



Nova Scotia Salmon Association

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November 7, 2019

Replacement Effluent Treatment Facility Project
Environmental Assessment Branch
Nova Scotia Environment
P.O. Box 442
Halifax, NS, B3J 2P8

To Whom It May Concern:

We are writing on behalf of the Nova Scotia Salmon Association (NSSA) and the Atlantic Salmon Federation (ASF) in response to the environmental assessment focus report released by Northern Pulp Nova Scotia Corporation (NPNS) for their proposed replacement effluent treatment facility. While the NSSA and ASF have a good working relationship with the proponent, NPNS have been supportive of our salmon recovery work through numerous in-kind contributions; and we feel that some of the environmental assessment data gaps were addressed in the focus report; we still have some concerns and reservations about the proposed project and its potential effects on wild Atlantic salmon.

Atlantic Salmon are an ecological keystone species that provide insight and perspective to the status of other foundational fish like gaspereau and smelt and ecosystem parameters such as water quality. Therefore, the health of salmon populations is a general indicator of overall ecosystem health. In this region, Atlantic Salmon have been assessed as a *species of special concern* by the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) and identified by the proponent as a species of conservation concern (SOCC). As the primary advocates for wild Atlantic Salmon both the NSSA and ASF have a duty to evaluate the potential impacts of projects and to ensure that the strongest possible protections are put in place for this species and its habitat.

During our initial review of the environmental assessment documents we identified five deficiencies, which we described in our submission dated March 5, 2019. The deficiencies were the spatial and temporal overlap of the proposed outfall impact zone with critical marine habitat, the assumptions used in receiving water studies and modelling as it pertains to species like salmon, the capacity of the new facility to hold untreated effluent during maintenance periods and emergencies, the lack of information on effluent system transition and monitoring, and the effect that localized physical oceanographic conditions would have on diffuser performance. While the focus report provided more information and clarity on some topics, we do not feel that our concerns were completely addressed.

Our biggest concern is with the lack of information about the overlap of the proposed outfall impact zone with critical marine habitat over appropriate spatial and temporal scales appropriate to wild salmon. The proposed effluent facility will rely on environmental mixing and dilution to reduce the treated effluent to acceptable levels. While use of an impact zone is permissible under specified conditions within the existing regulations and NPNS has including modelling in both the initial environmental impact documents and the focus report to determine if adequate mixing will occur, the location of this impact zone with respect to critical marine habitat has not been adequately investigated. If the impact zone overlaps with critical marine habitat (spatially or temporally) then there could be negative consequences for SOCC such as Atlantic salmon (e.g. lethal/sub-lethal effects).. Another

important aspect of the mixing zone that needs to be considered is what happens if a prolonged treatment failure occurs and untreated effluent is discharged. Understanding the impact zone is perhaps even more important on that risk management and emergency planning level.

The Focus Report did attempt to investigate this potential risk but fell short in several important areas. Appendix 7.3 - Impact Assessment on Marine Fish predicts that the pipeline, diffusers and effluent will have physical, acoustic, and water quality effects on Atlantic Salmon and that there will be a continuous frequency of disturbance through construction, operation, and decommissioning of the facility. Despite this the appendix concludes that these effects are not important since the effects are likely reversible once the effluent treatment facility is decommissioned and since the geographic area is relatively small. We take issue at this dismissal of the potential impacts as decommissioning of the facility would not occur for many years, meaning there will be an impact on Atlantic Salmon for the foreseeable future, and because the impact zone despite being a small geographic area has a significant potential to impact Atlantic Salmon migrating to and from local rivers. In Appendix 7.1 - Fish Habitat Survey (A7.1, page 37) the proponents indicated that “The timing of acclimation in the estuary and seaward migration of Atlantic Salmon (sic) adults is not well known for any of the rivers in the study area. Potential for Atlantic salmon is also identified the marine habitats.” Surveys of local resource users presented in the focus report found 10% had harvested Atlantic Salmon in the study area within the past year, and Appendix 7.3 identifies salmon as migratory species with low to medium chance of being in the localized assessment area (impact zone). Therefore, the proponents know Atlantic Salmon use habitat in the vicinity of the impact zone, but self admittedly do not have enough baseline data to dismiss the fact that the impact zone could overlap with critical marine habitat for Atlantic Salmon. There is a real risk of this type of overlap because Atlantic Salmon like other important anadromous species require areas within estuary and along the coast to transition between freshwater and saltwater. These transitions are known to be sensitive time periods in their life histories where increased mortality occurs. Potential overlap of the impact zone of this effluent treatment facility these habitats spatially or temporally has the potential to significantly disrupt the life history and decrease fitness and/or survival.

Within the focus report there are also detailed habitat assessments and the authors attempted to correlate these assessments with potential usage by species such as Atlantic Salmon, however their methodology was not based on applicable data. For example, one of their primary references used in this process Rondeau et al. 2016, did not look at any salmonid species nor make any conclusions about salmon other than to say they were not included in their study. Rondeau et al. also for the most part focused on deeper water habitats that does not pertain to impacted area. In addition, many of their other references utilized in this section were not up to the acceptable standard for a scientific based risk assessment (Master’s thesis, personal websites, errors in referencing).

We were disappointed upon seeing Northern Pulp’s EA filing that deficiencies identified ahead of time were not addressed and there does not appear to be a plan to do so. This is a major oversight that needs to be corrected before any consideration of releasing the project from the assessment process. Given the potential for negative impacts, the threats currently faced by wild salmon, and what they represent within the ecosystem, we cannot afford to have this or any other operation cause unintended negative consequences. It is therefore essential to the ongoing environmental assessment process that proper baseline data is collected over the appropriate spatial and temporal scale. It is only with proper baseline data that the extent of potential impacts can be assessed, that effective monitoring can occur, and that mitigation and adaptive management plans can be developed and implemented as necessary.

We also had concerns about the assumptions used in the receiving water study and marine impact assessment portions of the focus report. Predicted dispersion patterns used to establish the most likely impact zone and draw conclusions about risk associated with this design utilized modeling assumptions based on conditions likely to be experienced in July. While this set of assumptions and thus model and its conclusions may be apt for many species, they are not valid for migratory species such as Atlantic Salmon that are not expected to be present in the impact zone at this time of year. The environmental conditions of the receiving water during migratory periods (spring and fall) could be substantially different. For example, temperature profiles of the Northumberland Strait during the fall migration would be much cooler, meaning the impact zone would contain a significantly warmer plume than ambient that would disperse differently than modelled. This is potentially significant because Atlantic Salmon adapted to cold temperatures at this time of year would not be physiologically able to adapt to this warm plume without compromising their health and so will either be forced to avoid the area or suffer compromised health. Therefore, without more complete modelling it is not possible to accurately determine the size or significance of the impact zone on migratory species like Atlantic Salmon.

We also had concerns about the holding capacity for untreated effluent in this new treatment facility. It is essential that the new facility have enough capacity to hold untreated effluent to allow for maintenance and emergency situations. The old facility had an extremely long holding capacity (30 days) compared to the new facility (8-12 hrs.). This is a substantial decrease. The focus report did partially address this concern as it identified several engineering changes made to facility design that should help increase holding capacity and facility functionality. However, given the size, age, and complexity of the mill we are still concerned that there may not be enough capacity within the system to prevent discharge of untreated effluent in the case of prolonged failures in the treatment system. We are concerned that the proponent has not put forward emergency management plans that would confirm that the new facility has enough safeguards in place to ensure there is no scenario which would see untreated effluent released into the receiving water.

Our fourth set of concerns was around the lack of information on effluent system transition, standards, and monitoring. The transition in effluent systems from the current Aerated Stabilization Basin treatment (ASB) system to the proposed biological Activated Sludge Treatment (AST) system comes with some inherent risk. While these newer systems have shown they can provide higher BOD reduction efficiency, they are more susceptible to settling issues and disruption to the biological community that is central to this effluent treatment process. The disruption to the carefully cultivated microbiological community that drives the decomposition and detoxification process or “biological upset” as it is referred to by operators of these types of systems can occur regularly if not carefully managed by experienced operators. Therefore, this new system will require more highly trained operators and more rigorous procedures to maintain effluent below legally required levels. In the environmental impact and focus report documents there is a lack of information concerning training, operational and emergency procedures, and how the transition between systems will be implemented. The focus report does discuss environmental monitoring that is compliant with the current regulations, however this is a reactionary process that only detects issues after they have appeared in the receiving environment. Therefore, failures in effluent treatment process and procedures could lead to untreated effluent being pumped into Northumberland Strait, relying only on voluntary transparency by the proponent and the federally mandated monthly testing to detect the issue after the fact. We see this as a

significant failure in risk management that is unacceptable risk to sensitive species such as Atlantic Salmon. More information is required before an informed decision can be reached on this project.

The fifth concern that we had previously identified was the effect that localized physical oceanographic conditions would have on diffuser performance. The focus report provided much more detailed information on the substrate composition and habitat around the proposed diffuser locations. The report also provided more information about diffuser performance monitoring. Although we are still concerned about how substrate composition and habitat in the area will shift over time, we feel that based on the information provided in the focus report that NPNS is able to adequately monitor and respond to this concern.

On behalf of NSSA, ASF, our affiliates, associated members, and volunteers we urge the NS Environmental Assessment Branch to require that this project be subject to the most rigorous standards to ensure that this highly sensitive and ecologically important area is protected. As the proposal currently stands, we feel there is insufficient information to conduct an effective and thorough project risk assessment, as it pertains to wild Atlantic salmon. We remain committed to our objectives of ensuring that the best interests of the ecosystem and of salmonids are represented and protected throughout this process. We welcome any opportunity to meet with the proponent or regulators to discuss our concerns and work together towards solutions.

Sincerely,



Mike Crosby
President
Nova Scotia Salmon Association



Kris Hunter
Program Director for NS and PEI
Atlantic Salmon Federation