median column shows a comparison of the forecast to the 30-year median. In this report, the 50th percentile exceedance value is used to determine water year type.

JUNE Forecast (Observed April/May Flows + June thru July Forecast)					
Geographic Area	Gage Site	70%	50%	30%	% Median
Jocko	South Fork Jocko near Arlee	27,400	29,400	31,400	75%
Mission	Mission Creek near St. Ignatius	21,300	23,100	24,900	85%
	South Crow Creek near Ronan	9,000	9,600	10,200	86%
	Hellroaring Creek	3,660	3,830	4,100	88%
Little Bitterroot	Mill Creek above Bassoo Creek near Niarada	2,200	2,380	2,590	93%

Gage Site	Dry Year	Normal Year	Wet Year
South Fork Jocko near Arlee	<24,000	24,000 - 36,000	>36,000
Mission Creek near St. Ignatius	<21,100	21,100 - 29,000	>29,000
South Crow Creek near Ronan	<7,700	7,700 - 11,800	>11,800
Hellroaring Creek	<3,350	3,350-4,750	>4,750
Mill Creek above Bassoo Creek near Niarada	<2,200	2,200 - 4,900	>4,900

The charts above show the June 2024 water year forecast and the water year type thresholds.

Jocko Area

The 50% exceedance level (29,400 acre feet) for the South Fork Jocko River forecast is within the range defined as a **Normal Year**. Although the volumetric (acre feet) forecast indicates a normal year, the percent median projection is 75%. SWE totals in the Jocko Area are still below normal, though precipitation events and cool temperatures slowed melt-out compared to 2023. Water managers should anticipate conditions in the Jocko Valley that are drier than usual.

Mission Area

The 50% exceedance level forecasts for the Mission Creek (23,100 acre feet), South Crow Creek (9,600 acre feet), and Hellroaring Creek (3,830 acre feet) are within the range defined as a **Normal Year**. There were several precipitation events in May with a total precipitation of 6.3 inches SWE at the Jocko SNOTEL site compared to 3.5 inches in 2023. Although these forecasts categorize the water supply as normal, water managers should anticipate conditions that are drier than usual.

Little Bitterroot Area

The 50% exceedance level for the Mill Creek forecast point (2,380 acre feet) is within the low end of the range defined as a Normal Year. However, June is forecast to be warmer and drier than usual and CITT recommends that water managers prepare for a transition to a water supply that falls within the range of a **Dry Year**.

Considerations and Limitations

- This water year type categorization was prepared using individual NRCS Forecast Points and may not be representative of entire geographic areas within the Flathead Reservation. The CITT is currently working with the NRCS to develop two additional forecast points which are anticipated for Water Year 2025 (North Crow Creek; Agency Creek).

- In order to obtain an April-July forecast to compare to the thresholds set for the hydrologic condition in Apprendix 3.7, NRCS's June-July forecast was added to observed flows for April-May to obtain a April-July forecast. Including the measured flows increases forecast precision and allows for direct comparison to the thresholds set for the hydrologic condition in Apprendix 3.7.
- Water supply is highly dynamic and is susceptible to sudden changes triggered by fluctuations in snowpack, temperature, and precipitation. The FIIP Project Operator and other interested parties should continually monitor snowpack, weather, and appropriate forecasts to inform real-time water management activities.
- At this time, this categorization is presented for informational purposes. Specific management decisions should be based on additional information, the most current forecast data, experience, and professional judgement.
- The CITT intends to gradually increase the frequency of these water year type categorizations as we near the full implementation of the MEF, RDA, and other enforceable flow rates.

Appendix A – NRCS Streamflow Forecast and Refinement for June, 2024

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Streamflow Forecast Summary: June 1, 2024
(Medians based On 1991-2020 reference period)

Flathead	Forecast Period	Forecast Exceedance Probabilities For Risk Assessment Chance that actual volume will exceed forecast 90% (KAF)	70% (KAF)	50% (KAF)	% Median	30% (KAF)	10% (KAF)	30yr Median (KAF)
NF Flathead R nr Columbia Falls[1,2]								
	JUN-JUL	530	635	705	95%	790	925	740
	JUN-SEP	655	765	850	97%	935	1080	880
Swan R nr Bigfork[1,2]								
	JUN-JUL	215	240	260	95%	275	305	275
	JUN-SEP	280	310	335	97%	365	400	345
Flathead R at Columbia Falls[1,2]								
	JUN-JUL	1620	1870	2070	91%	2290	2590	2270
	JUN-SEP	1920	2200	2380	88%	2610	3000	2710
Flathead Lake Inflow[1,2]								
Mission Ck nr St. Ignatius[1,2]								
	JUN-JUL	10.9	13.6	15.4	85%	17.2	19.9	18.1
	JUN-SEP	13.3	16.8	19.1	83%	21	25	23
MF Flathead R nr West Glacier[1,2]								
	JUN-JUL	460	530	585	81%	645	745	720
	JUN-SEP	540	625	685	83%	755	865	825
SF Jocko R nr Arlee[1,2]								
	JUN-JUL	10.4	12.4	14.4	75%	16.4	19.7	19.2
	JUN-SEP	12.7	15.3	17.7	77%	20	24	23
Hellroaring Creek ab Reservoir nr Polson[1,2]								
	JUN-JUL	1.55	1.76	1.93	88%	2.2	2.5	2.2
	JUN-SEP	2.3	2.5	2.7	87%	3	3.4	3.1
South Crow Ck nr Ronan[1,2]								
	JUN-JUL	4.6	5.5	6.1	86%	6.7	7.8	7.1
	JUN-SEP	5.6	6.7	7.5	88%	8.4	10.2	8.5
Mill Ck ab Bassoo ck nr Niarada[1,2]								
	JUN-JUL	0.6	0.8	0.98	93%	1.19	1.51	1.05
	JUN-SEP	0.88	1.1	1.28	93%	1.5	1.87	1.38