

Gravel Mining Program Review

By Joanna Skrajny, AWA Conservation Specialist



In early February of this year, the Alberta Government held workshops to review the conduct and monitoring of sand and gravel mining operations throughout the province. This review was prompted largely by the Auditor General's 2016 report. Auditor General Saher pointed to three very troubling facts: gravel pits are not inspected regularly, enforcement of operators' reclamation responsibilities for their pits is virtually non-existent, and operators don't pay a sufficient security deposit in the event they fail to reclaim the mine. This has resulted in a legacy problem. Hundreds of abandoned pits are scattered throughout the province and there is little to no money and resources to deal with this litter.

Why should we be concerned? It's simply because the cumulative impact of all these sand and gravel mining operations is much larger than you likely suspect. The ALCES Group estimates the size of the footprint of sand and gravel excavations to be approximately 24,000 hectares. This is three times larger than the coal mining footprint in the province. What compounds the impact of this footprint is the fact that most of Alberta's sand and gravel mines are located close to waterways. As you likely know, riparian areas – the stretch of green vegetated areas surrounding a creek or river – are essential corridors for aquatic and terrestrial species. Together with the vegetation, shallow sand and gravel deposits located within a floodplain act as a sponge. They absorb water during times of intense rain and slowly release it to the river in times of drought. Therefore, land uses which affect river-connected groundwater have a disproportion-

ately negative effect on the ecosystem and water security.

As a result, the province undertook a number of workshops with stakeholders to attempt to address some of the Auditor General's concerns, which AWA participated in. One of the most positive outcomes from the workshop was to see that aggregate proponents will finally (!) be held to the same standard as other industries. This means that operators will have to conduct wildlife surveys and have appropriate setbacks for sensitive and at-risk species. It was also good to see that there will be yearly reporting requirements for operators on both private and public land, but AWA would like to see that extended and make reporting necessary even if the pit was not "active" that year. This would incentivize operators to complete their restoration work on time and would allow the government to keep better track of abandoned mines.

A disappointing aspect of the current Program Review is that it is going to continue to allow sand and gravel mining within the 1:100 year floodplain by developing a "risk based approach" to gravel mining in the

floodplain. A formal risk assessment only will be part of the decision-making process if the risk is judged to be medium or high. Of course, this presumes, improperly in AWA's opinion, that it's appropriate to allow gravel mining to occur at all in floodplains. This line of reasoning accepts too high an amount of 'acceptable' risk. It places too minimal a cost of the damage this mining could do to the alluvial aquifers that supply drinking water and to the riparian areas so valuable to wildlife.

Taking a Step Backwards: the SWBAP

When pressed as to why this risk based approach was being used, the government planners argued they were simply implementing the Surface Water Body Aggregate Policy (SWBAP). AWA is extremely concerned with this approach since it tolerates the possibility of mining gravel in the 1:100 year floodplains.

Before the approval of SWBAP in 2011, there was a working understanding among provincial regulatory agencies that they would reject new applications for aggre-



Our riparian corridors act like oases on Alberta's prairie landscapes. PHOTO: © C. OLSON



I took this photo of the interface between a gravel pit and a river in the fall of 2015. The riprap, rock used to armor streambanks, in the foreground of the photograph is the outer edge of the excavated pit. This pit has flooded numerous times, delivering high loads of sediment to the water. The river is very likely to overtake the pit again the next time it floods. PHOTO: © J. SKRAJNY

gate extraction activities within active river channels and the 1:100 year floodplain zone. Federally, under the *Fisheries Act*, the Department of Fisheries and Oceans (DFO) routinely rejected applications which would harm the aquatic environment and provincial officials had relocated some sand and gravel operations farther from rivers.

Fish and Wildlife officers and scientists opposed the first attempts to allow gravel mining in the 1:100 year floodplain in 2000. They believed it would send out a confusing and counterproductive message by adding another threat to the health of the aquatic environment. In the following years, multiple processes and groups were set up to develop a policy on how to manage sand and gravel mining operations in the province. But whenever scientists or biologists recommended that gravel mining not be allowed in the floodplain that advice was either ignored or the process was scrapped.

For example, a working group process in 2009/2010 was tasked with reviewing sand and gravel mining issues. It stated that “it is clear from the literature on impacts from instream gravel mining that the mining of aggregate from within the active stream channel can have significant, widespread

and long lasting impacts on the aquatic environment, including fish and fish habitat.” Regarding cumulative effects, the working group noted that “the most severe effects of instream gravel mining may be considered as cumulative because they may become obvious only over time and extend beyond the limits of the mine site itself.”

The advice was ignored when in 2010 a new task force was established and was directed to make “quick progress.” This meant involving only select external stakeholders (primarily aggregate industry interests) in order “to develop a province-level policy direction for the approval of aggregate extraction from gravel bars and floodplains of water courses in the province.” This task force delivered our current *Surface Water Body Aggregate Policy* with its premise that there are acceptable levels of risk associated with gravel mining in our floodplains. Some might regard this policy as little more than green washing an industry-driven initiative.

I spoke about this issue with Jim Stelfox, a retired provincial fisheries biologist. As he points out, the floodplain is a very appropriate name since it expresses something that is plainly obvious...this is an area that is prone to flooding!! During the flood of

2013, many gravel pits were flooded and resulted in pit capture – where the river flows into the mine, which now becomes the new channel. The impacts of pit capture are numerous and negative: possible reductions in the amount of fish spawning habitat, changes in the stream channel and flow patterns, increased water turbidity, the potential for dissolved oxygen levels to decrease, and the potential for water temperature to increase. All of these can damage aquatic plant communities, benthic macro-invertebrates, and native fish populations. As Jim points out, the result of the river “capturing” a gravel pit can have irreversible results and the recovery of the stream may take decades, if it recovers at all. Even in pits that aren’t captured by the river, many of them end up with stranded fish during flood events.

Jim himself assisted with some fish rescues in the week after the 2013 flood. His observations were that the Alberta Government was responsible for conducting these fish rescues and, to his knowledge, the gravel pit operators were never charged for this work. The government has stated that it is the gravel pit operator’s responsibility to conduct fish rescues in a flood event, but there is a lack of information regarding how much fish rescue work operators actually did. AWA is unaware of whether operators faced any financial penalties for fish that were stranded in their pits. While some operators undoubtedly took responsibility for rescuing fish there is no systematic database for information about crucial subjects such as flooded pits, stranded fish, pit rescues, and operator financial responsibility.

All of this information leads me to conclude that, even under a best case scenario where the above issues are resolved well, fish will continue to be stranded in gravel pits and some will inevitably die. Furthermore, too much of the real costs of gravel mining also are being borne by the taxpayers and not enough lands on the shoulders of the miners. Ecologically and financially the way ahead is clear; that path is not one where we continue to let the profit motive of gravel operators govern public policy. 🍷