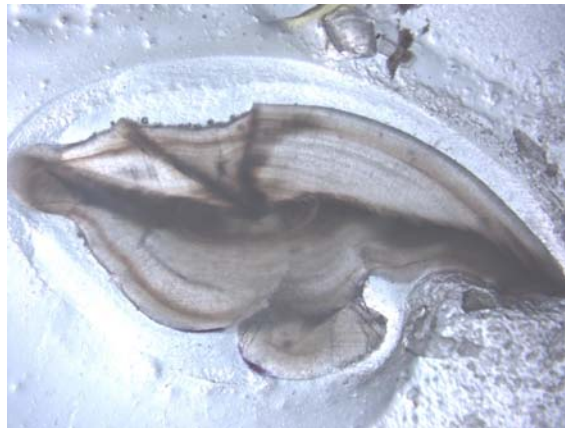
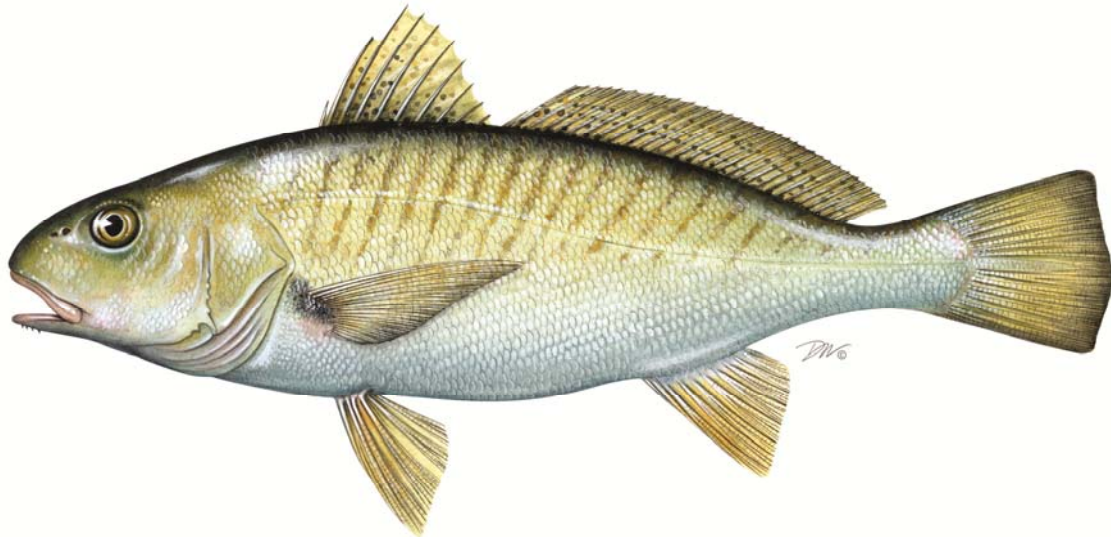


# Atlantic States Marine Fisheries Commission

*Working towards healthy, self-sustaining populations for all Atlantic coast fish species or successful restoration well in progress by the year 2015*



Proceedings of an Atlantic Croaker  
and Red Drum Ageing Workshop

October 8, 2008

Workshop Location:

**South Carolina Department of Natural Resources  
Marine Resources Center  
Charleston, South Carolina**

Workshop Participants:

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## Meeting Summary

C. McDonough (SC DNR) and P. Campfield (ASMFC) welcomed participants to the Marine Resources Center at 8:00 AM. Pat briefed the group on objectives for the aging workshop. The purpose of the workshop was to compare methods in sectioning and reading otoliths from red drum and Atlantic croaker to establish common age interpretation methods coast wide. Although most annuli are distinct and easy to interpret, it is sometimes a challenge to identify the 1<sup>st</sup> annulus for both species. Fish spawned in late summer vs. winter lay down the 1<sup>st</sup> mark at different times, making age interpretation difficult.

Aging experts from several states brought prepared slides of otolith sections to exchange for aging comparisons. Samples represented a broad range of age classes, seasons, and geographic coverage. Participants reviewed processing methods and conducted aging comparisons among regions and readers. Digital otolith reference collections were established utilizing select samples from each state. This ASMFC Aging Workshop Report describes results and provides a standard protocol to guide current and future aging analysts. Atlantic croaker was covered in the morning session, and red drum in the afternoon.

### *Atlantic Croaker*

C. McDonough presented an overview of croaker otolith processing and reading protocols used by SC DNR staff. The issue of determining when the 1<sup>st</sup> annulus is laid down was discussed at length. For the purposes of stock assessments and other coast wide analyses, the decision was made to count the 1<sup>st</sup> distinct ring as the 1<sup>st</sup> annulus, and not count any 'check' marks that occurred in close proximity to the core of the otolith as an annulus. This decision was based on the practice of not counting any 'check' marks near the core by all states except VA. These check marks are not present on all otoliths. Atlantic croaker has an extended spawning season (October through March) and generally have not reached 1 year in age after the first over-wintering period. Most temperate and warm temperate fishes put down an annulus in late spring and early summer in the northern hemisphere and given the potential birth-date for an Atlantic croaker born between October and March, this check mark can potentially be put down between 3 and 8 months of age. The first true annulus is put down at the end of the second over-wintering period. The primary argument for not counting this 'check' mark as the first annulus would be that if it is used to assign year-class then the fish would be assigned to the wrong year-class shifting the age distribution. It was noted historical age data from Virginia (ODU/VMRC and VIMS) would need to be reviewed and possibly adjusted by 1-year to account for this difference.

### Age comparisons among readers

Sets of prepared croaker otolith sections from each state from GA-NJ, and the NEFSC, were read by the state's aging expert to determine ages. Then, slides were exchanged and read by all other agers. Specimen collection number and date were recorded, along with determinations of number of annuli, age, and year class. Each slide was read by most of the other participants. Readers were instructed to not count the 'check' laid down near the otolith core.

## *Red Drum*

C. McDonough presented an overview of red drum otolith processing and reading conducted by SC DNR staff at the facility in Charleston. Participants from each state briefly described their otolith processing methods. Minor differences in cutting and polishing were noted but it was determined all produce easily readable otoliths. The group discussed reliability of scale aging. Scales appear to be accurate through Age 4 and are not reliable thereafter; otoliths should be used for Age 4 fish and older. The issue of determining 'birth date' and proper assignment of correct year-class was discussed at length. For assessment modeling purposes, the decision was made to use January 1 as the birth date of all drum, regardless of differences among hatch dates among regions. For life history analyses (e.g., natural mortality estimation), a standard biological birth date of October 1 will be used.

The decision was made to count the 1<sup>st</sup> distinct ring as the 1<sup>st</sup> annulus, and to not count any 'check mark' in close proximity to the core as an annulus. This decision was based on the practice of not counting the 'check mark' by all states except Georgia. The reason for this is biological. Red drum spawn in August and September and overwinter in deepwater tidal creeks with very little growth during winter. When water temperatures begin to increase in spring and early summer, growth increases and some fish will put down a 'check mark' indicative of this change in growth, however they have not reached one year calendar age. The first annular mark will be laid down the following spring after the fish has gone through its second overwintering period. It was noted historical age data from Georgia would need to be reviewed and possibly adjusted by 1-year to account for this difference.

### Age comparisons among readers

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