

## OTTER AND BEAVER HARVEST RELATIONSHIPS

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### ABSTRACT

Otter and beaver harvest relationships from five geographical areas are examined in relation to the hypothesis that the otter trapping harvest is a function of beaver trapping harvest. Significant relationships were found which may be useful to the wildlife manager in determining the status of otter populations.

### INTRODUCTION

The well being of several furbearing animal populations has been of concern to many countries. The International Convention on International Trade in Endangered Species of Wild Fauna and Flora (C.I.T.E.S.) was established to regulate trade of certain species. One of those species is the river otter (Lutra canadensis).

The otter's furtive and largely nocturnal activities make them very difficult to inventory while specific studies utilizing radio telemetry techniques are expensive, limited in time, area, and numbers of animals and may not be representative of populations over large areas.

The need to develop a technique to index otter populations changes prompted this investigation. Bailey (1980) suggested that the otter harvest is probably directly related to the beaver (Castor canadensis) harvest since many other are caught in beaver sets. Many of the trapsets used in Alaska and British Columbia (and throughout Canada) are capable of capturing either animal.

It was hypothesized that there is a relationship between otter and beaver harvests and that such a relationship might provide for an index to the otter population. It was decided for initially examine Alaska's and British Columbia's otter and beaver harvests for potential relationships. Potential relationships between otter and beaver harvests were also examined for Canada, Ontario and Manitoba. Figure 1 illustrates the study areas.

## METHODS

Otter and beaver harvest records from Alaska were tabulated from state sealing and export reports for the trapping seasons 1949-50 to 1982-83 inclusive. Fur-trader reports and export permits were used in British Columbia to tabulate otter and beaver harvests for the trapping seasons 1946-47 to 1982-83 inclusive. Otter and beaver harvests for Manitoba, Ontario and Canada, the trapping seasons 1946-47 to 1982-83 inclusive, were taken from published records (Stardom, et al, 1978), (Monk, 1980). (Statistics Canada, 1976, 1984) respectively.

Correlation coefficients were calculated for all five data sets.

## RESULTS AND DISCUSSION

Dixon (1980) indicated that several factors can be examined as indicators of a population's status. One of these population status factors Dixon suggested was the changes in the percentage of a species in the harvest relative to other harvested species.

We chose to use actual harvest numbers rather than percentages and checked the correlations of beaver and otter harvests for the five areas. Alaska and British Columbia's beaver and otter harvests are illustrated in Figures 2 and 3. Table 1 summarizes the results of the five study areas.

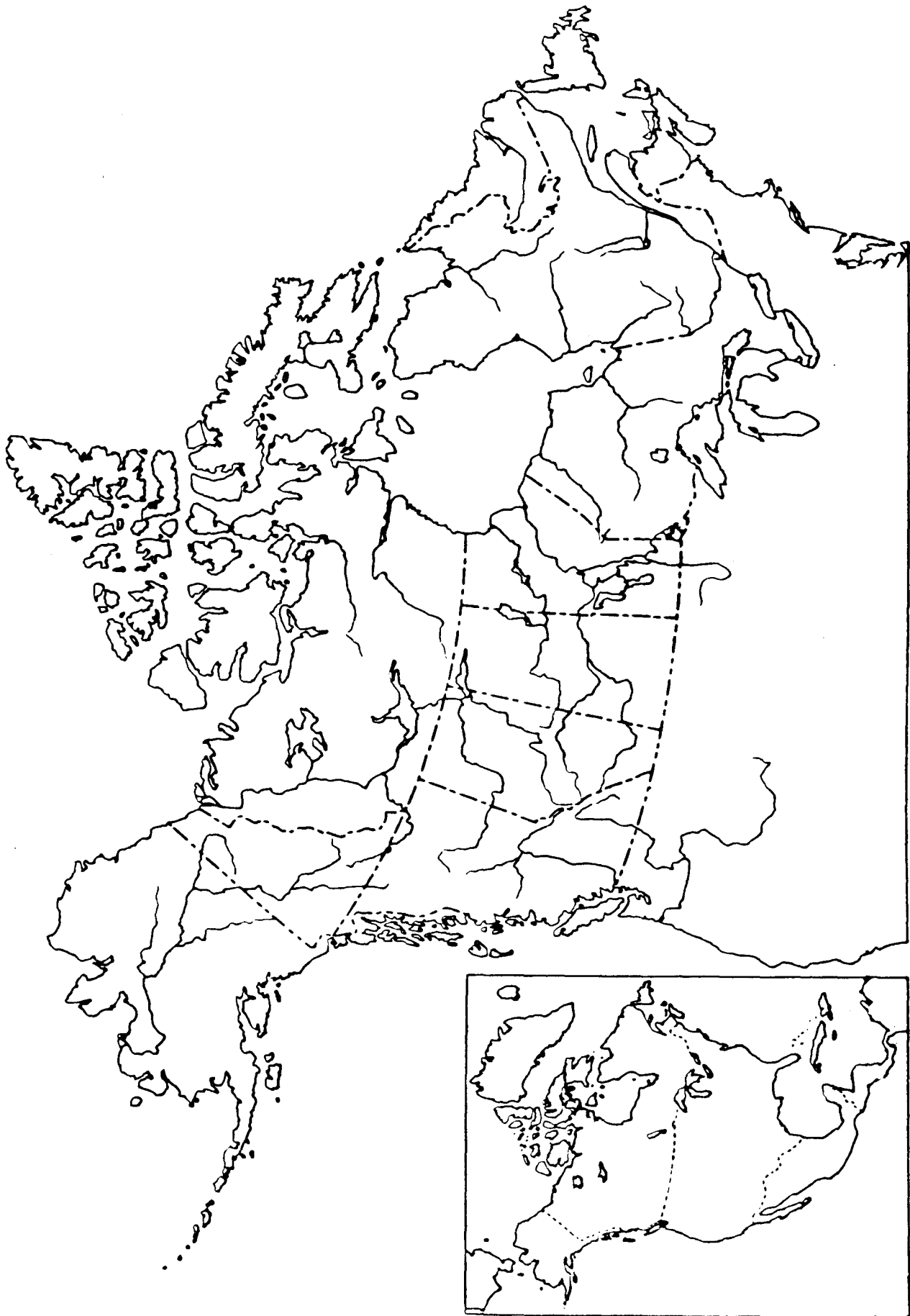


Figure 1. Map of Canada and Alaska

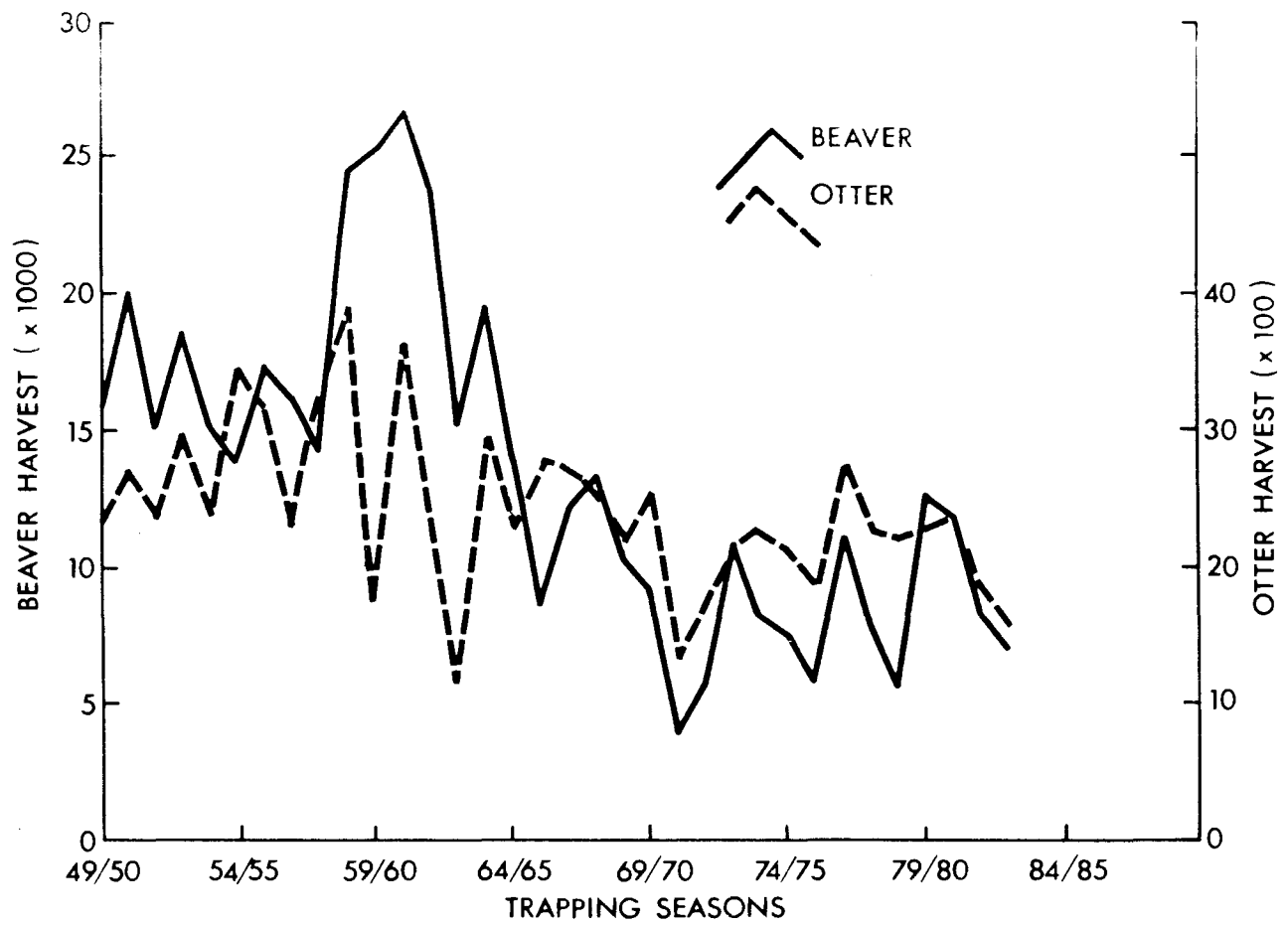


Figure 2. Alaska Beaver and Otter Harvests from 1949/50 to 1982/83

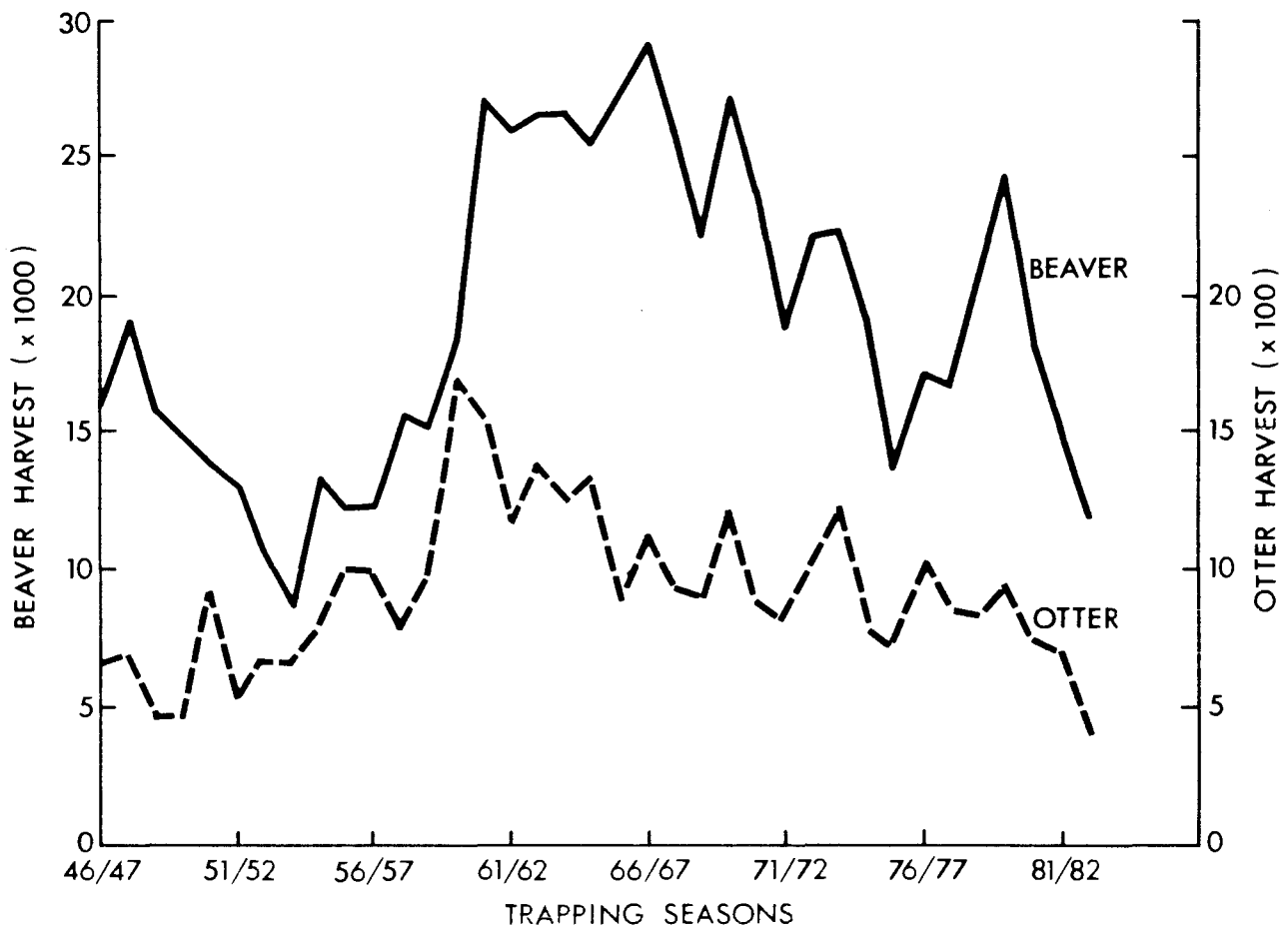


Figure 3. British Columbia Beaver and Otter Harvests from 1946/47 to 1982/83

Table 1. Otter - Beaver Harvest Correlations for Alaska, British Columbia, Manitoba, Ontario and Canada.

Trapping Seasons	Study Area	Correlation Coefficient	Significance Level	N
1949-47 to 1982-83	Alaska	0.51	0.01	34
1946-47 to 1982-83	British Columbia	0.61	0.01	37
1946-47 to 1982-83	Manitoba	0.60	0.01	37
1946-47 to 1982-83	Ontario	0.83	0.01	37
1946-47 to 1982-83	Canada	0.89	0.01	37

All five data sets showed a strong correlation between otter and beaver harvests. Our findings are certainly in line with (Bailey, 1980) who found that a nearly 3-fold increase in otter harvest paralleled the increase in beaver harvest. This supports the contention that otter are likely caught in relation to the beaver harvest.

An otter study (Melquist, et al, 1983) found that active and abandoned beaver bank dens and lodges were used more often (38%) by instrumented otters than any other kind of den or resting site. Beaver dens and lodges probably were preferred resting sites because of their availability and because they provided shelter with an underwater escape route.

Trappers have recognized for years, that many of the trapping methods used to trap beaver are also good for capturing otter. The Canadian Trappers' Manual (1977) illustrates several beaver - otter combination trap sets and states that otter may be captured at unused beaver lodges. Beaver dam "spillway" trap sets capture both otter and beaver.

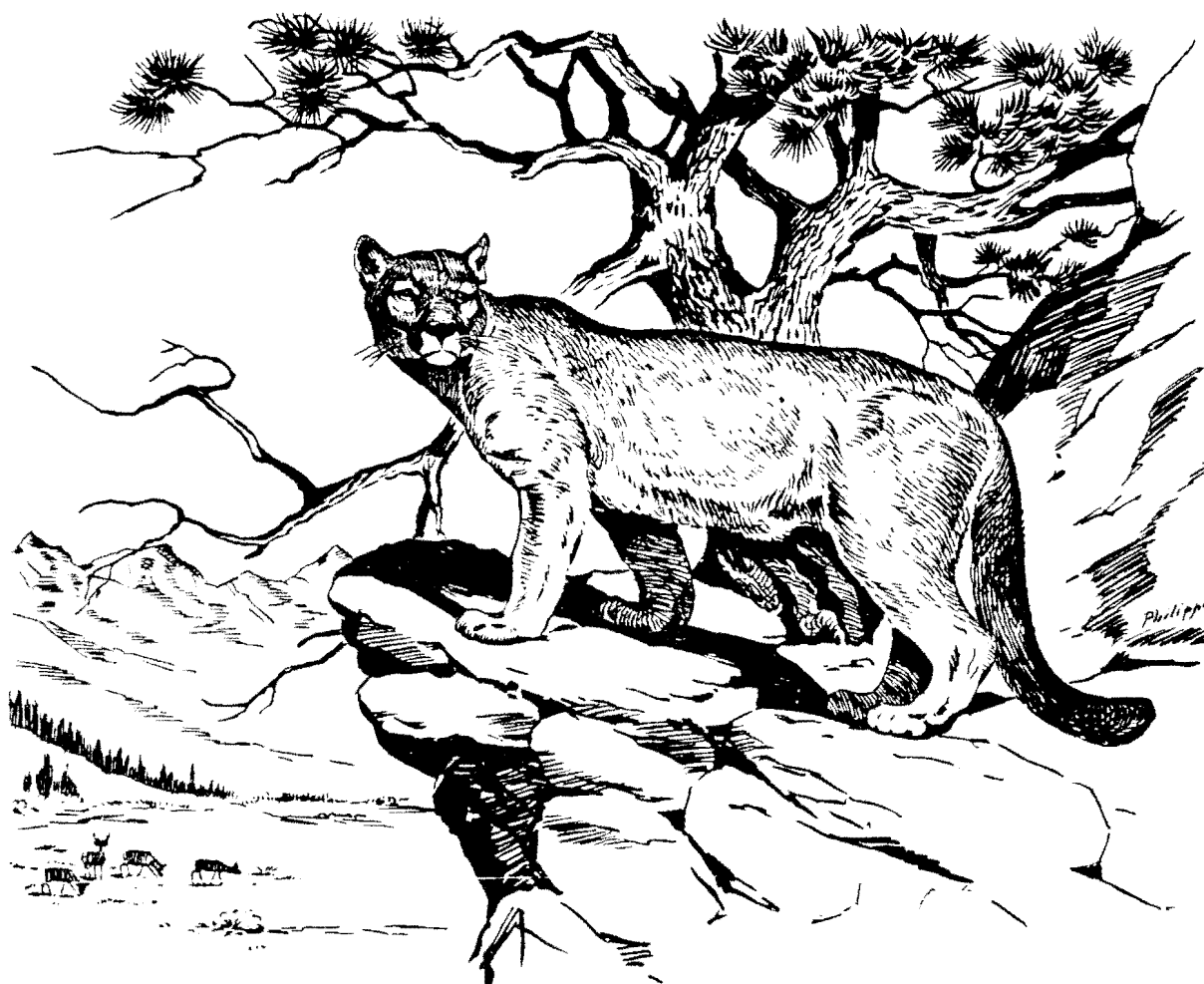
The relationship between otter and beaver harvests could be improved by removing those areas where only beaver or otter are found. This is particularly true of coastal areas of Alaska and British Columbia where otter

are trapped in non-beaver habitat, which is characterized by rivers and streams of steep gradient where beaver are few or largely absent. We expect the converse is true also, beaver are found in sub-alpine zones feeding on willow and other alpine shrubs, while otter are practically absent because of severely limited food supplies. If these two types of areas were removed from our data, to which we cannot apply our hypothesis, then improvements in the relationship of beaver to otter harvests would be expected. Another factor which may effect the relationship of beaver and otter harvests is the type of trapping methods allowed for the capturing of these two species. The relationship only exists when traps or trapsets which are capable of capturing either animal are employed.

The practical application of the demonstrated relationship is of importance to the wildlife manager. In Alaska, beaver are surveyed by using fixed-wing aircraft but other beaver survey methods exist (Novak 1972)(Slough, et al, 1977). As beaver populations can be calculated from these surveys, then it is possible to determine otter population trends over time. The trends can also be established by using beaver to otter ratios or the slope of the equation relating the two species harvests. The wildlife manager may wish to verify otter population trends from harvest information by conducting otter surveys occasionally.

# WESTERN PROCEEDINGS

64th Annual Conference  
of the  
Western Association of  
Fish and Wildlife Agencies



VICTORIA, BRITISH COLUMBIA  
July 16 - 19, 1984