



PROCEDURE MANUAL

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Grizzly Bear Harvest Management			

This Procedure Replaces:

Procedure Volume 4, Section 7, Subsection 04.04 dated September 23, 1999.

Staff, Organizations Directly Affected:

Wildlife Management Staff

Policy Cross-references:

Ministry Policy Manuals, Volume 4, Section 7:

- Subsection 01.01 Allowable Harvest
- Subsection 01.07 Wildlife Harvest
- Subsection 13.01 Goal of Wildlife Management

Other Cross-references:

British Columbia Grizzly Bear Conservation Strategy, Ministry of Environment, Lands and Parks, June 1995

Wildlife Harvest Strategy, Ministry of Environment, Lands and Parks, April 1996

Ministry Procedure Manuals, Volume 4, Section 7:

- Subsection 01.01.1 Allowable Harvest
- Subsection 01.03.1 Allocation of Hunting Opportunities

Purpose:

To identify the procedures and standards to be followed when managing grizzly bear harvest.

Definitions:

“Allowable Harvest” - means the total harvest that is allowed within an allocation period.

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		DATE EFFECTIVE	REVISION No.
		Feb. 4, 2004	

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“Director” - means the Director, Fish and Wildlife Recreation and Allocation Branch, Ministry of Water, Land and Air Protection, Victoria.

“Control Kills” - means grizzly bears killed by Conservation Officers or anyone else as a result of bear human conflicts or interactions.

“Fish & Wildlife Recreation and Allocation Branch Biological Data Officer” - means the staff person in the Fish & Wildlife Recreation and Allocation Branch responsible for updating the Compulsory Inspection Database.

“Grizzly Bear Population Units” (GBPUs) - means identified areas that define individual grizzly bear populations for the purposes of management and conservation.

“Habitat Capability” - the ability of habitat, under optimal conditions to provide the life requisites of a species, irrespective of its current conditions.

“Habitat Effectiveness” - the actual ability of habitat to provide the life requisites of a species given the suitability of the habitat and the human disturbance and fragmentation of the area

“Habitat Suitability” - the ability of habitat, under its current conditions to provide the life requisites of a species, irrespective of human impacts aside from those that directly alter the habitat itself.

“Harvest” - means grizzly bears taken under Limited Entry Hunting, Guide Outfitter quotas, and entitlements or allocations to First Nations.

“Indefinitely Closed” - means an area that has been closed to grizzly bear hunting as a result of management objectives that are independent from this procedure (i.e. ecological reserves, national parks, some provincial parks, the transition and coastal grizzly bear closed areas, etc.) as well as Grizzly Bear Management Areas.

“Known Human-Caused Mortality” - means the total of all grizzly bears killed by humans or as a result of human interaction that are known by wildlife management

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staff and that are recorded in a provincial database as well as translocations of grizzly bears outside of a Grizzly Bear Population Unit.

“Large Carnivore Research Biologist” (LCRB) - means the wildlife biologist in the Biodiversity Branch, Ministry of Water, Land and Air Protection, Victoria, responsible for the provincial coordination of research.

“Large Carnivore Specialist” (LCS) - means the wildlife biologist in the Biodiversity Branch, Ministry of Water, Land and Air Protection, Victoria, responsible for the provincial coordination of scientific, technical and policy advice on large carnivores, including grizzly bears.

“Legislation and Regulations Manager” - means the Manager, Legislation and Regulations Section, Fish & Wildlife Recreation and Allocation Branch, Ministry of Water, Land and Air Protection, Victoria.

“Maximum Allowable Known Human-Caused Mortality” - means the maximum allowable total human-caused mortality of grizzly bears, minus an estimate of unknown human-caused mortality.

“Maximum Allowable Total Human-Caused Mortality” - means the maximum number of total human-caused mortalities of grizzly bears allowed within a given GBPU, and includes known mortalities plus an estimate of unknown human-caused mortalities.

“Regional Manager of Environmental Stewardship” (RM) - means a regional manager responsible for Fish and Wildlife, Science and Allocation, Ecosystems, Parks and Protected Areas, Recreation, Planning, Shared Administration Services/Sections within a region in the Ministry of Water, Land and Air Protection.

“Regional Section Head of Fish and Wildlife Science and Allocation” (RSH) - means a section head responsible for the management of fish and wildlife within a region, in the Ministry of Water, Land and Air Protection.

“TESS Manager” - means the Manager, Terrestrial Ecosystems Science Section,

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Biodiversity Branch, Ministry of Water, Land and Air Protection.

“Total Human-Caused Mortality” - means all known, and an estimate of unknown, grizzly bear deaths that can be attributed to human causes, either intended or accidental.

“Translocations” - means grizzly bears removed live from a GBPU, and released in a different GBPU.

“Unknown Human-Caused Mortality” - means the human-caused mortalities of grizzly bears that are not known by wildlife management staff and that are not recorded in a provincial database.

Procedures:

1 Principles

- 1.1 Total human-caused mortality of grizzly bear populations will be managed to meet approved population objectives (see section 6) of a) permitting an increase in the grizzly bear population, b) maintaining a stable grizzly bear population or c) reducing the grizzly bear population. In the absence of an approved population objective the default approach for hunted populations will be to maintain a stable population size.
- 1.2 Grizzly bear harvest management decisions will be based on the best available scientific information.
- 1.3 GBPU's where the current population estimate is <50% of estimated habitat capability will be designated as "Threatened" and will be closed to grizzly bear hunting where they are below the GBPU's population objective (see Section 6).
- 1.4 In the absence of an approved population objective, GBPU's that have total population estimates of 100 grizzly bears or more will normally have harvests. GBPU's that have total population estimates of less than 100 grizzly bears, will not be harvested.

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2 Process

- 2.1 Except as otherwise indicated where the following dates fall on a weekend or statutory holiday the following work day will apply.
- 2.2 Dispute resolution will follow the organizational hierarchy until consensus or a single decisionmaker (i.e. the Assistant Deputy Minister) is reached beginning with the RM and the TESS Manager, followed by the Director of the Regional Operations Branch and the Director of the Biodiversity Branch and, finally, the Assistant Deputy Minister of the Environmental Stewardship Division.
- 2.3 By April 1 of the year before each new three year allocation period the LCRB will prepare population estimates with a supporting rationale for each Management Unit within GBPUs and will provide this information to the RSHs for review and comment by May 1.
- 2.4 The LCRB will review the comments received from the RSHs and will respond by June 1 by either revising the population estimates and supporting rationale or explaining why they do not support a specific proposed change.
- 2.5 Where a RSH does not agree with the response of the LCRB they must indicate that they are requesting a review through the dispute resolution process by July 1. In such cases a written rationale for each alternative will be prepared by the RSH and the LCRB by July 15. The dispute resolution process for population estimates must be concluded by August 15.
- 2.6 By August 15 of the year before each new three year allocation period the LCS will prepare a description of any changes they believe are necessary to GBPU boundaries in consultation with the RSHs and will also document the allowable mortality rates, and unreported mortality rates estimates to be applied with a supporting rationale and will provide this information to the RSHs for review and comment by September 15.
- 2.7 The LCS will review the comments received from the RSHs and will respond

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- by September 30.
- 2.8 Where the RSH does not agree with the response of the LCS they must indicate that they are requesting a review through the dispute resolution process by October 31. In such cases a written rationale for each alternative will be prepared by the RSH and the LCS by November 15. The dispute resolution process for proposed GBPU changes, allocation periods, allowable mortality rates and unreported mortality estimates must be concluded by December 1.
 - 2.9 All grizzly bear Compulsory Inspection Data Sheets (CIDS) for mortalities reported in the current year will be completed and submitted by Compulsory Inspection contractors, Conservation Officers or Fish and Wildlife staff no later than December 1.
 - 2.10 All CIDS are delivered to, and entered into the CIDS database by, the Fish and Wildlife Recreation and Allocation Branch Biological Data Officer no later than December 8.
 - 2.11 The LCS provides the Wildlife Allocation and Use Section with a spreadsheet(s) including the grouping of Management Units and Limited Entry Hunting (LEH) Zones by GBPUs, population estimates, allowable human-caused mortality rates, estimated unreported human-caused mortality rates and the timeframe for the previous and current allocation periods by December 8.
 - 2.12 The Regulations Officer in the Wildlife Allocation and Use Section completes entry of data into the standardized spreadsheets no later than December 12. These data include the current and previous allocation periods' known hunting mortality, known non-hunting human-caused mortality, known human-caused female mortality, and hunter harvest success rates [mortality data will not include animals less than 2 years (24 months) old].
 - 2.13 LCS reviews spreadsheets and flags GBPUs that have conservation concerns no later than December 15 and provides spreadsheet(s) to RMs and RSHs to review and enter their recommendations for the number of LEH authorizations to make available for the following year's spring and fall hunting seasons.

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- 2.14 Data errors in the spreadsheets will be identified by regional staff and will be corrected immediately and coordinated between the RSH and LCS.
- 2.15 Regions will add estimates of predicted known non-hunting human-caused mortality and use the final annual allowable total and female mortality levels to calculate and assign Guide Outfitter (GO) quotas for the upcoming year, no later than January 12.
- 2.16 The spring and fall LEH authorizations available for each MU/LEH zone will be provided by the RSH to the Regulations Officer using the standard spreadsheet by January 12.

3 Grizzly Bear Population Units and Population Estimates

- 3.1 GBPUs will normally be composed of adjacent Management Units (MUs) that collectively make up a reasonably distinct population. It is recommended that partial MUs not be used, except where required for an ecologically valid GBPU. Limited Entry Hunt (LEH) zones must be created where an MU is split between two or more GBPUs and these areas are open to grizzly bear hunting. GBPUs may be revised as needed to incorporate new information.
- 3.2 The number of grizzly bears in areas >100 km² that are indefinitely closed to grizzly bear hunting will not be included in population estimates for harvest management purposes. Grizzly bear mortalities in areas >100 km² that are indefinitely closed to grizzly bear hunting will also not be included in harvest calculations.
- 3.3 Population estimates will include all ages of grizzly bears and will seek to provide a best estimate.
- 3.4 Population estimates will be based on either a multiple regression or related approach of estimating grizzly bear density based on known densities from other areas where possible. Where such an approach is considered inappropriate either a habitat-based method using habitat capability and a series of step-downs based on human impacts or direct inventory results may

be applied.

4 Harvest

- 4.1 All grizzly bear harvest calculations will use the standard provincial spreadsheet (see attached). The success rate used will reflect the most recent six years that were open to grizzly bear hunting but will be limited to a minimum of 5%.
- 4.2 Total and female known human-caused mortality for all GBPU's will be reviewed annually, and adjustments made in allowable harvests where required to stay within the maximum allowable known total and female human-caused mortality over the whole allocation period for the GBPU. Reported mortalities for which the sex is unknown will be assumed to have a sex ratio of 50:50 to estimate the number of female mortalities.
- 4.3 Hunting seasons will be closed for the remaining years of the current allocation period where total or female mortality for the GBPU exceeds the maximum allowable.

5 Total Human-Caused Mortality

- 5.1 Total human-caused mortality will be managed primarily by GBPU.
- 5.2 In the absence of an approved population objective, the total human-caused mortality rates where the population objective is to maintain or increase the size of the population will not exceed the following maximums based on the current estimated habitat effectiveness:

Average Habitat Effectiveness Class*	Percentage of the Highest Habitat Capability Density	Maximum Allowable Total Human-Caused Mortality Rate
1-3	>25%	5%
4	>5-25%	4%
5	>0-5%	3%

* Calculated as the average habitat effectiveness for the GBPU.

- 5.3 Unreported human-caused mortality rates will be based on the best available scientific information and will be supported by a written rationale. The unreported human-caused mortality rate estimate will be deducted from the maximum allowable human-caused mortality rate to determine the maximum annual allowable known human-caused mortality rate.
- 5.4 In the absence of an approved population objective, the maximum annual allowable known human-caused mortality rate will be corrected to address uncertainty in population estimates. This correction factor will correspond to the proportion that the appropriate lower confidence limit represents of the population estimate for the area. The level of acceptable risk will be based on the proportion that the population estimate represents of the area's habitat capability:

Population Estimate as a Percentage of the GBPU's Habitat Capability	Acceptable Risk of Overestimating Allowable Mortality Rate	Confidence Interval that Lower Limit is Taken From
>90-100%	30%	40%
>80-90%	25%	50%
>70-80%	20%	60%
>60-70%	15%	70%
>50-60%	10%	80%

- 5.5 Total human-caused mortality of grizzly bears (both total bears and females) will be managed over three year periods corresponding to harvest allocation periods beginning with 2004-2006 inclusive.
- 5.6 Wherever total human-caused mortality exceeds the maximum for a given allocation period, the overkill (either total or of females) will be carried forward to the next allocation period and deducted from the maximum allowable total human-caused mortality for that period. Known human-caused mortality of grizzly bears <2 years (24 months) old will not be included in total human-caused mortality for a GBPU (see Section 3.2).

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- 5.7 Known human-caused mortality of female grizzly bears >2 years (24 months) old within each GBPU will be managed to avoid exceeding 30% of the maximum allowable known human-caused mortality for the GBPU over an allocation period.
- 5.8 Grizzly bear translocations outside of a GBPU will be counted as if they were known mortalities in the source GBPU. Translocated bears will not be added to the population estimate used for harvest purposes of the area of relocation, however, if they die as a result of human causes they will not be counted as a mortality in the new area.

6 Population Objectives

- 6.1 The RMs and the TESS Manager will develop the process for developing population objectives for GBPUs by March 31, 2005 for approval by the Assistant Deputy Minister of the Environmental Stewardship Division. The process may include a conservation assessment including threats to the population; an assessment of population trends; consideration of the current population estimate, current habitat capability, suitability and effectiveness as well as the history of grizzly bear-human conflicts in the area; and stakeholder consultations.
- 6.2 RMs must prepare and recommend population objectives for GBPUs no later than March 31, 2006 for application beginning in the 2007-2009 allocation period. Population objectives will be revisited at least every 6 years thereafter.
- 6.3 The Assistant Deputy Minister of the Environmental Stewardship Division approves population objectives based on recommendations from the RMs.
- 6.4 Total human-caused mortality of grizzly bears will be managed to facilitate meeting the objective for each GBPU over time.

Link to worksheet for Calculation of Allowable Grizzly Bear Harvest
([PDF 16KB](#) OR [17KB Excel file](#) - legal size paper 8.5x14")

Appendix 2. Calculation of Unreported Human-caused Mortality Rates
by Grizzly Bear Population unit ([PDF 31KB](#))

Appendix 3. Calculation of allowable Known Human-caused Mortality
Levels by Grizzly Bear Population Units ([PDF 32KB](#))

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