FWCB Graduate/Faculty Seminar Presents

Evaluation of Whirling Disease Distribution and Measures of Infection in Colorado River Cutthroat Trout in LaBarge Creek, Wyoming

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Salmonid whirling disease caused by the invasive parasite *Myxobolus cerebralis* (MC), first detected in the U.S. in 1956, has spread widely, causing declines of up to 90% in some wild salmonid populations. Colorado River Cutthroat Trout (CRCT), already threatened by habitat loss, invasive species, and disease, now occupy only 13% of their historic Wyoming range. Despite extensive restoration efforts in LaBarge Creek, CRCT numbers remain critically low. My study examined the potential role of whirling disease in limiting CRCT recovery by assessing spatial distribution of MC and infection load, and by comparing two diagnostic approaches: the traditional Pepsin–Trypsin Digestion (PTD) method and a quantitative Polymerase Chain Reaction (qPCR) assay. Sampling of wild fish and a sentinel-caging experiment with naïve fish showed that MC infection is largely restricted to the LaBarge Creek mainstem and the lower reaches of its tributaries, while upper headwater areas remain free of infection. PTD and qPCR performed similarly in detecting infection, and parasite maturation was unnecessary for qPCR-based detection. Additionally, detections of the water-borne environmental stage of the parasite varied strongly over the diel cycle and eDNA sampling was not an effective substitute for sentinel fish, at least using the methods in my study. Taken together, my findings indicate that whirling disease is established across much of the drainage and may be hindering CRCT recovery in the LaBarge Creek restoration area, and that qPCR on fish tissue is an efficient and reliable method for assessing infection.

Dec. 5, 2025
Friday 3pm MST
Wagar Bldg. 133

Zoom Link
Meeting ID: 871 2035 6650
Password: 152093

Host
Dana Winkelman
& Dan Preston

Colorado State University