

Water Quality Synthesis Update

Bridget R. Deemer¹ GCDAMP Technical Working Group Meeting October 13, 2022

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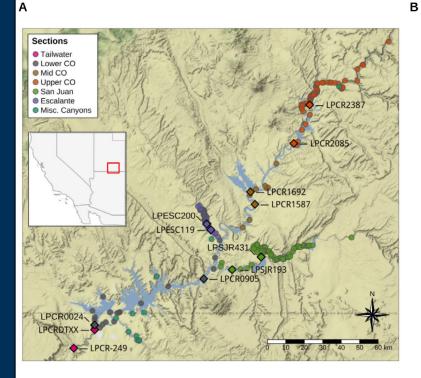


U.S. Department of the Interior U.S. Geological Survey

Over half a century record of limnology data from Lake Powell, desert southwest USA: from reservoir filling to present day (1964-2021)

Data paper submitted to L&O Letters in August 2022, currently in revision.

58-year water quality dataset8 research ready flat files5,208 unique site visits9 sites with long-term quarterly to monthly scale data

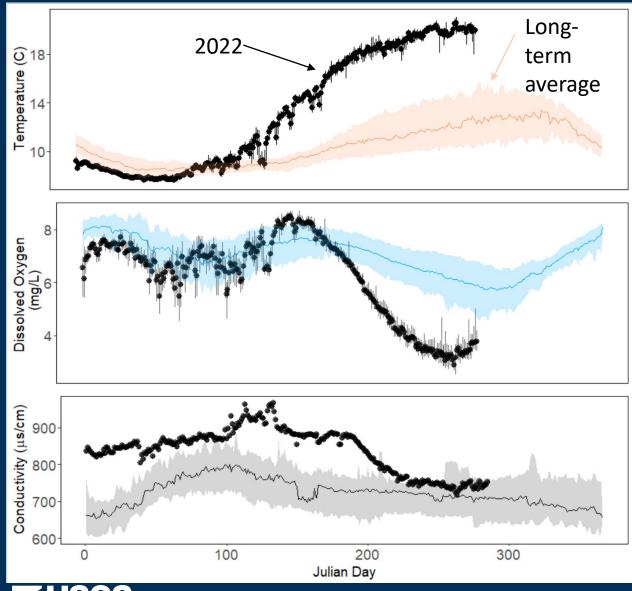


Deemer et al. In Revision

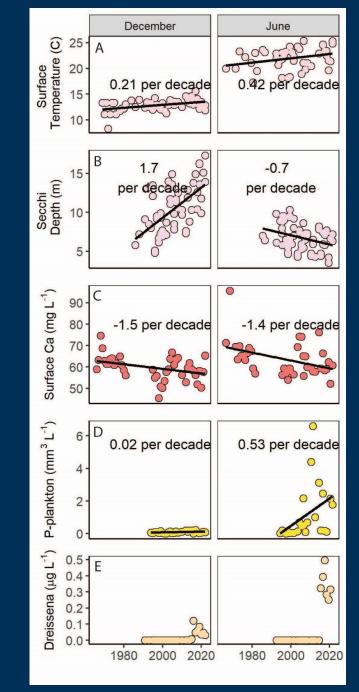
		Profiles	Secchi	Major Ions	Nutrients	Phytoplankton	Zooplanktor
Tailwater							
LPCR-249		76 ¹	NA	292	307	258	247
LPCRDT0X ²		40 ³	NA	262	273	245	244
Lower CO							
LPC	R0024	576	360	2,994	1,114	330	781
LPC	R0905	291	136	1,583	345	113	141
Mid CO							
LPC	R1587	94	92	NA	NA	4	5
LPCF	R16924	277	122	1,301	342	108	133
Upper CO							
LPC	R2085	108	108	327	335	104	123
LPC	R2387	261	109	938	259	92	112
San Juan							
LPS	JR193	274	121	1,296	334	107	133
LPS	JR431	106	104	288	295	98	118
Escalante							
LPE	SC119	100	96	303	305	97	117
LPE	SC200	83	82	4	1	11	10



Water Quality is Dynamic



GS Preliminary Data, Do Not Cite



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CE-QUAL W2 Model Improvements



-Bryce Mihalevich began a Post Doc in June 2022.

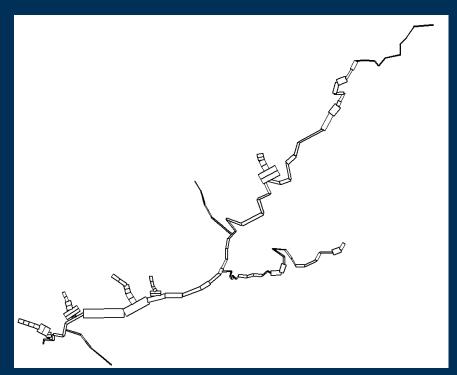
-Constructing a new grid with updated bathymetry from Jones and Root 2021

-Examining options for different weather inputs -AR5

- -Bullfrog Marina Weather Data
- -Page Airport
- -Dryland Research Institute/BOR

-Incorporate information from long term monitoring program on:

-Wind sheltering -Water clarity



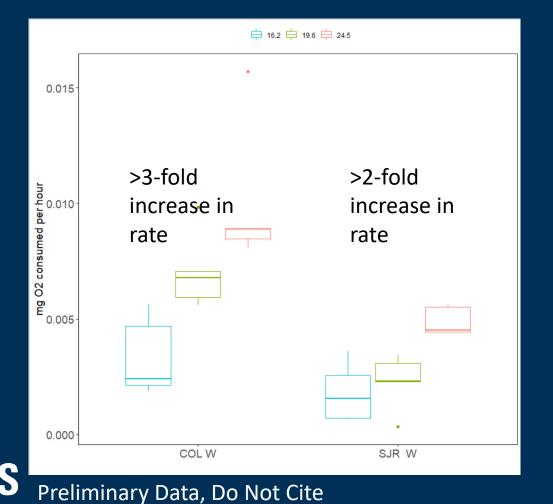
Example Lake Powell CE-QUAL grid structure

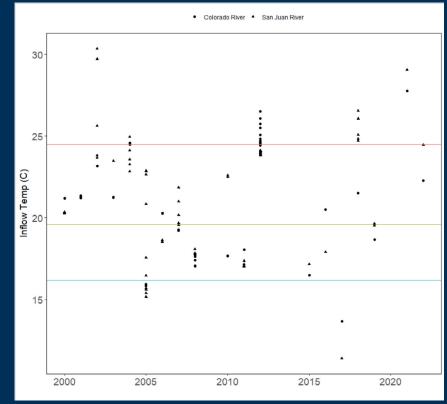


Dissolved Oxygen Demand in Inflow Plumes

3 Temperature Treatments (16.2, 19.6, 24.5)







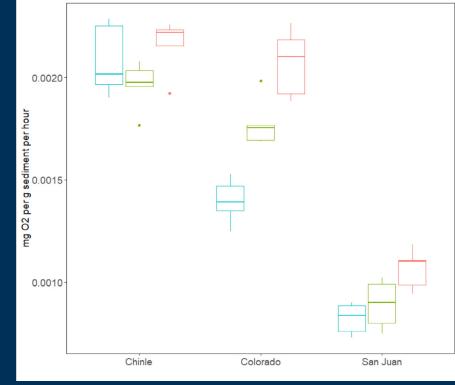
Preliminary Data, Do Not Cite

Dissolved Oxygen Demand in Inflow Plumes

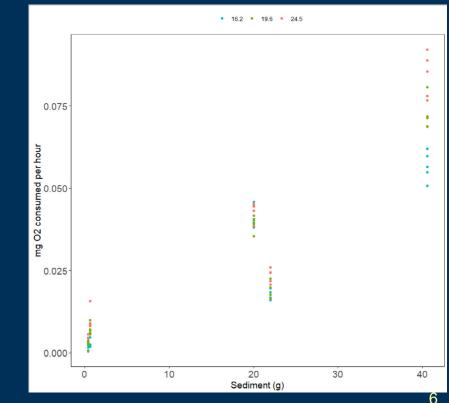




븜 16.2 🛱 19.6 🛱 24.5









Preliminary Data, Do Not Cite