

Peace River Spill TGP and Temperature Study

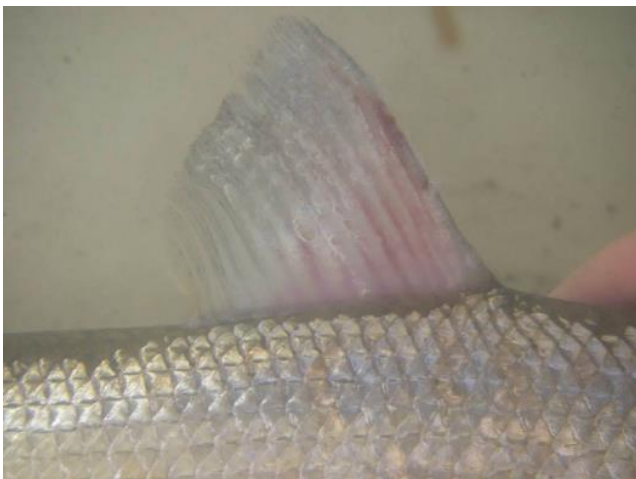
Monitoring Total Gas Pressure saturation of water during spills

The Peace Water Use Plan (WUP) Committee recommended a study is to assess the effects of spillway operations at the two Peace Dams on water quality specifically the saturation of water with excessive levels of dissolved gases (TGP) following spillway operations. These dissolved gassed can lead at times to death or injuries in fish.



Questions We Wanted to Answer

1. During spillway operations, do downstream Total Dissolved Gas (TDG) levels result that could that negatively impact fish populations?



Study Update

- TDG monitoring was triggered by spillway operations in 2012.
- During spillway operations, increased saturation levels were measured in Dinosaur Reservoir and decreased after spilling through Peace Canyon Dam (119% to 114% and 125% to 121%).
- Unlikely to negatively impact fish populations.

Peace River Spill TGP Temperature Study



Gas bubble disease of fish

Lessons Learned

- TDG levels measured downstream at the Hudson's Hope pump house were lower than those measured in the Peace Canyon Dam forebay.
- The precise mechanism explaining the mitigating effect of using the PCN spillway over the turbines is unknown.



Key Findings and Next Steps

- Given the mitigating factor of fish access to deep water refuge downstream, only TGP levels greater than 120% are considered to pose increased risk to fish health.
- The study results showed the potential for the GMS spillway to create high TGP levels (i.e., dissolved gas saturation levels with potential to harm fish). However, concurrent PCN spillway operation may have a mitigating effect on downstream TGP levels.