International Commission for the Northwest Atlantic Fisheries

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ICNAF Res.Doc. 75/XII/151

SPECIAL MEETING OF PANEL A (SEALS) - DECEMBER 1975

A further review of Allen, Ronald[1], Capstick[1], harp seal model based on data from Scientific Advisers Meeting held November 1975, Ottawa

by

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After examining the maturity ogives of Lett and Lavigne (based on Sergeant's data), we have ensured the model compensates for any such changes.

The pup populations of 200k[2], 250k, 300k, and have been used as baselines for 1975 populations. To this we have applied the 1975 hunt.

Subsequently, we have exposed the remainder to natural mortalities of 13%, 15%, 16% and 18% which produced a figure for survival in 1976. (Note: both ranges; 1. 200k and 300k pups, and; 2. 13% to 18% are within accepted ranges of all scientific advisors).

Generally:

1. The first effect of any strategy only becomes obvious in 1980 as it takes approximately 4 - 5 years for the first pup to become a bearing female.

2. The aboriginal hunt has been carried as a constant factor composed of 2k pups, 4k immatures, and 5k adults. These figures are probably low and in no way acknowledge losses for sinkage.

NATURAL MORTALITY

13% Anything greater than 50k causes decrease in overall population, leading to a non-sustainable population, e.g.:

Starting population: 200k pups, kill 150k[3] - extinction yr. 1986
Starting population: 200k pups, kill 100k - extinction yr. 1994
Starting population: 300k pups, kill 150k - extinction yr. 1997
Starting population: 300k pups, kill 100k - extinction yr. 2000

15% Anything above an aboriginal hunt will decrease population,e.g.:

Starting population: 200k, kill 150k - extinction year 1986
Starting population: 200k, kill 100k - extinction year 1991
Starting population: 300k, kill 150k - extinction year 1993
Starting population: 300k, kill 100k - extinction year 2001

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[1] ICNAF document 75/XII/141, Ronald, Capstick.
[2] k = thousands
[3] Pups alone

16% Even aboriginal hunt causes stock decrease irrespective of starting size, i.e. all hunt strategies lead to extinction, e.g.:

Starting population: 200k, kill 150k - extinction year 1986
Starting population: 200k, kill 100k - extinction year 1992
Starting population: 300k, kill 150k - extinction year 1990
Starting population: 300k, kill 100k - extinction year 1997

18% Even aboriginal hunt causes stock decrease irrespective of starting size, i.e. all hunt strategies lead to extinction, e.g.:

Starting population: 200k, kill 150k - extinction year 1986
Starting population: 200k, kill 100k - extinction year 1989
Starting population: 300k, kill 150k - extinction year 1990
Starting population: 300k, kill 100k - extinction year 1995

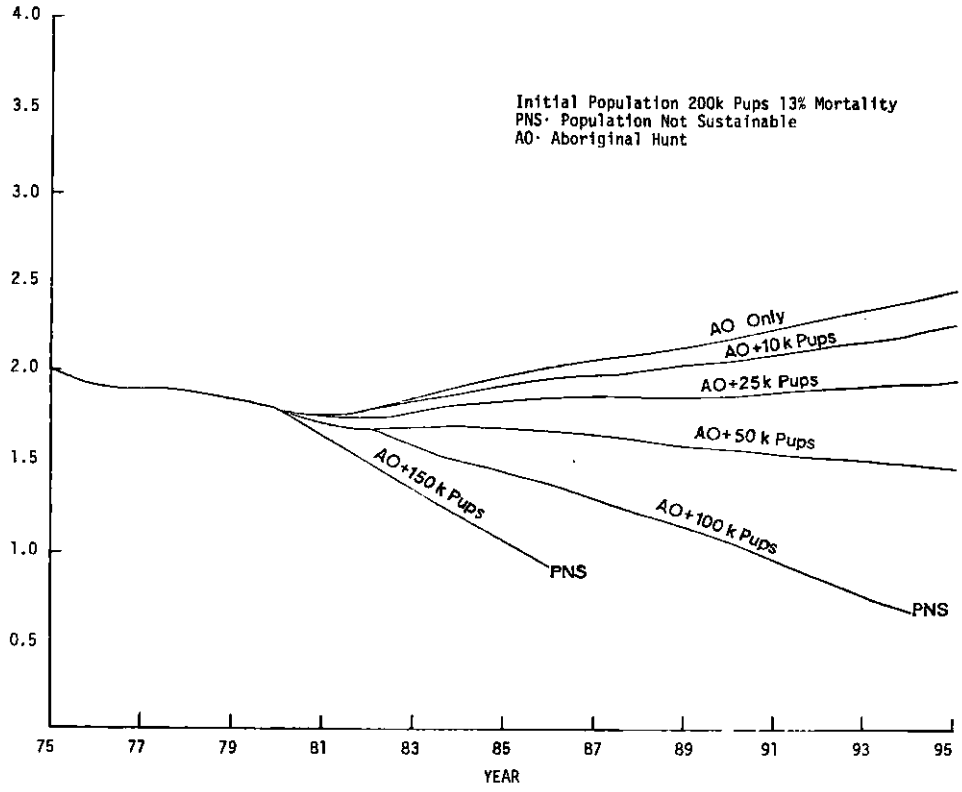
SUMMARY

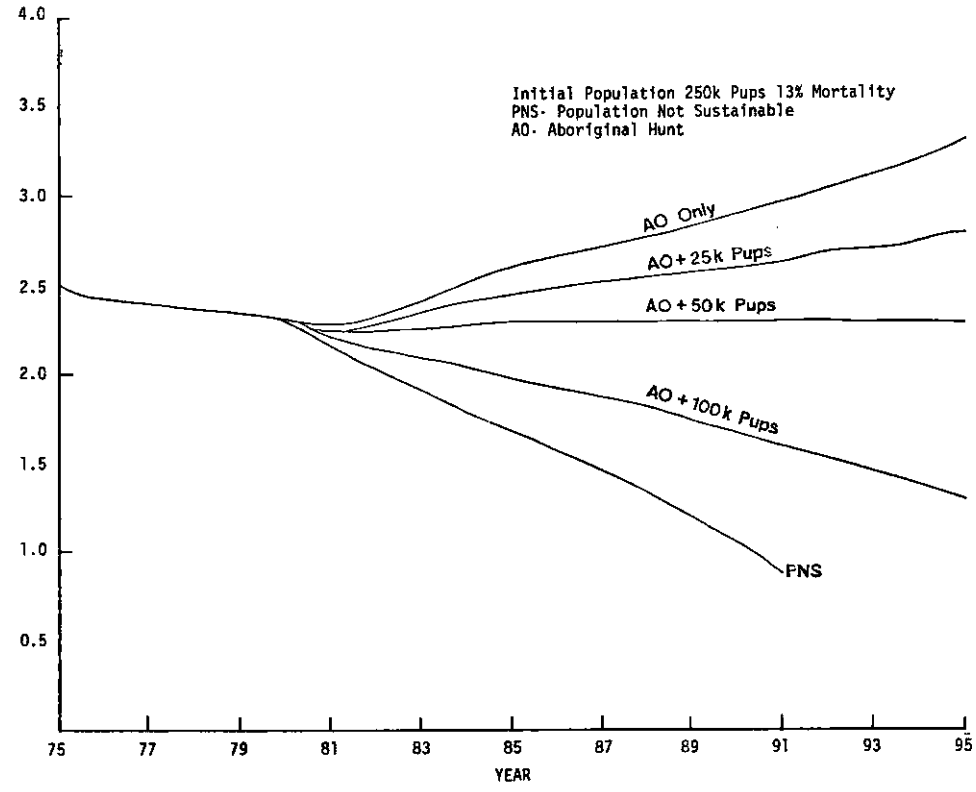
Natural mortalities of 13% and 15% are the only ones that will allow a 11 k aboriginal hunt. The 15% mortality figure allows only the aboriginal hunt for herd stability.

The 13% mortality figure allows an aboriginal hunt and 50k pups (and pups alone).

December 4, 1975

Numbers of Harp Seal Pups on Ice before Hunt (1,000's)





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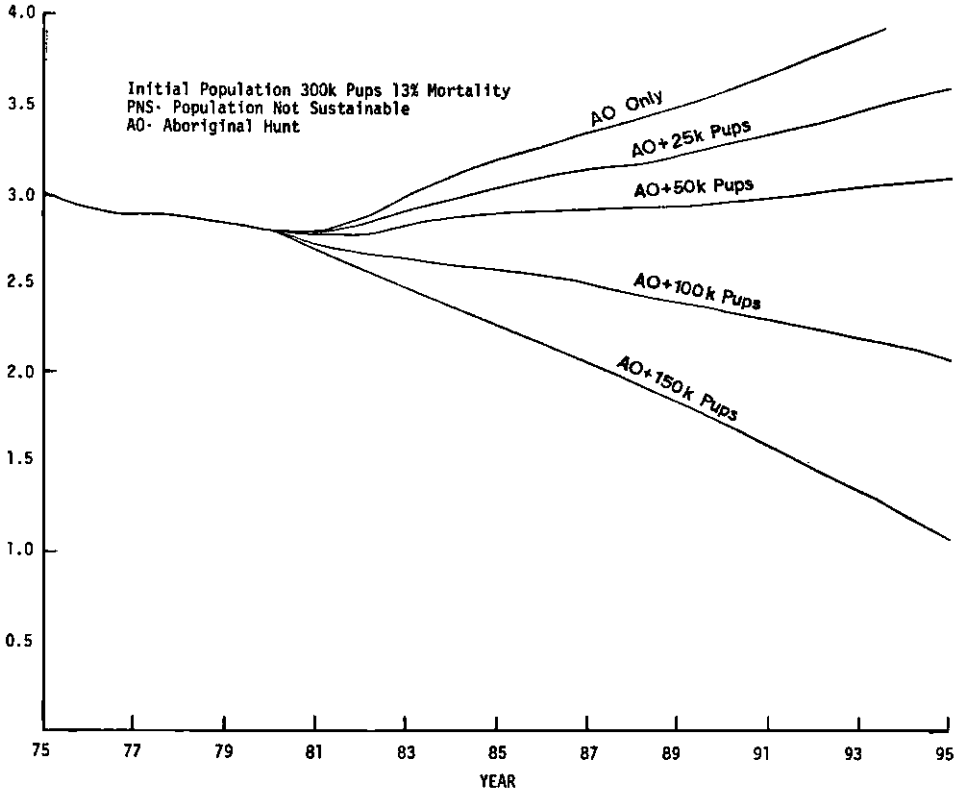

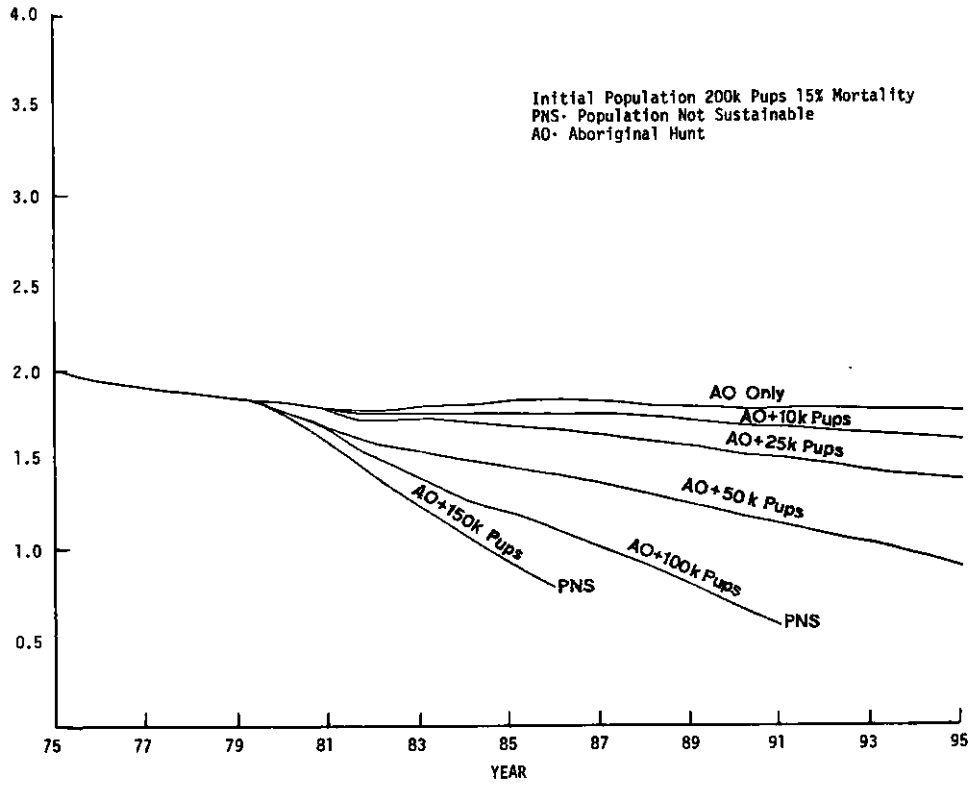

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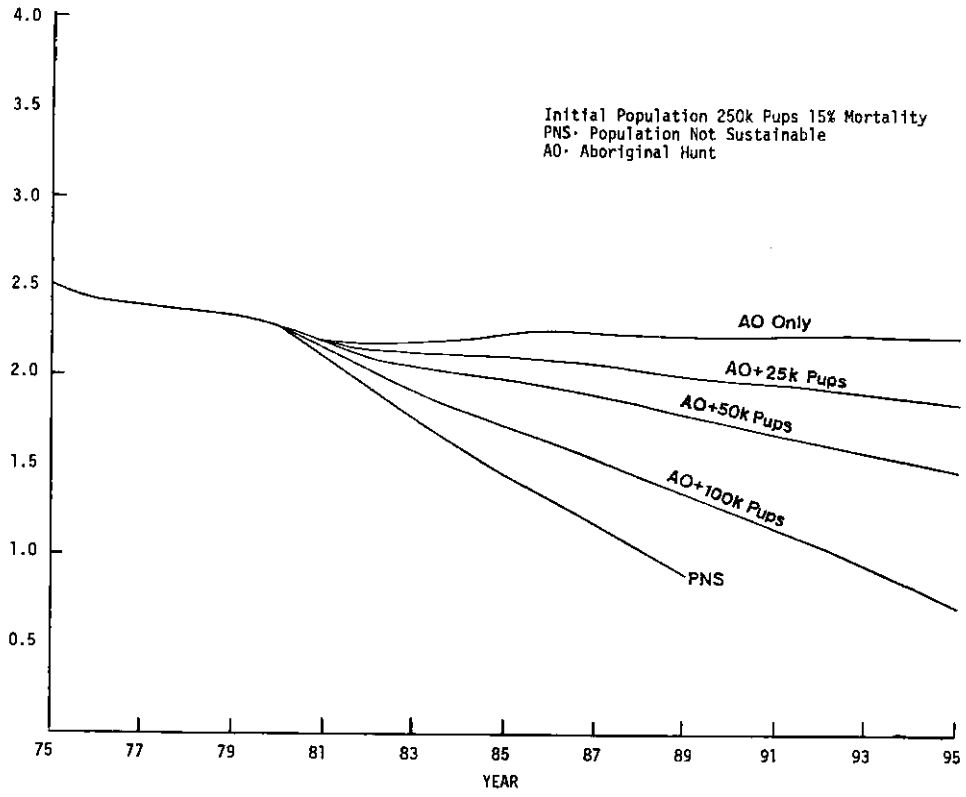

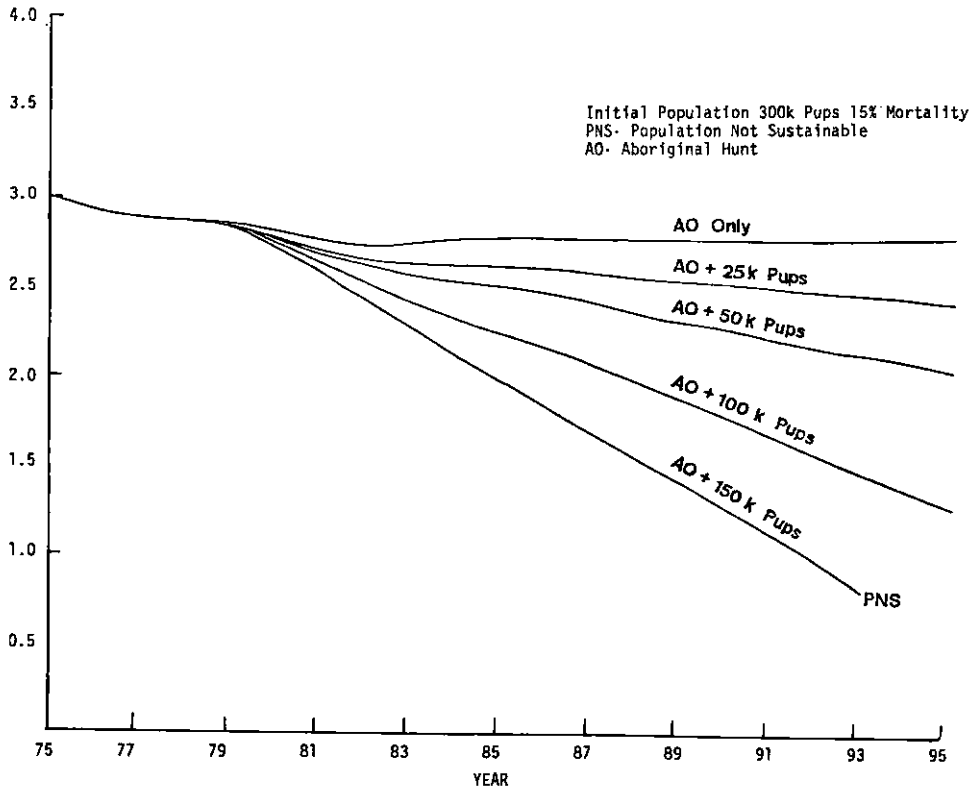

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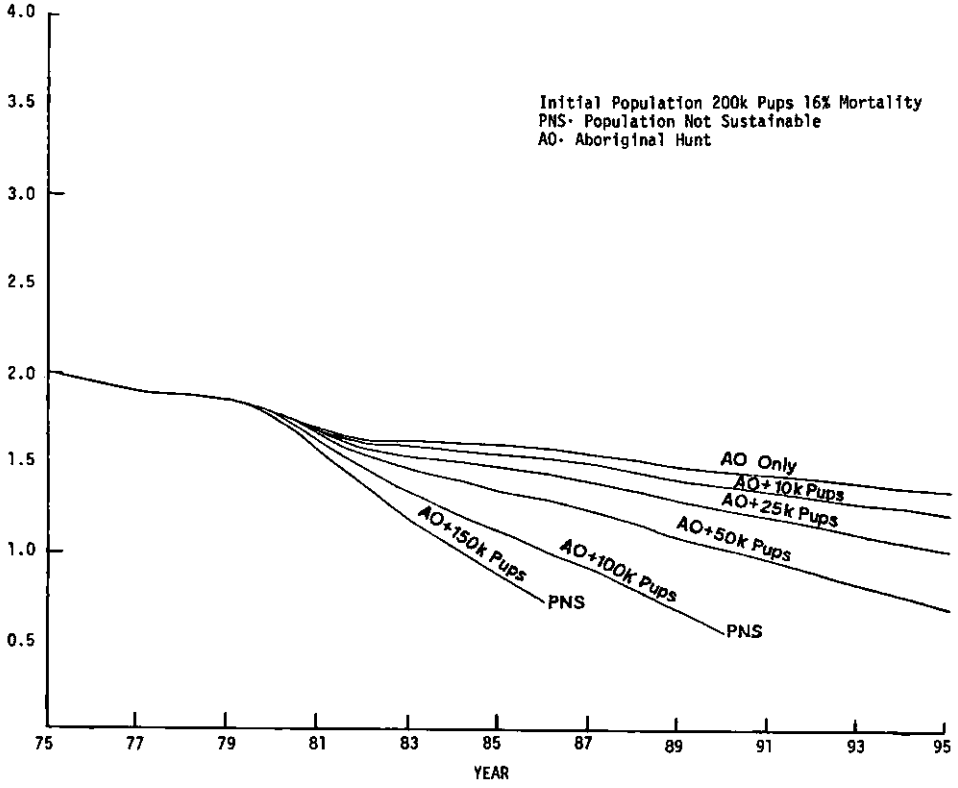

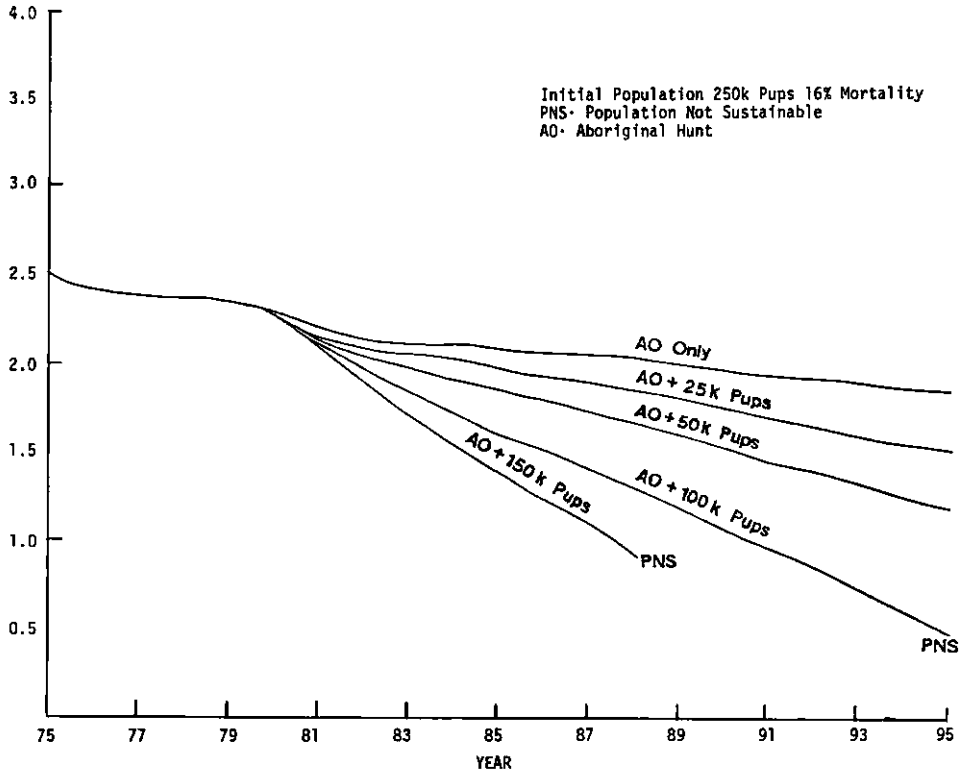

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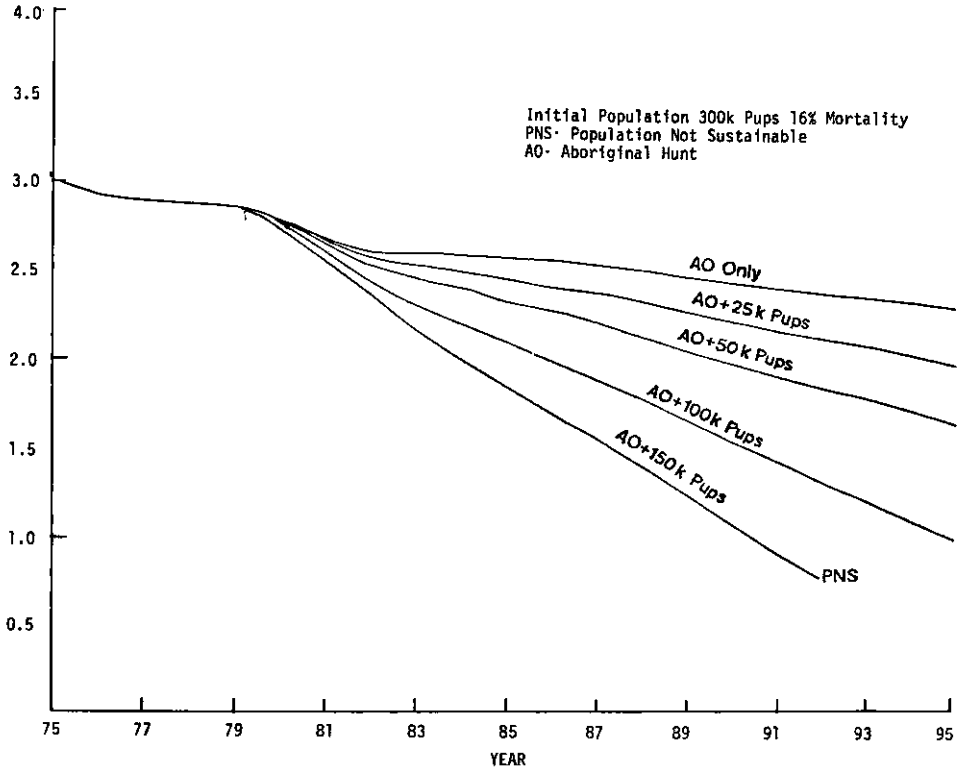

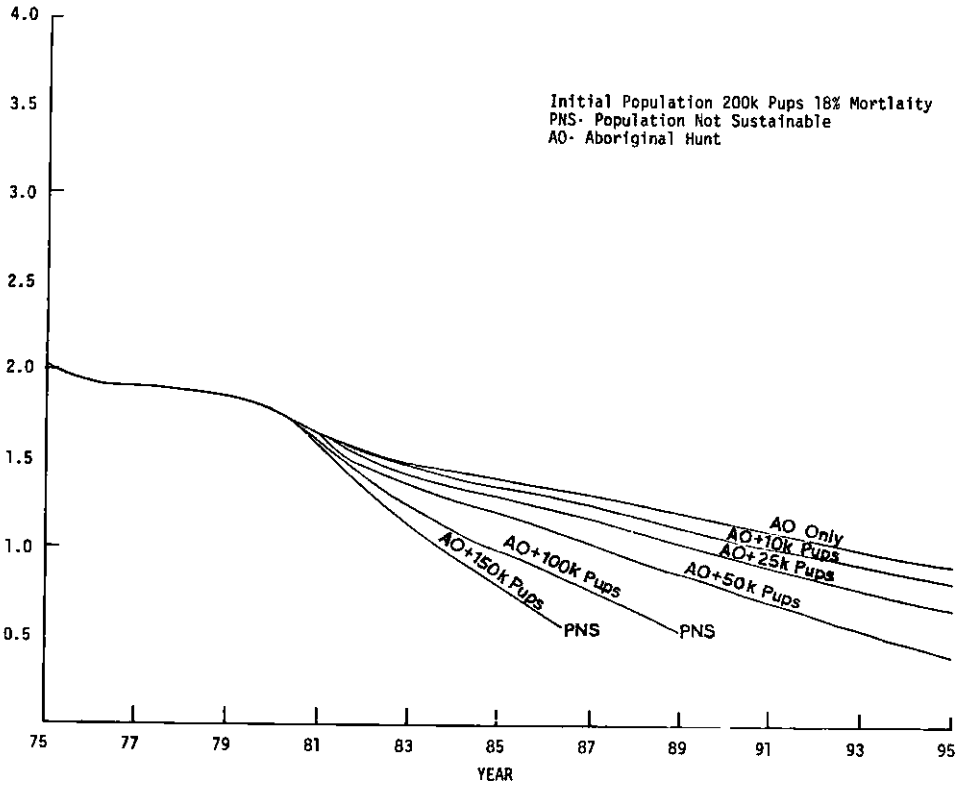
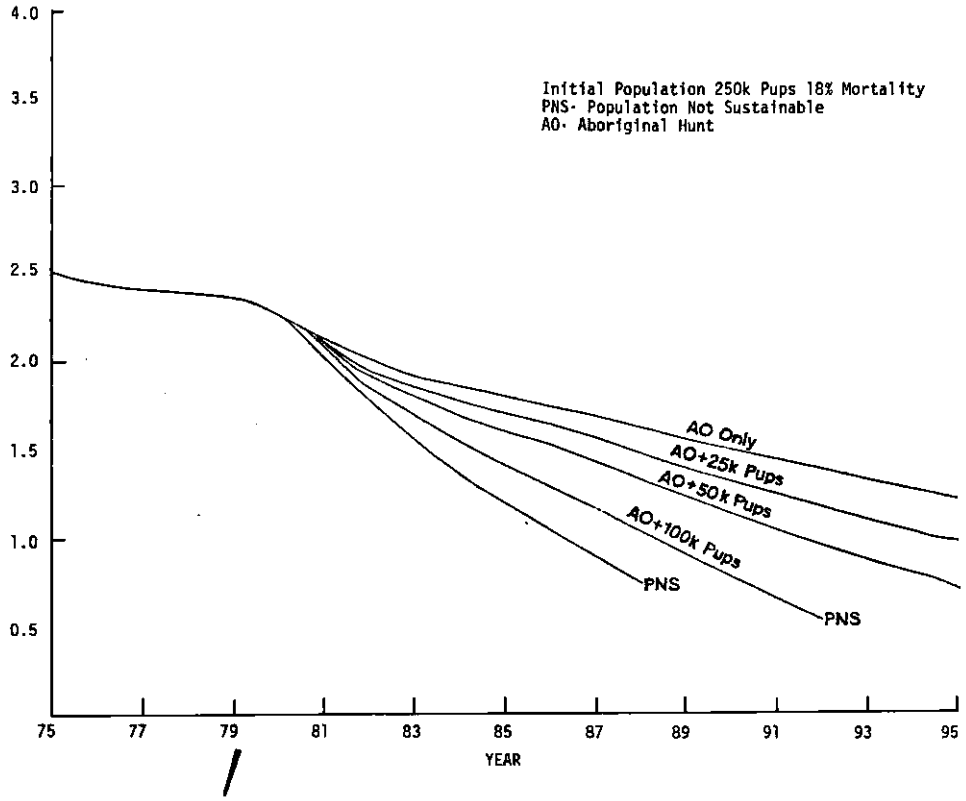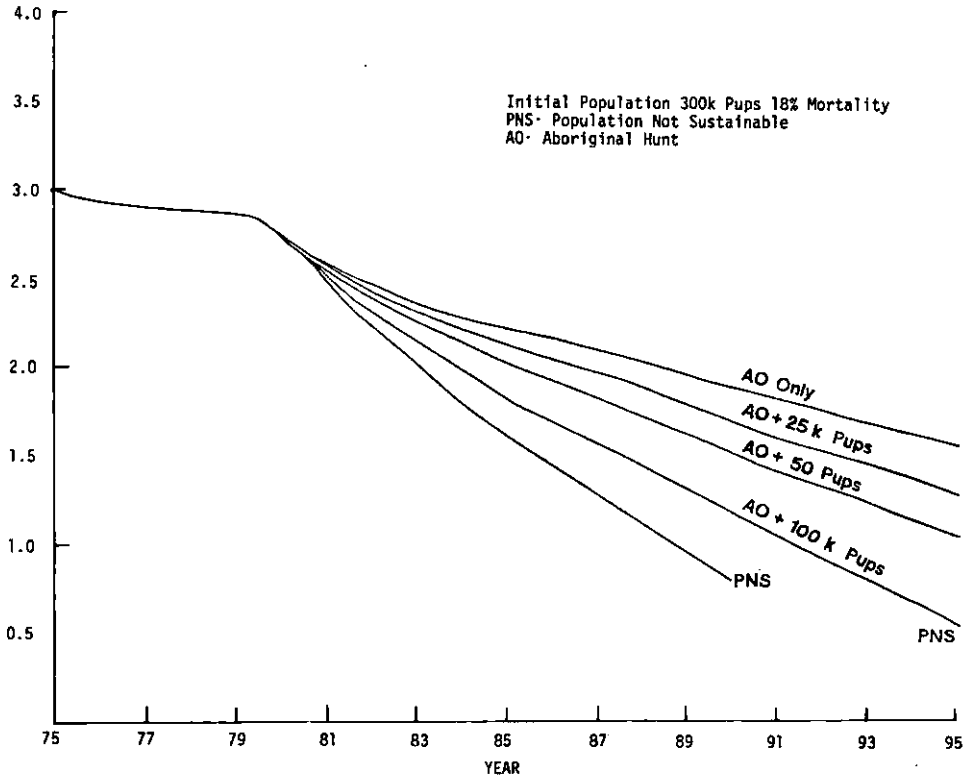
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