

Maximizing Utility of Compulsory Registration for Harvest-Based Monitoring of Bighorn Sheep in Alberta

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ABSTRACT: Alberta has conducted compulsory registration of bighorn rams since 1985, collecting long term data that are essential to species management. Since 2017, additional morphological measurements have been taken from the horns of harvested rams to better describe the relationship between age and horn curl class. This relationship is critical for a variety of management-related functions, including:

- 1) Comparison of growth rate across geographic areas and time periods
- 2) Simulation of outcomes across alternative harvest strategies (e.g. minimum curl restrictions)
- 3) Estimation of realized harvest rate
- 4) Monitoring population trend through time (and back into the past)

Although often used in fisheries management, harvest-based population assessments are less common in wildlife management. This method relies on the harvest sample being representative of the population age structure (i.e. non-selective harvest within the legal-size class), as well as the harvest rate being uniform across the area of interest, and consistent over the time period of interest. This alternative approach can support estimation of realized harvest rates (as well as population size and structure), reducing reliance on more expensive aerial inventory methods.

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