

RECLAMATION IS MORE THAN  
KEEPING B.C. GREEN

Paper Presented

by:

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### INTRODUCTION

When asked to speak at this meeting, I referred to last year's proceedings to gain an understanding of the purpose and scope of the symposium. I then decided to change my presentation slightly to a topic that seemed more appropriate.

It seemed, both from reading last year's proceedings and from the individuals I have met from industry and government, that the concept of reclamation - returning land disturbed by exploration or mining to a productive state - has like motherhood, been almost universally accepted. However, an encompassing definition of productive state is most illusive. For the wildlife resource, making mine sites green is just the beginning, as reclamation includes the re-establishment of wildlife populations to their former abundance and productivity.

I will briefly outline the types of problems that mineral exploration and mine development create in the protection and management of the fish and wildlife resources, followed by an outline of the approaches being taken to mitigate and compensate for the problems in fish and wildlife management caused by the mining industry. Some examples from the Northeast Coal Block will serve to illustrate my point.

### THE PROBLEMS

Mineral exploration and mine development can have direct and indirect impacts and create problems for fish and wildlife.

Mineral exploration generally results in two types of problems:

- 1) Road construction and surface disturbances often directly affect

water quality so essential for fish, and also cause loss of habitat for wildlife.

- 2) Often, of greater importance, is the provision of access into previously inaccessible remote areas of the province. This indirect impact on fish and wildlife can create two problems; (a) an influx of personnel who become familiar with the area often causes an overharvest of fish and game animals before appropriate management steps can be taken. (b) wildlife is unaccustomed to the activity of men and machines. Such disturbance and harassment, from the animal's point of view, result in lowered net productivity of the wildlife populations.

Mine development also creates four types of problems:

- 1) Surface disturbance and the use of lands for infrastructure are direct losses of habitat for wildlife. The loss of habitat is significant and the loss to infrastructure developments is usually greater than the loss to the mine itself.
- 2) The development of highways and railroads to service mine development, not only results in a loss of habitat to wildlife and stream disturbance for fish, but also causes significant mortality of wildlife through collisions.
- 3) Losses of fish and wildlife can occur indirectly through accidents such as oil spills, settling pond breakage, and overburden slippage. These accidents often occur even though the best precautions have been taken, and invariably occur when little care has been exercised.
- 4) Mine development, infrastructure, and ancillary developments dramatically increase the human populations of the region. The effect of this increased population is two-fold: (a) there is a decrease in fish and wildlife populations due to habitat

loss, disturbance, etc., and (b) the increased population creates a much greater demand for hunting, fishing, photography and other wildlife related recreation.

#### THE APPROACH

The mandate of the Fish and Wildlife Branch is to protect and manage the fish and wildlife resources for the people of British Columbia, including mine industry personnel. If mining company investments in recreational developments are any indication, then providing sufficient wildlife related recreation is important in stabilizing any work force.

When mineral exploration or mine development create the problems for the fish and wildlife resources such as those I have mentioned, the Fish and Wildlife Branch must first take steps to protect the resource and then effectively manage what remains. My work in the North East Coal Block is an attempt to plan fish and wildlife protection and management concomitantly with the planning of developments. I think that it has been quite clearly shown with mine vegetation reclamation, that it is more efficient and effective to plan "reclamation" with the development rather than try to "recontour" later. Our approach in the North East Coal Block has been to open direct lines of communication with the development companies involved and then draft a fish and wildlife management plan. Frank and open discussions allow for this co-operative approach.

At this stage I would like to be able to present a nice tidy fish and wildlife management plan for the North East Coal Block; however, coal development in the area is only at an advanced exploration stage, so the management plans are still in the formative stage. I will there-

fore just give some examples of the co-operative approach we are taking, explain how the process works, and illustrate the type of things we can and are doing.

I should state that these types of fish and wildlife management strategies are based on the assumption that reclamation and environmental controls, as stated in the coal guidelines, are already being effectively administered by the Ministry of Mines and Petroleum Resources,

During exploration, loss of habitat to wildlife by surface disturbance is often not that significant, but it can be reduced. The presentation by Mr. Geoff Jordan of Denison Mines at this symposium last year, is one example of trying to reduce surface disturbance and, incidentally, reclamation costs. Pacific Petroleum's initial program in the North East Coal Block is another way of reducing surface disturbance and the problems of access. Pacific Petroleum, in the first year of their exploration program, relied heavily on helicopter transported drilling over a very extensive area. The next year they used more conventional techniques over a smaller area.

The severest impacts on wildlife caused by exploration have resulted from the sudden development of access into wilderness areas. The problem is that too many animals are being killed, both legally and illegally, with an accompanying decline in productivity resulting from levels of human activity to which the animals are not behaviorally adapted. The approach to solving this problem has been undertaken at several levels.

a) Restrict the legal kill by closing the hunting seasons. Although this option was exercised in the North East Coal Block, it came too late to save the Mountain Goat population on Bullmoose Mountain;

but it was more successful in other cases. This option however denies hunting recreation to the people, often mine industry personnel, in the area. Again, for emphasis, I would stress the role of wildlife oriented recreation in the mining community.

(b) Tougher enforcement to regulate legal and illegal kills is another option, but it is expensive and only partially effective. When we have sufficient notice of work in an area we do try to strengthen enforcement, but it is often too late.

(c) Tighter management such as limited entry hunting is an option that needs a great deal of base line information and adequate time to implement. Often, by the time there is sufficient information to implement refined management measures, the fish and wildlife populations have decreased to levels that make it an exercise in futility. However, this tighter management coupled with options (a) and (b) is the approach being taken in the Saxon area.

(d) The only preventative measure that can be taken to prevent these types of problems is dependent upon good co-operation by the mining and exploration companies. A longer planning period to anticipate the above problems and to take remedial steps is needed; this can only occur if we are told far enough in advance as to where the areas of mining activity will occur.

In summary, the approach being taken during exploration is to reduce the loss of habitat, i.e. surface disturbance and effects on water quality, and to instigate management steps to offset the impacts of newly created access.

In the long run, mine development brings more severe problems for the Fish and Wildlife resources. Our approach in the North East Coal Block has been to establish the timing and extent of the development and

then attempt to implement a long-term management strategy to protect and manage fish and wildlife. I'll just give a few examples of the kinds of actions that are to be included in these management plans.

Management must be most intensive where the greatest demands and the greatest impacts exist. In the case of the proposed townsite at Tumbler Ridge we would like to see the securing of the land base of a nearby winter range; manipulation of the vegetation by logging and burning to produce greater numbers of animals; and reduction of disturbance to these animals by controlling the road development, loss of habitat to subdivisions, etc., and the use of snowmobiles and A.T.V.'s. We feel this would compensate for the loss of winter habitat by the townsite location and the increased demand for wildlife orientated recreation.

The problems of collision mortality of moose are being approached jointly with the developer involved. A case in point is British Petroleum's Phase I development of their Sukunka Property. In this case, we are considering the establishment of artificial salt licks, offsite prescribed burning and other measures to mitigate or reduce the moose collision problem.

Finally, as the time is short, I'll mention the approach taken to compensate for the loss of the entire Mountain Goat population on Bullmoose Mountain. We are having discussions with British Petroleum about the reintroduction of Mountain Goats on the mountain and the planning of disturbance-free areas to enable them to exist.

In summary, the approach being taken in the North East Coal Block is to implement management plans, drawn in co-operation with the companies involved in the development, to mitigate and compensate

for the impacts of exploration and development on the fish and wildlife resources.

DISCUSSIONS RELATED TO B. CHURCHILL'S PAPER

Time did not permit discussion about this paper.