



## Mid-Atlantic Fishery Management Council

800 North State Street, Suite 201, Dover, DE 19901  
Phone: 302-674-2331 | FAX: 302-674-5399 | www.mafmc.org  
Michael P. Luisi, Chairman | G. Warren Elliott, Vice Chairman  
Christopher M. Moore, Ph.D., Executive Director

January 24, 2020

Dr. Angel Gonzalez  
Instituto de Investigaciones Marinas  
Vigo, Spain

Dear Dr. Gonzalez:

Please find below details regarding our proposed *Illex* work:

Dr. Gonzalez will age *Illex illecebrosus* samples by counting the number of growth increments in one statolith extracted from each individual. The statolith samples (about 400) will be shipped by Lisa Hendrickson from the Northeast Fisheries Science Center.

The method used to determine the age of each individual will involve mounting each statolith on a microscope slide with Crystalbond, with the anterior concave side uppermost. The statoliths will be ground, first on the anterior surface and then on the posterior surface. The grinding of both surfaces in the sagittal plane will result in the production of relatively thin statolith sections. Increments will be counted along the axis of maximum statolith growth with an NIS Elements D 2.30 image analysis system interfaced with a Nikon compound microscope ( $\times 400$  magnification). Counts of increments will be conducted by eye. In statoliths of the oldest individuals, for which the increments may not be clear enough to see (especially at the edge of the statolith or near the nucleus due to statolith crystallization), the number of unclear increments will be estimated by extrapolation from the adjacent area. Extrapolations will not exceed 20% of the total surface area of the mounted statolith. Two independent increment counts of each statolith will be undertaken by Dr. Gonzalez on different days and the count data for each statolith shall be entered into an Excel spreadsheet provided to him by L. Hendrickson.

A subset of 60 statoliths covering the length range of the aged squid will be selected by L. Hendrickson and the statolith ID numbers will be provided to Dr. Gonzalez, who will have a second squid ager conduct two increment counts of each statolith during different dates. The increment counts of the second ager will be compared with increment counts of the same 60 statoliths by Dr. Gonzalez in order to estimate aging bias. Increment counts conducted by the second ager will be labeled as such and entered into the Excel spreadsheet provided for the project.

The cost of mounting and grinding each statolith and counting the number of growth rings in each statolith twice (on different dates) and entering the count data in an Excel spreadsheet (to be provided) is \$20 US per statolith. Approximately 400 statoliths will be processed for age. 60 Statolith increment counts conducted by the second squid ager will be paid at \$4 US per statolith. The total cost is not to exceed \$8,500.

The date for submittal of the final datasets described above is within five months after Dr. Gonzalez receives the samples.

Please confirm your intent to provide this work as soon as possible so we can ship the samples. We will arrange payment once the final data have been provided to us and L. Hendrickson.

Sincerely,

A handwritten signature in black ink, appearing to read "C Moore". The signature is fluid and cursive, with the first letter "C" being large and prominent.

Christopher M. Moore Ph.D.  
Executive Director

cc: J. Didden, L. Hendrickson