

## Proposed revisions to pages 49-50 of the Conservation Strategy (9-26-16 version)

At the September 8<sup>th</sup> YES meeting, issues were raised to the group regarding how discretionary and total mortality rates are calculated as the public had requested clarification on these two integral issues. Commenters suggested that the Strategy should include Table 3 and the subsequent from the proposed rule to clarify how hunting mortality will be calculated. Without these explanations commenters were concerned that the calculation of hunting mortality was unclear and could potentially equal 200 bears with the current population estimate of 717.

At the YES meeting Jennifer Fortin Noreus was asked to work with the IGBST to draft technical language for the Strategy and the Rule to address these questions/concerns. The suggested verbiage on pages 49-50 of the Sept 22 CS (see below) is the result of that assignment. The new language and tables were modified from those in the proposed rule in response to the public comments and to clarify that these are only examples.

Please note that given the short timeline for this request only Frank van Manen of the IGBST provided input.

### **Proposed revisions to include in both the Rule and the Strategy (suggested to be added to page 48)**

The number of bears available for discretionary mortality in a given year is based on the population estimate inside the DMA from the previous year, the total annual mortality rate (see Table 1), and the non-hunting mortality from the previous year. Total annual mortality numbers are calculated by multiplying the total annual mortality rate by the size for each sex/age cohort. The size of each sex/age cohort varies with population size. Total mortality includes documented known and probable grizzly bear mortalities from all causes including but not limited to: management removals, illegal kills, mistaken identity kills, self-defense kills, vehicle kills, natural mortalities, undetermined-cause mortalities, grizzly bear hunting, and a statistical estimate of the number of unknown/unreported mortalities (Cherry et al. 2002). The number of non-hunting mortalities for independent females and males from the previous year will then be subtracted from the total number of allowable mortalities for the most recent population estimate

resulting in the expected number of independent female and male bears available for hunting allocation. Two examples serve to demonstrate how the expected number of bears available for hunting mortality will be calculated: the number of independent female and male bears available for hunting inside the DMA based on the 2015 population estimate of 717 are shown in Table 3 and the 2002–2014 average population estimate of 674 are shown in Table 4. For each population estimate, examples are given for low non-hunting mortality in the previous year and high non-hunting mortality in the previous year.

**Table 3. Example calculations of allowable total annual mortality inside the DMA and expected number of independent female and male bears available for hunting inside the DMA at the 2015 estimated population size of 717. These are example calculations under 2 scenarios: (1) low non-hunting mortality in the previous year, as occurred in 2014; and (2) high non-hunting mortality in the previous year, as occurred in 2015.**

|                                                   | Estimated population size of 717                      |                   |                                                        |                   |
|---------------------------------------------------|-------------------------------------------------------|-------------------|--------------------------------------------------------|-------------------|
|                                                   | Low mortality in preceding year (as occurred in 2014) |                   | High mortality in preceding year (as occurred in 2015) |                   |
|                                                   | Independent Females                                   | Independent Males | Independent Females                                    | Independent Males |
| Size of sex/age cohort at this population size    | 250                                                   | 250               | 250                                                    | 250               |
| Total annual mortality rate                       | 9%                                                    | 20%               | 9%                                                     | 20%               |
| Allowable total annual mortality number           | 22                                                    | 50                | 22                                                     | 50                |
| Non-hunting mortality for the previous year       | 20                                                    | 29                | 25                                                     | 32                |
| <b>Bears available for hunting inside the DMA</b> | <b>2</b>                                              | <b>21</b>         | <b>0</b>                                               | <b>18</b>         |

**Table 4. Example calculations of allowable total annual mortality inside the DMA and expected number of independent female and male bears available for hunting inside the DMA at the 2002–2014 average population size of 674. These are example calculations under 2 hypothetical scenarios: (1) low non-hunting mortality in the previous year; and (2) high non-hunting mortality in the previous year.**

|                                                   | <b>Estimated population size of 674</b> |                          |                                         |                          |
|---------------------------------------------------|-----------------------------------------|--------------------------|-----------------------------------------|--------------------------|
|                                                   | <b>Low mortality in preceding year</b>  |                          | <b>High mortality in preceding year</b> |                          |
|                                                   | <b>Independent Females</b>              | <b>Independent Males</b> | <b>Independent Females</b>              | <b>Independent Males</b> |
| Size of sex/age cohort at this population size    | 236                                     | 236                      | 236                                     | 236                      |
| Total annual mortality rate                       | 7.6%                                    | 15%                      | 7.6%                                    | 15%                      |
| Allowable total annual mortality number           | 18                                      | 35                       | 18                                      | 35                       |
| Non-hunting mortality for the previous year       | 10                                      | 15                       | 18                                      | 34                       |
| <b>Bears available for hunting inside the DMA</b> | <b>8</b>                                | <b>20</b>                | <b>0</b>                                | <b>1</b>                 |