

Wildlife Oriented Recreational Values Related Review of Environmental Impact Statement for the proposed Site C Clean Energy Project (Draft)

Terms of Reference and Approach

The specific Terms of Reference were to provide to NPR&G a report setting out where and how the Draft EIS Guidelines could be improved to ensure that wildlife recreation values will be adequately addressed in the environmental assessment (the “NPR&G EIS Guidelines Report”), with a particular focus on how the EIS Guidelines could be improved to allow for consideration of the following:

- 1) potential wildlife loss and impacts upon local/regional/provincial wildlife supply,
- 2) estimates of potential recreational losses, including those related to the role of climate change adaptation/mitigation, and
- 3) adequate inventory and planning information related to wildlife recreation.

1) Potential wildlife loss and impacts upon local/ regional/provincial wildlife supply

1.1 Fish

Information on baseline conditions provided. Models generated to predict effects of project developed and validated with sensitivity analyses and information from changes documented in the Williston and Dinosaur reservoirs. Changes in aquatic habitat, predator-prey dynamics, and food web composition and structure are predicted. Changes in fish resources assessed based on three categories of fish including:

- Group 1 (burbot, lake trout, rainbow trout, walleye, and northern pike)
- Group 2 passage sensitive fish (Arctic grayling, mountain whitefish, bull trout)
- Group 3 planktivorous fish (kokanee, lake trout)

and within the proposed Site C reservoir and downstream to the confluence of Alces River.

1.1.1 Fish: site C reservoir

Models predict total fish biomass will increase by 3-fold from what is currently within that stretch of the Peace River that will be flooded by the proposed Site C reservoir. The overall change is driven by a predicted increase in biomass of group 3 planktivores (kokanee and lake whitefish) during early stage and long term. For Group 1 fish, biomass of burbot, lake trout, northern pike, and rainbow trout predicted to increase; walleye predicted to decrease. For Group 2 (passage sensitive species), biomass of mountain whitefish and Arctic grayling predicted to decrease; bull trout predicted to increase. For Group 3 (planktivores), biomass of kokanee and lake whitefish predicted to increase; area will be dominated by kokanee and lake whitefish. Predictions imply that net productivity of the system will increase as a result of the propose dam.

1.1.2 Fish: area downstream of proposed Site C Dam (to confluence of Alces River)

Models predict overall 1.2 to 1.4-fold increase in total biomass of fish relative to what currently exists in the Peace River downstream from proposed dam. The relative abundance of the fish in the three groups are predicted to change. Biomass of group 1 fish (burbot, trout, rainbow trout, walleye, northern pike) predicted to decrease by 45% to 80%. Biomass of group 2 fish (Arctic grayling, mountain whitefish, bull trout) predicted to increase by 1.8 to 1.9-fold; this increase in biomass is primarily due to a predicted doubling of mountain whitefish biomass. Arctic grayling and bull trout are predicted to decline. Group 3 fish (kokanee and lake whitefish) are predicted to contribute a negligible amount of biomass. Areas downstream from the proposed dam will be dominated by mountain whitefish. Predictions imply that net productivity of the system will increase as a result of the propose dam

1.2 Wildlife

Baseline condition provided for some indicator species including:

- bats (detailed inventory information provided)
- beavers (inventory data provided)
- fisher (detailed inventory information provided)

- ungulates (detailed inventory information provided for moose, elk, mule deer, white-tailed deer)
- wolf (cursory data)
- grizzly bear (cursory data; concluded low probability of occurrence)
- butterflies and dragonflies (inventories done, habitat and status indicated)
- amphibians and reptiles (inventories done, habitat and status indicated)
- migratory birds (range of songbirds, swallows, waterfowl, shorebirds, marsh birds, woodpeckers, nighthawks considered)
- non migratory birds (ruffed and sharp-tailed grouse considered)
- raptors (bald eagle, broad-winged hawk, northern goshawk, northern harrier, and owls considered)

Baseline conditions were not assessed for small mammals, i.e., mice and vole species, squirrels, chipmunks. Therefore, there are not data to assess whether there are rare or uncommon species of small mammals that occur within the proposed activity or LAA.

1.2.1 Wildlife: predicted effects

Predicted effects are direct loss of habitat; loss of winter habitat is expected to be the primary effect of the project on moose, elk, and mule deer. Other effects include reduction in the variety of habitats and resource available, habitat fragmentation, genetic isolation, mortalities due to vehicle collision, and functional habitat loss as a result of avoidance of roads and areas with activity.

Current harvest of fish and wildlife resources based on public harvesting licenses and areas, tenured traplines, guide outfitting areas and, aboriginal participation in commercial activities in combination with information from wildlife and fisheries studies, angler /creel survey, provincial harvest data and license sales, and data from Guide Outfitting Association of BC. Aboriginal harvest was not integrated into estimates of total harvest therefore limits assessment of current numbers and value of fish and wildlife harvested, impact of harvest on population sustainability, and impact of project on populations, harvest, and local users.

RSF habitat models are important part of the assessment for ungulates but methods used to develop models unclear.

2) Estimates of potential recreational losses, including those related to the role of climate change adaptation/mitigation

Baseline information on recreational sites, types of activities undertaken, facilities/amenities available is provided. Outdoor recreation mitigation plan presented is limited to and supports change from river-to reservoir-based activities.

3) Adequate inventory and planning information related to wildlife recreation

Habitat models for ungulates lack sufficient data to assess how the RSF models were actually generated. Procedures described in the document suggest that at least some are inconsistent with accepted practices described in published literature. As a result, estimates of the amount and distribution of suitable habitats for ungulates in the EIS may be inaccurate.

Information on the number and distribution of fish and wildlife harvested by aboriginal and non-aboriginal harvesters should be integrated into one data base so that the current magnitude, patterns of use and, economic value of the harvest can be assessed, and to assess how redistribution of that harvest will impact fish and wildlife resources in the future. Reliable estimates of current resource use (for all harvested species) in combination with estimates of population size are required to assess future impacts of the harvest, the project, other developments, and climate change, etc on these resources resource.

If the actual harvest is underestimated, then the economic values of these resources are also underestimated. The value of wildlife should include that of the meat and parts that are used by the harvester and not just monies generated through sales of licenses, etc. Subsistence harvesters also contribute to local economies spending money on equipment (boats, gear, etc) and supplies (food, fuel, etc) to hunt.

The document does not address issues related to the effects of the redistribution of fish and wildlife harvesting and other non-reservoir based recreational activities to other areas on fish and wildlife resources or users.

Proposed measures to mitigate the impacts of the project on many species are provided throughout the various documents. An integrated mitigation plan should be developed to enable an assessment of:

- i) the magnitude of the monitoring and mitigation required,
 - ii) the cost of implementing the plan, and
 - iii) the likelihood that the plan will be successful and,
- to identify who is responsible for funding and implementing the plan during the life of the project.

Many comparisons show that activities in the Peace contribute only a small amount to the Provincial total--large population bases will likely have more individuals participating in an activity; rates should be standardized using per capita calculations.

Clarification is required on how significance residual effects are determined. The document states: "A residual environmental effect of habitat alteration and fragmentation, displacement and disturbance, or mortality would be significant if the effect could threaten extirpation of a key indicator, or result in considerable reduction to habitats or habitat use associated with a key indicator that may in turn further elevate provincial or federal listings and cause the key indicator to be a management concern. This means that a residual adverse effect would be significant:

1. for species that are currently provincially or federally designated as, or considered candidates for, threatened or endangered status (e.g., provincially Red-listed or SARA schedule 1), and the magnitude of the residual effect is characterized as high
2. for species that are currently within a lower listing category (e.g., provincially Blue-listed or SARA Schedule 1 special concern), the magnitude of the residual adverse effect is characterized as high, and the adverse effect may result if the key indicator being elevated to a threatened or endangered status listing.

A number of species are listed provincially, but not federally. This could be solely based on the delineation of jurisdictional boundaries, or may be a result of provincial strategies for managing species and ecosystems at risk. So that both provincial and federal decision-makers appreciate the full context of any significance ranking, the determination of significance is provided taking into account both federal and provincial listings. For most indicators, the disturbance and displacement and mortality effects are secondary to the effects of habitat alteration and fragmentation. The available measures to mitigate the potential effects on wildlife resources may not be fully effective. Therefore, the residual effect of the Project habitat alteration and fragmentation on certain species would be significant because the sustainability of the regional populations of these species would be threatened (Table 14.22)." So, if an indicator species is extirpated within the LAA as a result of the construction or operation of the proposed project, but a sustainable population of the species exists elsewhere in the region, would this then be considered a non-significant residual effect of the project? Would the extirpation of non-indicator species be consider a significant residual effect?