

## APPENDIX C

### Methodology for recalculation of new take estimates for the period 2012-2017

- 1) Calculations for all 5 activity types were completed for the period 2012-2017 so that we would have information in the event that the rule is completed in 2012. So there are estimates for 6 years, instead of 5.
- 2) For each activity new projected estimates were provided by industry. These data were used for all calculations for the years 2012-2017. Industry only provided estimates for activity by planning area (Eastern, Central, and Western) and did not break the activity down any further into shelf, slope, and deep.
- 3) In order to further subdivide the projected activity amounts into shelf, slope and deep, tables E14-18 (Appendix E) were used to calculate proportions for each of the 9 modeled regions. Proportional values for 2012-2014 were used in the new calculations and the values for 2014 were maintained for years 2015-2017. This is appropriate considering BOEMRE's 5-year planning cycle for the GOM which covers the years 2012-2107.
  - a. For example: If in 2012, 1/3 (.333) of all projected 2D activity in the Eastern Planning area was in shelf waters, that proportion was used for calculations with the new projected values.
- 4) For each activity (OBS, 2D high resolution, 2D, 3D, and WAZ) two excel spreadsheets were created with the following worksheets for both standard thresholds (180/160 dB) and Southhall (230/160 dB):
  - a. "*Original Activity from MAP*" (the values highlighted in yellow were used to determine proportions)
  - b. "*New Activity from Industry*" (the values highlighted in pink were used in the calculations)
  - c. "*My Calculations*" (these contain calculations to determine proportions, number of blocks, and total values highlighted in yellow by water depth and planning area. The value for 2012-2017 was used in the take calculations)
  - d. "*MAI Table E-xx*" this identifies the Table used from Appendix E that provides the Level A and B take estimates by block for each species. For all calculations tables using AIM methodology and Southhall (2007) thresholds were used (Tables E37-41).
  - e. "*New Take Estimates*" Totals for 6-year period for the activity are summed across planning areas and water depths and a total is highlighted in yellow. These values will be what is included in a summary table for the petition
  - f. "*Take Estimates by Year*" This sheet sums the calculations from the separate worksheets (2012, 2013, 2014, 2015, 2016, 2107)

- 5) For OBS – the same proportions were used for the new industry calculations because industry data did not delineate OBS separately from 3D. OBS is only projected for 4 modeled regions (2,3,5,8) and was kept at the same level of activity which was previously considered “light” or 50 blocks.
- 6) While 2D and 3D high resolution surveys were not previously separated in terms of activity (Table E-18), MAI calculated separate take estimates for each (Tables E41-42. New high resolution survey projections were provided by industry and because the predominant types of high resolution survey in the GOM are 2D, only 2D high-res survey calculations were completed using Tables E-41 and E-35. New industry estimates were in miles. To convert miles to blocks, an estimate of 360 miles of survey miles per block was used (as per R. Brinkman 3/16/2011).
  - a. For example:  $581 \text{ miles} * 1/360 = 1.61 \text{ blocks}$

In addition, BOEMRE is implementing new survey requirements for on-lease activities that may require surveys in all planning areas and water depths (either new surveys or re-processing of existing data). So industry projections for high resolution surveys were multiplied by equal proportions for each planning area and water depth (0.333).

- 7) For 2D seismic, industry provided projections in miles. In order to convert miles to blocks, MAI multiplied the number of miles by 1.852 and this was used again for the new calculations.
  - a. For example:  $1000 \text{ miles} * 1.852 \text{ blocks/mile} = 1852 \text{ blocks}$
- 8) Calculations for 3D and WAZ were similar to 2D except that industry provided estimates in blocks so no “mile to block” conversion was needed.
- 9) For each category of activity the calculations are essentially the same (minus the conversions from miles to blocks for 2D and 2D high res).
- 10) Take estimate = Total amount of activity for the year \* proportion for that depth and planning area \* the estimated level of take by species for one block (from Tables E37-41 for 230 dB, Tables E31-35 for 180 dB)

All projected values for each of the 5 activities were summed by year (2012-2017) for both standard thresholds (180/160 dB) and for Southall (230/160 dB). These values are presented in the petition in Tables 6-1 and 6-2.