

MEDICINE RIVER AQUIFER COMPLEX AT RISK

by Dale Christian (MFAC)

The Medicine River is situated in the active flood plain of the Red Deer River directly below the Dickson Dam. The importance of the Red Deer River/ Medicine River Flats Aquifer for natural water storage, stream replenishment and the vital riparian connectivity have always been lost in the frantic pursuit of private industrial gravel profits. It is important to understand that the local flood plain provides the only remaining wildlife corridor connecting the Medicine River to the Red Deer River. The Medicine River habitat is an abundant larder built for song bird, waterfowl staging and rearing. The immediate reach area of the Dickson Creek/Medicine River to the Red Deer River confluence reach is famous for the fish spawning nursery. The irreversible environmental impacts to the collective river regimes, corridor and the local people dependent on the aquifer finally cumulated into the “can’t be ignored anymore” category in June of 2013, when the invited Red Deer River “captured” the large adjacent gravel pits wiping out the Range Road 20 berm road for the 4th time. Stranded fish such as those pictured in the RR20 berm road ditch below are a re-occurring casualty. Without the Medicine refuge escape for Red Deer River fish, the RD River casualty would have been even worse.



An example of the flooded (captured) pits in the flood of 2013 - pits both described as extracted above (left side) and below (right side) the water reservoir taken (about 480 acres).

Lessons Learned?

From the Stantec Report which includes the Medicine Flats Flood Plain, “Preservation should be considered in areas which provide active flood plain storage, areas with geomorphological issues, areas with geotechnical areas, specific aquifer areas, and sensitive riparian areas”. Referring to problems downstream of the Dickson Dam, Stantec states, “outfalls do not necessarily follow a specific probability distribution, which makes it challenging to designate a 1:100 year flood rate; or any other specific return period, to the outflows from the dam.” (Stantec Flood Mitigation main Report to Province 2014)

MFAC’s Forced March

Although locally we have been fighting these pits since 1990, beginning in 2009 a locally formed community group (MFAC), has opposed eight gravel pits and the eight subsequent appeals by the gravel companies at

both the Municipal and Provincial levels. To be effective we had to retain matching experts and lawyers, and spend uncountable hours of our time and resources. Each of these applications cost our community members approximately \$45,000 out of pocket. Approval is typically based on number of existing pits in the area. Provincial decision is based on water allocation available for the end pit ponds

or washing. Provincial Approvals for gravel pits are not required to perform cumulative environmental impact assessment (EIAs). Further, gravel pits are exempted from Water Act Approval for activities such as pit to pit water diversion. Reclamation is not required to be to former agricultural land productive equivalency, hence end ponds or wildlife habitat or private lakes can be and are most often the approved end use. Reclamation, follow up, monitoring and enforcement are dependent upon provincial resources, existing policies and political will, all of which appear to be in extremely short supply when gravel pits are considered. (e.g. 2014 Auditor General Report on Gravel) We were advised that no ESRD Fishery or DFO referral was necessary unless the gravelling was in the river bed. To quote consulting company Aspen Land Group (for 6M Holding Ltd) “In terms of flood protection there are no set provincial standards for development of pits. There are many pits within the Province that have been approved in high flood risk areas without any consideration of flood protection”

To understand the critical importance of keeping the connectivity intact between the Medicine and Red Deer Rivers and their tributaries, one needs to understand that the 7m higher Red Deer River hydraulically connects the gravel rills in underground flows (Hyporheic Zone) of the aquifer to the Medicine River in an east, north east direction. Those gravel seams end in the Medicine as seeps and springs areas that are identified as fish spawning and rearing areas, notably for at risk Wall-eye.

The Good News!

In 2012, Red Deer County funded and accepted an Environmentally Significant Areas study, and incorporated recommendations into their development and land use plans. Thus, when the majority of elected municipal council decided to deny the gravel pits, they based their land use decision in part on environmental conservation of natural capital. The Subdivision and Appeal Boards backed them up for now.

The Red Deer/Medicine River Aquifer Reservoir holds, cleans and keeps cold at least 4 times the volume of the river's flow. This is the water you enjoy as downstream users. It is also the water you pay to clean. The Medicine River Fishery provided refuge fish a safe place during the 2013 flood that decimated the Red Deer River fishery and will do so again. The Medicine River/Dickson Creek reach is the identified and world renown Walleye spawning ground for the Red Deer River. (Fishery Round Table,; Vance Buchwald Medicine River Fish Survey 2009) It is your taxes that pay and pay again to restore, rebuild and berm river banks, end pit scar ponds and infrastructure. Once the local Riparian areas, the Shallow Ground Water flows, the Wetlands and the single remaining Wildlife Corridor is deforested, **dug out**, fragmented and/ or severed, a large, critical piece of Aquifer Connectivity, essential to downstream users will be gone. We need to show gratitude and support to our Mayor and the majority of councilors for their courageous environmental decisions.



One of the stranded large pike found in the ditch in 2014. The water was running out of the pits back to the Red Deer River.



This is what happened to RR20 south in 2013 - (the same as in 2005 and 1990). On the right side you can see the captured pit area where the Red Deer river is flooding through the road. The people on the left side have been bought out recently as their foundation was washed away and they were stranded for three weeks.



This pictures shows the Dickson Creek/Medicine River confluence late in the fall - you can see the other vegetated area stream was bermed off. However, it is still deemed Crown Land.



This is the area which the last gravel application was for. You can see where 6M was already gravelling out (look at the area just south of the vegetated strip). This area is subject to spring flooding at the existing elevation. You might be able to see why we think lowering it would cause a river cut across leaving the loop stranded!