

Yukon River Canadian Sub-basin: 2010 Environmental Conditions

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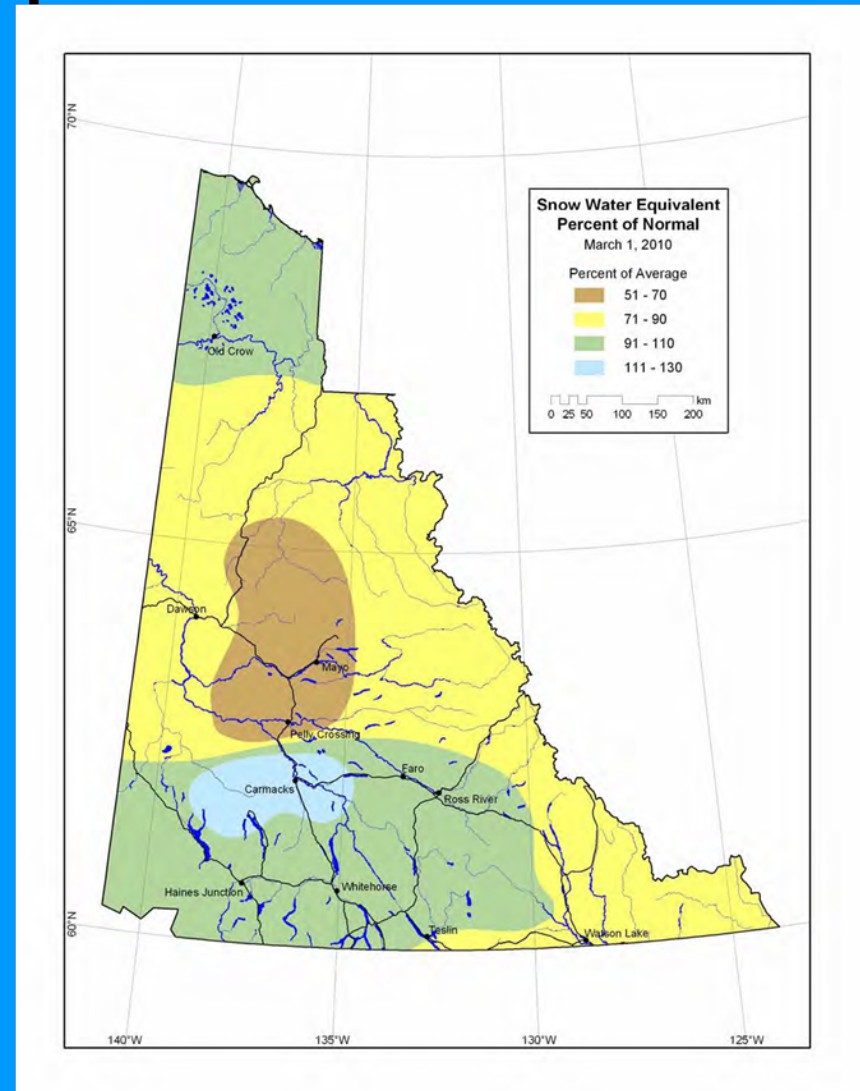
Introduction

Annual Fish Habitat Description using:

- Description of 2010 weather conditions and resulting streamflows
- Observations of significant events noted
- Communication with public and colleagues

October - March accumulated Snowpacks

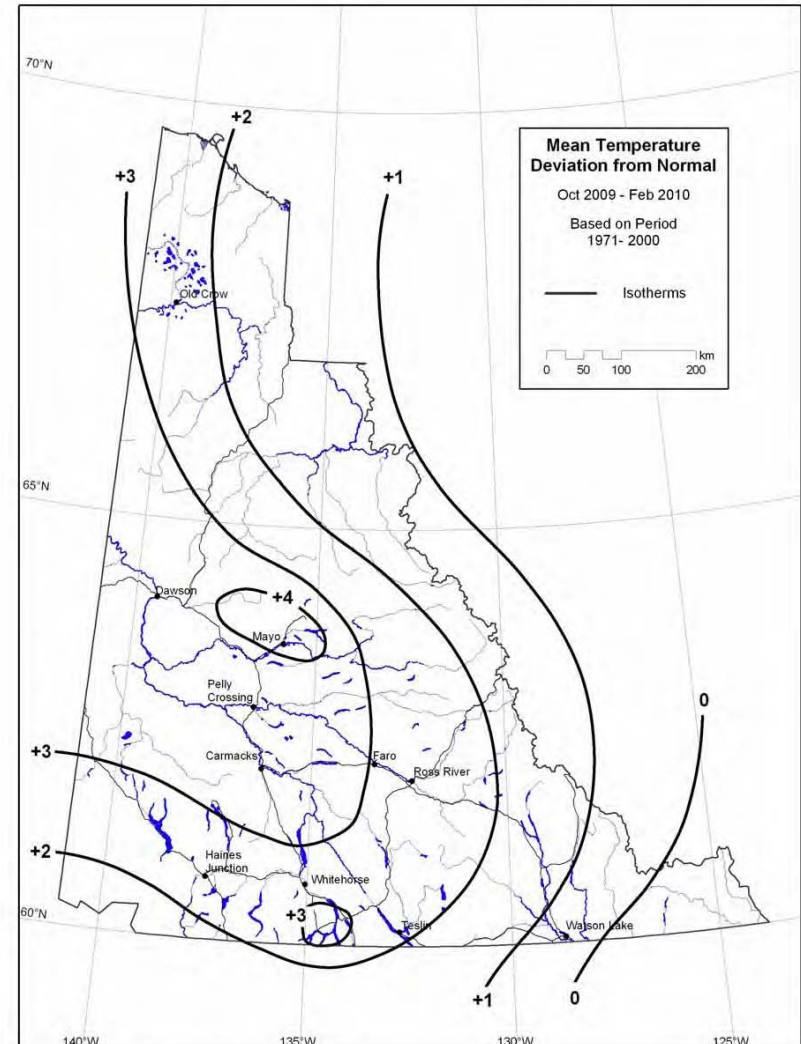
- Near normal (1971-2000) in majority of Yukon River
 - Lower exception in the Dawson area Klondike River drainage and the central Yukon Territory, Stewart River sub-basin



Credit: Yukon Environment, Yukon Gov

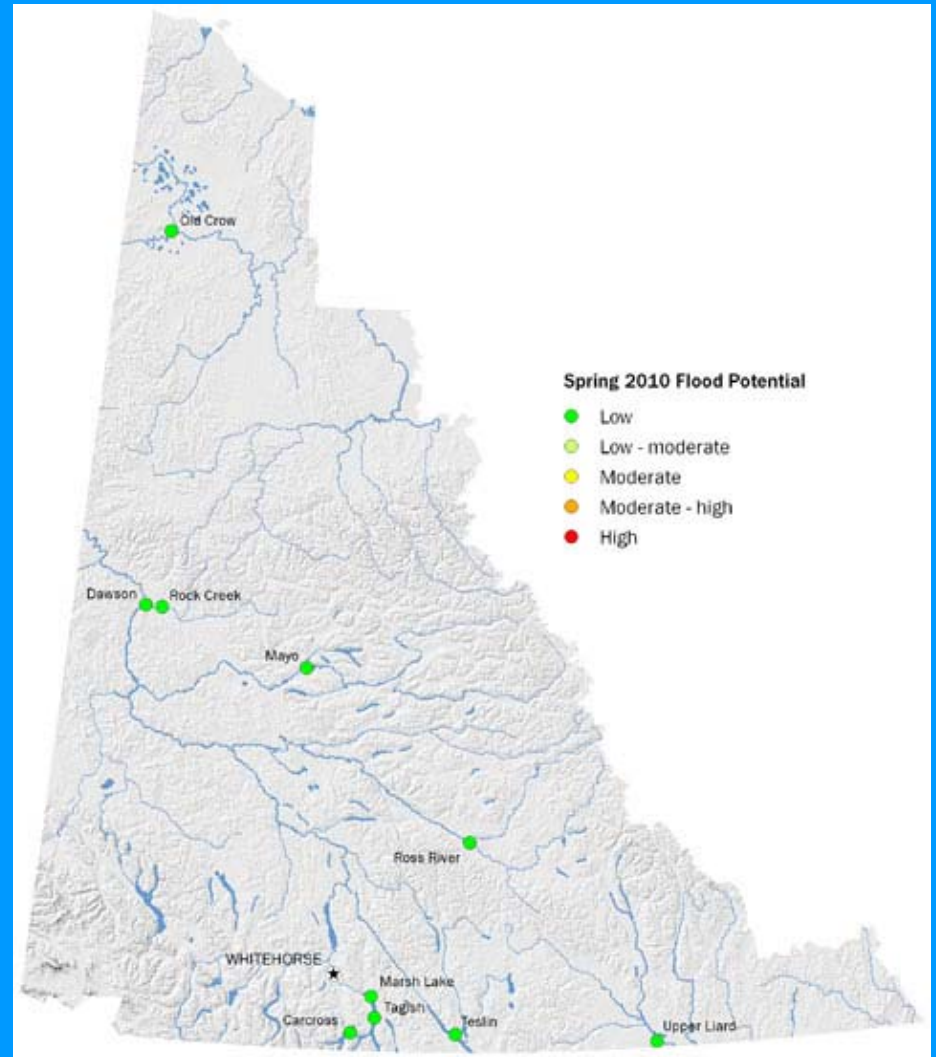
October – February Temperatures

- A mild winter in majority of the Territory
- Yukon River Canadian sub basin temperatures approximately 2-4 degrees Celsius higher than normal



Spring Freshet Condition

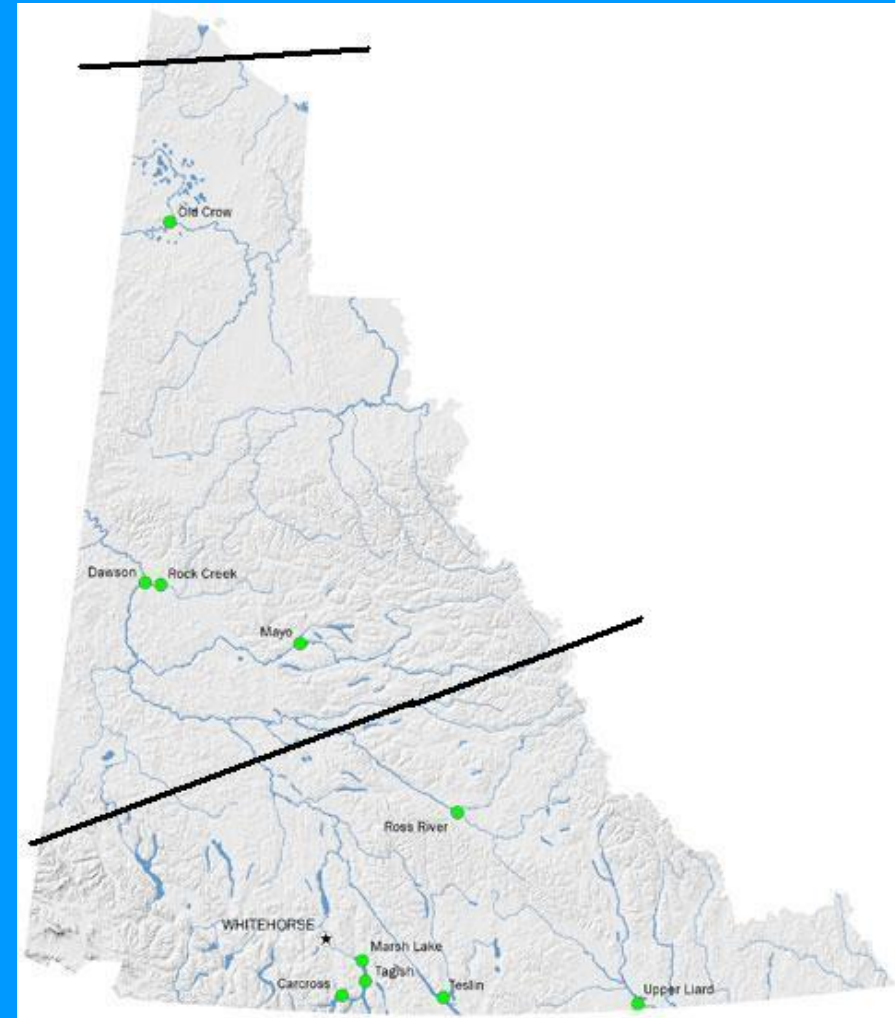
- Normal to weak spring flows resulting in no unusual disturbances to habitat
- May have slowed emigration and dispersal of Juvenile Chinook to associated rearing habitats (ie. non- natal streams)



Credit: Yukon Environment, Yukon Gov

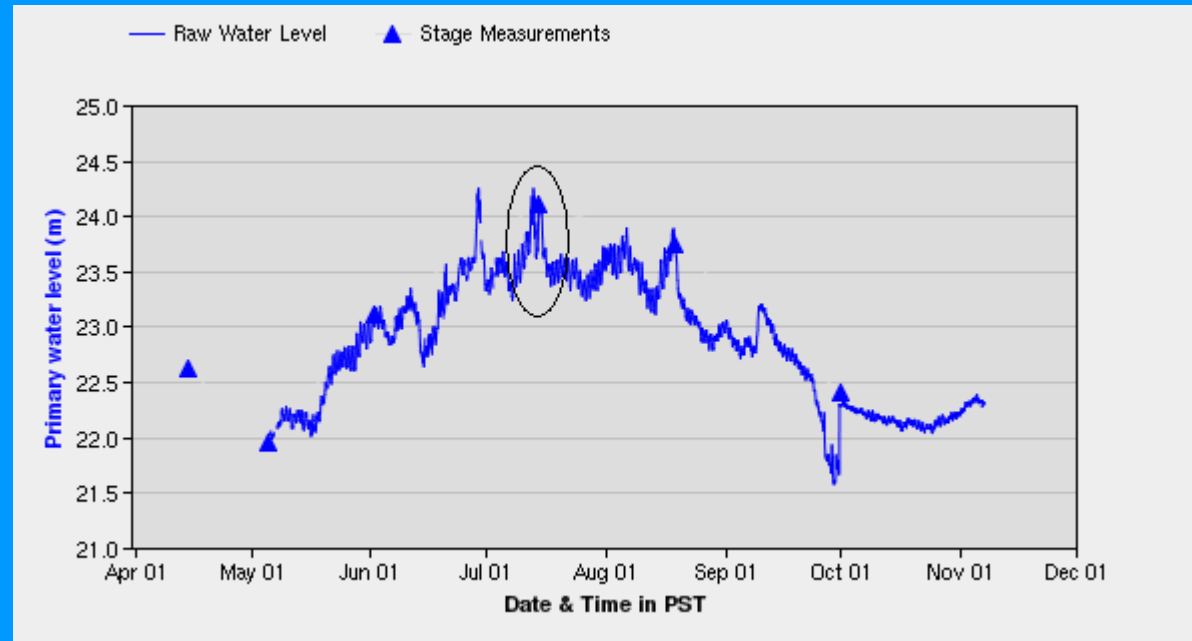
Rearing Season Conditions

- A very warm and mostly dry summer in the southern Territory
- Wetter in central and north with a significant rainfall series in July and August during Adult migration and spawning



Significant July August Storms

- Fortymile River rose approximately 12-16 feet and receded the first week of July
- White River collected initial rain on July 12-15
- Water level rose approx 1 meter (3.3 feet) within days
- Large semi-glaciated basin with a braided volatile channel (likely source of much debris observed)



White River



Image © 2010 TerraMetrics
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63°10'29.36" N 139°44'46.51" W elev 343 m

Eye alt 22.26 km

- Significant flows caused by rainfall experienced by many people throughout the greater Dawson area
- White River to Fortymile River area and Stewart River observed
- Rearing streams most affected
 - Good and bad of stream channel movement, fish passage and habitat disturbances





Credit: Jody Mackenzie-Grieve, DFO



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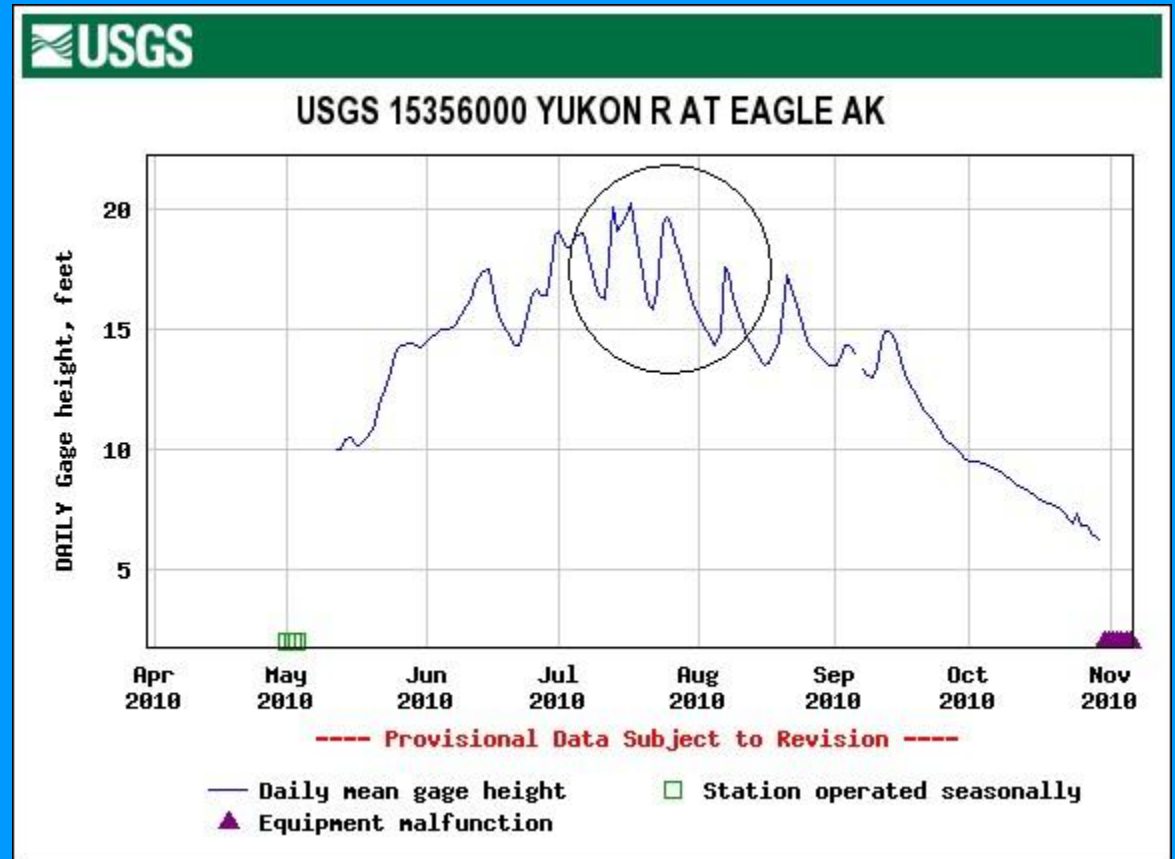


Credit: Jody Mackenzie-Grieve, DFO

Migration, Spawning and Flows

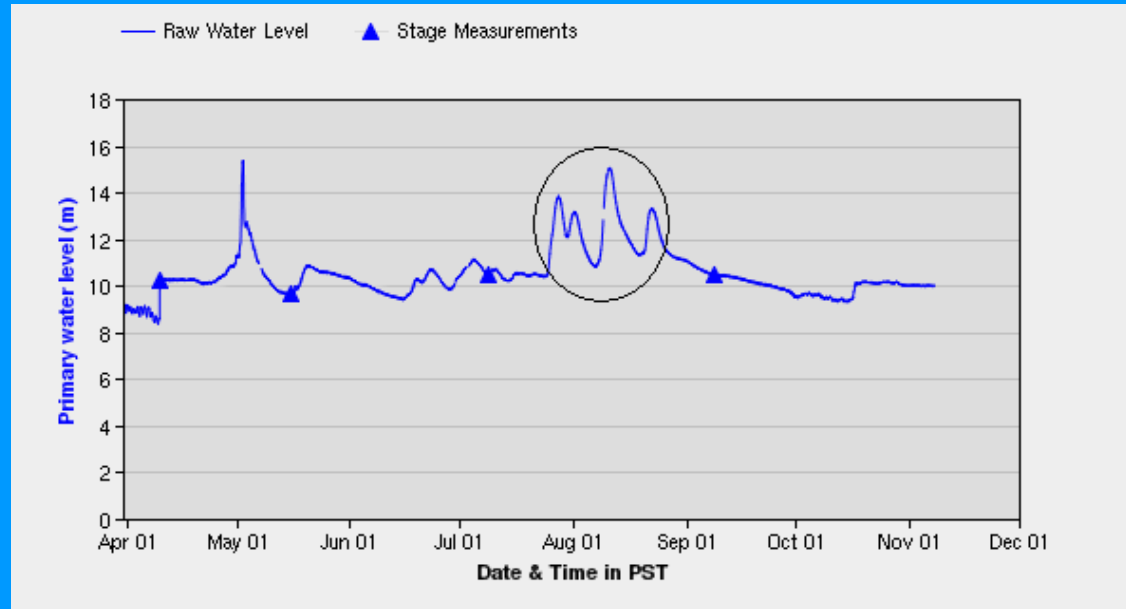
Yukon River water level

- Yukon River levels reflected upstream rainfalls from mid July through to August
- Mainstem discharge flows increased and decreased in order of 30-60% of flow
- Occurred near the local adult Chinook migration timing period
- Speculated, and some evidence shows it delayed migration



Porcupine River water levels

- Porcupine River experienced significant rain induced flows near peak migration in mid August (Rose approx 12+ feet) and continued to be turbulent affecting the Chinook migration and spawning and the Chum migration and assessment



Comments

- Northern portion of the Canadian Yukon River portion was low then subject to the July/August 2010 volatile rainfall conditions. Impacts on adult migration and juvenile rearing habitat conditions is unclear. Passage, channel stability and productivity may have improved in some places while degrading in others
 - Klondike River appears to have been spared significant impact from the rain event. No significant unusual conditions expected
- Southern portion of the Yukon River was dryer and warm. Stream temperatures and levels may have affected the later spawning upstream salmon migrants that were delayed while this may have assisted growth in 2009 brood Chinook where flows were sufficiently maintained