

Adaptive Water Management on the Flathead Reservation:

Balancing Instream Flows and Irrigation
in a Changing Climate



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Sqlix^w úlex^w s Séliš u Qlispé

Territories of the Salish, Kalispel & Related Nations



Selected Séliš-Qlispé Place-Names and Translations

WEST OF CONTINENTAL DIVIDE

Sáxetk* PLACE OF FAST-MOVING WATER Spokane	Nmesulétk* SHIMMERING COLD WATERS Middle Clark Fork River
Náñmnci RIVER DELTA ENTERING A LAKE Lake Pend Oreille	Cháqetk* WIDE SURFACE OF WATER Flathead Lake
Sqšewétk* KOOTENAI WATERS Kootenai River	Snyelinn PLACE WHERE YOU SURROUND SOMETHING St. Ignace area
Né?umntétk* BIGHORN SHEEP WATERS Lower Clark Fork River	Nl'pay(céstm) PLACE OF SMALL BULL TROUT Flatheadme Creek/Clark Fork confluence / Missoula area
Ep Smli HAS SALMON Kluho side of Lolo Pass – Lolokey / Chewawater drainage system	Snañqí C'ajli SWEATHOUSE LAKE Swain Lake
Tmsmñi NO SALMON Lolo area	Naáyəcstm Sewík's BILL TROUT'S WATERS Blackfoot River
Láqetmš WIDE COTTONWOODS Sleeveville	Neq'elstétk* PLANT STUCK IN THE GROUND WATERS Upper Clark Fork River
Nstetecx'etk* WATERS OF THE RED CRIBER DOGWOOD Blissford River	Snañpgey PLACE WHERE SOMETHING IS SHOT IN THE HEAD Duff area
Epl X'x'x'ú HAS MOUNTAIN WHITEFISH Winkelman Lake	Qlispé Sx'cu'si KALISPEL RIVER Marion Pass
Nix'etk* DIVIDE North Fork Flathead River / South Fork Flathead River / Lower Flathead River	Sšewile? GARTNER SWAMP Chewawater, WA

EAST OF CONTINENTAL DIVIDE

Sk'umencé PLACE OF POCKET GOPHERS Big Hole Valley	Mimótlex* LAND THAT APPEARS SMOKY Yellowstone Park area
Olin Sewík's WATERS OF THE DIGESTIVE TRACT Belly River	Cəalhalq THREE SEPARATE PEAKS Sweetgrass Hills
Snix'eyén BIGHORN Continental Divide	Cx'min Sewík's HOLE FLEASHER'S WATERS Yellowstone River
Qlawq BEAVERHEAD Beaverhead River	K'alí? Sewík's YELLOW'S WATERS Justin River
Cmlšé COTTONWOODS JACK OF HEARTER Helena area	Nk'metk* BIG WATER Missouri River
Ephyu Nix'etk's PAIN'T'S RIVER Missouri River near Helena	Celšs Smxé GRIZZLY BEAR'S HAND Bear Paw Mountains
Snsu?k* ICE/PUDDLE Sun River at Fort Shaw	Npiqk* WHITE WATER Milk River
Nétxššé PLACE WHERE WATER GOES OVER A ROCKY LEDGE Owee Falls	Epl Cilyalsáq RIVER OF EYES-WIDE-OPENWOOD Muskegahel River
Epl Meawey? HAS EGG'S W/IRIAN ROOT Madison River	L'umné Sewík's BIGHORN BIEP'S WATERS Bighorn River
Cx'tx'tpé CONFLUENCE OF MORE THAN TWO WATERWAYS Area around Three Forks, MT	Mimótlex* BEND IN THE RIVER Area of Missoula, MT
Ep Sx'cx'e'enécé IT HAS SMALL BLACK HAWTHORN Bottom area	

KEY

Séliš Salishan nations

Tmsmñi Selected Salish place-names

Blue shading indicates approximate territories and primary use-areas of four Salishan nations: Séliš, Qlispé, Tuñaxn, and Smeúse?

Flathead and Bitterroot Reservations as designated in 1855 Hellgate Treaty

Modern Boundaries

Continental Divide



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CSKT-MT Compact

- ▷ Negotiated settlement of CSKT water rights
- ▷ Quantifies Tribal Water Rights both on and off the Tribes' Reservation.
- ▷ Provides for unitary administration of water rights on the Flathead Reservation moving forward.

Compact Implementation Technical Team (CITT)

Establishment

- Article IV(G) of the Compact
- Detailed in Appendix 3.5
- First convened in December 2015

Membership

- CSKT, Casey Ryan
- State of Montana, Maya Rao
- Federal Government, Dan Lozar
- Project Operator, Nick Belcourt
- Irrigator, David Lake

Purpose

- Technical advisory group for water management
- Advise the Project Operator
- Focus on on-farm efficiency, stock water mitigation, and water measurement



Water Rights and Adaptive Management

Western Water Law

- ▷ Prior appropriation
- ▷ Static instream and consumptive use rights
- ▷ No adjustment based on hydrologic or climatic conditions

Compact Provisions

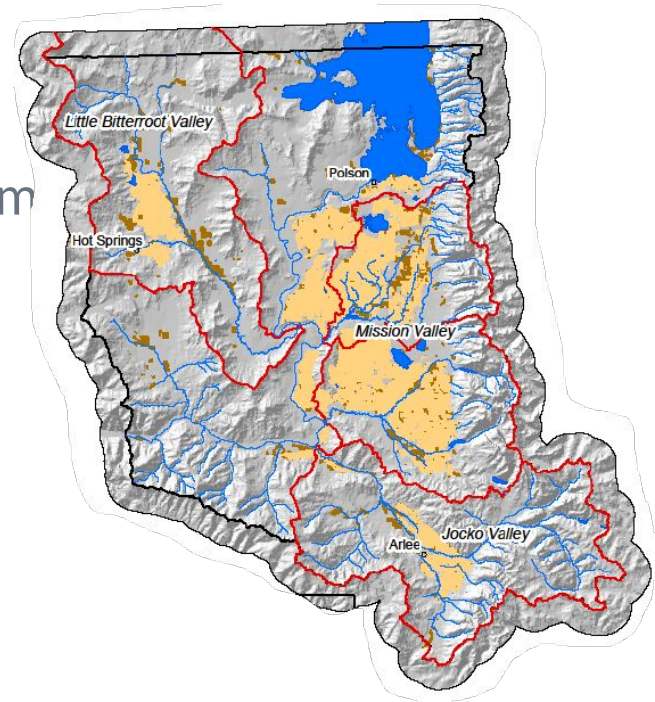
- ▷ Water right diversion volume and instream flow change based on water year type
- ▷ Review and adjust based on changing conditions
- ▷ Shared shortages

Adaptive Management Activities

- ▷ Water Measurement
- ▷ Water Management Coordination
- ▷ Water Management and Planning Tools
- ▷ Determination of River Diversion Allowances (RDAs) for wet, normal, and dry water-year types
- ▷ Determination of Minimum Enforceable Flows (MEFs) and Target Instream Flows (TIFs);
- ▷ Prioritization of Operational Improvements and Rehabilitation and Betterment Projects
- ▷ Advising the Project Operator

Water Year Type

- ▷ Wet/normal/dry categorization April-July
- ▷ Based on modeled natural streamflow from 1983-2002
- ▷ NRCS M⁴ model ensemble
- ▷ Other data sources
- ▷ Starting in 2026, water year type will determine legal instream flows and RDAs



2024: Projection Test Run

- ▷ Pilot year- no effect on legally enforceable flows or volumes
- ▷ 5 of 7 indicator gages used in forecast
- ▷ Model performed well except for Little Bitterroot Area
 - ▷ Incorporating local knowledge improved predictions

May NRCS Forecast - (May - July 2024 + April Measured Flows)				
Geographic Area	Gage Site	70%	50%	30%
Jocko	South Fork Jocko near Arlee	22,230	24,130	27,330
Mission	Mission Creek near St. Ignatius**	19,933	22,033	25,033
	South Crow Creek near Ronan	7,183	8,583	9,083
	Hellroaring Creek	3,161	3,361	3,661
Little Bitterroot	Mill Creek above Bassoo Creek near Niarada	1,737	2,017	2,387

Wet
Normal
Dry

Future Work

- ▷ Refinements to Water Supply Forecasting
 - 2025: NRCS to include 7/7 indicator gages in 2025
- ▷ Within-month Water Supply Forecasting
- ▷ Irrigation Operations Model
- ▷ Adaptive Management of Instream Flows
- ▷ Adaptive Management of River Diversion Allowances

Lemlmtš / Thank you!

Any questions?

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Present Activities

- ▷ Water Measurement
- ▷ Off-season Stock Water Mitigation
- ▷ Refinements to Water Supply Forecasting
 - ▷ NRCS to include 7/7 indicator gages in 2025
- ▷ On-farm Irrigation Efficiency Program w/ MSU Ext.

CSKT-MT Compact – Water Rights

- ▷ Instream Flows
 - ▷ Natural (102)
 - ▷ Irrigation (42)
 - ▷ Other (49)
- ▷ Irrigation Water Use Right
- ▷ Irrigation Reservoirs
- ▷ Wetlands and High Mountain Lakes
- ▷ Flathead Lake – Natural Pool (<2883.0 ft) both on and off the Reservation.
- ▷ Off-Reservation Instream Flows – Kootenai, Swan, Lower Clark Fork