WILDLIFE AND THE PROPOSED MORAN DAM ON THE FRASER RIVER

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Canadian Wildlife Service

1972

P&Y 3436

Wildlife and the proposed Moran Dam on the Fraser River.

The possible effects of the proposed Moran dam on the wildlife populations within and adjacent to the full-pool impoundment are difficult to anticipate in quantitative terms for the area above the dam and even more so for the downstream portion of the Fraser River valley and estuary. Certain physical changes may be forseen which will modify existing wildlife habitat but the extent to which this might be reflected in the increase or decrease of wildlife numbers is complicated by limited population data and the capacity of all species to adjust to new situations. These changes will have their greatest impact on ungulate wildlife using the area above the dam and on waterfowl using the estuarine regions about the mouth of the Fraser River.

Effects above the impoundment:

Waterfowl:

The area between the northern and southern limits of the proposed Moran pondage and between the bank levels as established at full-pool is of generally low value to waterfowl except for some of the bottom lands and islands lying north of Soda Creek to Quesnel. Large numbers of Canada geese and ducks use portions of this area for both migration and nesting purposes. Flocks of up to 600 geese and as many ducks and some sandhill cranes have been reported near Australian in September and October (Mitchell 1972, pers. comm.). None of the wetland units scattered over the uplands above the Fraser River would be directly affected by the proposed flooding.

The possible waterfowl use of the proposed large artificial lake would depend (1), on the amount and quality of marshland attractive to waterfowl that might develop in time about the new shoreline and (2), the

capability and future agricultural use of the land adjoining the lakeshore. In the first consideration there would seem to be little possibility of marsh development in the narrow confines of a new lake south of Soda Creek because of steep bank slope, drawdown and high slump hazard. Even north of Soda Creek slump hazard and drawdown would be severe limitations. The second consideration, that of agricultural development of the lands adjoining the impoundment would affect waterfowl use mainly through a possible improvement in the food resource available to migrating birds. This would depend on the type of crops that might be suitable to the agricultural capabilities of the area. Cereal crops would be foremost among those most attractive and beneficial to waterfowl and while much of the land within the area is of low agricultural quality there are scattered units with some potential for grain production.

Regardless of the possible benefits that might result from agriculture there would appear to be little to be gained for waterfowl from the waters held above the proposed Moran dam. The numerous natural ponds and lakes of the region already provide migration facilities probably much superior to those that might be afforded by the proposed impoundment. Similarly, waterfowl production that would be lost through flooding of the islands and bottom lands of the Fraser River would not likely be compensated for by that created by the reservoir. The water management regime under which the system would be operated suggests that reservoir elevations would begin to rise from a mid-April low about the time many birds in that region would be nesting. This would be a factor operating against the success of any birds that did happen to use the pondage for nesting purposes.

Upland Birds:

Upland birds within the proposed reservoir area consist primarily of

willow and blue grouse, with a few Franklin's grouse and some chukar partridge also present. Good populations of willow grouse are reported along the banks and wooded benchlands of the Fraser from Williams Lake Creek north. Blue grouse predominate south along the Fraser to the Chilcotin River. In the event of flooding, the latter species might only be displaced to other upland habitat but the resident willow grouse would perhaps disappear with the flooding of the deciduous cover with which it is so closely associated.

Ungulate mammals:

The greatest ecological impact of the proposed Moran development would be imposed upon the three major ungulate species frequenting slopes and valley bottom of the area above the dam site. The most abundant of these are the mule deer which occur generally throughout the entire reservoir area. California bighorn sheep, one of the rarer big-game animals of North America are found mainly in British Columbia. Some 450 animals or about one-quarter of the world population of this species occur on important range within or adjacent to the proposed impoundment. A few scattered bands of moose will also be affected.

With the exception of a small section about Moran canyon and an equally small unit near Soda Creek the entire reservoir area and its environs rates very high for big game use. The predominant class 3 winter range extends continuously from the proposed dam site northward along the eastern slopes of the Fraser valley to about Narcosli Creek, the northern limit of the impoundment. The western banks of the Fraser are also class 3 to about the junction of the Chilcotin River at which point it improves northward to class 2 and class 1, then reverts to

class 3 from about Doc English Gulch northward. All this land along the river banks to the terraces of the lower slopes is vital to the survival of the deer and sheep populations of the region. These lowlands are the first to clear of snow in late winter and the first to receive new spring forage growth. Animals concentrate in these areas in large numbers during a critical period in their annual transition from the physical stresses of winter to the revitalizing period of spring. Once lost through flooding and slumpage these lower ranges will be permanently denied to wild ungulates. The displaced animals will be dispersed to other areas where their added numbers could destroy or heavily damage ranges already at carrying capacity. The natural consequences of this is starvation and herd die-offs to a reduced carrying capacity level.

While no information is available on the total yield of game harvested from the region of the proposed Moran reservoir, some indication the productiveness of the area may be gained from the fact that 72% of the deer recorded through the Cache Creek checking station during 1971 were from the five Game Management Areas between Lillooet and Quesnel, each of which has a portion of the Fraser River as a boundary. The shared components which comprise that part of the Fraser Valley with the proposed reservoir receive substantial winter use by animals drawn from throughout these management areas.

Other Wildlife:

Information pertaining to the kinds and numbers of other terrestrial and avian wildlife is even more limited than that for game species. Furbearers might include otters and beaver since these have been seen in the river. Mink, weasel, muskrat, marten, fisher and squirrels would be additional

members of this group likely to be found here since their range extends over this area. Exploitation of the fur resource is believed to be light and of relatively low economic significance.

Numerous other terrestrial wildlife are also known to frequent this region and include representatives of one or more species of the following (Cowan and Guiguet, 1956):

Shrews, bats, pikas, varying hares, woodchuck, chipmunk, mice, woodrats, voles, porcupine, coyote, wolf, black bear, badger, skunk, cougar, bobcat and lynx.

Avian species, apart from waterfowl and upland birds, are also known for this region only in broad context. Important are the peregrine falcon and ospreys which nest throughout the proposed reservior basin. Sandhill cranes use the sand bars during the fall migration in the vicinity of Australian and numerous other birds are seasonal visitors in the biotic zones of the area. Representative of species common to these zones include (Munro and Cowan, 1947):

Red-shafter flicker	Spotted towhee
Song sparrow	Arkansas Kingbird
Brewers blackbird	Catbird
Red-winged blackbird	Poorwill
Western meadow lark	Bullick oriole
Screech owl	Williamson sapsucker
Lazuli bunting	Cedar waxwing
White-breasted nuthatch	Long-billed marsh wren
Pygmy nuthatch	Yellow-bellied sapsucker
Canada jay	Bald and Golden eagles

The effect that the flooding and drawdown of the reservoir would have on all wildlife species would be mainly in the form of habitat loss

and would be most heavily imposed on terrestrial animals and to a lesser extent on waterfowl.

Effects below the impoundment:

Waterfowl:

The region below the proposed Moran dam site to just south of Hope is one of low waterfowl population density. Some migrants appear during the fall near Laidlaw and in increasing numbers south and westward throughout the Lower Fraser Valley to the estuary of the Fraser River. Here they winter with large concentrations of ducks and snow geese which arrive via the coast from northern areas, mainly Alaska. This large estuarine wintering ground is one of the most important in Canada and during the course of the fall migration, is believed to handle about 2 million birds. Average counts of waterfowl in the Fraser delta area during aerial census range from about 30,000 in September to a high of over 100,000 in November (Taylor, 1970). These birds provided some 240,000 hunter-days of recreation in 1965 (Hedlin Menzies, 1968) for a harvest of some 150,000 ducks.

In addition to ducks, geese and swans, hundreds of thousands of shore birds and many other species associated with the estuary winter in, or migrate through, the Fraser delta region.

The ultimate effect of the Moran dam on the environment and the bird life of the lower reaches of the Fraser valley is difficult to anticipate. Nevertheless, during the period of initial water storage and under subsequent conditions of reduced stream flow and reduced silt load, it is reasonable to expect some extensive changes in the entire estuarine ecology. In the long term, such changes would at least include the curtailment of the annual building of the delta lands and the waterfowl habitat

they contain, or possibly a reduction in these lands by erosion. Water quality in terms of salinity and nutriments would also change resulting in a probable decline in the capability of the environment to support the present waterfowl use. Similarly, some deterioration of wetlands on the valley floodplain could occur through lowered watertable resulting in a reduction in the migration and production capabilities of these lands.

Ungulate wildlife:

Deer, goat and possibly a few sheep are the only species commonly found in the Fraser Valley south of Moran. Moose and elk have been recorded here on occasions but infrequently and in small numbers. It is unlikely that any of these populations would be much affected by environmental changes resulting from the Moran dam.

Other wildlife:

While the native fur resource below the Moran reservioir area is not a factor of major economic importance, it does involve the harvest of several thousand animals each year in the lower reaches and estuary of the Fraser River. Muskrats comprise the greatest proportion of this harvest but some beaver, mink, otter and raccoon are also taken. It would be expected that some decline in local populations of these species would occur should water levels in existing sloughs and channels of the floodplain be lowered to a point resulting in the drying out of these waterways.

Other than a few amphibious animals and some marsh frequenting birds such as the marsh wren, red-winged blackbird, great blue heron and American bittern, few other wildlife species could be claimed at this time to be threatened critically by the downstream effects of the proposed Moran dam.

Recommendations:

As may be seen the text of this report rests on a limited amount of quantitative information. The ecological changes that might arise from such developments as are proposed for the Moran reservoir are not completely predictable on the basis of available data. To anticipate and attempt to qualify the effects of such structures on the environment requires a much more intensive consideration of the physical and biological components of the area than is presently possible. Any meaningful ecological studies should not be expected to be completed in less than one year, preferably two or more. Thus it is recommended that future proposals from natural resource developments involving substantial environmental changes include sufficient lead time and facilities for studies on which to better assess possible ecological impacts.

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April, 1972.

Main references.

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THE GOVERNMENT OF
THE PROVINCE OF BRITISH COLUMBIA

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FISH AND WILDLIFE BRANCH
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March 30th, 1972

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Re: Moran Dam - Wildlife

Ungulates - Moose In comparison to deer, few moose will be affected by the flooding. The Chilcotin River above Farwell Canyon is fairly important. Along the shore, Aspen and willow provide good winter range for about 50 animals. Willow runs going to the river provide good browse as well. There is the possibility of these areas sloughing if the water level rises into them. On the whole the banks from the plateau appear to be too steep for moose.

A few moose are showing up opposite Williams Lake Creek on the lower benches in the last two years. On a flight in March 8, 1972 we counted 8 moose in this area so I suspect there is maybe 15 in the area. These occur on the lowest benches which will no doubt go under.

Deer - They occur all along the Fraser and Chilcotin in varying numbers. The heaviest concentrations are marked on the map with guesstimates of their numbers.

California Bighorn Sheep - There are somewhere in the neighbourhood of 300 sheep in this area 365 days of the year utilizing grassland right to the present water level. One major lambing area will go under water if the dam goes in. The Churn Creek herd will not be affected.

Waterfowl

The attached map shows the major known areas of use on the river. The largest is by Australian Ranch. The river has some very large bars here with slack water. The ranch and others provide the grain from the fields so it is a natural.

Tremendous numbers of geese and ducks use this area in the fall migration. Total numbers using the area are not known but I have seen 600 geese and as many ducks in the area during trips on the Fraser in September and October.

Some nesting areas (geese) occur around the bars in the slack water area.

Grouse - Willow - good populations of grouse occur along the Fraser from Williams Lake Creek north. South of this the banks are higher and steeper and lack the deciduous growths common north of the creek. Flat low benchlands with associated deciduous cover occurring to the north are the best grouse populations.

Blue - From McLeese Lake south along the Fraser the Blue grouse predominates along the Fraser banks and the break-off to the plateau. The Chilcotin River under consideration is mainly a Blue grouse range.

Chukar - some occur in scattered flocks south of the Gang Ranch bridge but have never been able to establish a large population.

Franklin - very few in this area.

Fur Bearers

Otter and Beaver are seen in the River and no doubt mink and weasel occur. Squirrels too.

Sandhill Cranes

Utilize the sand bars along with the geese and ducks opposite Australian. This is in the fall.

Yours truly,

H. B. Mitchell,
Regional Wildlife Biologist.

HBM/rw
encs.

UNGULATE GAME RANGE WITHIN & ADJOINING MORAN RESERVOIR

DEER WINTER RANGE

BIGHORN SHEEP WINTER RANGE

MOOSE WINTER RANGE

(information from Fish & Wildlife Branch, 27.3.72)

WATERFOWL AREAS WITHIN PROPOSED MORAN RESERVOIR

(INFORMATION FROM FISH & WILDLIFE BRANCH, 27.3.72)