

Effects of Damming up to 90% of a Large Rivers Flow Behind 400-700 Foot Tall Dams, then Imprisoning and Storing That Water in Sea-Size Reservoirs for Months at a Time

- * The largest amount of fresh water on the entire planet is located in subarctic regions from Central Siberia to Northeastern Labrador.
- * Historically many rivers and tributaries there provided water to the region, these flowed unrestricted into the bays and into the Arctic Ocean (a highly sensitive and significant, but the smallest, ocean on the planet)
- * 24 hours, 7 days a week, the moving water helped keep the planet and this region cooler, moving waters in general are cooler than stagnant water. After all -- isn't this the definition of a river or stream?
- * From the 1950s to the mid-1980s a significant number of major rivers and tributaries in subarctic were dammed, causing the natural hydrological cycles of this region to be permanently altered with serious consequences
- * Many of these dams were huge, 400-700 feet tall and some would take a decade or more, trapping up to 90% of the rivers normal flow, to fill them. And multiple dams were added too many now destroyed rivers.
- * The hydroelectric model used (Strict Flow Regulation) or seasonal water discharges), What this means: The majority of water for each former river is stored in sea-size reservoirs impounding water for up to 6 months at a time. This model is the most damaging to all flora and fauna and totally debilitating the ecological integrity of riverine systems.
- * Waters are stored and stagnant in shallows all summer long. This leads to increases in humidity, evaporation, and large decreases in oxygen levels of water throughout the region. Solar irradiation is heating the waters
- * These reservoirs have indiscriminately covered over Boreal forest, tundra, and often over permafrost lands. Decomposition of carbon and melting of permafrost is still ongoing and releasing significant GHG emissions
- * Only in winter time for 4-6 months electricity is generated. Waters are drawn into the turbines penstock which is located well below the top of dams, here water temperature is around 40 degrees F.
- * The velocity at which the water is discharged through the turbines is at least 5 times greater than the normal river flow and quantities of water released downstream is 10 to 20 times greater than the normal flow for a year.
- * Many of the reservoirs (X rivers) are now adding huge volumes of fresh water into the small Arctic Ocean, causing desalination, altering the Ocean currents along both coasts of the US and helping to slow the AMOC current.

*The velocity of water discharge is great and with warmed water hitting the Arctic cold air, lots of water vapor is released into the atmosphere and surrounding downstream regions and has been every winter for last 60 years

*This strong velocity of discharge and heated water stored behind dams is causing downstream waters to no longer freeze in the winter. It's now sending this warmer water into the small Arctic Ocean, melting the ice, altering the natural current patterns

*Finally, the rivers of the planet transport up to 80% of the nutritional needs of marine life, from the smallest phytoplankton, diatoms, to the largest, whales. These dams trap much of this nutrition and also prevent silica, the key building bloc of life. Only in winter a significant quantity of water is released, what little nutrition gets thru then, it's not the natural time that marine life needs nutrition .it requires it in the warm growing seasons.

Bibliography (more will be added soon)

https://www.academia.edu/29227045/Warmer_and_wetter_winters_characteristics_and_implications_of_an_extreme_weather_event_in_the_High_Arctic?email_work_card=title