

**Madison Fisheries Technical Advisory Committee
NorthWestern Energy – FERC Project 2188
Annual Meeting for 2022 Calendar Year**

<https://zoom.us/j/91051391549#success>

Passcode: MadTAC
December 10, 2021
9:00 to 4:00

0900 Welcome

- Jon Hanson, NorthWestern Energy, facilitated the meeting. A list of attendees is provided at the end of the meeting summary. A quorum was present including NWE, FWP, USFS, FWS, and BLM

MadTAC Business

Madison plant update

- 4 new units installed which increased from 1200 to 1600 total CFS.
- Commissioning of units 1 & 2 during December, 3 & 4 during January and February. Commissioning consists of varying flows through each unit to test systems. Up to 400 cfs of flow for commissioning will be needed in addition to the 1100 cfs minimum flow.
- Units 1 and 2 commissioning flow expected to draft Ennis Lake to near normal winter elevation and units 3 and 4 may require supplementing with Hebgen flow increase.
- FWP requested notice of schedule to possibly look at downstream conditions during commissioning work.

Hebgen gate failure

- Andy gave an update on the November 30th gate failure. On Nov. 30th a coupling on the gate stem failed, which disconnected the drive above and the gate fell to only about 6” open. Flows dropped from around 640 cfs down to 228 cfs at the USGS gauge directly below Hebgen. NWE and divers repaired the gate and restored flows to the Madison near midnight on December 1st.
- Jon discussed general observations from biologists who focused efforts in the upper river. Flow remained in the main river channel and a fair number of side channels continued to flow surface water. There were side channels that were dry or had little water in them. Some brown trout redds were completely out of water and some had just a trickle of water moving through the substrate. Stranded fish were observed in side channels and among rocks/gravel, most prevalent between the lakes where flows dropped very fast. Primarily saw juvenile salmonids and sculpin being stranded.

- Matt J.- Are there mitigation and monitoring plans that NWE will be moving towards? Jon- Our first step is to work with management agencies to determine monitoring options to evaluate the level of impacts that may have occurred.
- Pat B.- Is there another gate available to use? Andy- There is but it was a risk based decision to not utilize the other gate. We did use the spillway, but the low reservoir elevation limited our ability to spill much.
- Duncan- Will the alarm systems be evaluated at Hebgen and elsewhere? Andy- There will be a review and risk assessment completed and recommendations that are applicable to other locations would likely be applied as well.

Water Quality & Flushing Flow

- Jordan gave a presentation on flushing flow and water quality monitoring that occurred in 2021. The 5-year flushing flow plan is due to be updated in 2022 and expected to be filed with FERC in spring 2023. Sediment cores, redd counts, and macroinvertebrates were collected at sites. Fines criteria were met at all sites except at Norris where median percent fines < 0.84mm was 23.2%. Redd counts were done in the spring and fall, counts were variable, but within expected standard deviations. Macroinvertebrate analysis is currently underway for 2021 samples. NWE has completed a 10 year water quality report for the Madison and Missouri Rivers, which looks at the previous 10 years of data. See Powerpoint or 10 year report for more WQ details.

Review of 2021 Projects and Accomplishments

2188 Operations and Personnel: Terrill Paterson presented on some of the statistical analysis he is doing looking at seeing if fish abundances are related to waterbody characteristics on the Madison River. The electrofishing sections were broken into smaller subsections based on sampling stops and aerial imagery used to count boulders, islands, and side channels. Some of the conclusions are there was no relationship between the physical characteristics of a waterbody and the abundance of > 10" trout, suggestive evidence for a relationship between side channel and island density and abundance of >16" trout, abundances of length groups vary across years indicating variation in the underlying population dynamics. Travis H commented that this is good work and helps further clarify that instream boulder placements would not be worthwhile.

Annual abundance estimates on the Madison occurred on the Pine Butte, Varney, and Norris sections. Brown trout estimates for Pine Butte and Varney are higher than the previous few years, but have very large confidence intervals. Brown trout estimates for the Norris section are at a historic low for 2021, whereas rainbow are staying fairly steady. Rainbow estimates in both Pine Butte and Varney sections are down slightly from 2020. The longer term trend of declining brown trout numbers in the Norris reach is concerning, there also appears to be poor recruitment and larger fish survival.

Hebgen Reservoir gillnetting during the spring captured about 25 trout per net, near the long term average. Netting activities in Ennis Reservoir took a slightly different approach and moved some nets to different areas that were more conducive to capturing fish. Results will be forthcoming in the annual report.

Mike D. reported on the otolith microchemistry work. Good distinction for all tributaries tested except for Upper O'dell Creek and West Fork Madison, also limited longitudinal characterization within the mainstem Madison. In the Pine Butte section approximately a 60/40 split of mainstem and tributary born fish for both LL and RB. Lower in the upper Madison tributaries make up about ¼-1/3 of rainbow trout production whereas tributary contribution for LL are higher. In the Lower Madison and near the mouth there appears to be a fair proportion of fish coming from the Jefferson or Gallatin Rivers as well. More discussions to come on this information and how it is utilized going into the future.

Travis L. has been working on a literature review for everything related to the Madison River fisheries. Putting together all available data and studies to look at what we know and may need to know about the Madison. Work on native fish conservation was heavy in 2021, moved WCT from Last Chance to Ruby Creek to increase genetic variation in that population, collected site information for barriers in the near future working with landowners and USFS, completed the Wall Creek barrier construction which 7.5 miles of protected habitat now. Grayling RSI reintroductions continued, no recaptures found in Moores Creek. FWP trying to expand the program and available fish for stocking. Future efforts in the Madison looking at focus on the SFK Madison.

CGNF Seasonal Technician: Assisted FWP with activities. Worked on NFK Spanish project, Tepee Creek barrier assessment to look at effectiveness, amphibian and fish surveys and stream temperature monitoring.

BDNF Seasonal Technician & WFK Madison Restoration: Tributary sampling for amphibians and fish, NFK Spanish Creek treatment, help with sediment sampling. Completed the WFK Madison stream restoration by installing additional LWD and habitat features to the upper WFK. Also did some fish sampling through this section of creek.

Emergency/Contingency Funds: \$5,000 used to supplement an additional macroinvertebrate collection and processing of samples for the MSU study.

Wall Creek Barrier Construction: Barrier was finished in the fall of 2021. Protects 7.5 miles of WCT habitat upstream. Lots of processes and fundraising to work through for this project. Great to have it completed.

O'Dell Creek Phase 18 Restoration: 5 week construction period and approximately 7,200 feet of channel were restored, with an estimated 40 acres of restored wetlands.

MSU Invertebrate Study- Zach gave an update on this work. Currently all of the field data collection components have been completed. Working through the samples now and the report will follow.

Sediment Mobility Project- Getting close to a final report on this. Sometime in the next couple months.

Indian Creek Irrigation: TU signed an MOU with the ditch users to measure water usage for 2022. On the ground work will occur during summer of 2022.

End of year 2021 Budget

Estimated 2022 Starting Available Reserve Balance \$109,292

2022 Annual Contribution \$437,195

2022 MadTAC Proposals

Minimal discussion on each project was had and the group was in agreement with all funding requests and carryover amounts to save for significant upcoming project opportunities. Projects were approved by all voting TAC members as proposed.

2021-10 SFK Madison Improvement- Project approved in 2021 but will be spent with 2022 dollars.

ID	Project Title	Agency/ Contact	TAC Funding Request	Approved Budget for 2022
2022-1	2188 Operations and Personnel	FWP	\$186,250	\$186,250
2022-2	Ennis Office Rent	FWP	\$7,200	\$7,200
2022-3	CGNF Seasonal Technician	USFS	\$6,403	\$6,403
2022-4	BDNF Seasonal Technician	USFS	\$10,070	\$10,070
2022-5	Emergency/Contingency Fund	NWE	\$10,000	\$10,000
2022-6	Pine Butte and Deadman WCT Barriers	FWP, NWE	\$37,812	\$37,812
2022-7	Moore Creek Restoration Plan	RDG	\$7,500	\$7,500
2021-10	SFK Madison River Floodplain and Habitat Improvement	USFS	\$60,600	60,600
	TOTAL REQUEST		\$325,835	\$325,835
	Contribution for CY2022		\$437,195	
	Balance		\$111,360	

Name	Affiliation
Andy Welch	NWE
Grant Grisak	NWE
Jordan Tollefson	NWE
Mary Gail Sullivan	NWE
Jon Hanson	NWE
Jim Boyd	FWS

Matt Jaeger	MFWP
Trevor Watson	MFWP
Travis Horton	MFWP
Travis Lohrenz	MFWP
Dale Olson	BDNF
Mike Duncan	MFWP
Patrick Luckenbill	BDNF
Monica Berreman	BDNF
Allison Stringer	CGNF
Jenn Mickelson	BDNF
Jake Chaffin	CGNF
Pat Byorth	TU
Jon Malovich	MRF
John Muhlfeld	RDG
David Laufenberg	MCD