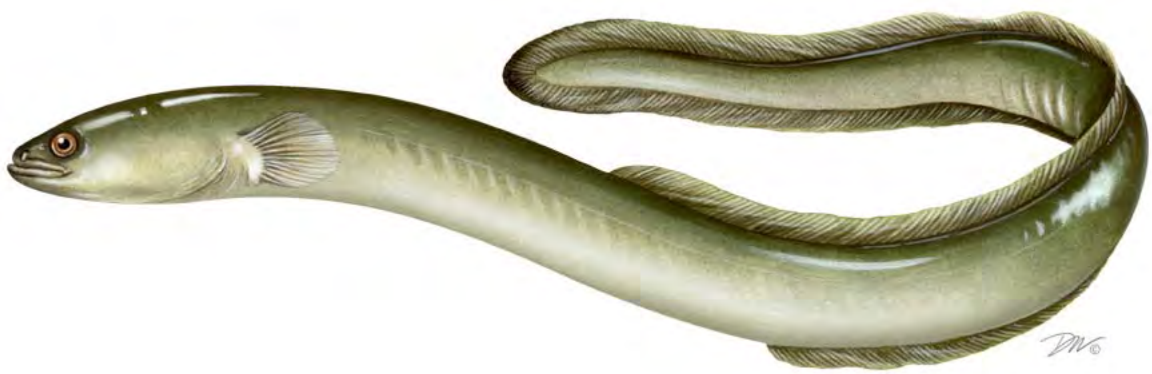
# Atlantic States Marine Fisheries Commission

*2017 American Eel Ageing Report*



May 2017

*Vision: Sustainably Managing Atlantic Coastal Fisheries*

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## Acknowledgements

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## Statement of Problem

A workshop on ageing and sexing the American eel (*Anguilla rostrata*) was held by the Atlantic States Marine Fisheries Commission (ASMFC) in 2001 (ASMFC 2001). The workshop goals were to present current knowledge to the American eel Technical Committee (TC) on techniques for ageing and sexing that could be used by states to collect data for future stock assessments. The workshop concluded that acceptable methods for sexing American eel are gonad squash and histology. For ageing, embedding and sectioning or grinding and polishing were preferred techniques for processing and reading otoliths. These methods became accepted by the ASMFC and are described by Liew (1974), Chisnall and Kalish (1993), and Oliveira (1996). At that time, neither a sample exchange was performed nor was there any calculation of ageing bias or precision between agencies and laboratories ageing the species.

American eel underwent an ASMFC benchmark stock assessment in 2012 (ASMFC 2012) and is scheduled for a stock assessment update to be completed in October, 2017. Age data was available for the assessment from otolith samples from DE DWF and MD DNR, as well as some research studies (see Appendix 3 Table 1 in ASMFC 2012). During the development of the assessment, an age-structured production model was used for ages 2-12, but the model did not converge and it was not recommended for use at that time. While the current stock assessment model is not age-structured, the available ages from fisheries-dependent surveys were used to develop catch curves and age data were used to develop natural mortality rates at age, age-length relationships, and average age at maturity. Concerns raised from both the Workshop on Ageing and Sexing American Eel (2001) and the benchmark stock assessment (2012) regarding the ages of American eel were that analyses indicated age is a poor predictor of length, age samples from estuarine populations may not be representative of freshwater populations, current biological sampling may not provide sufficient spatial coverage, and there is the possibility that during metamorphosis the otolith reabsorbs material and causes discrepancies for ageing (McCleave 2008).

The stock assessment included several recommendations focused on ageing:

1. Conduct intensive age and growth studies at regional index sites to support development of reference points and estimates of exploitation. (Note from the Review Panel: In order for these data to be of use, standardization of sampling gear, habitat, and ageing methods must first be completed.)

2. Characterize the length, weight, age, and sex structure of commercially harvested American eels along the Atlantic Coast over time.

3. Require that states collect biological information by life stage (potentially through collaborative monitoring and research programs with dealers) including length, weight, age, and sex through fishery-dependent sampling programs; biological samples should be collected from gear types that target each life stage; at a minimum, length samples should be routinely collected from commercial fisheries.

4. Request that states record the number of eels caught by fishery independent surveys; recommend states collect biological information by life stage including length, weight, age, and sex of eels caught in fishery independent sampling programs; at a minimum, length samples should be routinely collected from fishery-independent surveys.

As more age data is collected by agencies and labs along the Atlantic coast and efforts are being made to collect data to eventually support an age-based model, the TC recommended organizing a sample exchange for American eel agers. A planning phone call with ageing contacts was held in June, 2016, where it was identified that agers are using both sectioned and whole otoliths regardless of the protocol established from the previous ageing workshop. Agencies and labs currently ageing American eel provided samples for the hard part exchange. This exercise was designed to identify ageing error and bias as well as establish an ageing protocol before an age-structured model is in place for American eel.

## Workshop Objectives and Goals

The objectives of the exchange were to (1) share methodologies and protocols for processing and ageing American eel otoliths, (2) investigate age determinations made between labs and structures, and (3) make recommendations to improve American eel ageing practices.

The goals of the workshop were to exchange samples processed and read from state agencies and research groups to provide information on ageing precision, bias between labs or in-lab for those with multiple readers, compare sectioned and whole otolith samples, and to improve standardization of ageing practices between states.

## Agency & Lab Ageing Information

*Maine*
Paired whole and sectioned otoliths samples were supplied by research projects conducted by Ken Oliveira from the University of Massachusetts in Dartmouth in 1997. Samples were available from the East Machias and Sheepscot Rivers. For a full description of the study sites and methods see Oliveira (1996) and Oliveira and McCleave (2000, 2002).

*Massachusetts*
Sectioned otolith samples from Paskamansett River were supplied by Ken Oliveira from the University of Massachusetts in Dartmouth. These samples were part of a research project that collected yellow eels in 2005. While the American eels in this study were not individually measured, aged, or weighed, 98% of migrating eels in this river are silver eel males between 250-300 mm TL and 40-80 g (K. Oliveira, personal communication). Otoliths were removed and prepared using methods by Oliveira (1996).

*Hudson River*
Samples from three sites (Newburgh, Kingston, and Athens) on the Hudson River were supplied from a research project of David Secor and Wendy Morrison. For full methods, see Morrison

and Secor (2003). Briefly, Secor and Morrison used a modification of sectioning and dying techniques developed by Oliveira (1996) and Graynoth (1999) where otoliths were extracted, embedded in epoxy resin, cut with a wafering saw, polished, dyed, and read with transmitted light.

*New Jersey Division of Fish and Wildlife*
American eel otoliths (3,174) have been collected since 2006 from NJ commercial yellow eel fishermen primarily in Delaware Bay (51%) followed by the Mullica River and Barnegat Bay (25% combined). Length, weight, and otoliths are collected from an average of 317 eels annually, ranging in number from 140-547. Ages range from 0-15 years, averaging 3-5 years. Annual target lengths are 1,750 and ages are 350.

Protocols developed by Ken Oliveira, University of Massachusetts Dartmouth, are used for processing and for ageing. Whole otoliths are embedded in resin and sectioned with a Bueler low speed isomet saw. The sectioned otolith is mounted to a glass slide with Flotexx and then polished by hand with micron lapping films. The sanded section is soaked in a 5% EDTA solution for 3-5 minutes and then soaked in Toluidine Blue for 5 minutes. Otoliths are read wet with a microscope. Otoliths are read by two agers independently and a third individual ages any tiebreakers.

*Delaware Division of Fish and Wildlife*
American eel otoliths have been collected since 2001 as part of the biological sampling program of the commercial yellow eel fishery in Delaware. Staff collects length and weight measurements from the tidal tributaries of Delaware Bay from April to October, depending on availability and cooperation of the fishery. Random pots are selected from commercial observer trips. All eels captured in the selected pots are kept for characterization of the annual commercial catch, including length, weight, and age data. American eels captured in various DDFW fishery-independent surveys are kept for age determination as well. Approximately 125 to 450 American eels are sampled annually. Otoliths are removed in the lab, cleaned, and mounted on microscope slides using Crystalbond™ adhesive. Whole otoliths were sanded with 600 to 1200 grit sandpaper. Slides were viewed and photographed under a Zeiss™ microscope (Axiolab stemi) with camera attachment at 2.5X magnification. Pictures are put into Microsoft Powerpoint slides where color, contrast, and brightness can be adjusted to illuminate annuli. The lab uses two readers who independently age the otolith section to assign an age. Otolith ages with disagreement are re-read until a consensus age is determined or they are removed from the collection. From 2001-2016, a total of 3,463 eels were aged in this program with an age range from 2-12 years old.

*Maryland Department of Natural Resources*
A biological sampling program for commercially harvested American eels has been in place in Maryland since 1997. A minimum of two selected tidal tributaries are sampled annually (100 pounds each) from April-June. Biological information collected includes length, weight, sex, and parasite infestation rate. Approximately 8-10 eels are randomly subsampled from 20mm size

bins ranging from 260-400mm for age, sex, and presence/absence of swim bladder parasite. A minimum of 5 eels are randomly subsampled from the remaining 20mm size bins.

Upon removal of the sagittal otoliths, any clinging tissue is removed. The otoliths are placed into a polypropylene well plate for storage until they are ready to be mounted. In preparation for mounting, the otoliths are placed in a *Coors Tek* porcelain spot plate and cleaned with a 10% bleach solution for approximately 5 minutes. Then the otoliths are gently rinsed with distilled water and patted dry. Whole otoliths are placed convex side up and mounted on glass slides with *CrystalBond*, a thermoplastic adhesive. Glass slides are heated on a hotplate to liquefy the *CrystalBond*. The adhesive is then drawn over the dorsal side of the otolith. This allows the small crevices on the otolith surface to be filled and provided better clarity for reading.

The otoliths are examined at up to 60X magnification under a compound microscope with both transmitted and an external fiber optic light source. Both light sources are not used at the same time, but independently to increase precision for the aging estimate. If opaque and translucent zones are not readily apparent, the dorsal surface of the otoliths is lightly polished with moistened 600 grit wet/dry sandpaper until the primoridium (nucleus) is reached and the outer edge of the otolith is discernible. A small amount of type b immersion oil is then placed on the sanded otolith. The concave side of the otolith is sometimes read by flipping over the glass slides.

Field information such as, location of capture, date of capture, length, and sex, if available, are used to assist with correct age interpretation (ICES 2009). The first opaque zone out from the nucleus is the transition mark and is laid down as glass eels transition into elvers. The transitional mark is not counted as an annuli when determining freshwater age. In normal conditions, only one opaque and one translucent zone are formed during a single year (Liew 1974). An additional year is included if a translucent zone on the edge is interpreted by the reader as nearly complete. This was recommended for samples collected early in the year where an undifferentiated annulus on the outer margin of the otolith would occur prior to fast summer growth (ICES 2009).

The lab uses two readers who independently age the otolith. Otoliths with disagreement are re-read once to determine consensus age or they are removed from the collection if consensus cannot be reached. From 1997-2015, 3,628 commercially harvested eels were aged in this program with an age range from 1-15 years old. However, 92% of sampled eels are 2-8 years old.

*Virginia Institute of Marine Science (VIMS)*

VIMS is just beginning to age American eel samples collected from Virginia waters from VIMS Juvenile fish Trawl Survey and Virginia Department of Game and Inland Fisheries (VDGIF) survey. Eels are collected by bottom trawl (VIMS) and electrofishing (VDGIF). All eels captured through bottom trawl are retained, weighed, measured, otoliths removed, and are evaluated for infection of *A. Crassus*. Samples from VDGIF are collected haphazardly as eels are encountered and as time permits. Eel samples from VDGIF are provided to VIMS frozen and are processed in the same manner as above. Whole otoliths are ground in the sagittal plane on both sides using increasing grit sandpaper with the otolith mounted on the slide using crystal bond. Eels are aged by two readers and a third reader if there is a discrepancy between the two ages. We obtained eels from VDGIF from 2015 and 2016 and continually collect eels from the trawl survey in the James, York, and Rappahannock River (2014 - present).

*South Carolina Department of Natural Resources*
American eel otoliths have been collected since 2010 as part of DNR's long-term electrofishing sampling of estuarine water bodies. Staff have collected eel length measurements in the field from 5 estuaries year round since 2002, and currently retains specimens for lab workup according to a checkoff sheet divided into bins by total length. During each 2 month "wave" of sampling, a maximum of 35 eels are randomly selected from 7 length bins (5 eels/bin) for sex, maturity, and age determination, or up to 210 eels annually. Otoliths are removed in the lab, cleaned, stored in 100% ethanol for approximately 2 weeks and then dried, marked at the core, embedded in bullet molds, and sectioned on a low speed wafering saw using two blades separated by a plastic spacer with a width of 0.5 mm. Sections are then mounted onto glass slides and polished to a thickness of 0.2-0.25mm. The lab uses two readers who independently read the otolith section to assign an annulus count. Otoliths with disagreement are re-read until a consensus count is determined or they are removed from the collection. After assigning a consensus annulus count, eel otoliths are measured under a microscope using ImagePro software. Distances are measured (in millimeters) from core to core edge, core to each annulus, and marginal increment width. 274 otolith sections were examined from specimens collected in 2012-2013, 268 of which were assigned consensus reads and 6 of which were discarded. Annulus counts ranged from 0 to 10.

*Florida Fish and Wildlife Conservation Commission*
FL FWC has conducted electrofishing surveys in several lakes and marshes since 2006. Surveys are generally conducted in the fall between September and December using standard electrofishing methods. Samples provided for this exchange were collected throughout the year in 2014-2015 from multiple sites and paired sectioned and whole otoliths were provided.

## Hard Part Exchange

*Sample exchange set description*
American eel otolith samples were provided by NJ DFW, DE DFW, MD DNR, VIMS, SC DNR, FL FWC, Ken Oliveira, and David Secor (Table 1). Ken Oliveira supplied samples from ME and MA and David Secor supplied samples from the Hudson River, NY, from a previous research project with Wendy Morrison. Agencies and labs were asked to supply samples that were collected throughout the year representing various lengths, ages, and collection sites in their respective regions. All samples were paired sectioned and whole otoliths, except for those contributed by MD DNR, VIMS, and David Secor which were either sections or whole otoliths only. Otolith samples provided for the exchange were from American eel 120 - 770 mm TL (Table 2) and ages 0-25 (as aged by their respective labs; Table 3). These samples were subset for the exchange to 140 sections and 110 whole otoliths, with 90 of those as paired samples, from a distribution of

collection months (Figure 1), lengths (Figure 2), ages (Figure 3), and weight (Figure 4). See Appendix A for guidelines to exchange participants on providing samples for the exchange and for reading the samples.

*State and lab participation in the exchange*

Nine ageing labs from Maine to Florida received and aged the American eel sample exchange set: ME DMR, CT DEEP, NY DEC, NJ DFW, DE DFW, MD DNR, VIMS, SC DNR, and FL FWC. The number of readers participating in the exchange for each state or lab was one (ME, CT, DE, FL), two (NY, MD, VIMS, SC), or three (NJ). When there were multiple readers, consensus ages were not always provided. Experience ageing American eel otoliths varied coast wide. NJ, DE, MD, and SC all reported that their ageing labs routinely age American eel with three readers in NJ, the reader in DE, and one of the two readers in MD and SC stating that they are experienced eel agers. ME, CT, NY, and one of the two readers in MD and VIMS stated that they do not routinely age eel nor are the agers experienced in ageing eel. FL and one of the two readers in MD and VIMS did not indicate the level of experience with American eel ages. Due to varying levels of experience and lack of consistent consensus data, each reader was treated independently in the analysis although conclusions about intra-lab precision can still be made.

## Methods & Results

*Methods for ageing comparisons, bias and precision*

Agreement between readers and between labs was evaluated to provide information on ageing error. Exact agreement was tested using Bowker's test of symmetry around the diagonal 1:1 line (Evans and Hoenig 1998) where a significant p-value (<0.05) indicates systematic bias between the age readings. Without knowing the true age of the fish, this test does not identify which reader is more accurate, but rather identifies whether there are differences or not. Mean coefficient of variation (CV), percent of exact agreement between readers, and percent agreement within 1 year was also calculated for each lab and reader to provide a measure of precision. While this does not serve as a proxy for accuracy, it does indicate the level of ease for assigning an age to that ageing structure, the reproducibility of the age, or the skill level of the readers. Generally, CVs of 5% serve as a reference point for determining precision, where greater values would indicate ageing imprecision (Campana 2001). Following a review of the results, participants suggested that agreement within 2 years be added to the report, as it might be a more appropriate analysis given the lifespan of American eel.

*Comparison between readers (sectioned otolith samples)*

Sample size, Bowker's p-values, CVs (%), exact agreement (%), and agreement within one and two years (%) were calculated for all readers in all labs for the sectioned otolith samples. Sample size varied because readers did not provide ages for all samples or samples were lost during the exchange (Table 4). Of the 105 comparisons made between readers and states, 48 had significant p-values which indicated systematic bias between the readers and labs (Table 5). CVs ranged from 13-36% (average of 20%), with all values being larger than 5%, indicating a lack of precision (Table 6). Exact agreement between readers ranged from 7-42% (average of 26%; Table 7), agreement within one year ranged from 28-76% (average of 59%; Table 8), and agreement within two years ranged from 49-88% (average of 76%; Table 9). Age frequency and age bias plots for each reader and lab comparison are in Figure 5-Figure 109.

For labs with multiple readers, results were variable for the sectioned otoliths samples. The readers in SC and two of the three NJ readers had significant Bowker's p-values indicating systematic bias within the lab. The two readers in SC had high agreement when compared to the other states, as did the two MD readers. But generally, precision and agreement was not improved intra-lab when compared to inter-lab readings.

*Comparison between readers (whole otolith samples)*
Sample size, Bowker's p-values, CVs (%), exact agreement (%), and agreement within one and two years (%) were calculated for all readers in all labs for the whole otolith samples. Sample size varied because readers did not provide ages for all samples or samples were lost during the exchange (Table 10). Of the 105 comparisons made between readers and states, 64 had significant p-values (Table 11) which indicated systematic bias between the readers and labs. CVs ranged from 7-59% (average of 24%), with all values being larger than 5% indicating a lack of precision (Table 12). Exact agreement between readers ranged from 1-66% (average of 30%; Table 13), agreement within one year ranged from 13-91% (average of 64%; Table 14), and agreement within two years ranged from 35-97% (average of 81%; Table 15). Age frequency and age bias plots for each reader and lab comparison are in Figure 110-Figure 215.

For labs with multiple readers, results were variable for the whole otoliths samples. The readers in NY and SC had significant Bowker's p-values indicating systematic bias within the lab. The two readers in NY, NJ, MD, and SC had high agreement when compared to average values. Both VIMS and SC had high CVs. Generally, agreement was slightly improved intra-lab when compared to inter-lab readings but not for all labs.

Following a conference call with participants to review the results, additional analysis was requested to split whole otolith samples by type. Participants on the call noted that loose whole otoliths were harder to handle and read than mounted and polished whole otoliths. MD DNR and DE DFW provided mounted whole otolith samples (n=40) and Ken Oliveira, NJ DFW, SC DNR, and FL FWC provided loose whole otoliths (n=70; Table 16), often read under a microscope by adding a drop of water. In fact, when analyzed separately, mounted and polished whole otoliths had more significant Bowker's p-values (Table 17) indicating more systematic bias than the loose whole otoliths, but mounted whole otoliths had lower CVs (Table 18) and higher exact agreement (Table 19) than loose whole otoliths.

*Comparison between paired sectioned and whole otoliths*
There were 90 paired sectioned and whole otolith samples in the exchange, although not all readers aged all samples and some samples were lost during the exchange. Sample size, Bowker's p-values, CVs, exact agreement, and agreement within one year were used to evaluate bias and precision in age readings between paired sectioned and whole otolith samples (Table 20). These tests identified imprecision (CVs > 5%) for all readers and systematic bias between sets of age determination (Bowker's $p < 0.05$) for eight of the readers who

participated in the exchange. Exact agreement varied from 10-33% with an average of 22% for all 15 readers. Agreement within one year varied from 30-64% with an average of 49% and agreement within two years ranged from 48-84% with an average of 69%. Without a validated ageing method, these tests cannot indicate which structure provides more accurate ages, only that bias and imprecision were detected. Reader age frequency and bias plots can be found in Figure 216-Figure 230. Generally, sectioned otoliths were aged as older than whole otoliths.

For paired sectioned and whole otoliths, results were different when the two types of whole otoliths (mounted and loose whole otoliths) were separated in the analysis (Table 21). CVs and exact agreement was higher for mounted whole otoliths compared to loose whole otoliths. Compared to the analysis where the types of whole otoliths were not distinguished from each other (Table 20), there were fewer significant p-values when whole otoliths were split into mounted and loose.

*Readability of samples*

The readability of a sample is subjective and depends on the reader, although it can be important to consider when trying to make recommendations about processing or reading samples for establishing protocols. The frequency of readability scores by reader for sectioned and whole otoliths samples can be found in Figure 231-Figure 245. Comparing readability scores across all readers for both structures (Figure 246), sectioned otoliths are slightly more readable than whole otoliths because sectioned otoliths proportionally received more scores of 3 and 4 samples and fewer scores of 1 and 2 than whole otolith samples.

While supporting data such as salinity from where the sample was collected was not provided for all samples, the effect of some variables on readability was examined. Readability for sectioned otoliths varied for samples collected in estuarine systems compared to in freshwater systems (Table 22). It is difficult to make a generalization about samples from ocean waters since there was only one sample categorized as such, but habitat (estuarine, freshwater, or ocean waters) did have a significant effect on readability (ANOVA: $F_{2,\,1333}$=3.49; $P$=0.0307). For sectioned otoliths, the lab where the sample was processed did have a significant effect on readability as well (ANOVA: $F_{7,\,2067}$=23.44; $P$<0.001) and SC DNR proportionally produced higher readability scores than the other labs (Table 23; Figure 247). It is difficult to draw any conclusions from this because increased readability scores for SC DNR could be due to their processing methods or environmental variables in that region that lead to clearer samples. Following the exchange, Oliveira emphasized that some of his samples were processed over 20 years ago and may need reprocessing (a quick re-staining or at a minimum a re-wetting) to be read accurately (personal communication). Readability did not have a significant relationship with length of the fish for sectioned otoliths (Figure 248; ANOVA: $F_{1,\,1894}$=0.004; $P$<0.949), so it is not necessarily easier or harder to determine age on a smaller fish than a larger fish.

For whole otolith samples, readability scores were similar for freshwater, estuarine, and ocean waters (Table 24). As opposed to sectioned otoliths, habitat did not have significant effect on readability with whole otolith samples (ANOVA: $F_{2,\,1210}$=1.49; $P$=0.226). For whole otoliths, the lab where the sample was processed did have a significant effect on readability (ANOVA: $F_{5,}$

$_{1381}$=19.53; $P$<0.001). Samples processed by MD DNR received higher readability scores and those processed from Oliveira received lower readability scores on average (Table 25; Figure 249). Again, it is difficult to draw conclusions from this since readability is subjective and could be related to processing or environmental variables where the samples were collected. Length of the fish did have a significant effect on readability for whole otoliths (ANOVA: $F_{1,\,1371}$=13.14; $P$<0.001; Figure 250), although the relationship is not easily interpretable.

When split into mounted and loose whole otoliths for analysis, readability was significantly different between mounted whole otolith samples and loose whole otolith samples (ANOVA: $F_{1,\,1385}$=45.23; $P$<0.001), with mounted whole otoliths receiving higher readability scores (Figure 251). MD DNR produced the most readable whole otolith samples, which were in fact mounted whole otoliths.

## Discussion & Recommendations

A conference call was held on March 24$^{th}$, 2017, to review the results of the exchange. Participants on the call attributed some of the ageing discrepancy to varying experience ageing American eel otoliths and a lack of familiarity reading whole otoliths for some. It was noted that loose whole otoliths were harder to handle and read than mounted and polished whole otoliths. Additional analysis was requested to compare results between mounted whole otolith samples and loose whole otolith samples and this has been added to the results of this report. Ultimately, there does appear to be differences in processing of whole otoliths that affects age reading and this should be considered when moving forward to develop coast-wide protocols for ageing American eel.

In addition to differences in ageing structures and experience ageing American eel otoliths, many thought that there was a lot of subjectivity in identifying the first and last annulus on the edge, especially for whole otoliths. Many participants were not sure when to round ages based on annulus count, catch date, and margin codes for classifying samples to their correct year class. It was noted that confidence intervals in the age comparison plots were smaller for otolith samples aged as 10 years or younger and that there was more disagreement on older samples. Overall, consensus was that an in-person workshop should be held to discuss methods for processing and reading American eel otoliths, examine individual samples, agree on a protocol for ageing American eel, and then possibility re-circulate the exchange set to the participants.

Recommendations from this exchange of American eel otoliths were:

- American eel otoliths should be sectioned and polished. If whole otoliths must be used, the otolith should be mounted and polished rather than read loose.

- An in-person workshop should be held in January/February 2018 to discuss methods, revisit samples, and establish an ageing protocol for American eel to be used by ageing labs on the Atlantic coast.

- At the ageing workshop, an ageing timeline should be discussed so that participants know when to round ages to account for margin and catch date so that samples are classified to their proper year class.

- Following an ageing workshop, the sample exchange set should be re-circulated to American eel ageing labs and another analysis and report should be completed.

- Once an ageing protocol has been established, the ASFMC should add American eel otolith samples to the annual QA/QC Fish Ageing Workshop so that ageing consistency can be maintained over time.

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## Tables

**Table 1. Otolith samples in the exchange with available biological data description for total length (TL), weight (wt), age range as aged by the lab, habitat range (F=Freshwater, E=Estuarine, O=Ocean), and collection month range. Otolith sample type was sectioned, whole, or paired (both sectioned and whole). See Tables 2-4 for more details.**

| Agency / Lab | Sample type | Sample size | TL range (mm) | Wt range (g) | Age range | Collection month range | Habitat range |
|---|---|---|---|---|---|---|---|
| Oliveira (ME) | Paired | 20 | 120-632 | 3-444 | | 7-10 | F |
| Oliveira (MA) | Sectioned | 10 | 250-300 | 40-80 | | 10 | F |
| Secor (NY) | Sectioned | 20 | 445-555 | | 11-25 | 6-7 | F |
| NJ DFW | Paired | 20 | 252-725 | 30-770 | 0-15 | 4-11 | E |
| DE DFW | Paired | 20 | 277-770 | 40-805 | | 5-10 | F, E, O |
| MD DNR | Whole | 20 | 294-768 | 43-932 | 2-12 | 4-5 | E |
| VIMS | Sectioned | 20 | 130-398 | 3-142 | 2-9 | 4-10 | F, E |
| SC DNR | Paired | 20 | 189-751 | 11-1025 | 0-10 | 1-12 | E |
| FL FWC | Paired | 10 | 207-616 | 17-632 | 1-10 | 1-11 | F, E |

**Table 2. Sample size of sectioned and whole American eel otoliths provided for the exchange by length bin and state. Lengths were not available for MA samples but it was noted that 98% of samples taken from the site were males of TL 250-300 mm). Total length was not provided for two samples from NY that were included in the exchange.**

| Length Bin (TL mm) | ME | MA | NY | NJ | DE | MD | VA | SC | FL | Length Bin Total |
|---|---|---|---|---|---|---|---|---|---|---|
| **100-149** | 1 | | | | | | 1 | | | 2 |
| **150-199** | 2 | | | | | | 2 | 1 | | 5 |
| **200-249** | 2 | | | | | | 2 | 1 | 1 | 6 |
| **250-299** | 2 | 10 | | 3 | 3 | 1 | 8 | 4 | | 31 |
| **300-349** | 4 | | | 1 | 3 | 6 | 3 | 4 | | 21 |
| **350-399** | 4 | | | 1 | 4 | 6 | 4 | 1 | 3 | 23 |
| **400-449** | 1 | | 1 | 4 | 4 | 2 | | 3 | 2 | 17 |
| **450-499** | 2 | | 9 | 1 | 3 | 2 | | 2 | 2 | 21 |
| **500-549** | 1 | | 7 | | | | | 2 | | 10 |
| **550-599** | | | 1 | 3 | 2 | 2 | | 1 | 1 | 10 |
| **600-649** | 1 | | | 3 | | | | | 1 | 5 |
| **650-699** | | | | 2 | | | | | | 2 |
| **700-749** | | | | 2 | | | | | | 2 |
| **750-800** | | | | | 1 | 1 | | 1 | | 3 |
| **State Total** | 20 | 10 | 18 | 20 | 20 | 20 | 20 | 20 | 10 | 158 |

**Table 3. Sample size of American eel otoliths by age and state in the exchange. Ages represent the age assigned by the lab that sent the sample, not the exchange results. Ages were not provided from ME, MA, or DE, although samples from ME were from silver and yellow eels and samples from MA were from silver eels. Two samples from NY that were used in the exchange did not have an assigned age.**

| Age | ME | MA | NY | NJ | DE | MD | VA | SC | FL | Total at Age |
|---|---|---|---|---|---|---|---|---|---|---|
| **0** | | | | 1 | | | | 1 | | 2 |
| **1** | | | | 1 | | | | 1 | 1 | 3 |
| **2** | | | | 1 | | 1 | 4 | 1 | 2 | 9 |
| **3** | | | | 1 | | 3 | 4 | | 1 | 9 |
| **4** | | | | 2 | | 5 | 4 | 1 | 1 | 13 |
| **5** | | | | 3 | | 3 | 1 | 4 | 1 | 12 |
| **6** | | | | | | 4 | 2 | 5 | 1 | 12 |
| **7** | | | | 2 | | 2 | 2 | 2 | 1 | 9 |
| **8** | | | | 1 | | | 2 | 4 | 1 | 8 |
| **9** | | | | 1 | | | 1 | | | 2 |
| **10** | | | | 1 | | | | 1 | 1 | 3 |
| **11** | | | 1 | 1 | | 1 | | | | 3 |
| **12** | | | | 2 | | 1 | | | | 3 |
| **13** | | | | 2 | | | | | | 2 |
| **14** | | | 1 | | | | | | | 1 |
| **15** | | | | 1 | | | | | | 1 |
| **16** | | | 3 | | | | | | | 3 |
| **17** | | | 1 | | | | | | | 1 |
| **18** | | | 1 | | | | | | | 1 |
| **19** | | | | | | | | | | 0 |
| **20** | | | 4 | | | | | | | 4 |
| **21** | | | 2 | | | | | | | 2 |
| **22** | | | 2 | | | | | | | 2 |
| **23** | | | 2 | | | | | | | 2 |
| **24** | | | | | | | | | | 0 |
| **25** | | | 1 | | | | | | | 1 |
| **State Total** | | | 18 | 20 | | 20 | 20 | 20 | 10 | 108 |

**Table 4. Sample size of the sectioned otolith samples in the American eel exchange. There were 140 samples in the exchange, but not every reader aged every sample and some were lost during the exercise.**

| | ME | CT | NY1 | NY2 | NJ1 | NJ2 | NJ3 | DE | MD1 | MD2 | VIMS1 | VIMS2 | SC1 | SC2 | FL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **ME** | 135 | | | | | | | | | | | | | | |
| **CT** | 133 | 136 | | | | | | | | | | | | | |
| **NY1** | 135 | 136 | 140 | | | | | | | | | | | | |
| **NY2** | 135 | 136 | 140 | 140 | | | | | | | | | | | |
| **NJ1** | 134 | 136 | 138 | 138 | 138 | | | | | | | | | | |
| **NJ2** | 121 | 121 | 124 | 124 | 123 | 124 | | | | | | | | | |
| **NJ3** | 131 | 132 | 135 | 135 | 134 | 123 | 135 | | | | | | | | |
| **DE** | 132 | 134 | 136 | 136 | 135 | 122 | 133 | 136 | | | | | | | |
| **MD1** | 135 | 136 | 140 | 140 | 138 | 124 | 135 | 136 | 140 | | | | | | |
| **MD2** | 135 | 136 | 140 | 140 | 138 | 124 | 135 | 136 | 140 | 140 | | | | | |
| **VIMS1** | 135 | 136 | 139 | 139 | 138 | 124 | 135 | 136 | 139 | 139 | 139 | | | | |
| **VIMS2** | 130 | 131 | 134 | 134 | 133 | 121 | 131 | 132 | 134 | 134 | 134 | 134 | | | |
| **SC1** | 135 | 136 | 140 | 140 | 138 | 124 | 135 | 136 | 140 | 140 | 139 | 134 | 140 | | |
| **SC2** | 135 | 136 | 140 | 140 | 138 | 124 | 135 | 136 | 140 | 140 | 139 | 134 | 140 | 140 | |
| **FL** | 135 | 136 | 140 | 140 | 138 | 124 | 135 | 136 | 140 | 140 | 139 | 134 | 140 | 140 | 140 |

**Table 5. Symmetry test p-values for the American eel sectioned otolith comparisons using Bowker's test. Significant p-values (α<0.05) are indicated with an asterisks as well as shaded pink.**

| | ME | CT | NY1 | NY2 | NJ1 | NJ2 | NJ3 | DE | MD1 | MD2 | VIMS1 | VIMS2 | SC1 | SC2 | FL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **ME** | N/A | | | | | | | | | | | | | | |
| **CT** | 0.587 | N/A | | | | | | | | | | | | | |
| **NY1** | 0.071 | 0.343 | N/A | | | | | | | | | | | | |
| **NY2** | 0.27 | 0.376 | 0.07 | N/A | | | | | | | | | | | |
| **NJ1** | 0.002 * | 0.005 * | 0.008 * | 0.001 * | N/A | | | | | | | | | | |
| **NJ2** | 0.029 * | 0.113 | 0.292 | 0.006 * | 0.188 | N/A | | | | | | | | | |
| **NJ3** | 0.001 * | 0.002 * | 0.002 * | 0.000 * | 0.142 | 0.011 * | N/A | | | | | | | | |
| **DE** | 0.339 | 0.374 | 0.065 | 0.306 | 0.000 * | 0.001 * | 0.000 * | N/A | | | | | | | |
| **MD1** | 0.007 * | 0.01 * | 0.042 * | 0.001 * | 0.094 | 0.792 | 0.108 | 0.004 * | N/A | | | | | | |
| **MD2** | 0.074 | 0.075 | 0.333 | 0.003 * | 0.079 | 0.374 | 0.005 * | 0.001 * | 0.287 | N/A | | | | | |
| **VIMS1** | 0.103 | 0.275 | 0.448 | 0.15 | 0.000 * | 0.05 | 0.000 * | 0.032 * | 0.027 * | 0.375 | N/A | | | | |
| **VIMS2** | 0.126 | 0.189 | 0.637 | 0.118 | 0.112 | 0.123 | 0.012 * | 0.308 | 0.166 | 0.393 | 0.177 | N/A | | | |
| **SC1** | 0.064 | 0.114 | 0.064 | 0.04 * | 0.12 | 0.038 * | 0.002 * | 0.002 * | 0.04 * | 0.028 * | 0.006 * | 0.011 * | N/A | | |
| **SC2** | 0.286 | 0.055 | 0.033 * | 0.005 * | 0.225 | 0.015 * | 0.02 * | 0.002 * | 0.432 | 0.168 | 0.023 * | 0.098 | 0.014 * | N/A | |
| **FL** | 0.149 | 0.142 | 0.187 | 0.009 * | 0.001 * | 0.444 | 0.000 * | 0.006 * | 0.01 * | 0.622 | 0.232 | 0.163 | 0.22 | 0.031 * | N/A |

**Table 6. Mean CVs of between reader age comparisons for American eel sectioned otolith samples. CVs greater than 5% indicate ageing imprecision between readers.**

| | ME | CT | NY1 | NY2 | NJ1 | NJ2 | NJ3 | DE | MD1 | MD2 | VIMS1 | VIMS2 | SC1 | SC2 | FL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **ME** | 0 | | | | | | | | | | | | | | |
| **CT** | 18 | 0 | | | | | | | | | | | | | |
| **NY1** | 19 | 23 | 0 | | | | | | | | | | | | |
| **NY2** | 16 | 17 | 19 | 0 | | | | | | | | | | | |
| **NJ1** | 20 | 23 | 17 | 19 | 0 | | | | | | | | | | |
| **NJ2** | 21 | 24 | 21 | 20 | 21 | 0 | | | | | | | | | |
| **NJ3** | 17 | 18 | 18 | 16 | 19 | 18 | 0 | | | | | | | | |
| **DE** | 17 | 20 | 19 | 15 | 19 | 22 | 18 | 0 | | | | | | | |
| **MD1** | 16 | 18 | 18 | 16 | 20 | 23 | 17 | 17 | 0 | | | | | | |
| **MD2** | 17 | 19 | 16 | 15 | 18 | 22 | 16 | 15 | 13 | 0 | | | | | |
| **VIMS1** | 21 | 21 | 17 | 19 | 15 | 21 | 18 | 18 | 19 | 18 | 0 | | | | |
| **VIMS2** | 18 | 18 | 22 | 17 | 25 | 24 | 20 | 20 | 14 | 19 | 21 | 0 | | | |
| **SC1** | 31 | 31 | 28 | 30 | 22 | 27 | 27 | 28 | 32 | 30 | 22 | 36 | 0 | | |
| **SC2** | 21 | 24 | 19 | 21 | 15 | 20 | 19 | 19 | 21 | 19 | 15 | 25 | 17 | 0 | |
| **FL** | 13 | 17 | 15 | 13 | 15 | 18 | 16 | 14 | 15 | 13 | 17 | 18 | 27 | 16 | 0 |

**Table 7. Percent exact agreement between readers for the American eel sectioned otolith samples. Color scale indicates level of agreement where green is highest agreement and red is the lowest agreement.**

| | ME | CT | NY1 | NY2 | NJ1 | NJ2 | NJ3 | DE | MD1 | MD2 | VIMS1 | VIMS2 | SC1 | SC2 | FL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **ME** | 100 | | | | | | | | | | | | | | |
| **CT** | 23 | 100 | | | | | | | | | | | | | |
| **NY1** | 27 | 21 | 100 | | | | | | | | | | | | |
| **NY2** | 23 | 27 | 28 | 100 | | | | | | | | | | | |
| **NJ1** | 21 | 24 | 33 | 30 | 100 | | | | | | | | | | |
| **NJ2** | 22 | 18 | 21 | 19 | 25 | 100 | | | | | | | | | |
| **NJ3** | 24 | 27 | 33 | 29 | 36 | 20 | 100 | | | | | | | | |
| **DE** | 22 | 25 | 30 | 27 | 30 | 16 | 29 | 100 | | | | | | | |
| **MD1** | 27 | 27 | 27 | 26 | 21 | 16 | 29 | 22 | 100 | | | | | | |
| **MD2** | 22 | 24 | 34 | 31 | 32 | 22 | 31 | 29 | 39 | 100 | | | | | |
| **VIMS1** | 21 | 20 | 35 | 30 | 41 | 24 | 30 | 28 | 25 | 35 | 100 | | | | |
| **VIMS2** | 19 | 21 | 19 | 18 | 13 | 12 | 18 | 23 | 24 | 16 | 20 | 100 | | | |
| **SC1** | 19 | 13 | 24 | 21 | 35 | 26 | 21 | 20 | 16 | 23 | 32 | 7 | 100 | | |
| **SC2** | 21 | 21 | 29 | 25 | 41 | 25 | 28 | 24 | 19 | 28 | 40 | 12 | 42 | 100 | |
| **FL** | 35 | 28 | 32 | 36 | 38 | 23 | 31 | 28 | 29 | 33 | 27 | 18 | 22 | 29 | 100 |

**Table 8. Percent agreement within one year between readers for the American eel sectioned otolith samples. Color scale indicates level of agreement where green is highest agreement and red is the lowest agreement.**

| | ME | CT | NY1 | NY2 | NJ1 | NJ2 | NJ3 | DE | MD1 | MD2 | VIMS1 | VIMS2 | SC1 | SC2 | FL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **ME** | 100 | | | | | | | | | | | | | | |
| **CT** | 58 | 100 | | | | | | | | | | | | | |
| **NY1** | 64 | 56 | 100 | | | | | | | | | | | | |
| **NY2** | 59 | 60 | 61 | 100 | | | | | | | | | | | |
| **NJ1** | 60 | 56 | 72 | 62 | 100 | | | | | | | | | | |
| **NJ2** | 50 | 50 | 62 | 65 | 63 | 100 | | | | | | | | | |
| **NJ3** | 64 | 64 | 63 | 67 | 66 | 68 | 100 | | | | | | | | |
| **DE** | 53 | 52 | 63 | 64 | 57 | 53 | 57 | 100 | | | | | | | |
| **MD1** | 60 | 59 | 58 | 61 | 59 | 52 | 65 | 54 | 100 | | | | | | |
| **MD2** | 60 | 60 | 66 | 64 | 65 | 55 | 64 | 62 | 70 | 100 | | | | | |
| **VIMS1** | 58 | 60 | 70 | 55 | 74 | 55 | 64 | 59 | 60 | 68 | 100 | | | | |
| **VIMS2** | 52 | 52 | 50 | 52 | 44 | 31 | 51 | 47 | 66 | 51 | 53 | 100 | | | |
| **SC1** | 43 | 40 | 57 | 46 | 66 | 52 | 45 | 51 | 41 | 51 | 60 | 28 | 100 | | |
| **SC2** | 55 | 48 | 67 | 57 | 69 | 60 | 57 | 59 | 57 | 60 | 63 | 40 | 71 | 100 | |
| **FL** | 67 | 64 | 72 | 72 | 76 | 67 | 70 | 68 | 62 | 72 | 68 | 54 | 56 | 74 | 100 |

**Table 9. Percent agreement within two years between readers for the American eel sectioned otolith samples. Color scale indicates level of agreement where green is highest agreement and red is the lowest agreement.**

| | ME | CT | NY1 | NY2 | NJ1 | NJ2 | NJ3 | DE | MD1 | MD2 | VIMS1 | VIMS2 | SC1 | SC2 | FL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **ME** | 100 | | | | | | | | | | | | | | |
| **CT** | 76 | 100 | | | | | | | | | | | | | |
| **NY1** | 79 | 73 | 100 | | | | | | | | | | | | |
| **NY2** | 76 | 76 | 77 | 100 | | | | | | | | | | | |
| **NJ1** | 73 | 73 | 84 | 79 | 100 | | | | | | | | | | |
| **NJ2** | 78 | 68 | 81 | 80 | 79 | 100 | | | | | | | | | |
| **NJ3** | 79 | 78 | 81 | 81 | 85 | 80 | 100 | | | | | | | | |
| **DE** | 72 | 73 | 76 | 81 | 76 | 72 | 75 | 100 | | | | | | | |
| **MD1** | 78 | 76 | 79 | 79 | 73 | 70 | 80 | 74 | 100 | | | | | | |
| **MD2** | 78 | 75 | 80 | 81 | 78 | 69 | 83 | 78 | 83 | 100 | | | | | |
| **VIMS1** | 71 | 78 | 82 | 78 | 88 | 75 | 82 | 76 | 78 | 78 | 100 | | | | |
| **VIMS2** | 72 | 76 | 72 | 75 | 65 | 62 | 74 | 64 | 84 | 76 | 70 | 100 | | | |
| **SC1** | 59 | 62 | 71 | 62 | 76 | 69 | 59 | 68 | 61 | 65 | 76 | 49 | 100 | | |
| **SC2** | 70 | 68 | 77 | 74 | 83 | 73 | 79 | 77 | 74 | 72 | 81 | 63 | 79 | 100 | |
| **FL** | 87 | 74 | 85 | 84 | 83 | 84 | 87 | 86 | 84 | 86 | 83 | 78 | 69 | 81 | 100 |

**Table 10. Sample size of the whole otolith samples in the American eel exchange. There were 110 samples in the exchange, but not every reader aged every sample and some were lost during the exercise.**

| | ME | CT | NY1 | NY2 | NJ1 | NJ2 | NJ3 | DE | MD1 | MD2 | VIMS1 | VIMS2 | SC1 | SC2 | FL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **ME** | 62 | | | | | | | | | | | | | | |
| **CT** | 52 | 64 | | | | | | | | | | | | | |
| **NY1** | 62 | 64 | 109 | | | | | | | | | | | | |
| **NY2** | 62 | 64 | 109 | 109 | | | | | | | | | | | |
| **NJ1** | 62 | 62 | 84 | 84 | 84 | | | | | | | | | | |
| **NJ2** | 60 | 61 | 87 | 87 | 78 | 87 | | | | | | | | | |
| **NJ3** | 60 | 59 | 83 | 83 | 78 | 80 | 83 | | | | | | | | |
| **DE** | 58 | 55 | 71 | 71 | 66 | 67 | 65 | 71 | | | | | | | |
| **MD1** | 62 | 64 | 108 | 108 | 84 | 87 | 83 | 71 | 108 | | | | | | |
| **MD2** | 62 | 64 | 108 | 108 | 84 | 87 | 83 | 71 | 108 | 109 | | | | | |
| **VIMS1** | 61 | 62 | 86 | 86 | 76 | 79 | 76 | 69 | 86 | 86 | 86 | | | | |
| **VIMS2** | 61 | 64 | 98 | 98 | 83 | 85 | 81 | 70 | 98 | 98 | 84 | 98 | | | |
| **SC1** | 62 | 64 | 107 | 107 | 84 | 87 | 83 | 71 | 107 | 108 | 86 | 98 | 108 | | |
| **SC2** | 61 | 63 | 100 | 100 | 83 | 86 | 82 | 70 | 100 | 101 | 85 | 95 | 101 | 101 | |
| **FL** | 61 | 62 | 105 | 105 | 82 | 85 | 82 | 69 | 104 | 105 | 83 | 95 | 104 | 97 | 106 |

**Table 11. Symmetry test p-values for the American eel whole otolith comparisons using Bowker's test. Significant p-values (α<0.05) are indicated with an asterisks as well as shaded pink.**

| | ME | CT | NY1 | NY2 | NJ1 | NJ2 | NJ3 | DE | MD1 | MD2 | VIMS1 | VIMS2 | SC1 | SC2 | FL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **ME** | N/A | | | | | | | | | | | | | | |
| **CT** | 0.347 | N/A | | | | | | | | | | | | | |
| **NY1** | 0.058 | 0.019 * | N/A | | | | | | | | | | | | |
| **NY2** | 0.109 | 0.04 * | 0.000 * | N/A | | | | | | | | | | | |
| **NJ1** | 0.001 * | 0.417 | 0.021 * | 0.006 * | N/A | | | | | | | | | | |
| **NJ2** | 0.001 * | 0.157 | 0.003 * | 0.003 * | 0.126 | N/A | | | | | | | | | |
| **NJ3** | 0.000 * | 0.048 * | 0.002 * | 0.005 * | 0.119 | 0.523 | N/A | | | | | | | | |
| **DE** | 0.004 * | 0.003 * | 0.089 | 0.000 * | 0.005 * | 0.002 * | 0.000 * | N/A | | | | | | | |
| **MD1** | 0.102 | 0.003 * | 0.211 | 0.048 * | 0.273 | 0.033 * | 0.043 * | 0.001 * | N/A | | | | | | |
| **MD2** | 0.118 | 0.003 * | 0.176 | 0.201 | 0.221 | 0.005 * | 0.003 * | 0.005 * | 0.375 | N/A | | | | | |
| **VIMS1** | 0.476 | 0.418 | 0.002 * | 0.006 * | 0.004 * | 0.000 * | 0.000 * | 0.552 | 0.000 * | 0.000 * | N/A | | | | |
| **VIMS2** | 0.324 | 0.176 | 0.027 * | 0.145 | 0.273 | 0.035 * | 0.073 | 0.018 * | 0.001 * | 0.002 * | 0.081 | N/A | | | |
| **SC1** | 0.015 * | 0.247 | 0.115 | 0.502 | 0.278 | 0.026 * | 0.009 * | 0.001 * | 0.074 | 0.243 | 0.002 * | 0.135 | N/A | | |
| **SC2** | 0.089 | 0.182 | 0.046 * | 0.038 * | 0.008 * | 0.001 * | 0.000 * | 0.033 * | 0.016 * | 0.013 * | 0.107 | 0.261 | 0.048 * | N/A | |
| **FL** | 0.000 * | 0.001 * | 0.000 * | 0.36 | 0.234 | 0.284 | 0.278 | 0.000 * | 0.026 * | 0.000 * | 0.000 * | 0.000 * | 0.002 * | 0.000 * | N/A |

Table 12. Mean CVs of between reader age comparisons for American eel whole otolith samples. CVs greater than 5% indicate ageing imprecision between readers.

| | ME | CT | NY1 | NY2 | NJ1 | NJ2 | NJ3 | DE | MD1 | MD2 | VIMS1 | VIMS2 | SC1 | SC2 | FL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **ME** | 0 | | | | | | | | | | | | | | |
| **CT** | 20 | 0 | | | | | | | | | | | | | |
| **NY1** | 19 | 12 | 0 | | | | | | | | | | | | |
| **NY2** | 15 | 14 | 11 | 0 | | | | | | | | | | | |
| **NJ1** | 18 | 17 | 22 | 20 | 0 | | | | | | | | | | |
| **NJ2** | 19 | 17 | 15 | 16 | 22 | 0 | | | | | | | | | |
| **NJ3** | 17 | 13 | 16 | 16 | 16 | 12 | 0 | | | | | | | | |
| **DE** | 14 | 15 | 13 | 14 | 15 | 15 | 12 | 0 | | | | | | | |
| **MD1** | 23 | 11 | 15 | 17 | 24 | 15 | 16 | 16 | 0 | | | | | | |
| **MD2** | 20 | 11 | 14 | 16 | 23 | 14 | 15 | 14 | 7 | 0 | | | | | |
| **VIMS1** | 20 | 30 | 27 | 26 | 26 | 27 | 25 | 23 | 30 | 28 | 0 | | | | |
| **VIMS2** | 34 | 16 | 23 | 26 | 35 | 21 | 25 | 26 | 19 | 20 | 42 | 0 | | | |
| **SC1** | 25 | 33 | 39 | 39 | 30 | 31 | 32 | 23 | 43 | 42 | 27 | 49 | 0 | | |
| **SC2** | 29 | 42 | 45 | 44 | 34 | 43 | 37 | 34 | 50 | 48 | 32 | 59 | 30 | 0 | |
| **FL** | 17 | 18 | 18 | 15 | 22 | 17 | 17 | 15 | 19 | 17 | 27 | 27 | 36 | 44 | 0 |

Table 13. Percent exact agreement between readers for the American eel whole otolith samples. Color scale indicates level of agreement where green is highest agreement and red is the lowest agreement.

| | ME | CT | NY1 | NY2 | NJ1 | NJ2 | NJ3 | DE | MD1 | MD2 | VIMS1 | VIMS2 | SC1 | SC2 | FL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **ME** | 100 | | | | | | | | | | | | | | |
| **CT** | 19 | 100 | | | | | | | | | | | | | |
| **NY1** | 37 | 45 | 100 | | | | | | | | | | | | |
| **NY2** | 50 | 39 | 61 | 100 | | | | | | | | | | | |
| **NJ1** | 47 | 31 | 45 | 48 | 100 | | | | | | | | | | |
| **NJ2** | 40 | 30 | 39 | 36 | 33 | 100 | | | | | | | | | |
| **NJ3** | 47 | 36 | 43 | 46 | 49 | 48 | 100 | | | | | | | | |
| **DE** | 52 | 29 | 37 | 41 | 44 | 31 | 38 | 100 | | | | | | | |
| **MD1** | 26 | 41 | 42 | 30 | 30 | 41 | 35 | 23 | 100 | | | | | | |
| **MD2** | 32 | 42 | 48 | 37 | 38 | 44 | 43 | 31 | 66 | 100 | | | | | |
| **VIMS1** | 33 | 16 | 22 | 24 | 28 | 23 | 22 | 26 | 19 | 23 | 100 | | | | |
| **VIMS2** | 2 | 23 | 13 | 13 | 6 | 13 | 10 | 6 | 16 | 13 | 2 | 100 | | | |
| **SC1** | 44 | 11 | 24 | 25 | 32 | 30 | 24 | 37 | 15 | 14 | 41 | 3 | 100 | | |
| **SC2** | 34 | 8 | 13 | 20 | 25 | 15 | 22 | 29 | 8 | 11 | 31 | 1 | 36 | 100 | |
| **FL** | 52 | 29 | 44 | 54 | 40 | 38 | 48 | 39 | 38 | 42 | 24 | 7 | 27 | 22 | 100 |

**Table 14. Percent agreement within one year between readers for the American eel whole otolith samples. Color scale indicates level of agreement where green is highest agreement and red is the lowest agreement.**

| | ME | CT | NY1 | NY2 | NJ1 | NJ2 | NJ3 | DE | MD1 | MD2 | VIMS1 | VIMS2 | SC1 | SC2 | FL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **ME** | 100 | | | | | | | | | | | | | | |
| **CT** | 69 | 100 | | | | | | | | | | | | | |
| **NY1** | 77 | 84 | 100 | | | | | | | | | | | | |
| **NY2** | 81 | 81 | 87 | 100 | | | | | | | | | | | |
| **NJ1** | 85 | 71 | 70 | 75 | 100 | | | | | | | | | | |
| **NJ2** | 75 | 79 | 79 | 77 | 62 | 100 | | | | | | | | | |
| **NJ3** | 73 | 83 | 77 | 75 | 81 | 79 | 100 | | | | | | | | |
| **DE** | 84 | 76 | 83 | 80 | 83 | 81 | 91 | 100 | | | | | | | |
| **MD1** | 71 | 88 | 81 | 78 | 62 | 74 | 72 | 70 | 100 | | | | | | |
| **MD2** | 76 | 86 | 79 | 75 | 60 | 77 | 72 | 75 | 89 | 100 | | | | | |
| **VIMS1** | 77 | 55 | 56 | 59 | 61 | 53 | 55 | 62 | 43 | 50 | 100 | | | | |
| **VIMS2** | 34 | 70 | 53 | 49 | 18 | 48 | 32 | 19 | 67 | 61 | 14 | 100 | | | |
| **SC1** | 73 | 55 | 64 | 62 | 56 | 52 | 49 | 55 | 49 | 55 | 62 | 22 | 100 | | |
| **SC2** | 69 | 38 | 48 | 46 | 52 | 37 | 40 | 41 | 38 | 41 | 55 | 13 | 76 | 100 | |
| **FL** | 77 | 73 | 80 | 80 | 71 | 75 | 74 | 72 | 76 | 75 | 58 | 43 | 63 | 46 | 100 |

**Table 15. Percent agreement within two years between readers for the American eel whole otolith samples. Color scale indicates level of agreement where green is highest agreement and red is the lowest agreement.**

| | ME | CT | NY1 | NY2 | NJ1 | NJ2 | NJ3 | DE | MD1 | MD2 | VIMS1 | VIMS2 | SC1 | SC2 | FL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **ME** | 100 | | | | | | | | | | | | | | |
| **CT** | 92 | 100 | | | | | | | | | | | | | |
| **NY1** | 87 | 94 | 100 | | | | | | | | | | | | |
| **NY2** | 89 | 92 | 94 | 100 | | | | | | | | | | | |
| **NJ1** | 90 | 94 | 82 | 82 | 100 | | | | | | | | | | |
| **NJ2** | 88 | 90 | 92 | 93 | 78 | 100 | | | | | | | | | |
| **NJ3** | 92 | 95 | 89 | 87 | 90 | 90 | 100 | | | | | | | | |
| **DE** | 93 | 96 | 92 | 90 | 92 | 88 | 94 | 100 | | | | | | | |
| **MD1** | 85 | 97 | 90 | 92 | 79 | 90 | 88 | 85 | 100 | | | | | | |
| **MD2** | 87 | 94 | 91 | 91 | 77 | 87 | 84 | 85 | 96 | 100 | | | | | |
| **VIMS1** | 93 | 74 | 81 | 83 | 87 | 75 | 84 | 84 | 69 | 76 | 100 | | | | |
| **VIMS2** | 66 | 89 | 80 | 77 | 54 | 80 | 65 | 63 | 86 | 82 | 44 | 100 | | | |
| **SC1** | 84 | 69 | 79 | 77 | 73 | 72 | 76 | 76 | 68 | 69 | 81 | 48 | 100 | | |
| **SC2** | 84 | 67 | 64 | 69 | 71 | 55 | 62 | 61 | 56 | 54 | 78 | 35 | 86 | 100 | |
| **FL** | 85 | 92 | 91 | 92 | 83 | 91 | 84 | 87 | 88 | 90 | 84 | 80 | 80 | 64 | 100 |

**Table 16. Sample size of the mounted (below the diagonal line) and loose (above the diagonal line) whole otolith samples in the American eel exchange. There were 110 whole otolith samples total, 40 mounted and polished and 70 loose, in the exchange. Diagonal line indicates how many mounted and loose otoliths were aged by each reader, respectively. Not every reader aged every sample and some were lost during the exercise.**

| | ME | CT | NY1 | NY2 | NJ1 | NJ2 | NJ3 | DE | MD1 | MD2 | VIMS1 | VIMS2 | SC1 | SC2 | FL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **ME** | **38\24** | 14 | 24 | 24 | 24 | 22 | 22 | 21 | 24 | 24 | 24 | 23 | 24 | 23 | 23 |
| **CT** | 38 | **40\24** | 24 | 24 | 22 | 22 | 19 | 16 | 24 | 24 | 23 | 24 | 24 | 23 | 22 |
| **NY1** | 38 | 40 | **40\69** | 69 | 44 | 48 | 43 | 32 | 68 | 68 | 47 | 58 | 67 | 60 | 65 |
| **NY2** | 38 | 40 | 40 | **40\69** | 44 | 48 | 43 | 32 | 68 | 68 | 47 | 58 | 67 | 60 | 65 |
| **NJ1** | 38 | 40 | 40 | 40 | **40\44** | 39 | 38 | 27 | 44 | 44 | 37 | 43 | 44 | 43 | 42 |
| **NJ2** | 38 | 39 | 39 | 39 | 39 | **39\48** | 41 | 29 | 48 | 48 | 41 | 46 | 48 | 47 | 46 |
| **NJ3** | 38 | 40 | 40 | 40 | 40 | 39 | **40\43** | 26 | 43 | 43 | 37 | 41 | 43 | 42 | 42 |
| **DE** | 37 | 39 | 39 | 39 | 39 | 38 | 39 | **39\32** | 32 | 32 | 31 | 31 | 32 | 31 | 30 |
| **MD1** | 38 | 40 | 40 | 40 | 40 | 39 | 40 | 39 | **40\68** | 68 | 47 | 58 | 67 | 60 | 64 |
| **MD2** | 38 | 40 | 40 | 40 | 40 | 39 | 40 | 39 | 40 | **40\69** | 47 | 58 | 68 | 61 | 65 |
| **VIMS1** | 37 | 39 | 39 | 39 | 39 | 38 | 39 | 38 | 39 | 39 | **39\47** | 45 | 47 | 46 | 44 |
| **VIMS2** | 38 | 40 | 40 | 40 | 40 | 39 | 40 | 39 | 40 | 40 | 39 | **40\58** | 58 | 55 | 55 |
| **SC1** | 38 | 40 | 40 | 40 | 40 | 39 | 40 | 39 | 40 | 40 | 39 | 40 | **40\68** | 61 | 64 |
| **SC2** | 38 | 40 | 40 | 40 | 40 | 39 | 40 | 39 | 40 | 40 | 39 | 40 | 40 | **40\61** | 57 |
| **FL** | 38 | 40 | 40 | 40 | 40 | 39 | 40 | 39 | 40 | 40 | 39 | 40 | 40 | 40 | **40\66** |

**Table 17. Symmetry test p-values for the American eel whole otolith comparisons using Bowker's test. Values below the diagonal line are from mounted and ground whole otoliths (n=40) and values above the diagonal line are from loose whole otoliths (n=70) samples. Significant p-values (α<0.05) are indicated with an asterisks as well as shaded pink.**

| | ME | CT | NY1 | NY2 | NJ1 | NJ2 | NJ3 | DE | MD1 | MD2 | VIMS1 | VIMS2 | SC1 | SC2 | FL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **ME** | N/A | 0.647 | 0.532 | 0.12 | 0.301 | 0.15 | 0.108 | 0.1 | 0.233 | 0.501 | 0.23 | 0.272 | 0.324 | 0.202 | 0.163 |
| **CT** | 0.139 | N/A | 0.313 | 0.224 | 0.537 | 0.241 | 0.151 | 0.407 | 0.527 | 0.443 | 0.622 | 0.512 | 0.412 | 0.342 | 0.384 |
| **NY1** | 0.015 * | 0.15 | N/A | 0.000 * | 0.46 | 0.083 | 0.319 | 0.44 | 0.417 | 0.27 | 0.075 | 0.319 | 0.273 | 0.073 | 0.055 |
| **NY2** | 0.377 | 0.077 | 0.009 * | N/A | 0.478 | 0.148 | 0.375 | 0.185 | 0.223 | 0.375 | 0.122 | 0.372 | 0.555 | 0.055 | 0.326 |
| **NJ1** | 0.000 * | 0.017 * | 0.353 | 0.000 * | N/A | 0.223 | 0.114 | 0.332 | 0.639 | 0.765 | 0.206 | 0.226 | 0.387 | 0.156 | 0.268 |
| **NJ2** | 0.422 | 0.384 | 0.053 | 0.642 | 0.048 * | N/A | 0.192 | 0.674 | 0.284 | 0.062 | 0.046 * | 0.095 | 0.32 | 0.012 * | 0.151 |
| **NJ3** | 0.412 | 0.104 | 0.002 * | 0.602 | 0.004 * | 0.639 | N/A | 0.773 | 0.525 | 0.133 | 0.055 | 0.246 | 0.305 | 0.031 * | 0.279 |
| **DE** | 0.000 * | 0.005 * | 0.026 * | 0.001 * | 0.315 | 0.032 * | 0.004 * | N/A | 0.453 | 0.476 | 0.694 | 0.587 | 0.279 | 0.256 | 0.22 |
| **MD1** | 0.048 * | 0.124 | 0.067 | 0.043 * | 0.031 * | 0.1 | 0.006 * | 0.001 * | N/A | 0.459 | 0.046 * | 0.088 | 0.292 | 0.025 * | 0.356 |
| **MD2** | 0.038 * | 0.17 | 0.151 | 0.025 * | 0.073 | 0.045 * | 0.003 * | 0.001 * | 0.287 | N/A | 0.096 | 0.266 | 0.356 | 0.037 * | 0.103 |
| **VIMS1** | 0.216 | 0.43 | 0.361 | 0.082 | 0.39 | 0.297 | 0.037 * | 0.476 | 0.28 | 0.527 | N/A | 0.059 | 0.018 * | 0.43 | 0.015 * |
| **VIMS2** | 0.148 | 0.081 | 0.199 | 0.157 | 0.137 | 0.432 | 0.094 | 0.031 * | 0.324 | 0.532 | 0.378 | N/A | 0.489 | 0.196 | 0.015 * |
| **SC1** | 0.087 | 0.261 | 0.093 | 0.249 | 0.013 * | 0.284 | 0.456 | 0.008 * | 0.07 | 0.082 | 0.076 | 0.201 | N/A | 0.052 | 0.084 |
| **SC2** | 0.171 | 0.237 | 0.115 | 0.233 | 0.012 * | 0.654 | 0.128 | 0.012 * | 0.432 | 0.33 | 0.058 | 0.348 | 0.407 | N/A | 0.005 * |
| **FL** | 0.189 | 0.09 | 0.004 * | 0.758 | 0.001 * | 0.511 | 0.293 | 0.003 * | 0.009 * | 0.007 * | 0.072 | 0.035 * | 0.202 | 0.322 | N/A |

**Table 18. Mean CVs of between reader age comparisons for American eel whole otolith samples. Values below the diagonal line are from mounted and ground whole otoliths (n=40) and values above the diagonal line are from loose whole otoliths (n=70) samples. CVs greater than 5% indicate ageing imprecision between readers. Values less than 5% are highlighted in green.**

| | ME | CT | NY1 | NY2 | NJ1 | NJ2 | NJ3 | DE | MD1 | MD2 | VIMS1 | VIMS2 | SC1 | SC2 | FL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **ME** | 0 | 30 | 31 | 28 | 30 | 33 | 32 | 25 | 35 | 31 | 17 | 45 | 27 | 34 | 26 |
| **CT** | 17 | 0 | 13 | 14 | 16 | 17 | 14 | 14 | 16 | 18 | 27 | 18 | 29 | 50 | 21 |
| **NY1** | 11 | 12 | 0 | 13 | 32 | 16 | 23 | 17 | 19 | 19 | 26 | 25 | 46 | 54 | 22 |
| **NY2** | 6 | 14 | 10 | 0 | 30 | 19 | 23 | 17 | 19 | 19 | 27 | 27 | 47 | 55 | 18 |
| **NJ1** | 10 | 18 | 11 | 9 | 0 | 27 | 20 | 20 | 32 | 31 | 25 | 41 | 35 | 41 | 30 |
| **NJ2** | 11 | 17 | 14 | 14 | 17 | 0 | 12 | 16 | 15 | 13 | 29 | 18 | 33 | 53 | 18 |
| **NJ3** | 9 | 13 | 8 | 7 | 12 | 12 | 0 | 13 | 20 | 20 | 25 | 28 | 35 | 45 | 22 |
| **DE** | 8 | 15 | 11 | 11 | 12 | 14 | 12 | 0 | 18 | 16 | 24 | 25 | 24 | 44 | 16 |
| **MD1** | 15 | 8 | 7 | 14 | 16 | 15 | 11 | 15 | 0 | 10 | 30 | 23 | 49 | 59 | 23 |
| **MD2** | 13 | 7 | 6 | 12 | 14 | 15 | 9 | 13 | 2 | 0 | 27 | 24 | 48 | 56 | 20 |
| **VIMS1** | 22 | 31 | 28 | 24 | 27 | 24 | 25 | 22 | 30 | 29 | 0 | 42 | 28 | 38 | 26 |
| **VIMS2** | 28 | 15 | 21 | 25 | 29 | 25 | 22 | 27 | 14 | 16 | 42 | 0 | 52 | 67 | 28 |
| **SC1** | 24 | 35 | 28 | 26 | 25 | 28 | 28 | 22 | 34 | 32 | 25 | 45 | 0 | 39 | 46 |
| **SC2** | 25 | 38 | 31 | 27 | 26 | 31 | 29 | 25 | 37 | 36 | 26 | 47 | 17 | 0 | 57 |
| **FL** | 11 | 17 | 12 | 10 | 13 | 16 | 12 | 14 | 13 | 12 | 28 | 25 | 22 | 26 | 0 |

**Table 19. Percent exact agreement between readers for the American eel whole otolith samples. Values below the diagonal line are from mounted and ground whole otoliths (n=40) and values above the diagonal line are from loose whole otoliths (n=70) samples. Color scale indicates level of agreement where green is highest agreement and red is the lowest agreement.**

| | ME | CT | NY1 | NY2 | NJ1 | NJ2 | NJ3 | DE | MD1 | MD2 | VIMS1 | VIMS2 | SC1 | SC2 | FL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **ME** | 100 | 21 | 17 | 21 | 29 | 18 | 23 | 29 | 8 | 17 | 38 | 0 | 38 | 35 | 35 |
| **CT** | 18 | 100 | 46 | 50 | 27 | 23 | 42 | 38 | 29 | 21 | 13 | 17 | 17 | 9 | 32 |
| **NY1** | 50 | 45 | 100 | 62 | 23 | 35 | 30 | 28 | 32 | 34 | 23 | 17 | 22 | 8 | 37 |
| **NY2** | 68 | 33 | 58 | 100 | 32 | 29 | 28 | 31 | 25 | 31 | 23 | 17 | 19 | 8 | 45 |
| **NJ1** | 58 | 33 | 70 | 65 | 100 | 23 | 39 | 37 | 20 | 25 | 32 | 7 | 27 | 19 | 26 |
| **NJ2** | 53 | 33 | 44 | 44 | 44 | 100 | 49 | 24 | 42 | 46 | 20 | 13 | 25 | 9 | 30 |
| **NJ3** | 61 | 33 | 58 | 65 | 58 | 46 | 100 | 38 | 28 | 33 | 22 | 10 | 19 | 14 | 38 |
| **DE** | 65 | 26 | 44 | 49 | 49 | 37 | 38 | 100 | 25 | 34 | 16 | 10 | 19 | 13 | 33 |
| **MD1** | 37 | 48 | 58 | 38 | 40 | 41 | 43 | 21 | 100 | 54 | 19 | 12 | 16 | 7 | 28 |
| **MD2** | 42 | 55 | 73 | 48 | 53 | 41 | 55 | 28 | 85 | 100 | 21 | 10 | 13 | 10 | 35 |
| **VIMS1** | 30 | 18 | 21 | 26 | 23 | 26 | 23 | 34 | 18 | 26 | 100 | 2 | 43 | 26 | 25 |
| **VIMS2** | 3 | 28 | 8 | 8 | 5 | 13 | 10 | 3 | 23 | 18 | 3 | 100 | 5 | 2 | 9 |
| **SC1** | 47 | 8 | 28 | 35 | 38 | 36 | 30 | 51 | 13 | 15 | 38 | 0 | 100 | 28 | 20 |
| **SC2** | 34 | 8 | 20 | 38 | 33 | 23 | 30 | 41 | 10 | 13 | 36 | 0 | 48 | 100 | 12 |
| **FL** | 63 | 28 | 55 | 70 | 55 | 46 | 58 | 44 | 53 | 53 | 23 | 5 | 38 | 35 | 100 |

Table 20. Sample size, Bowker's p-value, mean CV, exact agreement, and agreement within one year for paired American eel whole and sectioned otolith samples. Significant p-values (<0.05) are indicated with an asterisk. Labs with multiple readers are denoted with numbers.

| Lab | n | Bowker's p-value | CV (%) | Exact Agreement (%) | Agreement within 1 yr (%) | Agreement within 2 yr (%) |
|---|---|---|---|---|---|---|
| ME | 42 | 0.189 | 37 | 10 | 33 | 52 |
| CT | 44 | 0.262 | 20 | 27 | 61 | 77 |
| NY1 | 89 | 0.073 | 23 | 33 | 57 | 75 |
| NY2 | 89 | 0.043 * | 29 | 17 | 49 | 69 |
| NJ1 | 64 | 0.566 | 29 | 27 | 53 | 73 |
| NJ2 | 58 | 0.685 | 23 | 24 | 64 | 76 |
| NJ3 | 61 | 0.025 * | 25 | 20 | 48 | 67 |
| DE | 51 | 0.044 * | 25 | 22 | 49 | 65 |
| MD1 | 88 | 0.004 * | 25 | 26 | 47 | 69 |
| MD2 | 89 | 0.049 * | 23 | 27 | 53 | 76 |
| VIMS1 | 67 | 0.009 * | 38 | 10 | 34 | 55 |
| VIMS2 | 74 | 0.345 | 14 | 26 | 59 | 84 |
| SC1 | 88 | 0.022 * | 46 | 25 | 44 | 72 |
| SC2 | 81 | 0.000 * | 56 | 10 | 30 | 48 |
| FL | 86 | 0.699 | 28 | 19 | 56 | 74 |

**Table 21. Sample size, Bowker's p-value, mean CV, and exact agreement for paired American eel sectioned and whole otolith samples, where whole otoliths that are mounted versus loose were separated in the analysis. Significant p-values (<0.05) are indicated with an asterisk. Labs with multiple readers are denoted with numbers.**

| | mounted whole otolith | | | | loose whole otolith | | | |
|---|---|---|---|---|---|---|---|---|
| **Lab** | **n** | **Bowker's p-value** | **CV (%)** | **Exact Agreement (%)** | **n** | **Bowker's p-value** | **CV (%)** | **Exact Agreement (%)** |
| **ME** | 18 | 0.573 | 29 | 17 | 24 | 0.369 | 43 | 4 |
| **CT** | 20 | 0.307 | 19 | 30 | 24 | 0.207 | 20 | 25 |
| **NY1** | 20 | 0.437 | 17 | 35 | 68 | 0.122 | 24 | 32 |
| **NY2** | 20 | 0.534 | 24 | 25 | 68 | 0.091 | 31 | 15 |
| **NJ1** | 20 | 0.517 | 21 | 25 | 43 | 0.52 | 32 | 28 |
| **NJ2** | 19 | 0.364 | 23 | 37 | 38 | 0.565 | 22 | 18 |
| **NJ3** | 19 | 0.101 | 19 | 26 | 41 | 0.326 | 28 | 17 |
| **DE** | 20 | 0.276 | 31 | 15 | 30 | 0.376 | 20 | 27 |
| **MD1** | 20 | 0.074 | 20 | 10 | 67 | 0.041 * | 26 | 30 |
| **MD2** | 20 | 0.301 | 19 | 40 | 68 | 0.124 | 25 | 24 |
| **VIMS1** | 20 | 0.412 | 35 | 15 | 46 | 0.115 | 39 | 9 |
| **VIMS2** | 20 | 0.672 | 12 | 30 | 54 | 0.088 | 14 | 24 |
| **SC1** | 20 | 0.315 | 38 | 35 | 67 | 0.141 | 48 | 22 |
| **SC2** | 20 | 0.722 | 44 | 15 | 60 | 0.018 * | 60 | 8 |
| **FL** | 20 | 0.315 | 24 | 25 | 65 | 0.85 | 29 | 17 |

**Table 22. Number of sectioned otolith samples scored for readability by habitat where the sample was collected. Readability scores are from one (least readable) to four (most readable) and E=estuarine, F=freshwater, O=ocean waters. N=1,336.**

| | **1** | **2** | **3** | **4** |
|---|---|---|---|---|
| **E** | 80 | 295 | 399 | 220 |
| **F** | 45 | 102 | 114 | 66 |
| **O** | 0 | 8 | 5 | 2 |

**Table 23. Number of sectioned otolith samples scored for readability by lab where the sample was prepared. Readability scores are from one (least readable) to four (most readable). N=2,074.**

| | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| **Ken Oliveira** | 27 | 130 | 203 | 89 |
| **Dave Secor** | 55 | 121 | 86 | 27 |
| **NJDFW** | 30 | 103 | 123 | 42 |
| **DE DFW** | 18 | 110 | 125 | 46 |
| **VIMS** | 46 | 89 | 100 | 61 |
| **SCDNR** | 11 | 58 | 115 | 111 |
| **FL FWC** | 20 | 45 | 55 | 28 |

**Table 24. Number of whole otolith samples scored for readability by habitat where the sample was collected. Readability scores are from one (least readable) to four (most readable) and E=estuarine, F=freshwater, O=ocean waters. N=1,213.**

| | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| **E** | 195 | 396 | 306 | 189 |
| **F** | 16 | 35 | 37 | 24 |
| **O** | 3 | 6 | 3 | 3 |

**Table 25. Number of whole otolith samples scored for readability by lab where the sample was prepared. Readability scores are from one (least readable) to four (most readable). N=1,387.**

| | 1 | 2 | 3 | 4 |
|---|---|---|---|---|
| **Ken Oliveira** | 66 | 56 | 30 | 8 |
| **NJ DFW** | 51 | 96 | 63 | 35 |
| **DE DFW** | 51 | 117 | 77 | 53 |
| **MD DNR** | 25 | 93 | 106 | 72 |
| **SC DNR** | 64 | 93 | 68 | 34 |
| **FL FWC** | 23 | 45 | 37 | 24 |

## Figures

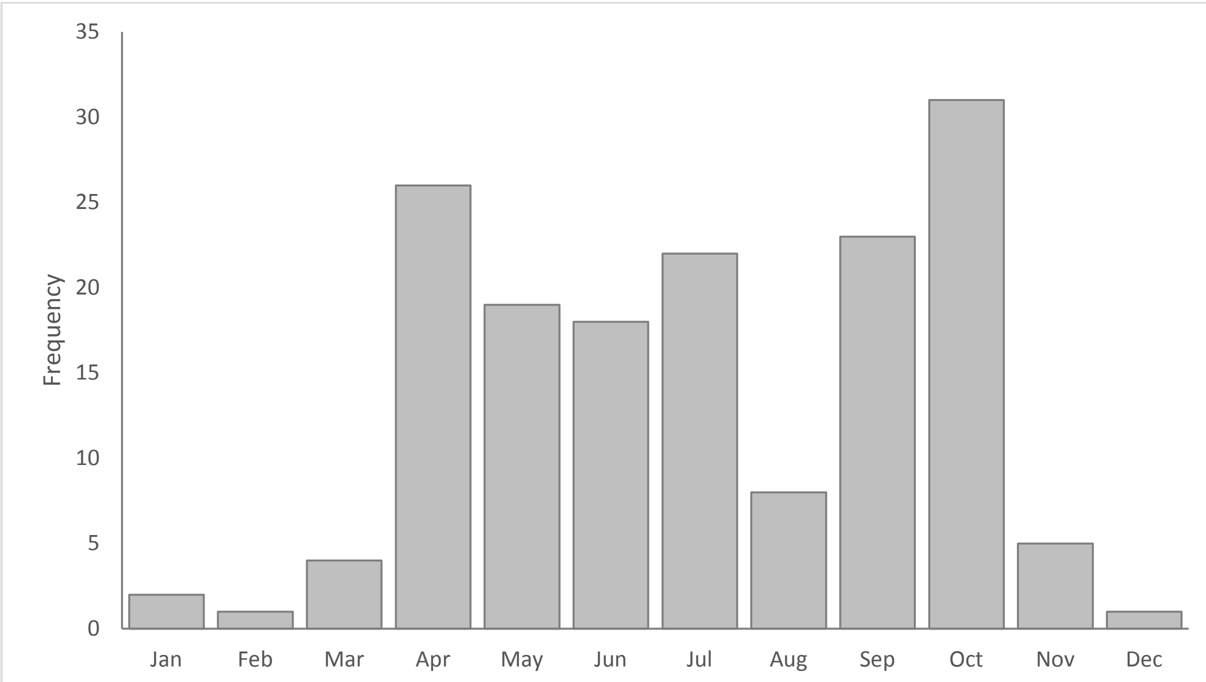



**Figure 1. Number of samples collected by month in the exchange set.**

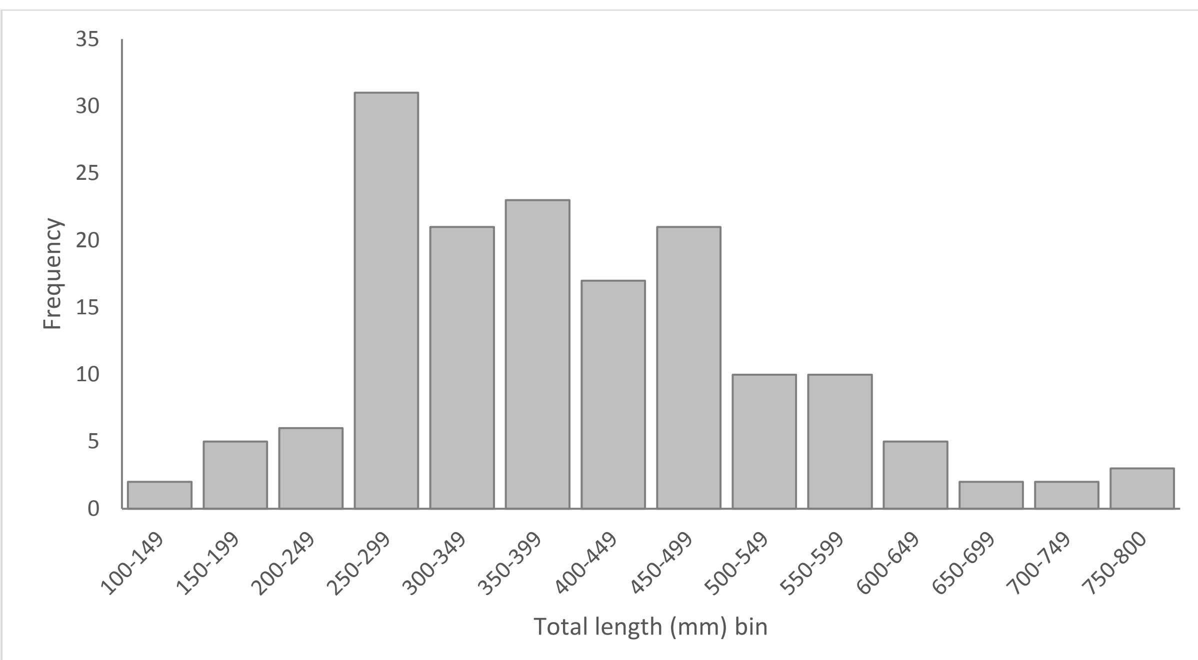



**Figure 2. Length frequency of American eel otoliths in the sample exchange. American eel from Massachusetts were not individually measured but it was reported that 98% of samples taken from the site were males of TL 250-300 mm so the 10 samples from that region were included in the 250-299 mm length bin.**

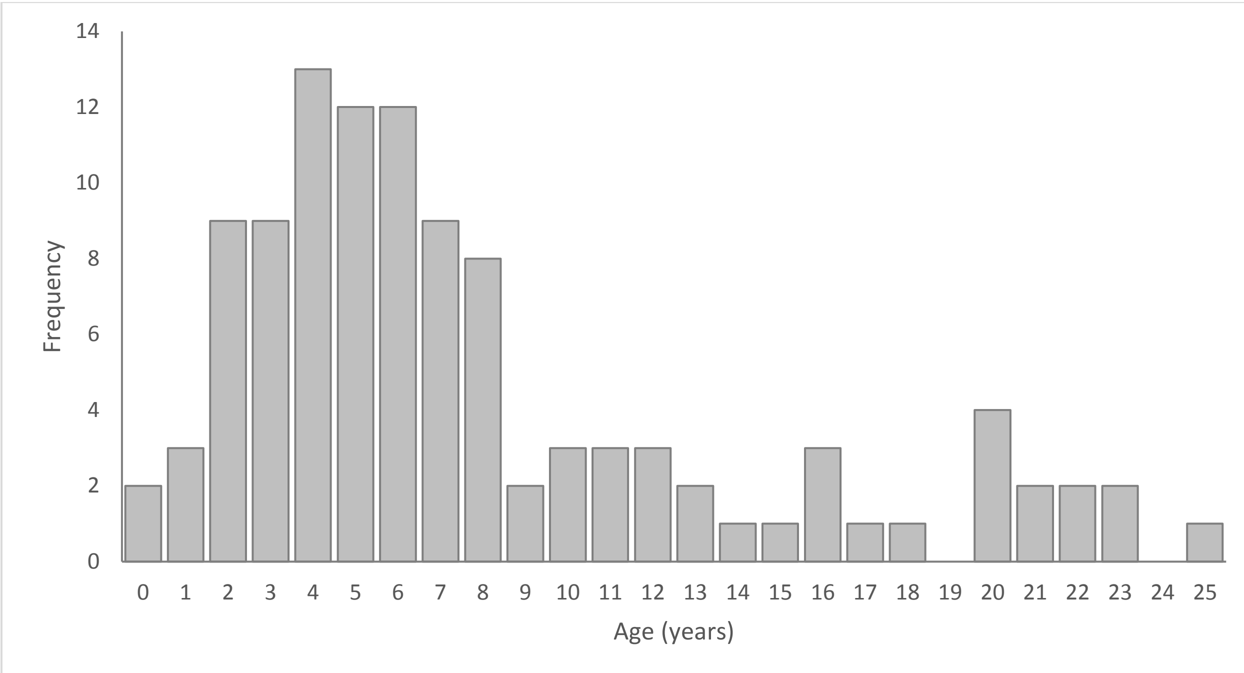



**Figure 3. Age frequency of American eel samples in the exchange set. Age represents that assigned by the lab that provided the sample, not on the results of the sample exchange exercise.**

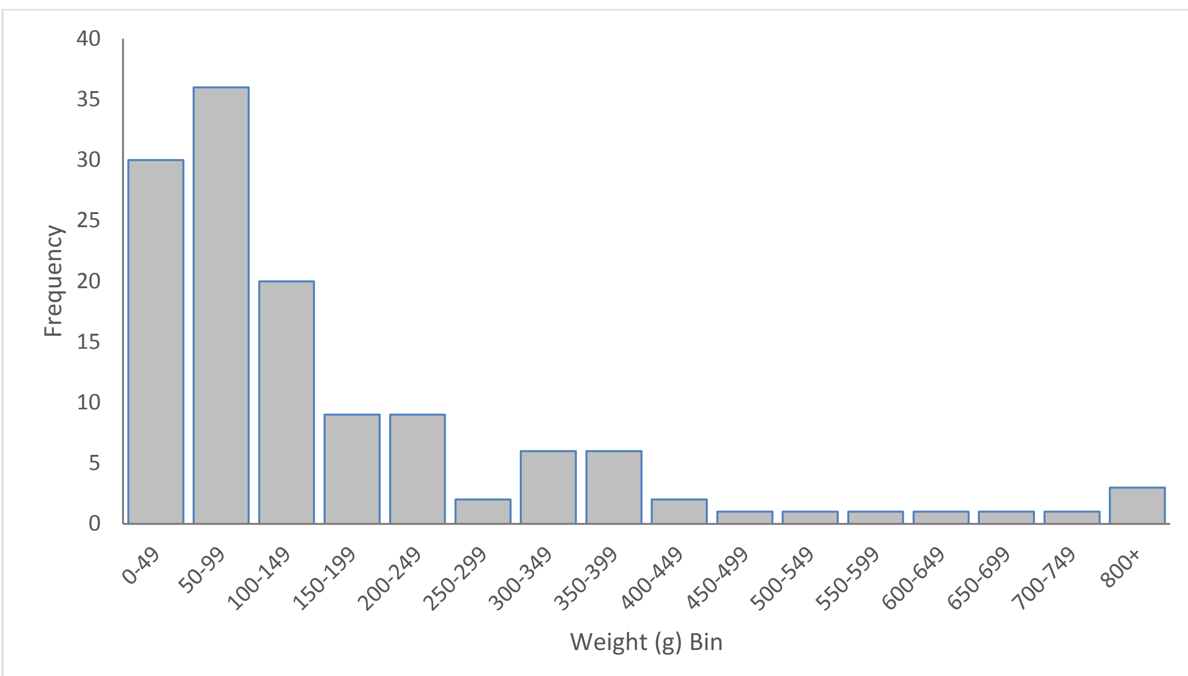



**Figure 4. Weight frequency of American eel in the otolith sample exchange.**

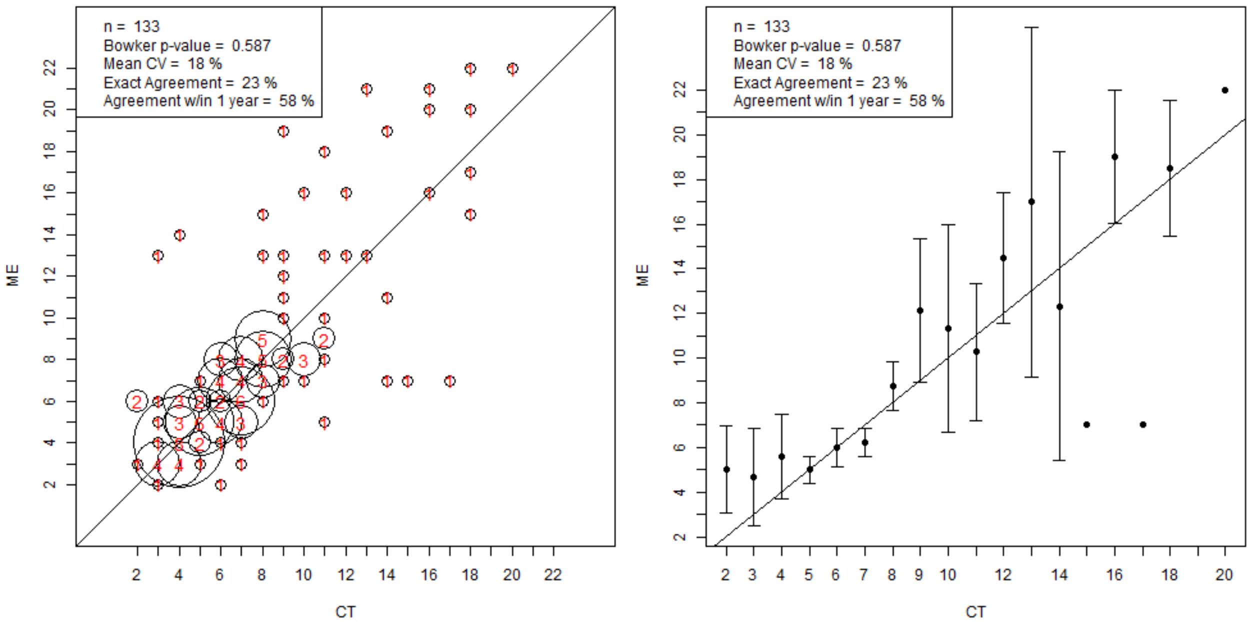



**Figure 5. Age frequency (left) and age bias (right) plots for ME and CT American eel sectioned otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

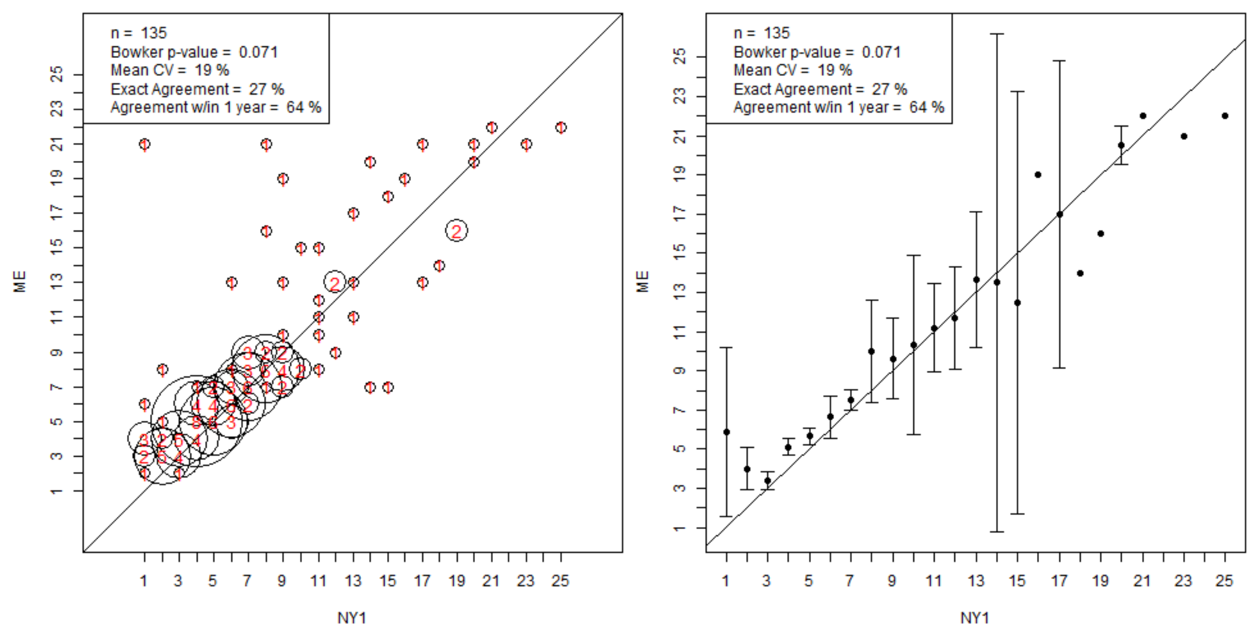



**Figure 6. Age frequency (left) and age bias (right) plots for ME and NY reader 1 American eel sectioned otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

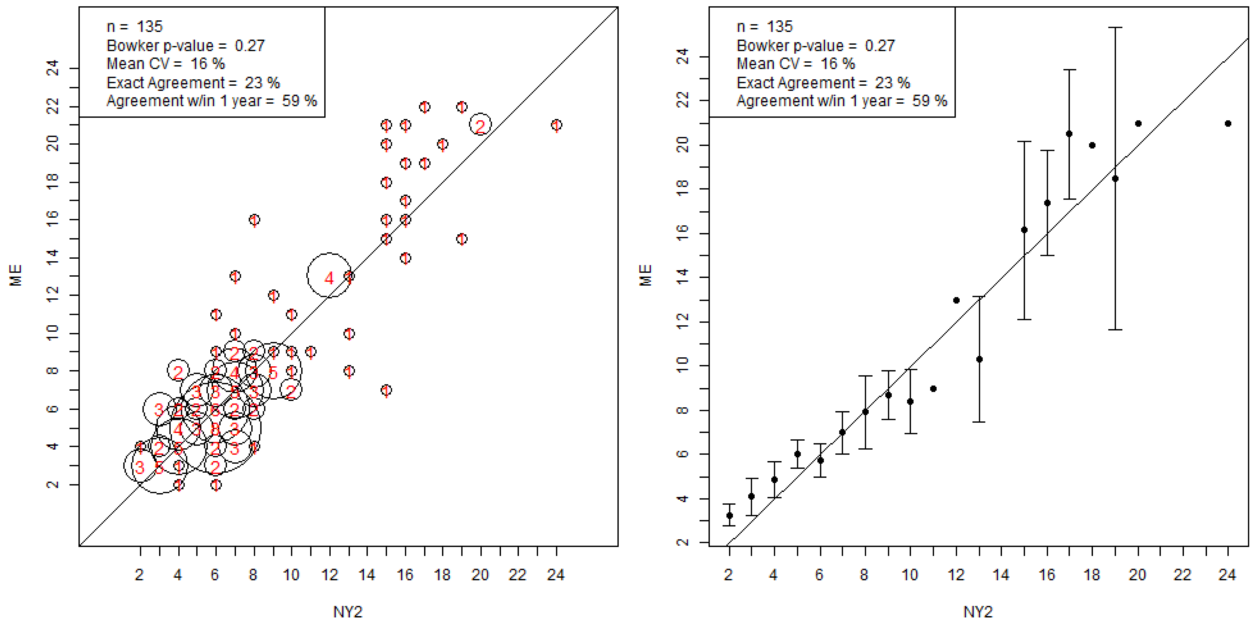



**Figure 7. Age frequency (left) and age bias (right) plots for ME and NY reader 2 American eel sectioned otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

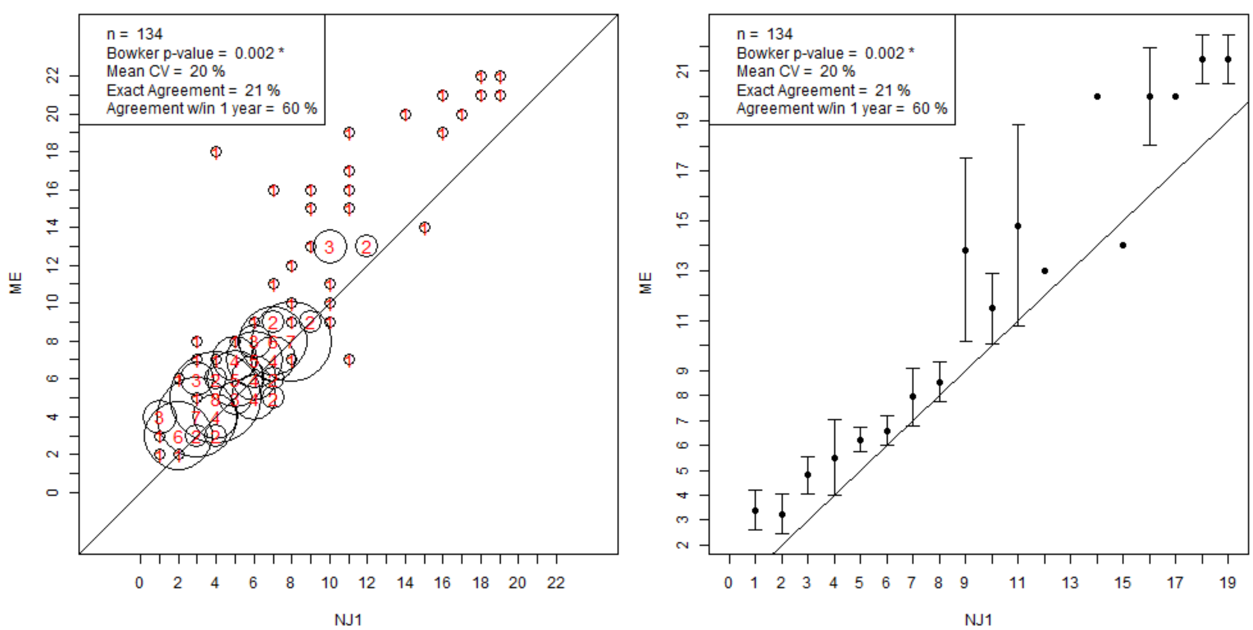



**Figure 8. Age frequency (left) and age bias (right) plots for ME and NJ reader 1 American eel sectioned otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

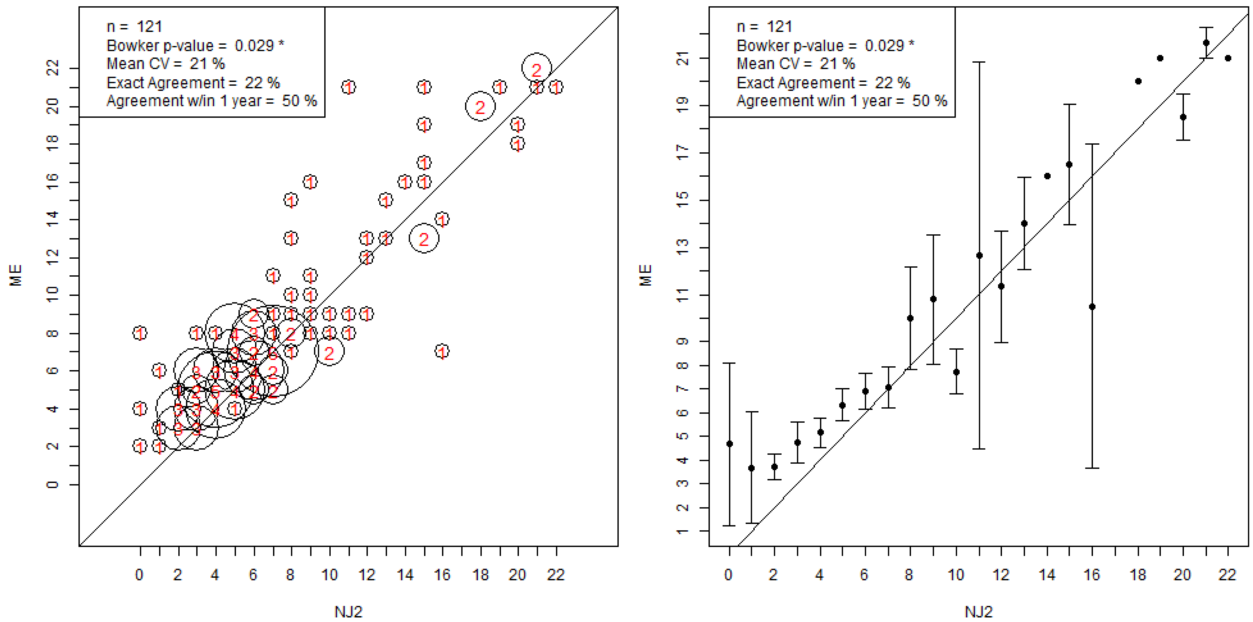



**Figure 9. Age frequency (left) and age bias (right) plots for ME and NJ reader 2 American eel sectioned otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

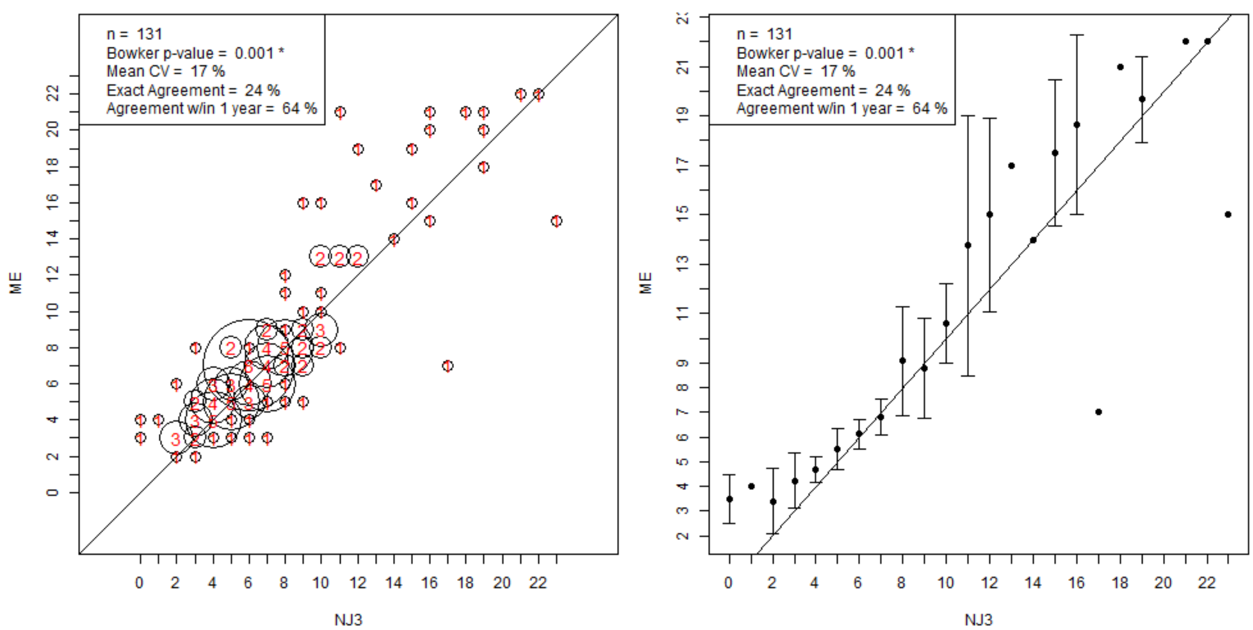



**Figure 10. Age frequency plot (left) and age bias (right) plots for ME and NJ reader 3 American eel sectioned otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

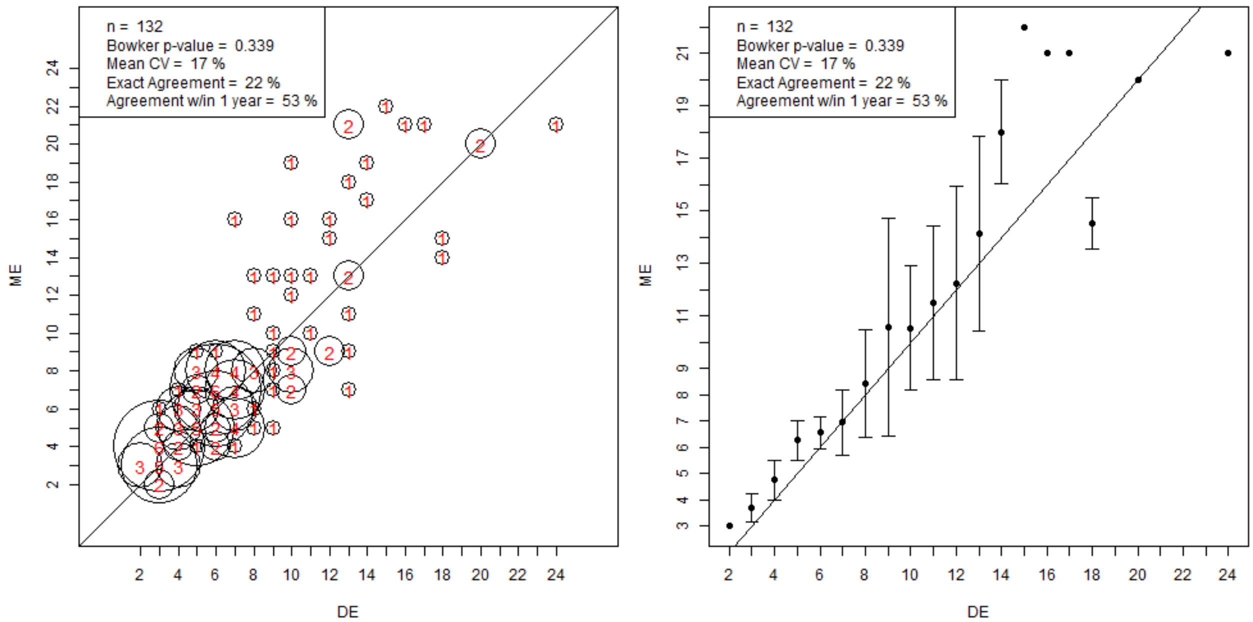



**Figure 11. Age frequency (left) and age bias (right) plots for ME and DE American eel sectioned otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

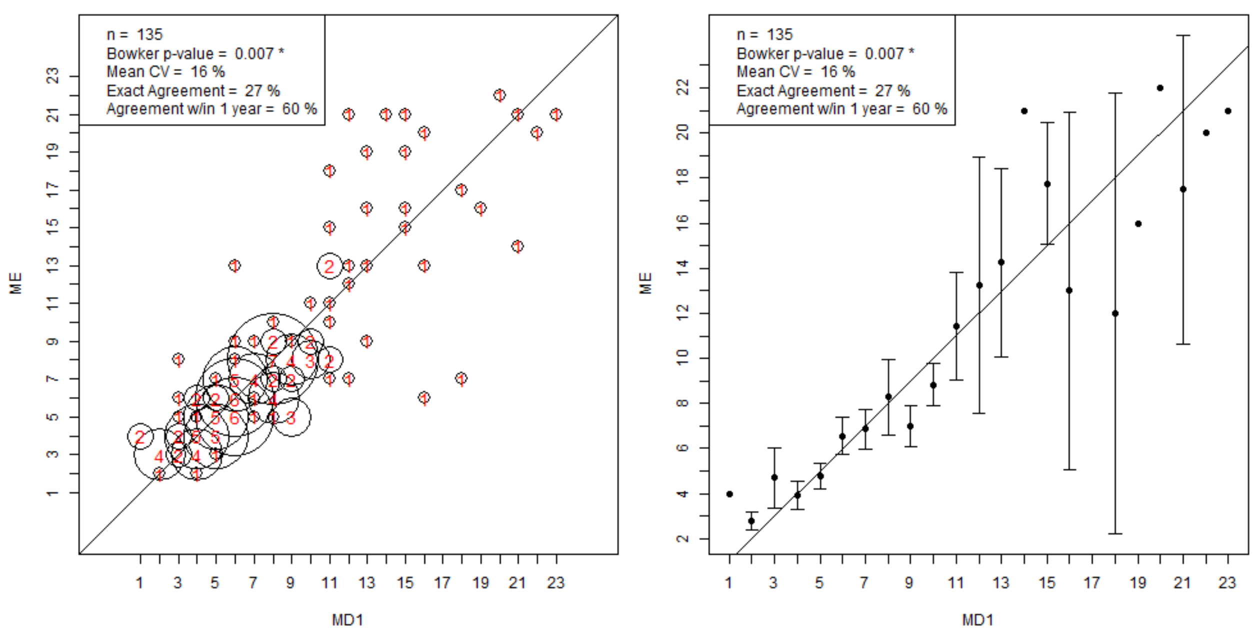



**Figure 12. Age frequency (left) and age bias (right) plots for ME and MD reader 1 American eel sectioned otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

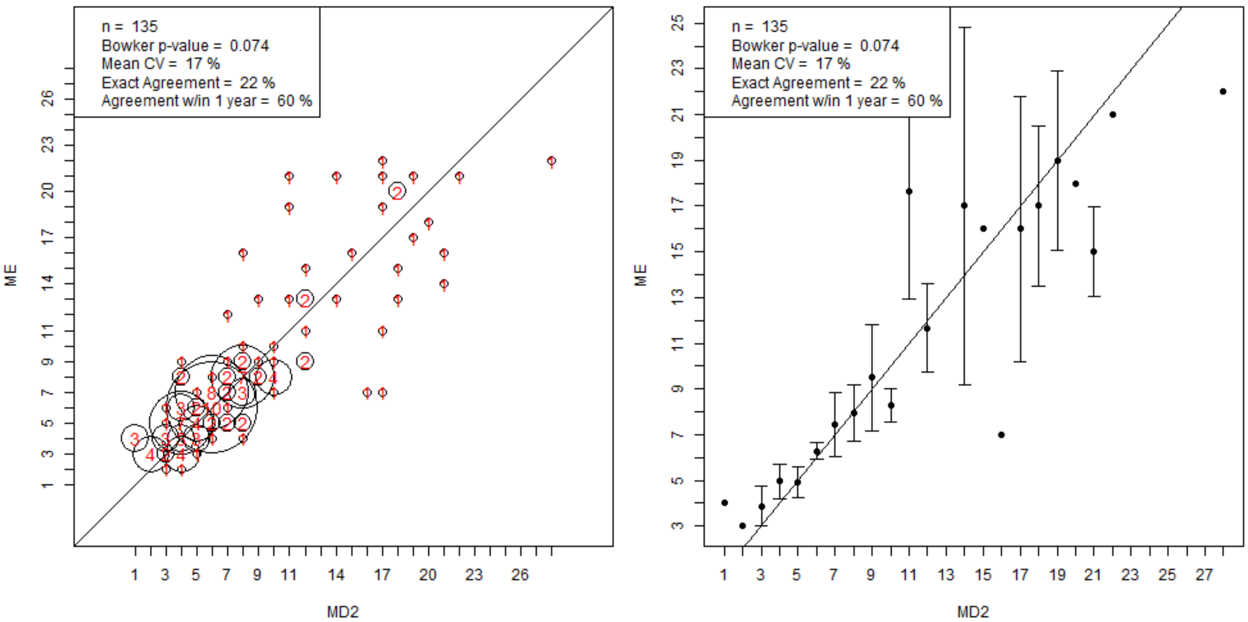



**Figure 13. Age frequency (left) and age bias (right) plots for ME and MD reader 2 American eel sectioned otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

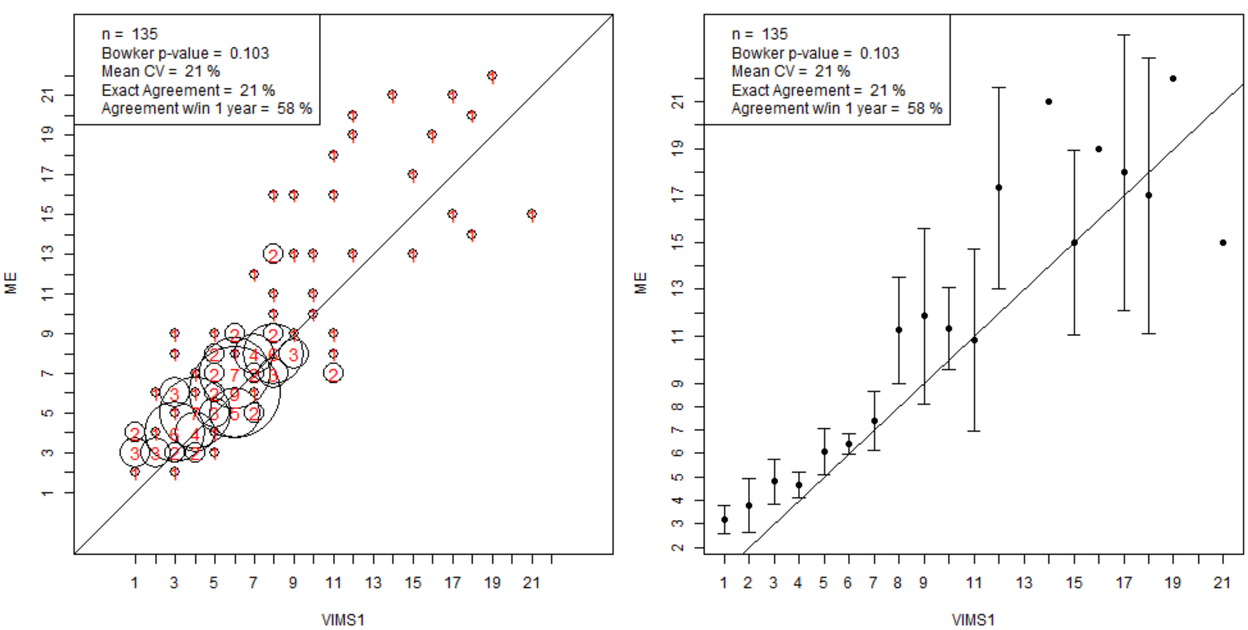



**Figure 14. Age frequency (left) and age bias (right) plots for ME and VIMS reader 1 American eel sectioned otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

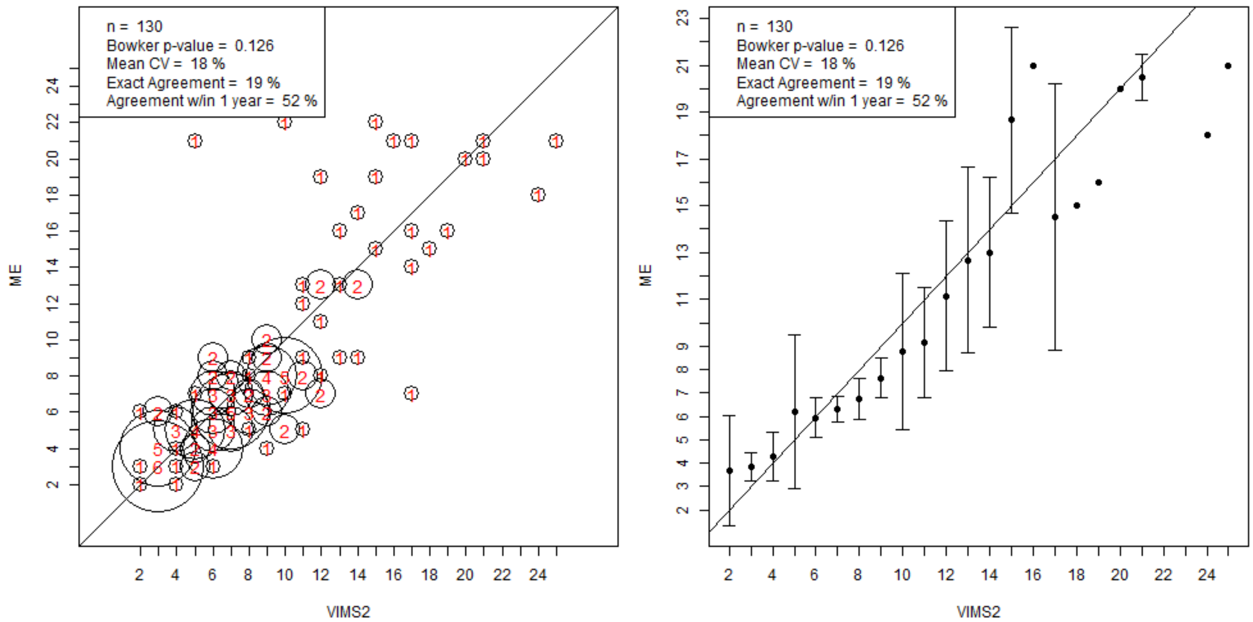



Figure 15. Age frequency (left) and age bias (right) plots for ME and VIMS reader 2 American eel sectioned otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.

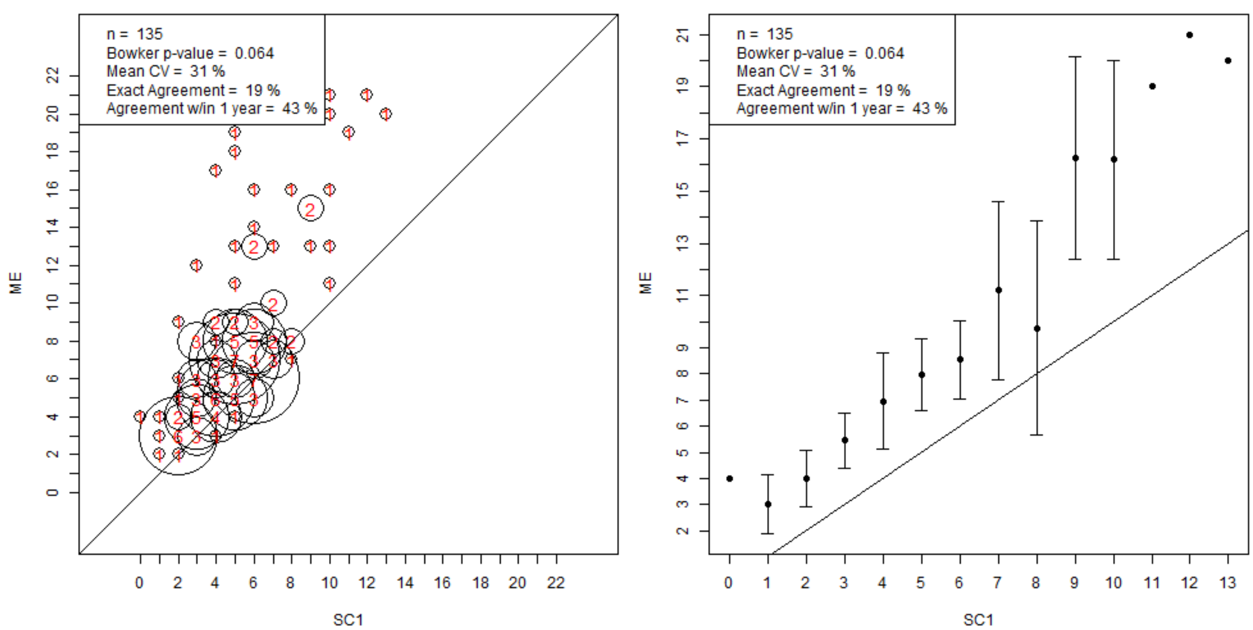



Figure 16. Age frequency (left) and age bias (right) plots for ME and SC reader 1 American eel sectioned otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.

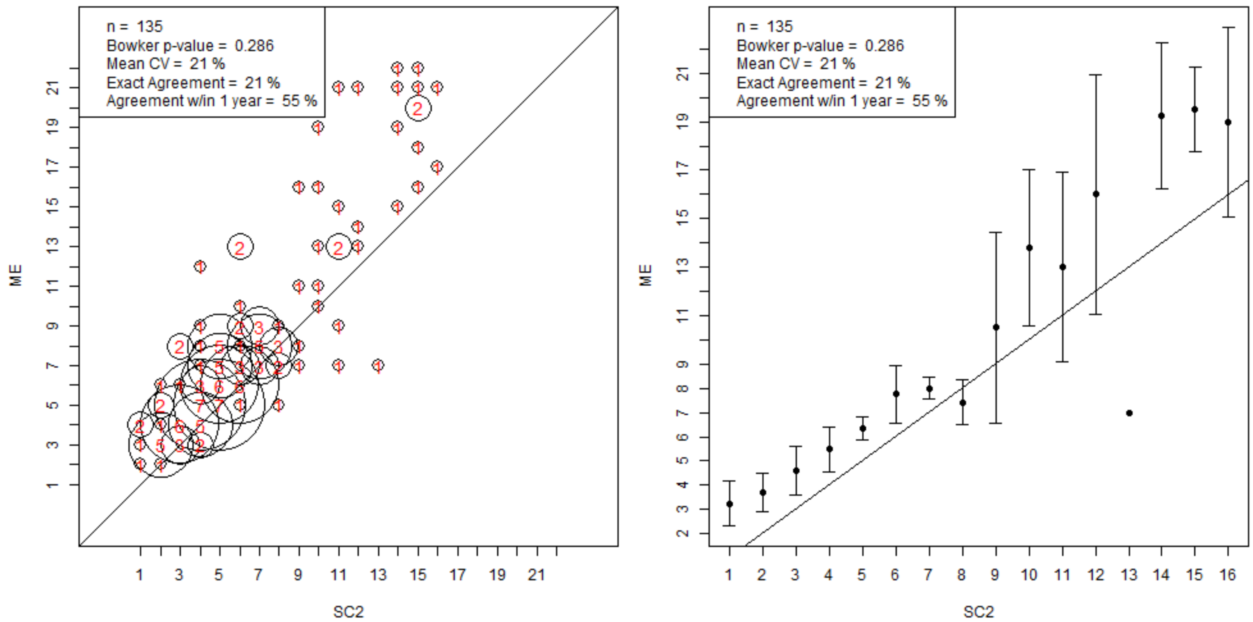



**Figure 17. Age frequency (left) and age bias (right) plots for ME and SC reader 2 American eel sectioned otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

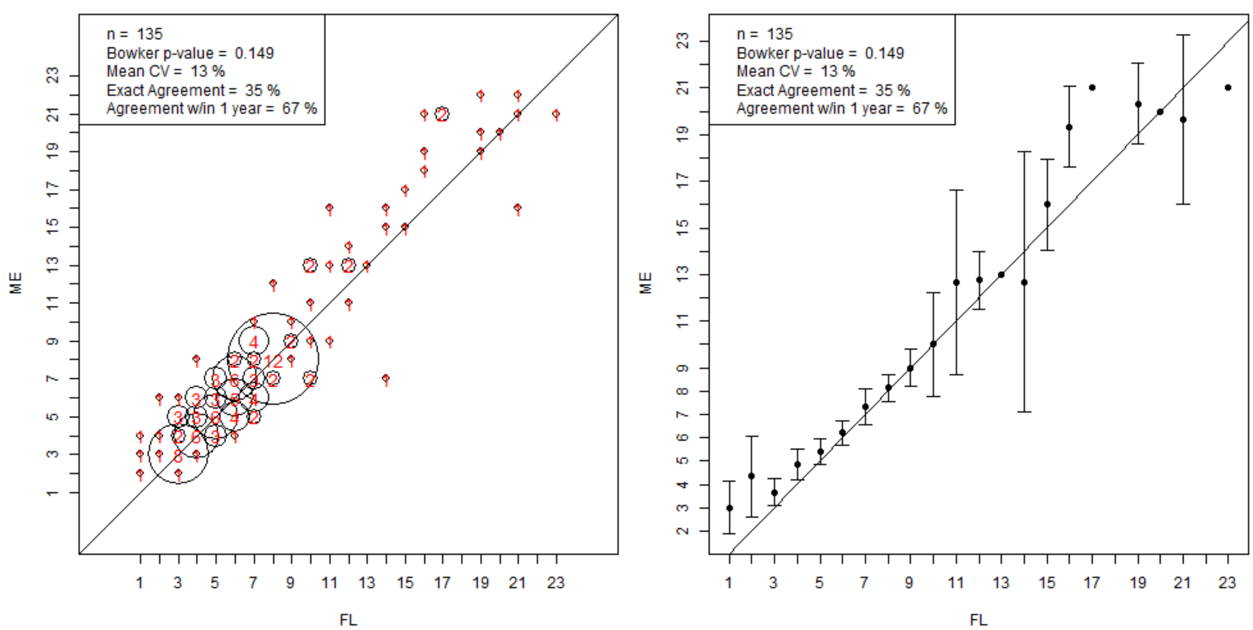



**Figure 18. Age frequency (left) and age bias (right) plots for ME and FL American eel sectioned otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

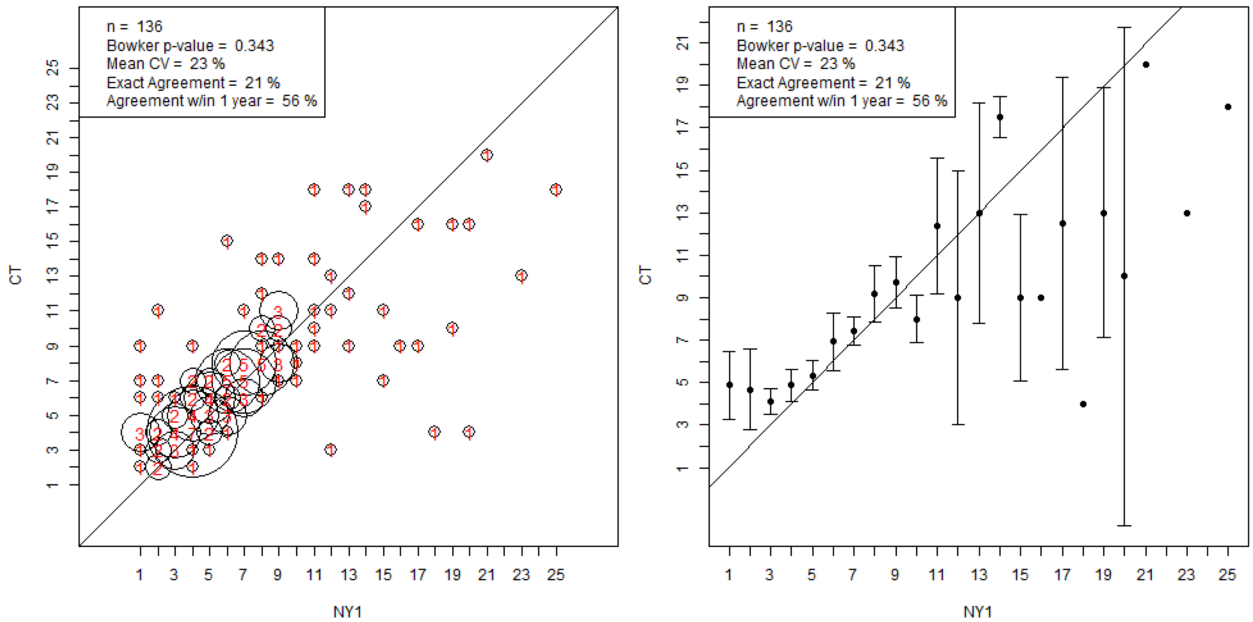



**Figure 19. Age frequency (left) and age bias (right) plots for CT and NY reader 1 American eel sectioned otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

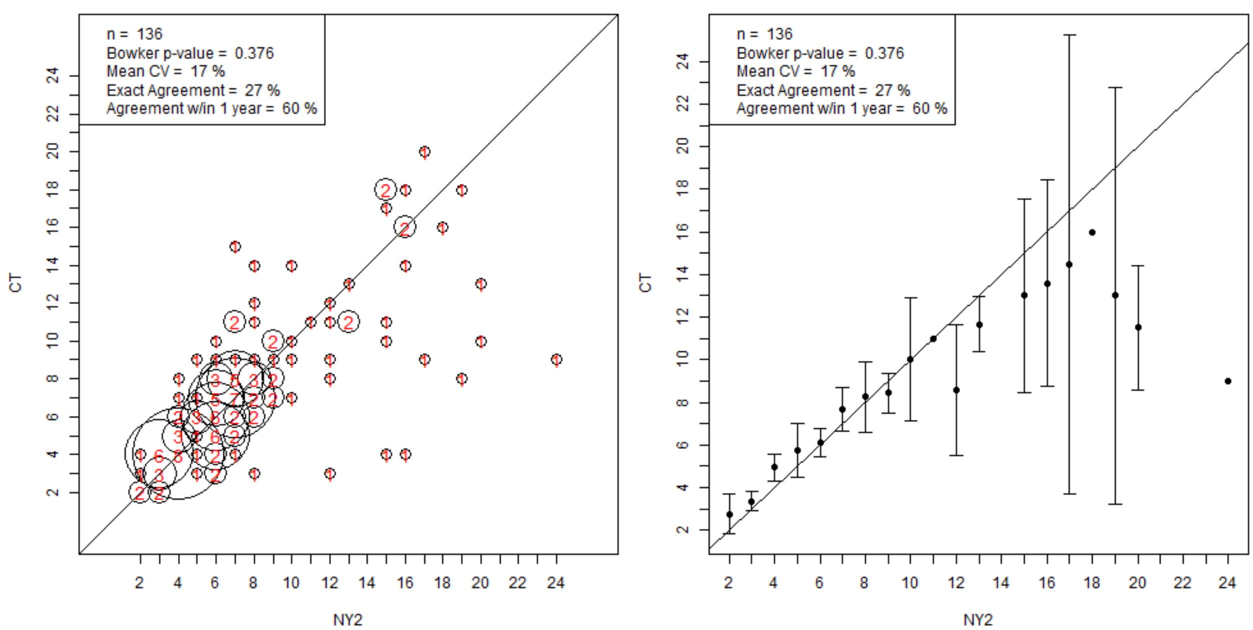



**Figure 20. Age frequency (left) and age bias (right) plots for CT and NY reader 2 American eel sectioned otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

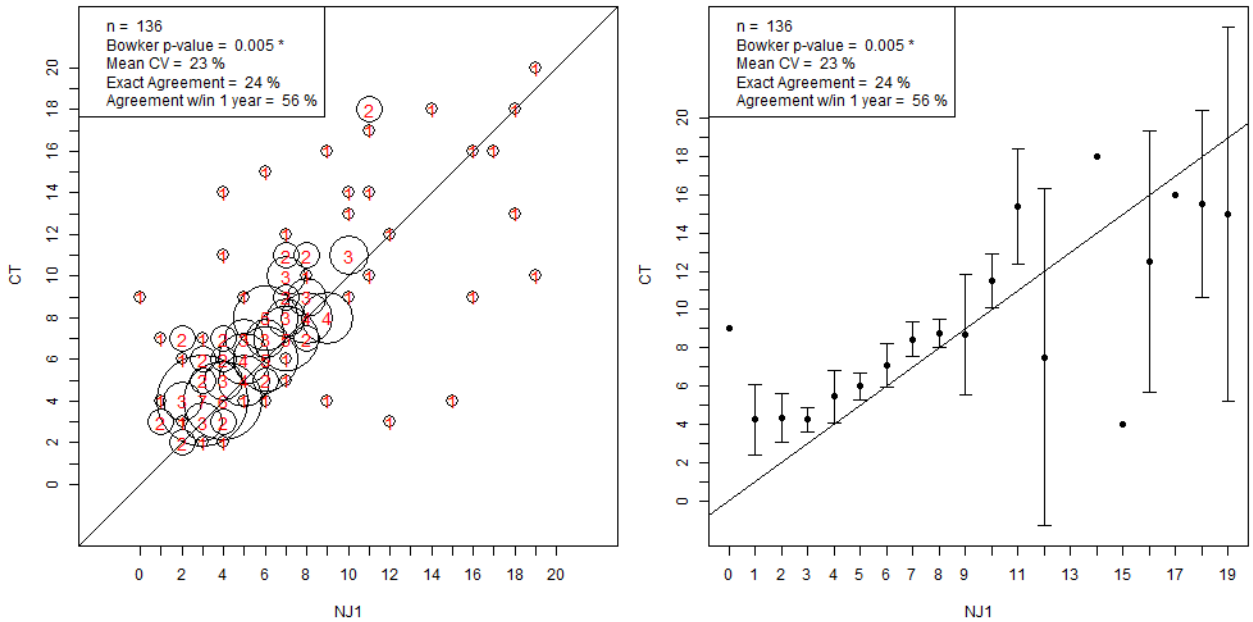



**Figure 21. Age frequency (left) and age bias (right) plots for CT and NJ reader 1 American eel sectioned otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

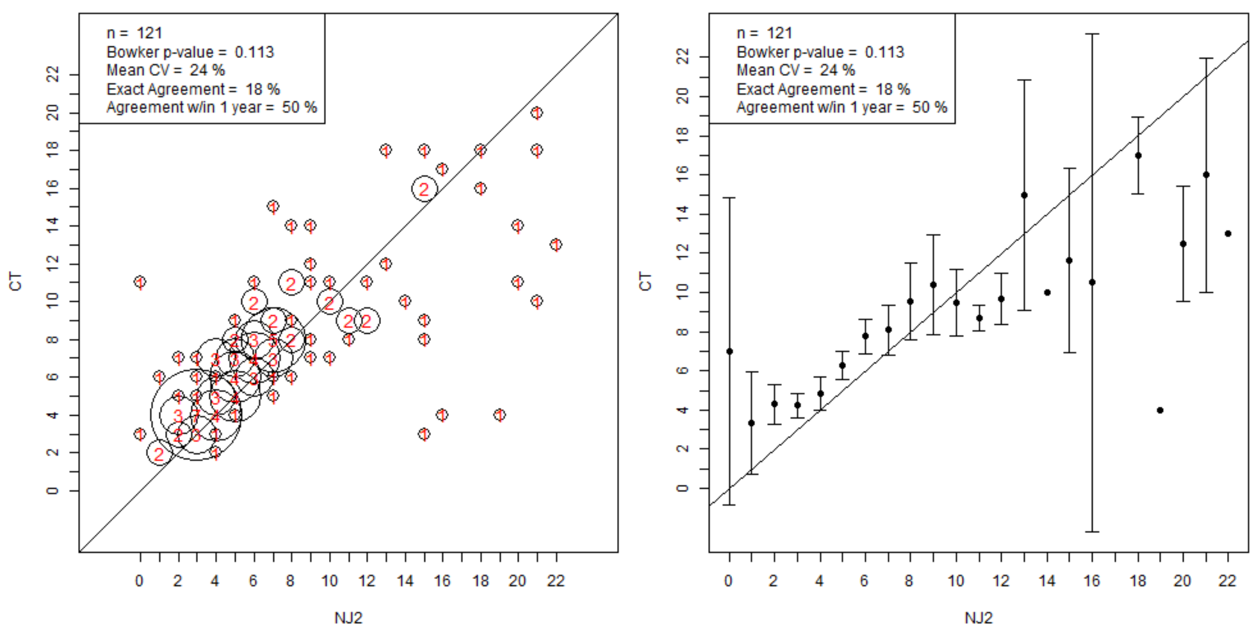



**Figure 22. Age frequency (left) and age bias (right) plots for CT and NJ reader 2 American eel sectioned otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

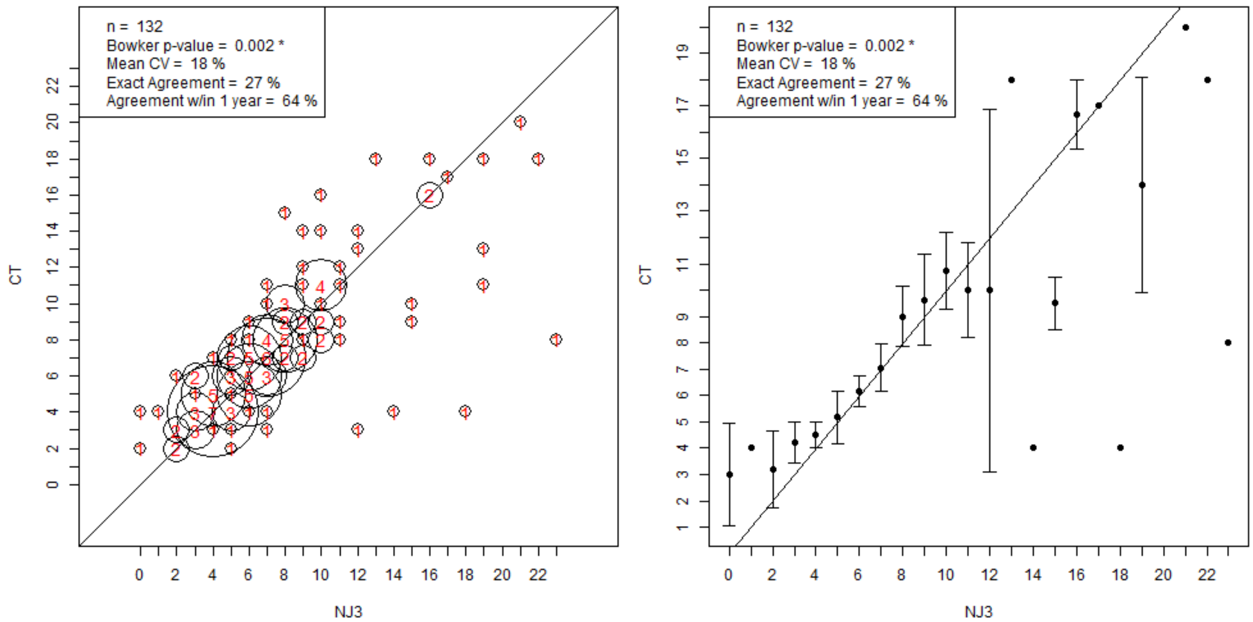



**Figure 23. Age frequency (left) and age bias (right) plots for CT and NJ reader 3 American eel sectioned otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

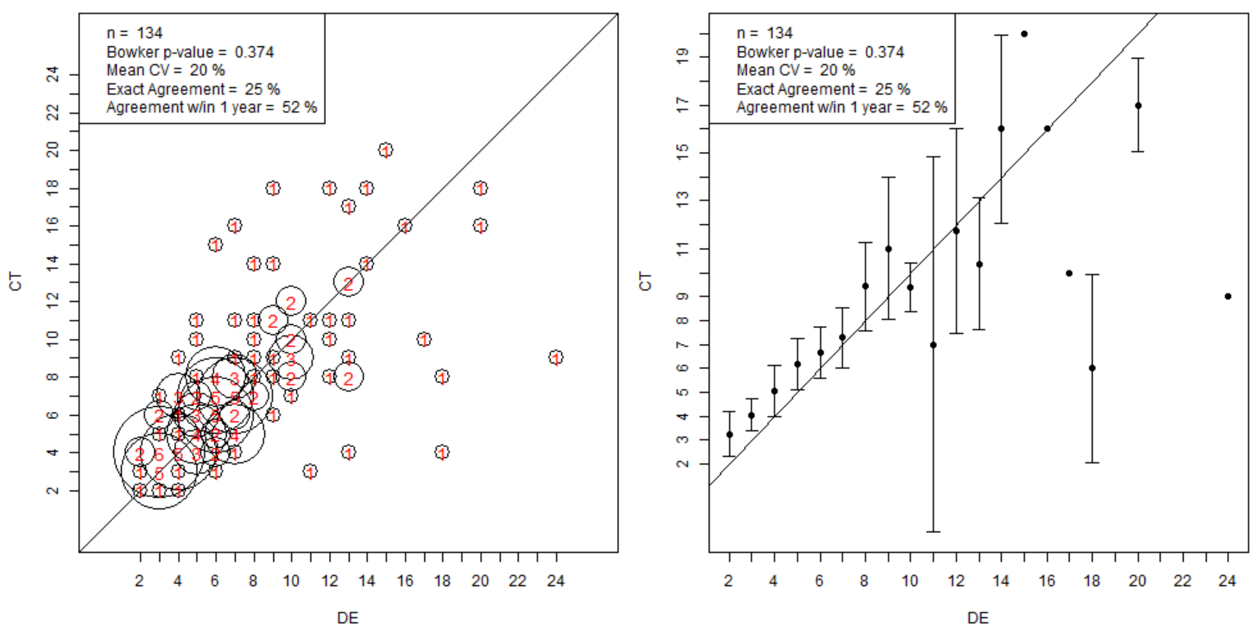



**Figure 24. Age frequency (left) and age bias (right) plots for CT and DE American eel sectioned otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

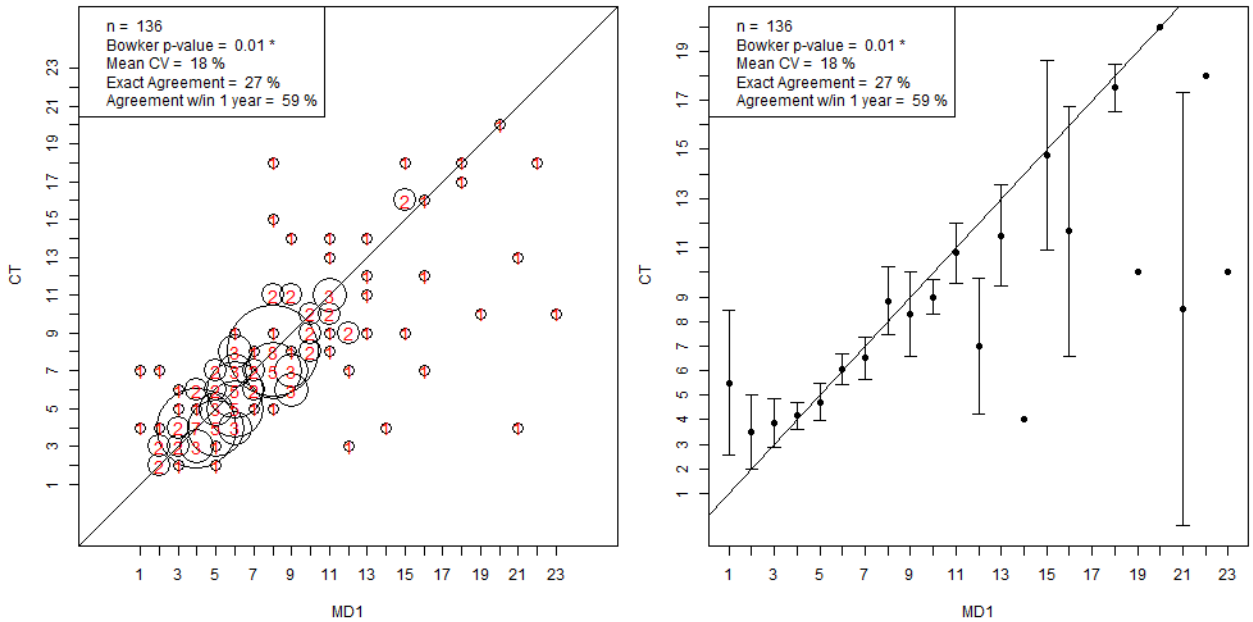



**Figure 25. Age frequency (left) and age bias (right) plots for CT and MD reader 1 American eel sectioned otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

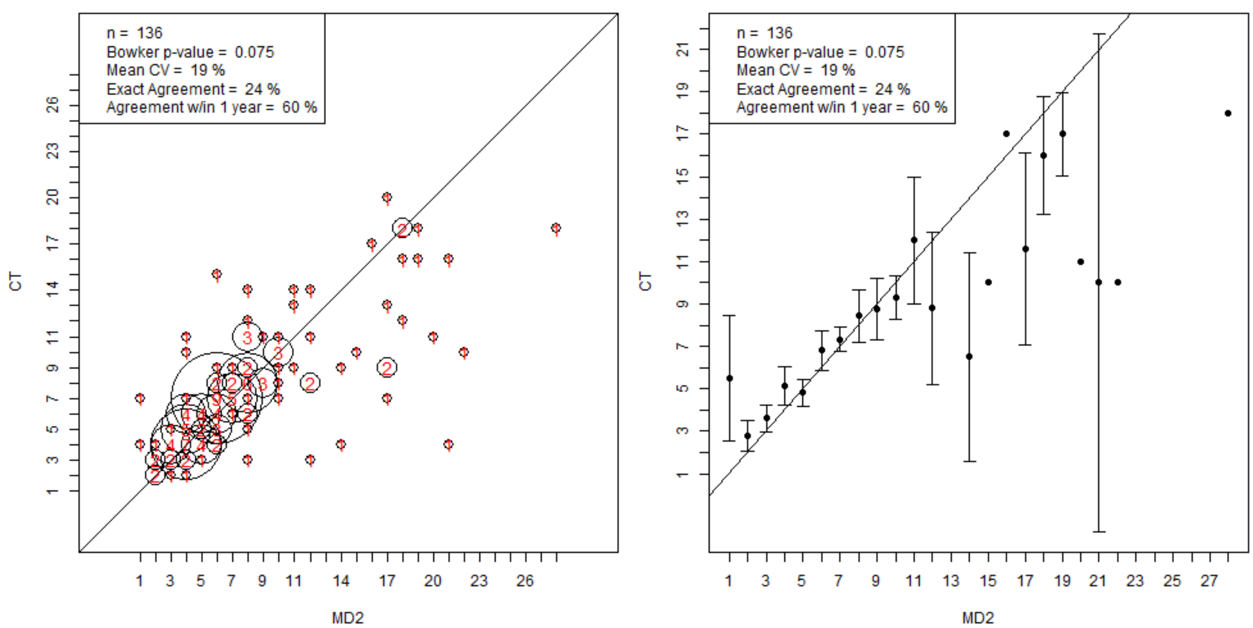



**Figure 26. Age frequency (left) and age bias (right) plots for CT and MD reader 2 American eel sectioned otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

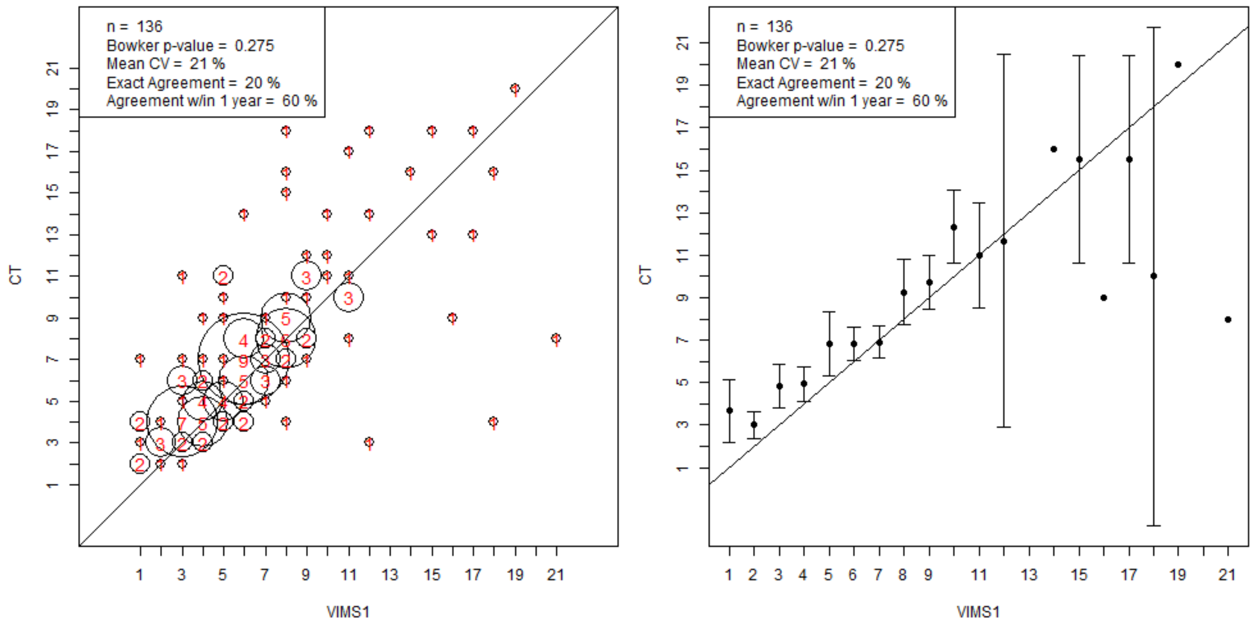



**Figure 27. Age frequency (left) and age bias (right) plots for CT and VIMS reader 1 American eel sectioned otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

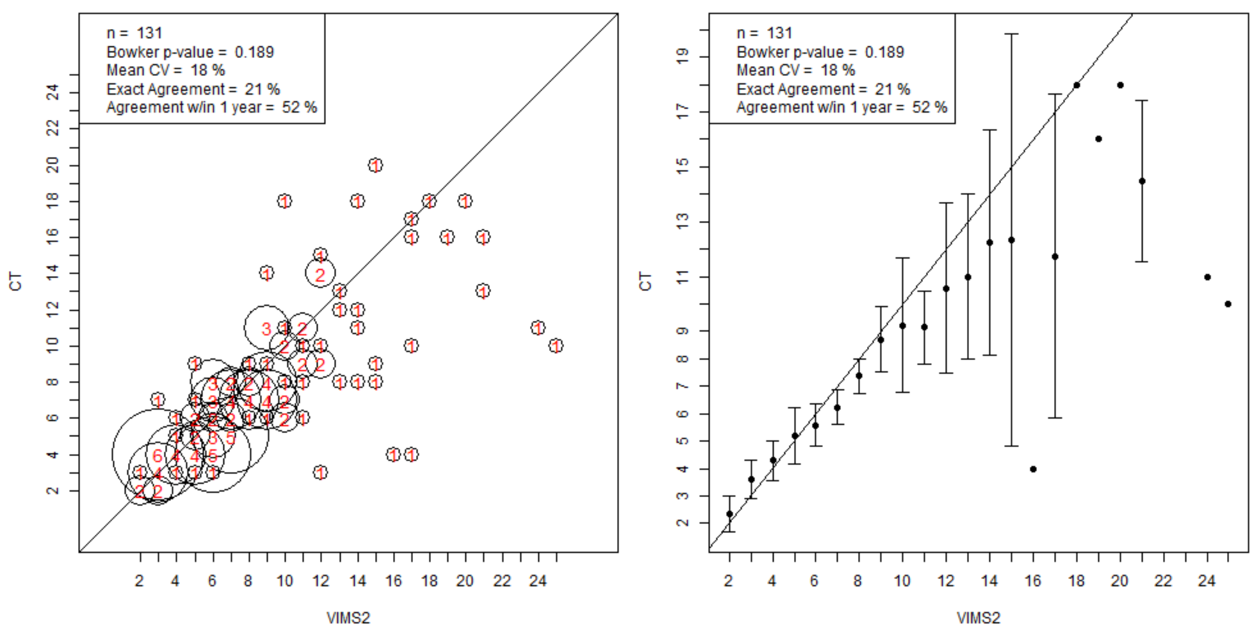



**Figure 28. Age frequency (left) and age bias (right) plots for CT and VIMS reader 2 American eel sectioned otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

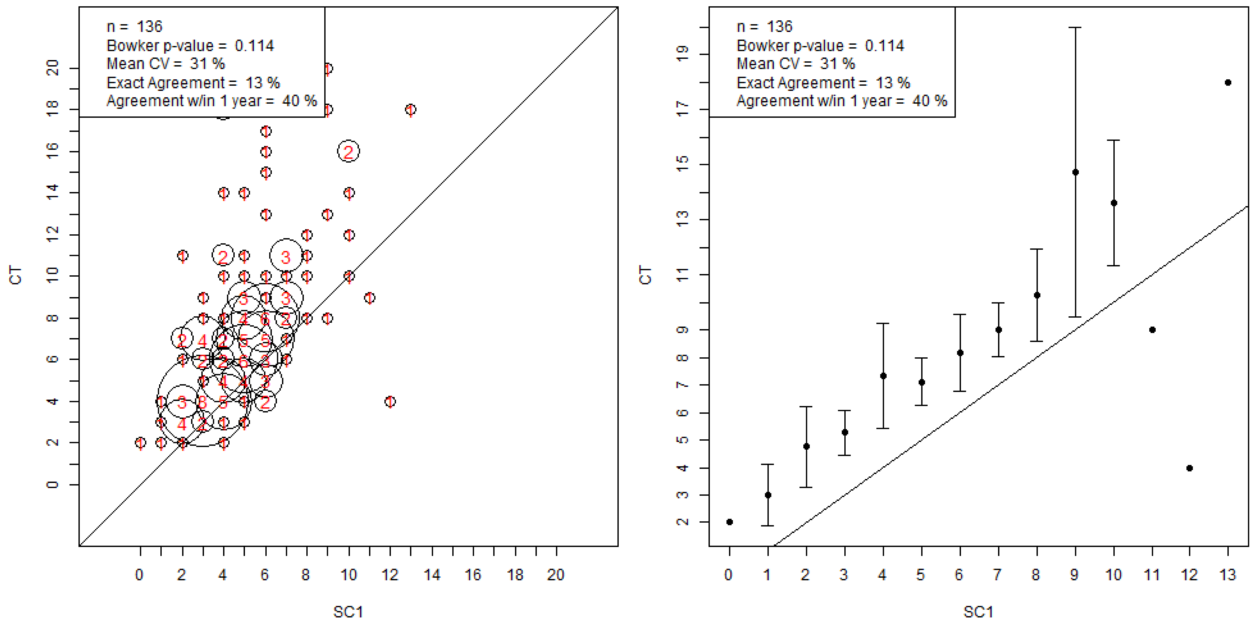



**Figure 29. Age frequency (left) and age bias (right) plots for CT and SC reader 1 American eel sectioned otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

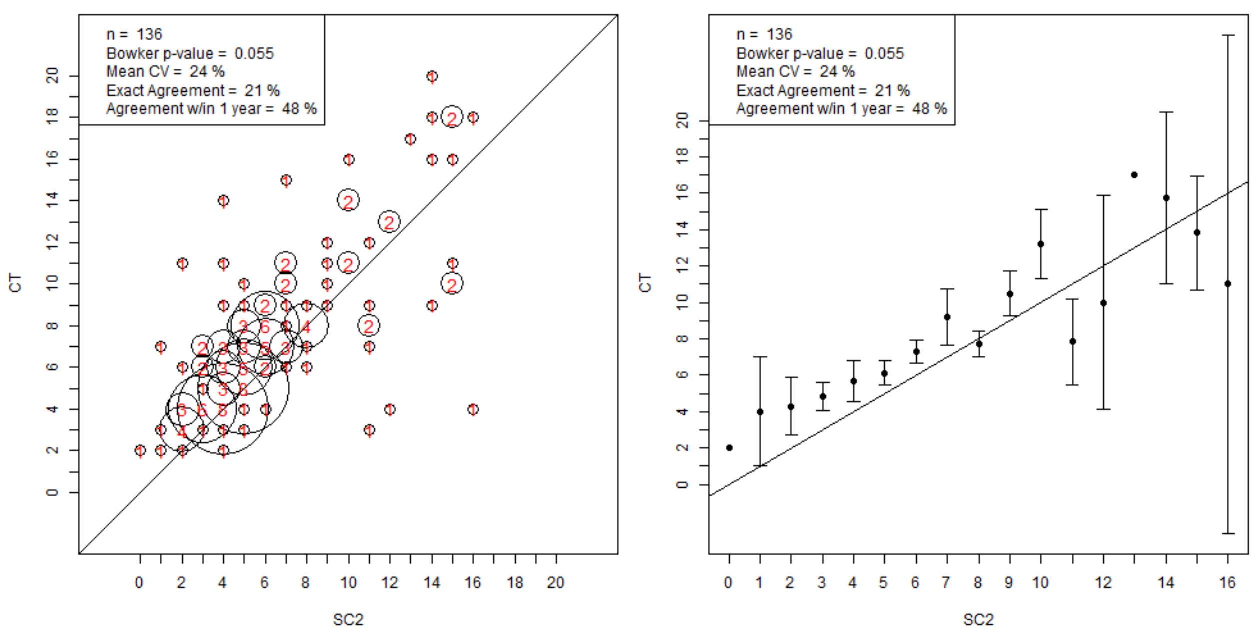



**Figure 30. Age frequency (left) and age bias (right) plots for CT and SC reader 2 American eel sectioned otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

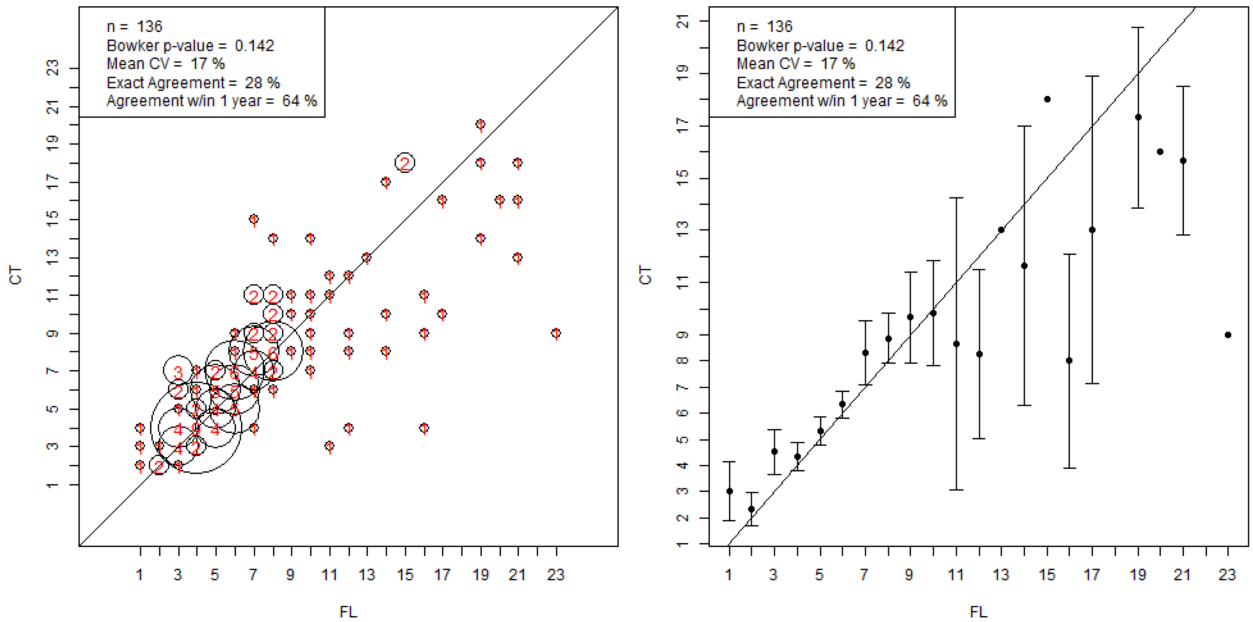



**Figure 31. Age frequency (left) and age bias (right) plots for CT and FL American eel sectioned otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

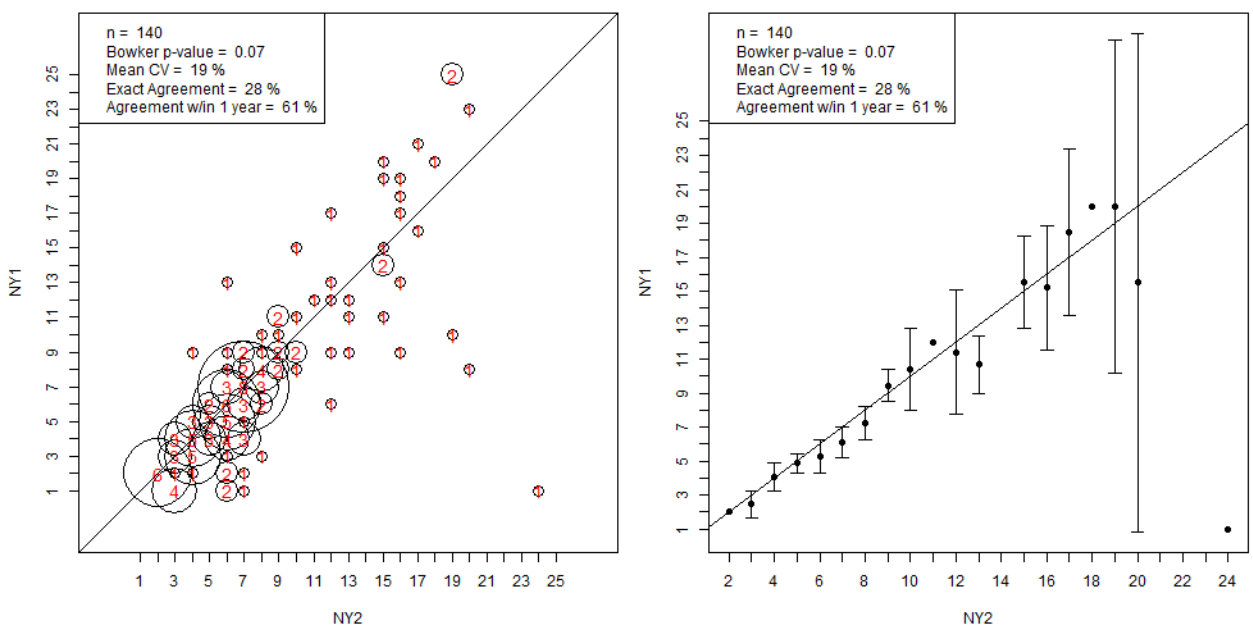



**Figure 32. Age frequency (left) and age bias (right) plots for NY reader 1 and NY reader 2 American eel sectioned otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

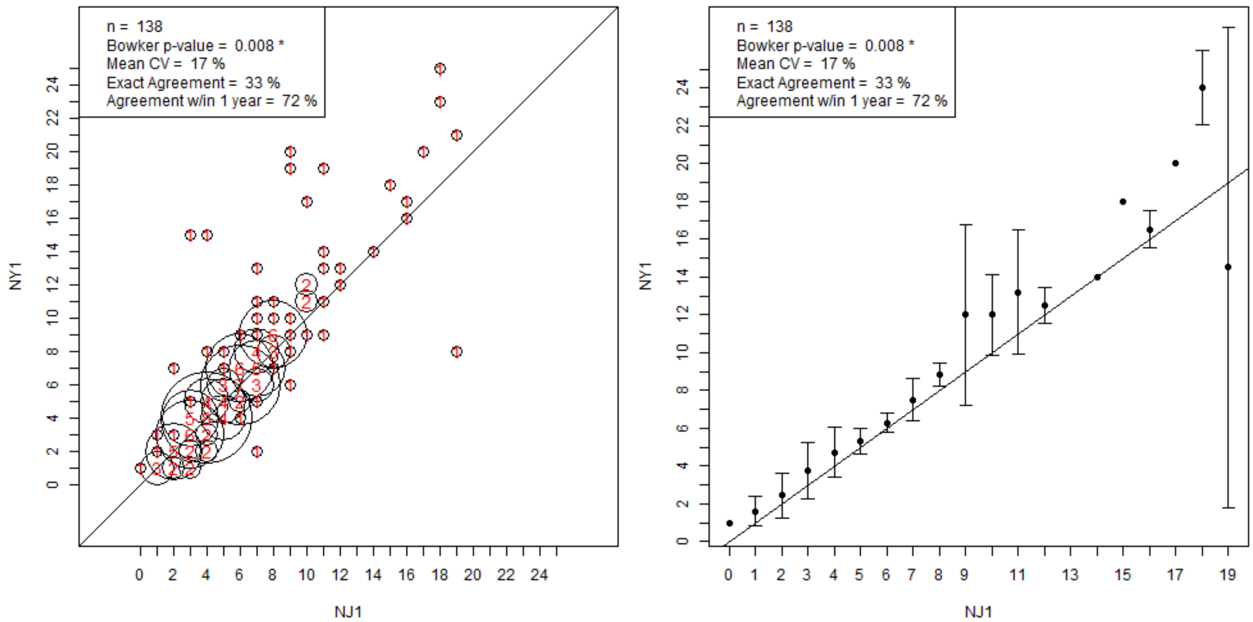



**Figure 33. Age frequency (left) and age bias (right) plots for NY reader 1 and NJ reader 1 American eel sectioned otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

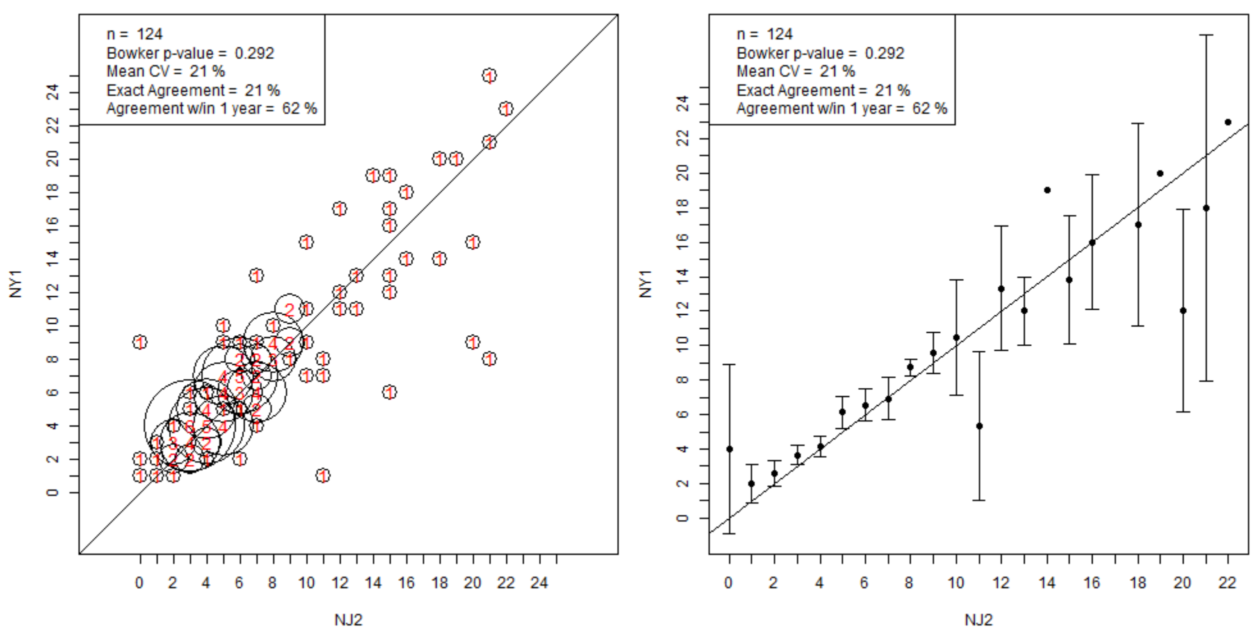



**Figure 34. Age frequency (left) and age bias (right) plots for NY reader 1 and NJ reader 2 American eel sectioned otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

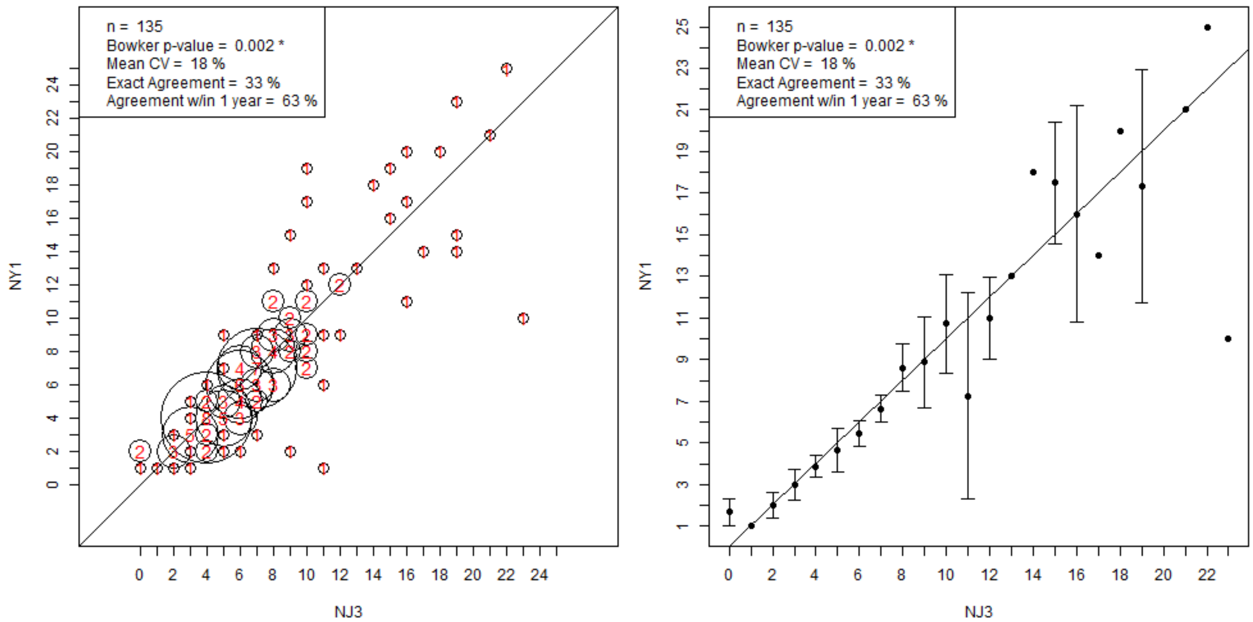



**Figure 35. Age frequency (left) and age bias (right) plots for NY reader 1 and NJ reader 3 American eel sectioned otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

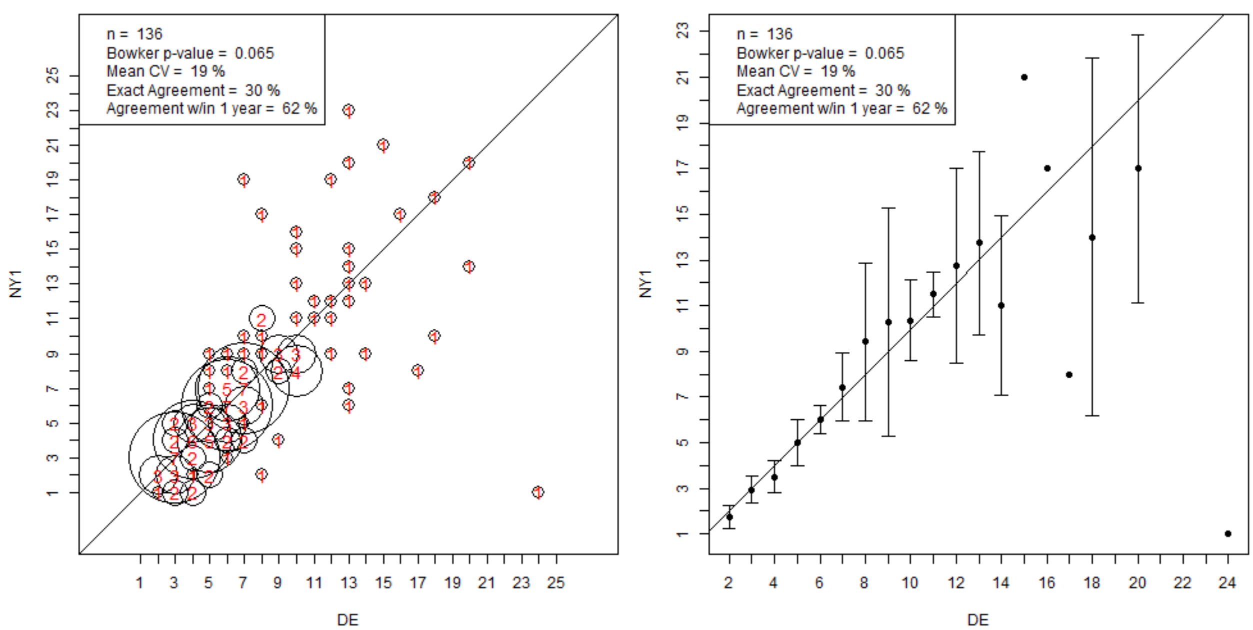



**Figure 36. Age frequency (left) and age bias (right) plots for NY reader 1 and DE American eel sectioned otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

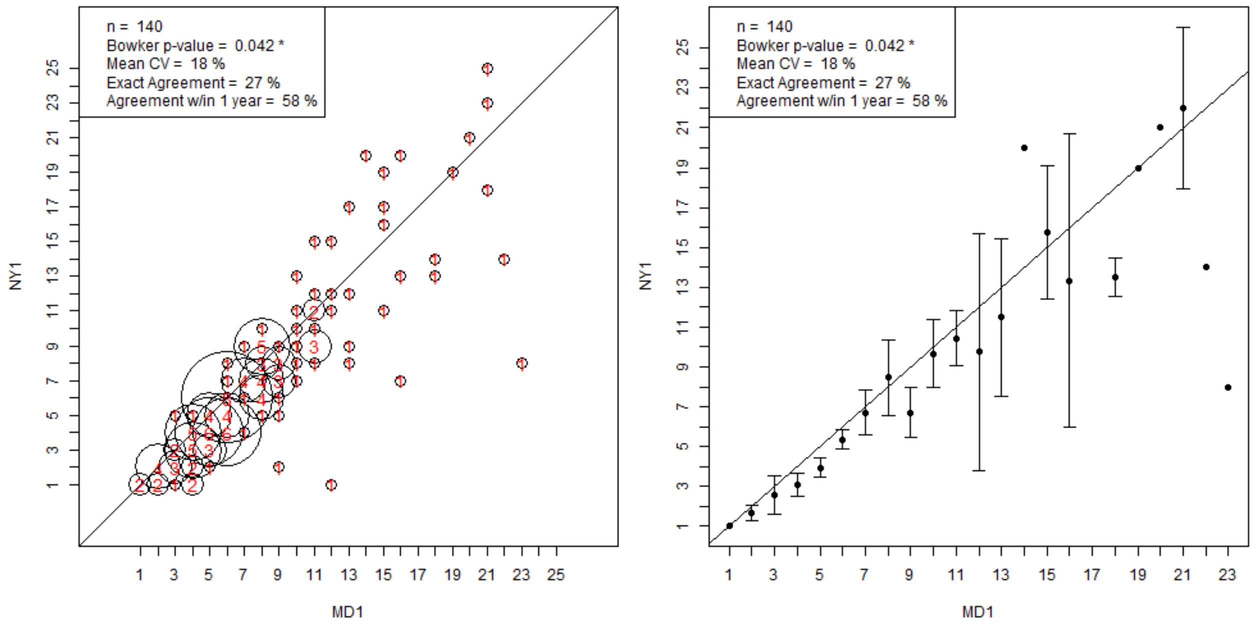



**Figure 37. Age frequency (left) and age bias (right) plots for NY reader 1 and MD reader 1 American eel sectioned otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

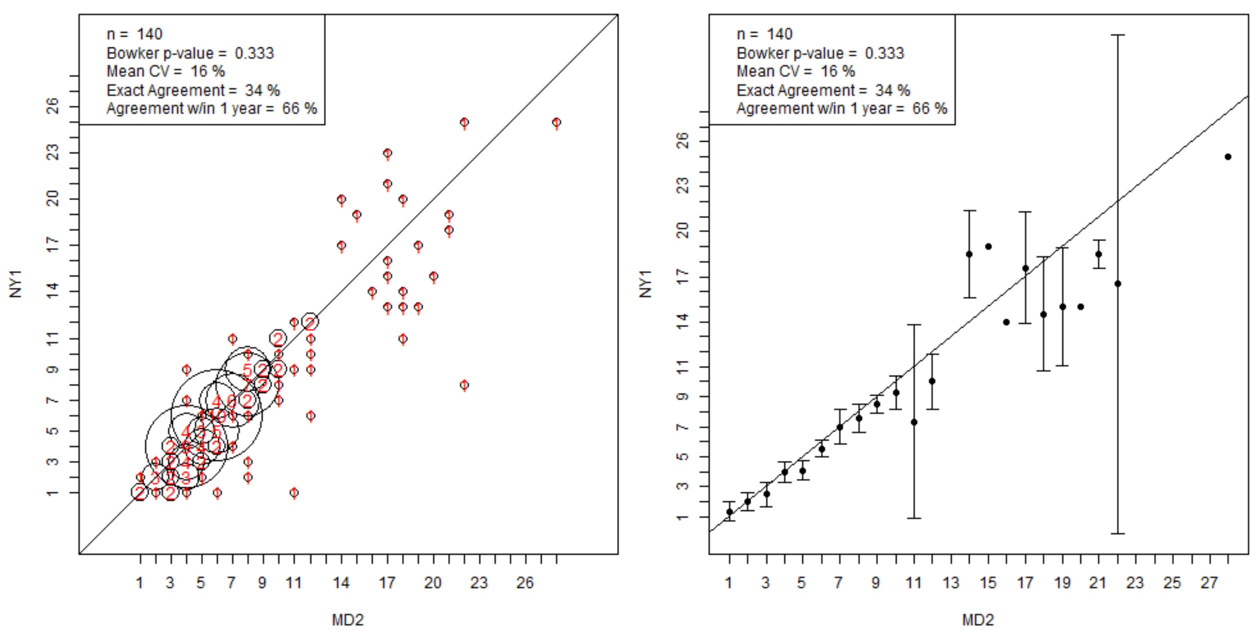



**Figure 38. Age frequency (left) and age bias (right) plots for NY reader 1 and MD reader 2 American eel sectioned otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

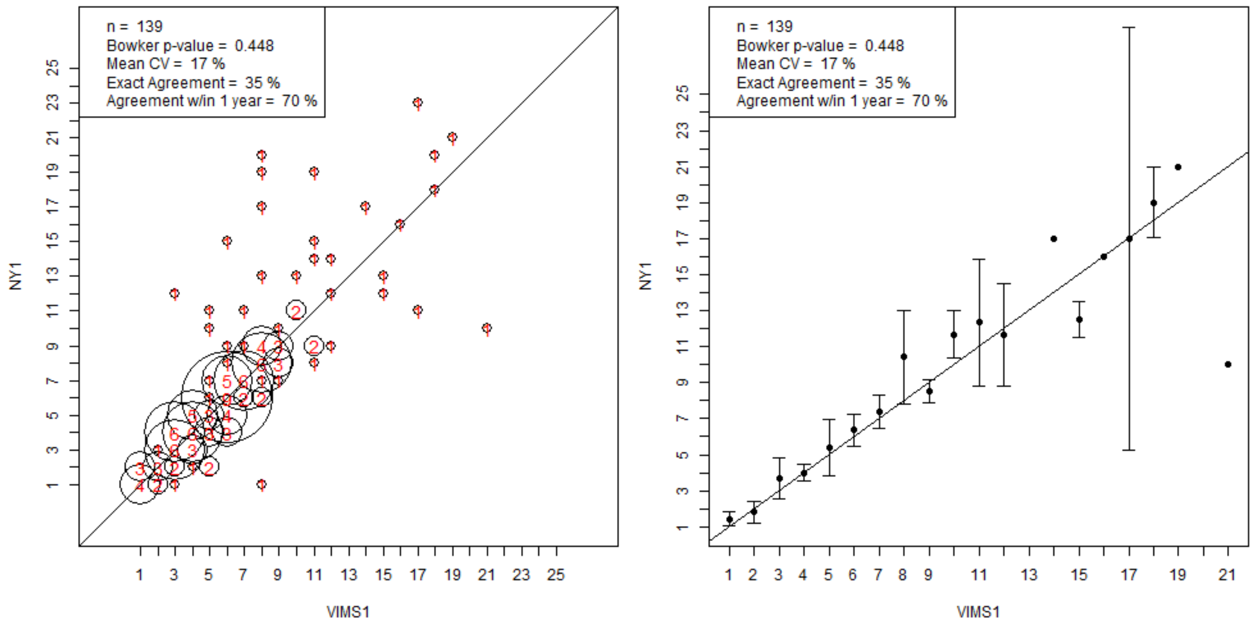



**Figure 39. Age frequency (left) and age bias (right) plots for NY reader 1 and VIMS reader 1 American eel sectioned otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

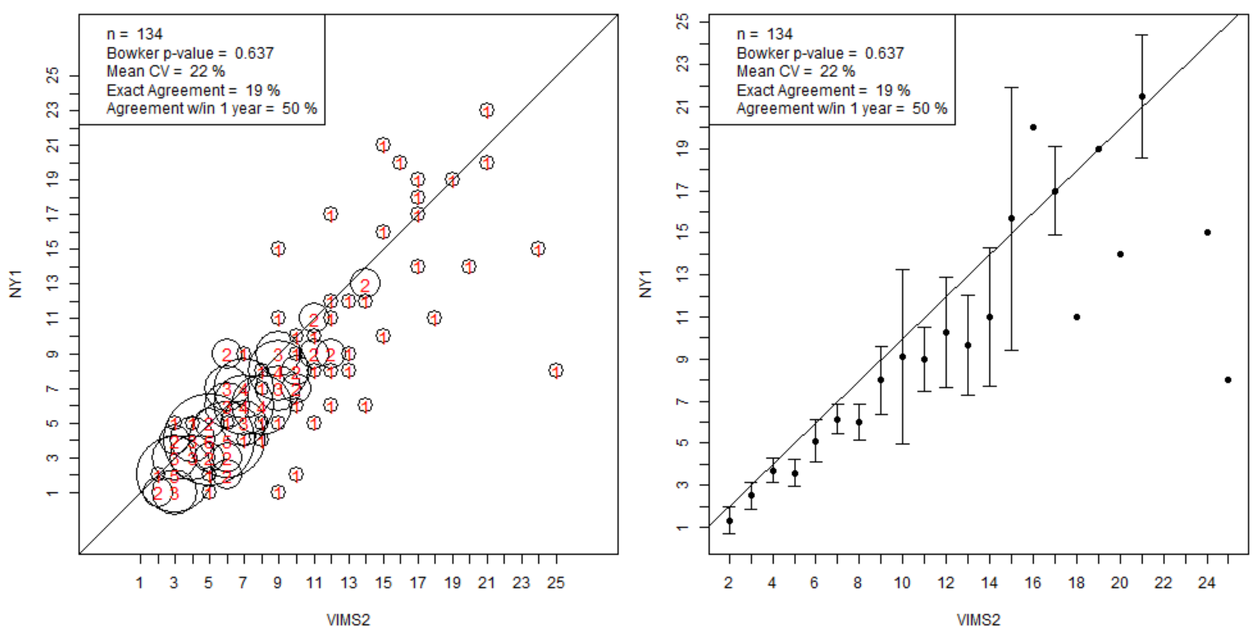



**Figure 40. Age frequency (left) and age bias (right) plots for NY reader 1 and VIMS reader 2 American eel sectioned otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

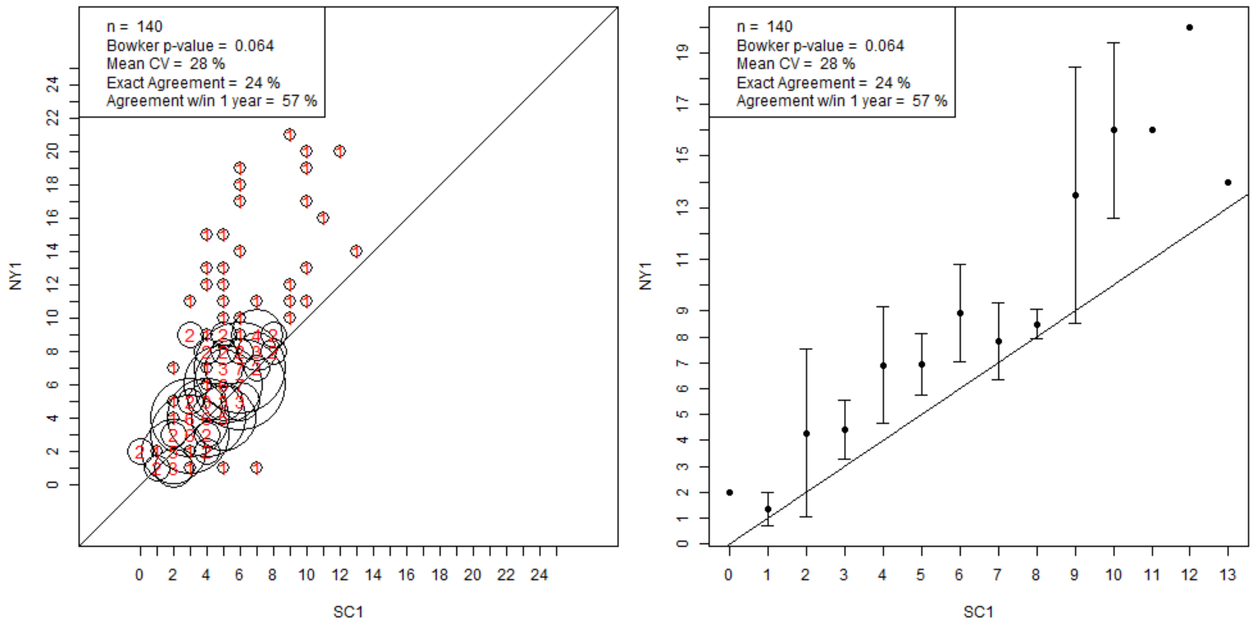



**Figure 41. Age frequency (left) and age bias (right) plots for NY reader 1 and SC reader 1 American eel sectioned otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

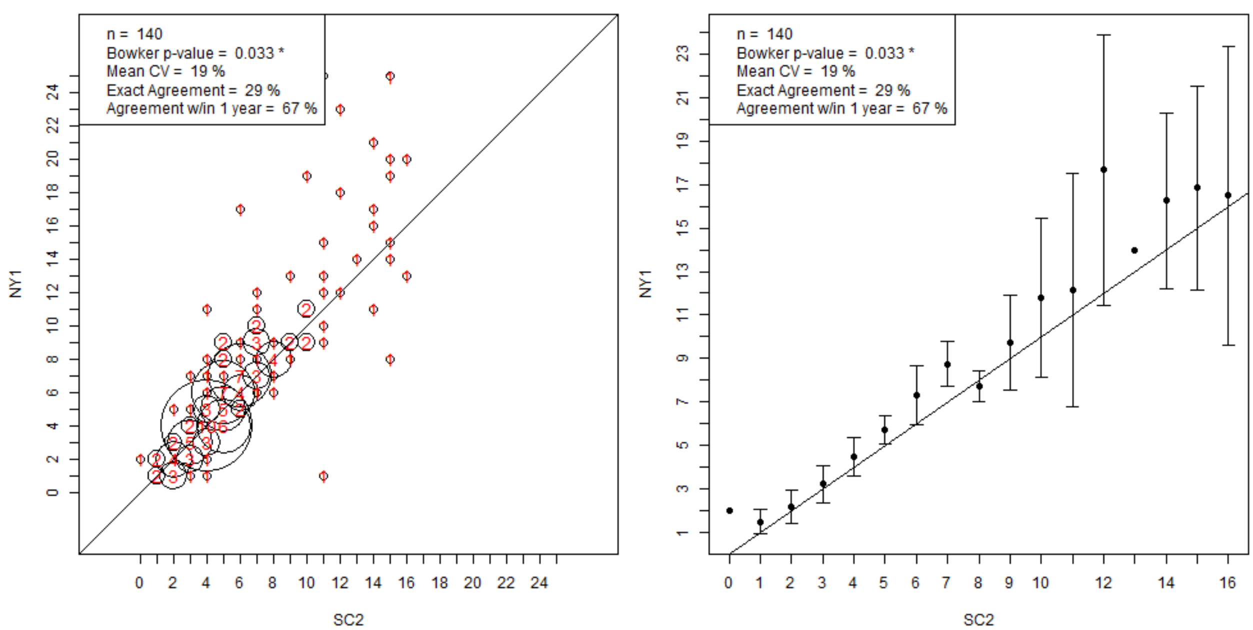



**Figure 42. Age frequency (left) and age bias (right) plots plot for NY reader 1 and SC reader 2 American eel sectioned otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

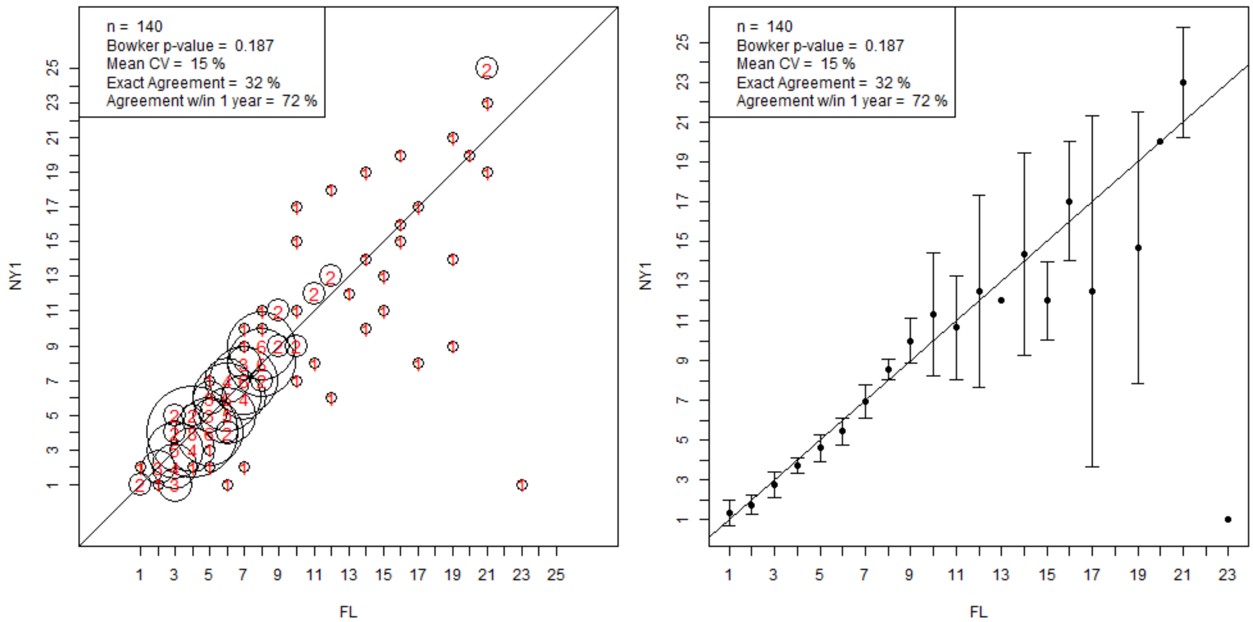



**Figure 43. Age frequency (left) and age bias (right) plots for NY reader 1 and FL American eel sectioned otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

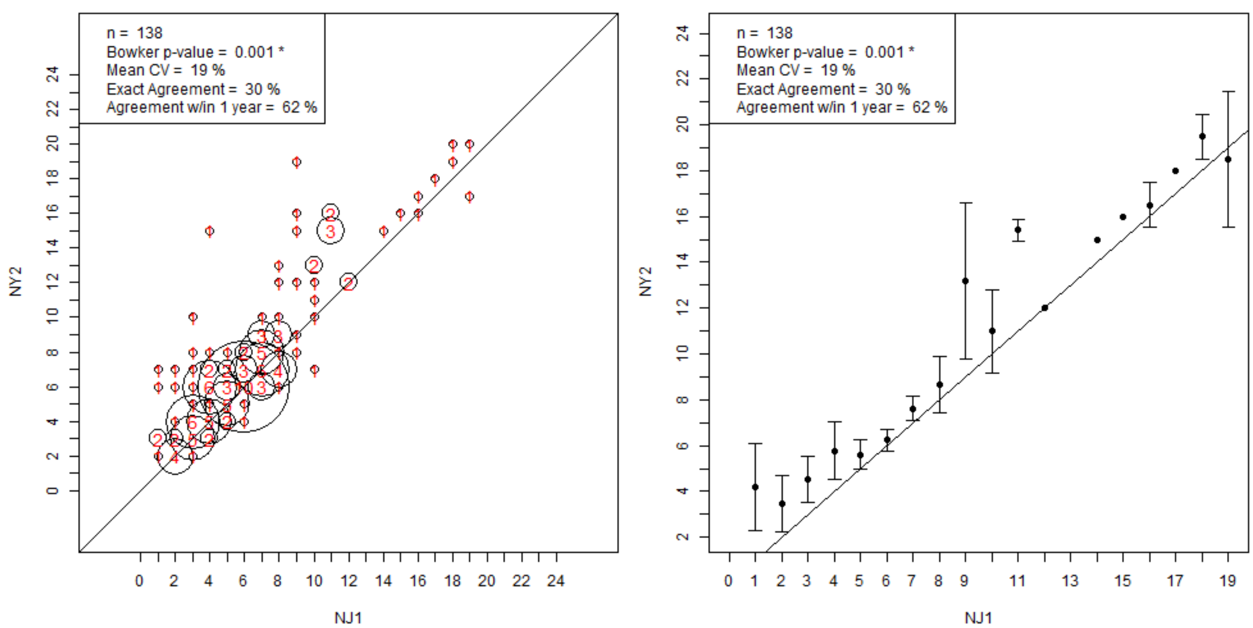



**Figure 44. Age frequency (left) and age bias (right) plots for NY reader 2 and NJ reader 1 American eel sectioned otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

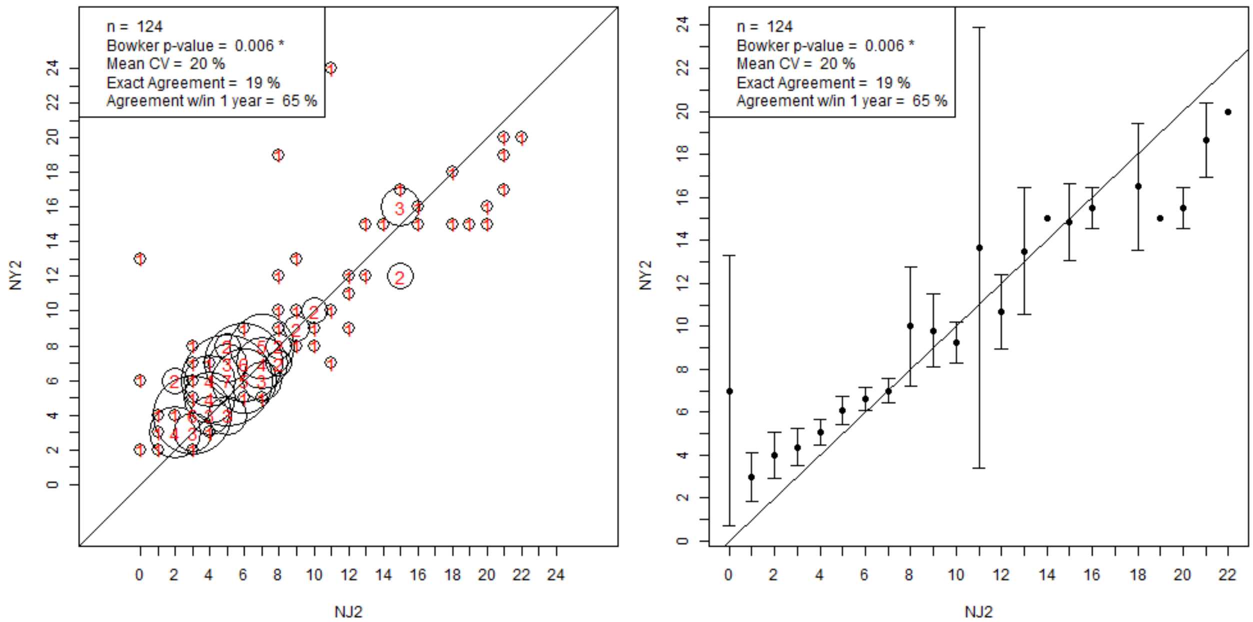



**Figure 45. Age frequency (left) and age bias (right) plots for NY reader 2 and NJ reader 2 American eel sectioned otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

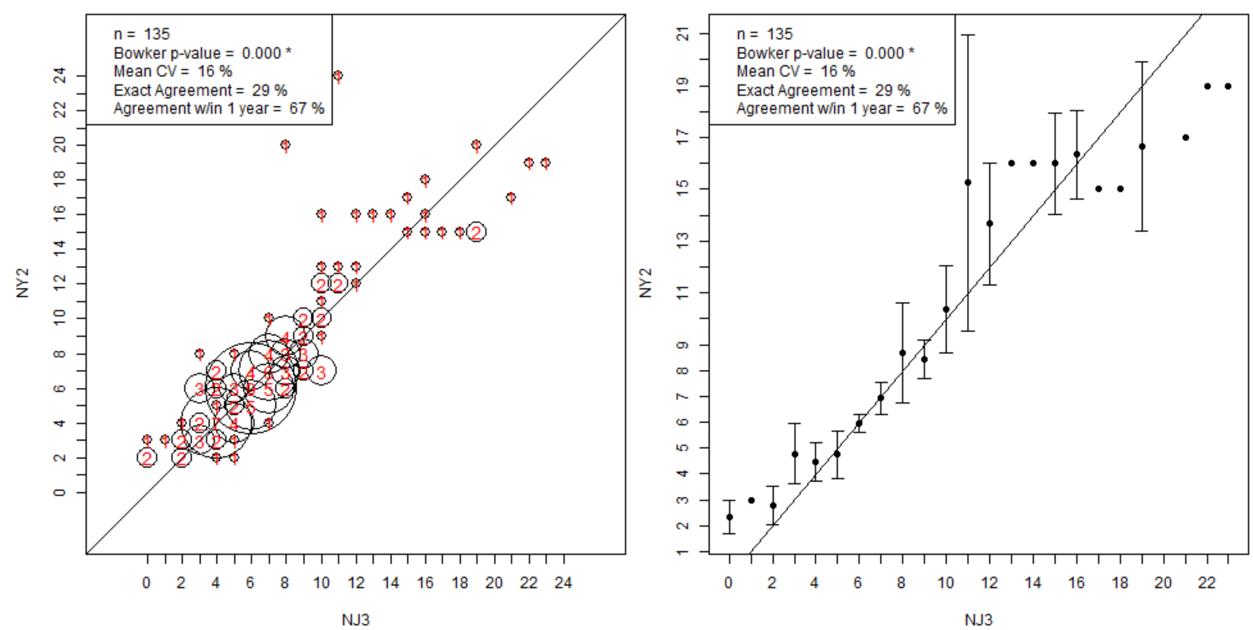



**Figure 46. Age frequency (left) and age bias (right) plots plot for NY reader 2 and NJ reader 3 American eel sectioned otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

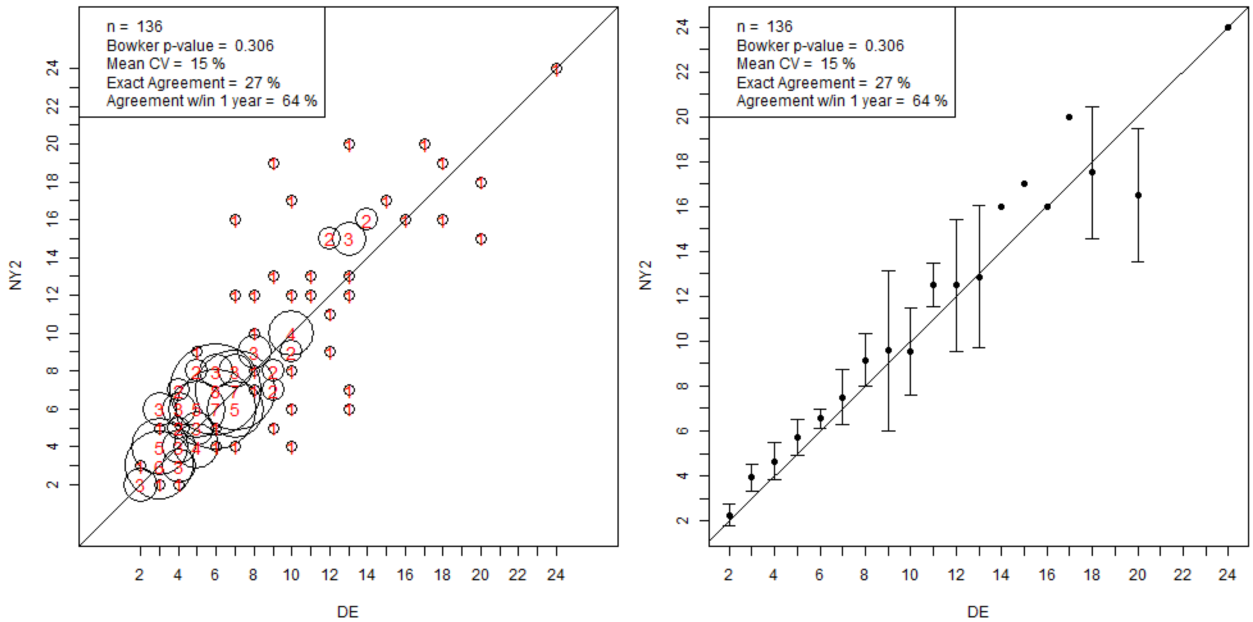



Figure 47. Age frequency (left) and age bias (right) plots plot for NY reader 2 and DE American eel sectioned otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.

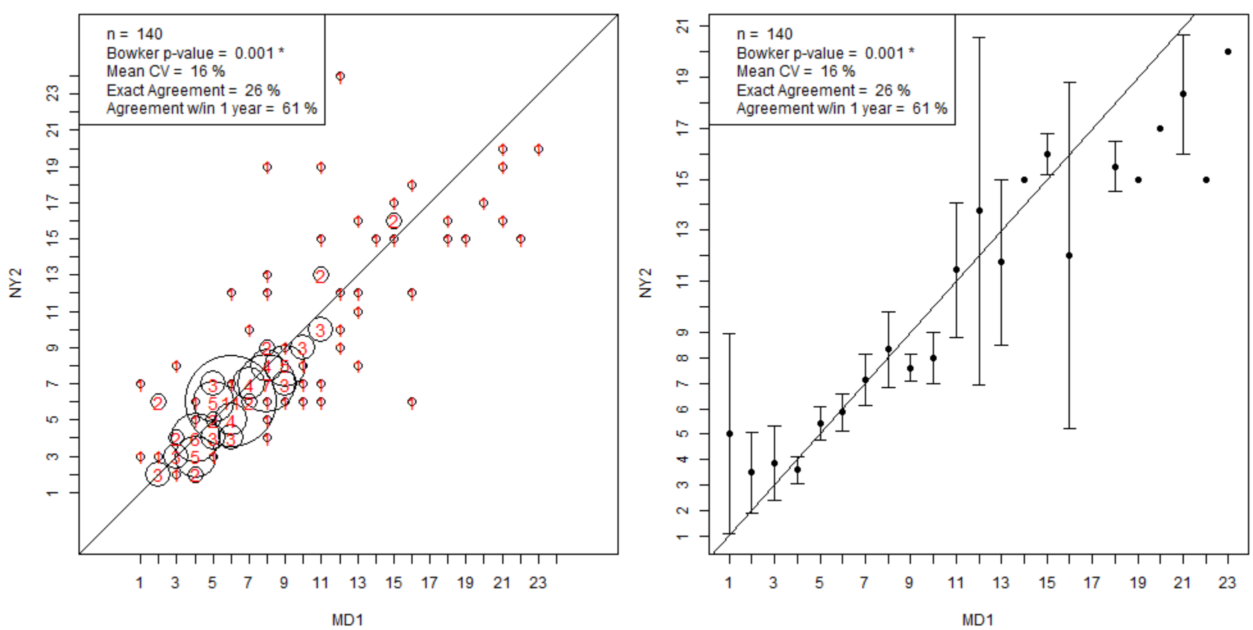



Figure 48. Age frequency (left) and age bias (right) plots for NY reader 2 and MD reader 1 American eel sectioned otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.

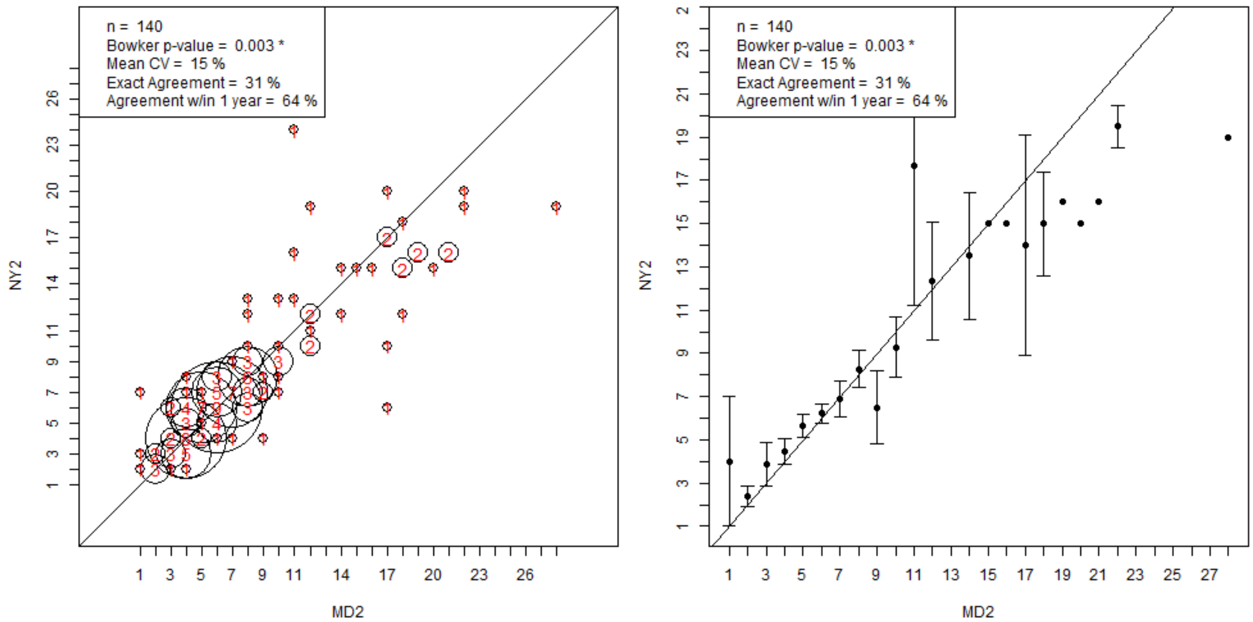



**Figure 49. Age frequency (left) and age bias (right) plots for NY reader 2 and MD reader 2 American eel sectioned otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

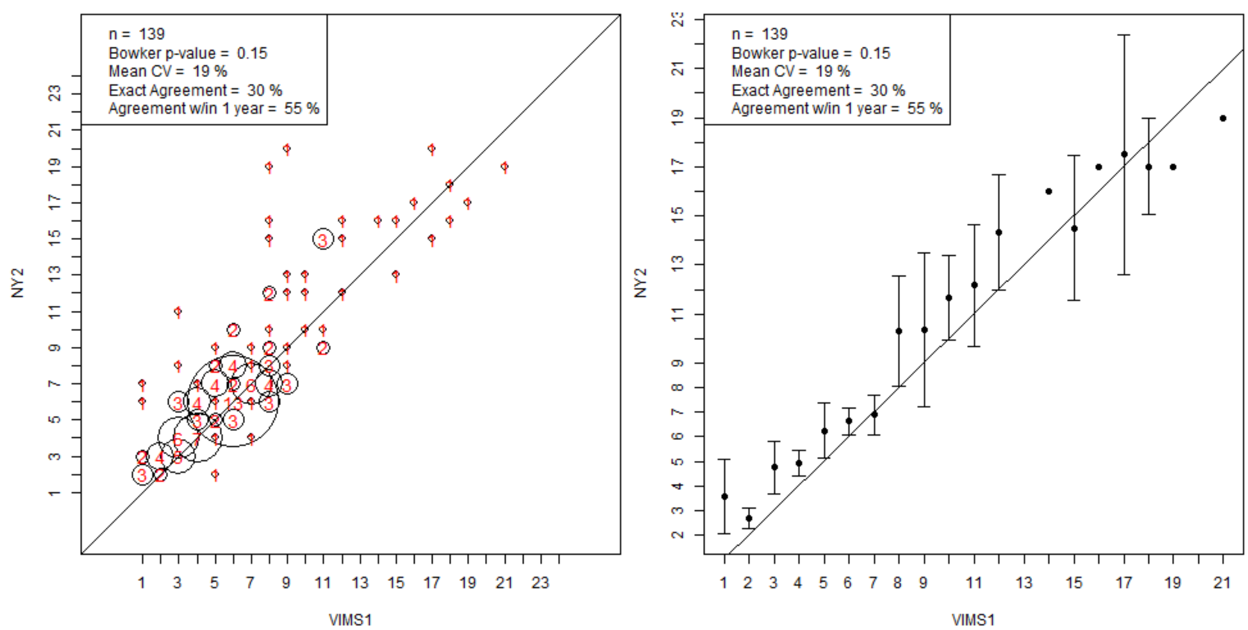



**Figure 50. Age frequency (left) and age bias (right) plots plot for NY reader 2 and VIMS reader 1 American eel sectioned otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

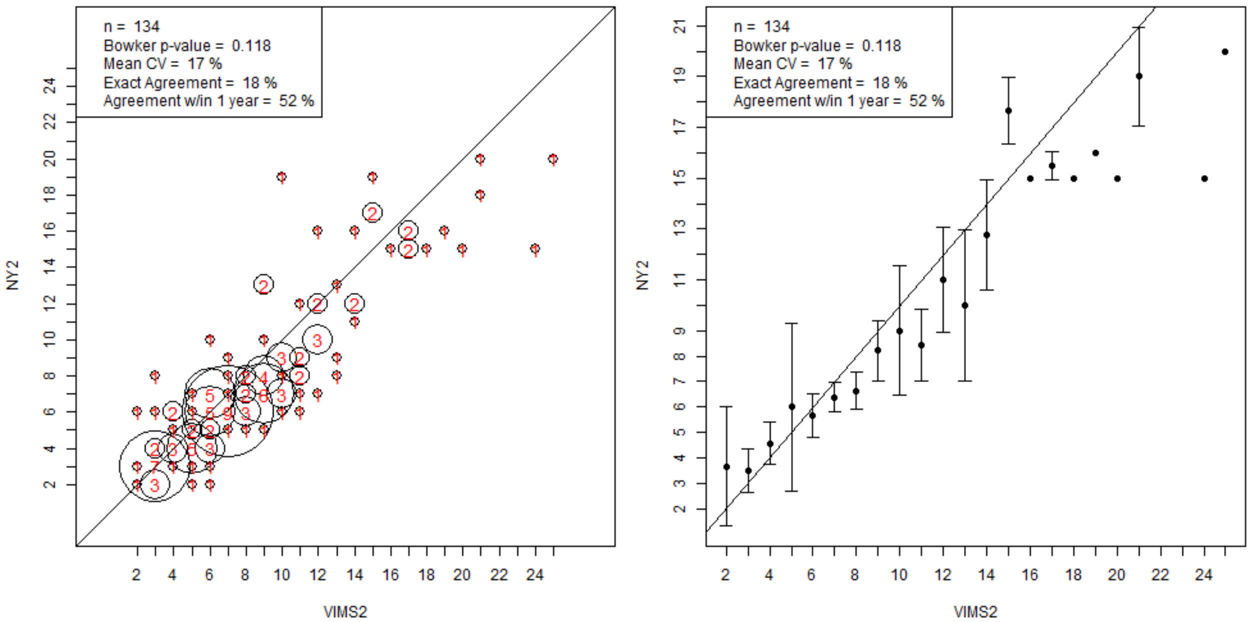



**Figure 51. Age frequency (left) and age bias (right) plots for NY reader 2 and VIMS reader 2 American eel sectioned otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

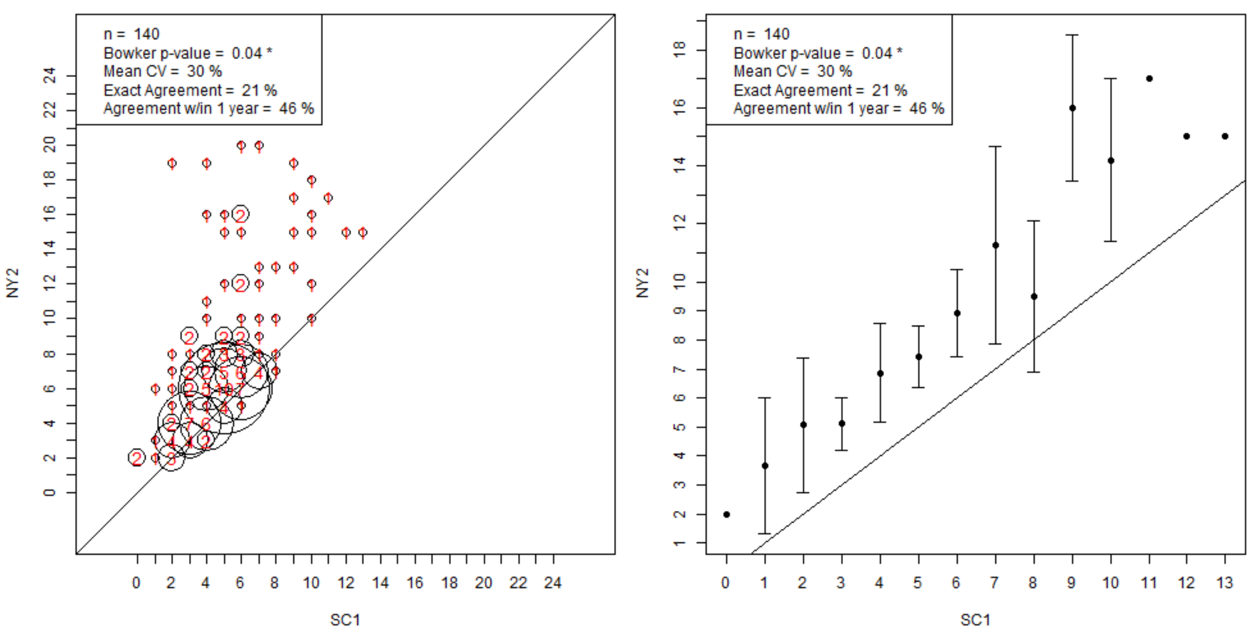



**Figure 52. Age frequency (left) and age bias (right) plots for NY reader 2 and SC reader 1 American eel sectioned otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

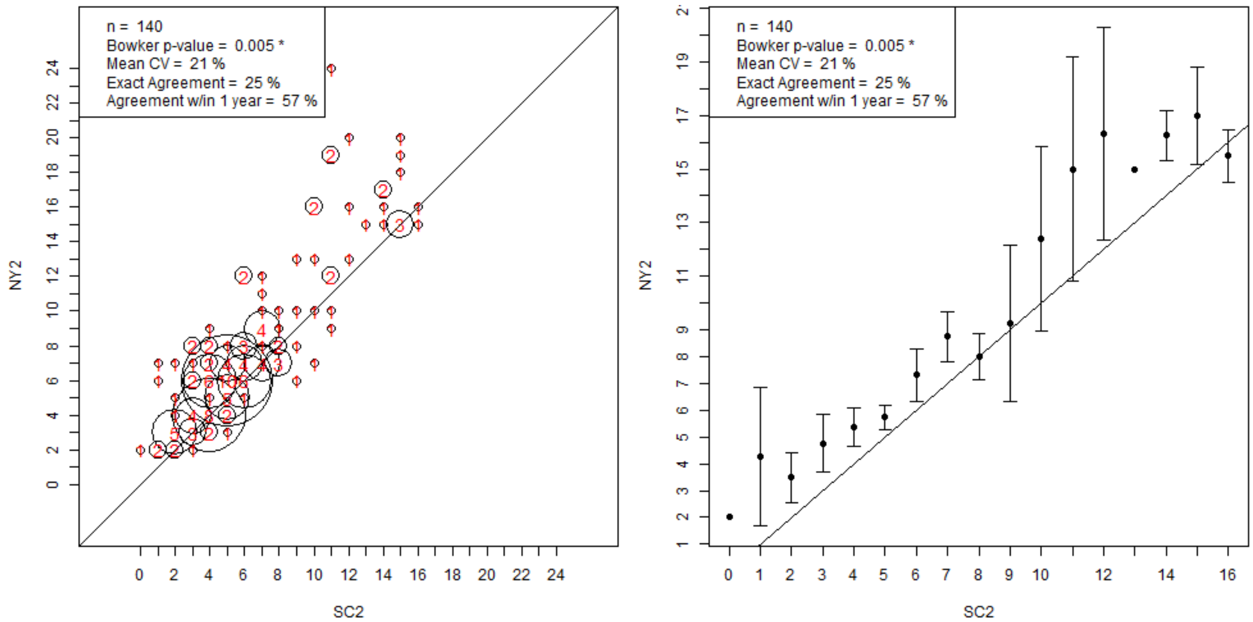



**Figure 53. Age frequency (left) and age bias (right) plots for NY reader 2 and SC reader 2 American eel sectioned otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

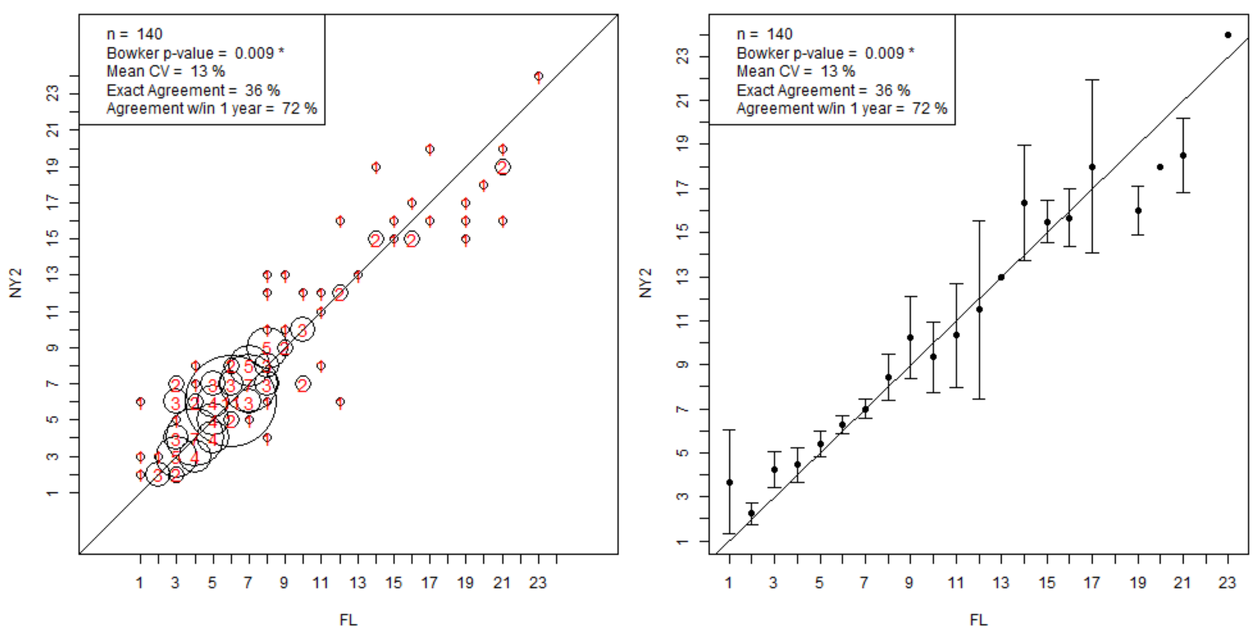



**Figure 54. Age frequency (left) and age bias (right) plots for NY reader 2 and FL American eel sectioned otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

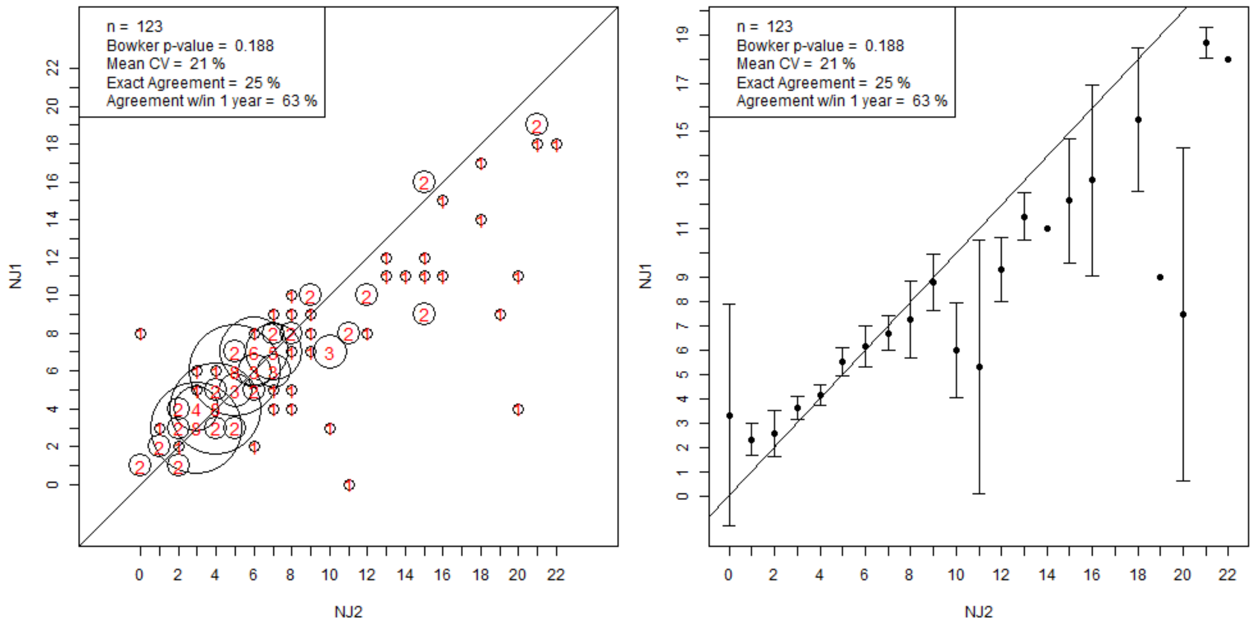



**Figure 55. Age frequency (left) and age bias (right) plots for NJ reader 1 and NJ reader 2 American eel sectioned otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

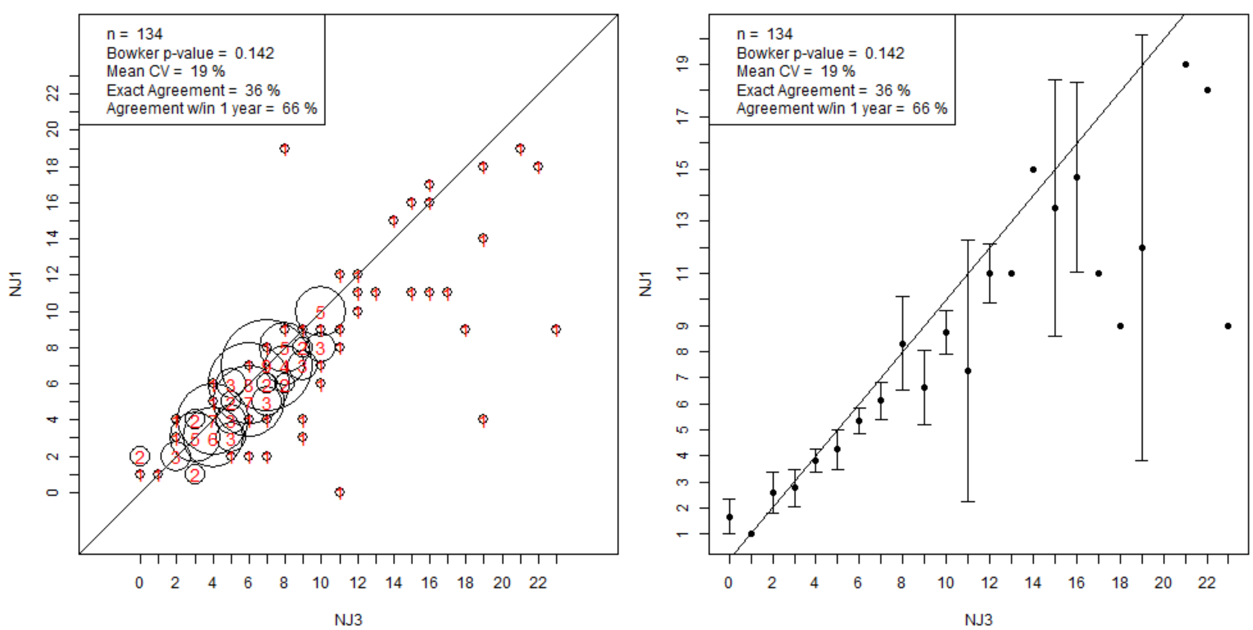



**Figure 56. Age frequency (left) and age bias (right) plots for NJ reader 1 and NJ reader 3 American eel sectioned otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

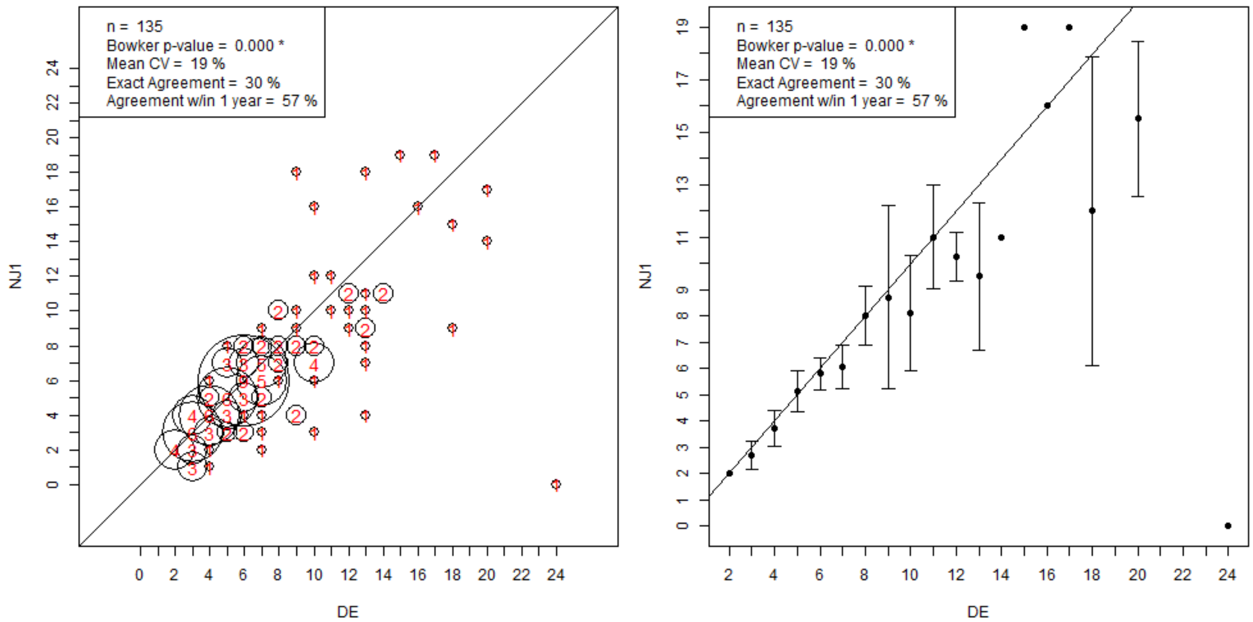



**Figure 57. Age frequency (left) and age bias (right) plots for NJ reader 1 and DE American eel sectioned otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

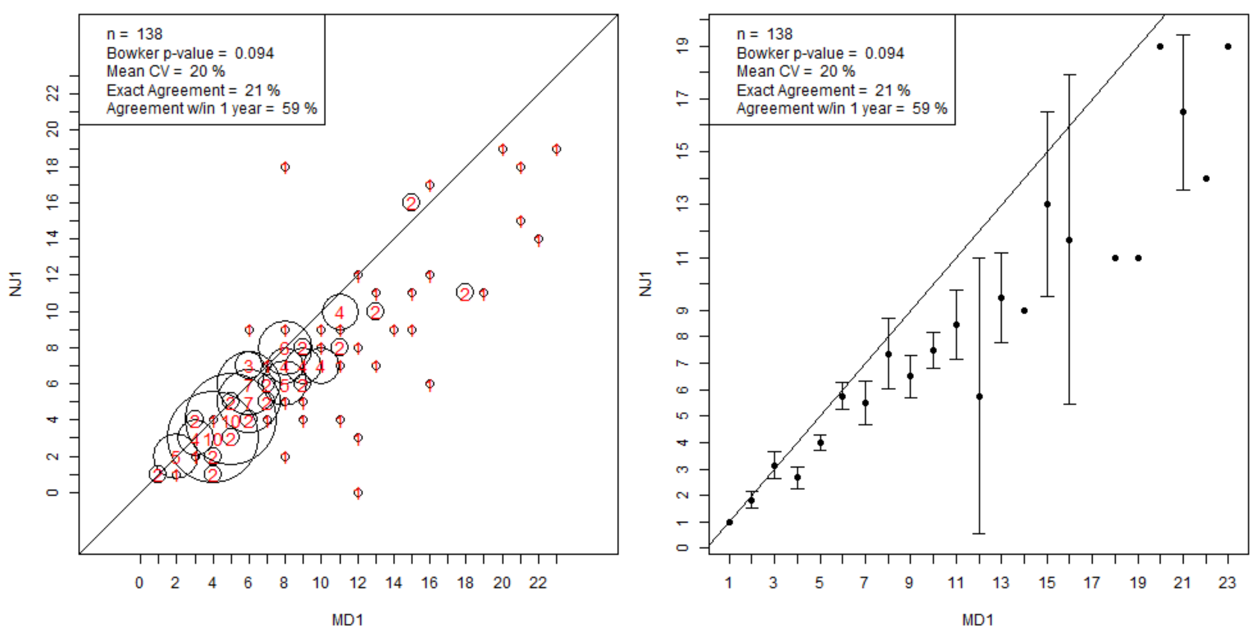



**Figure 58. Age frequency (left) and age bias (right) plots for NJ reader 1 and MD reader 1 American eel sectioned otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

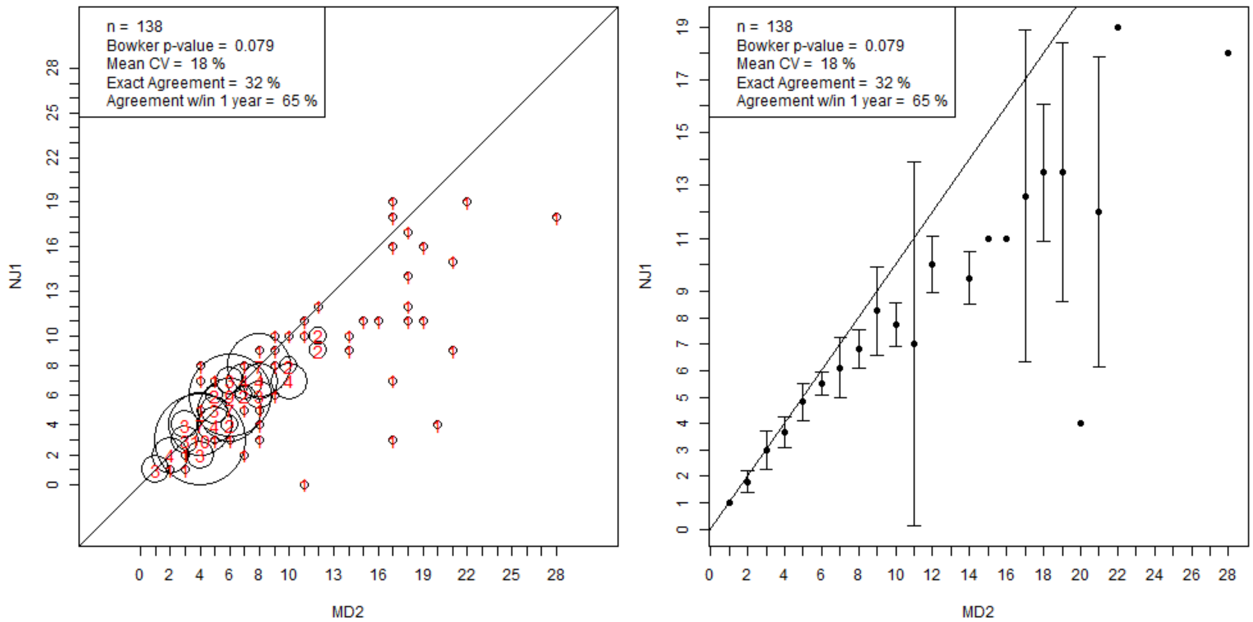



**Figure 59. Age frequency (left) and age bias (right) plots for NJ reader 1 and MD reader 2 American eel sectioned otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

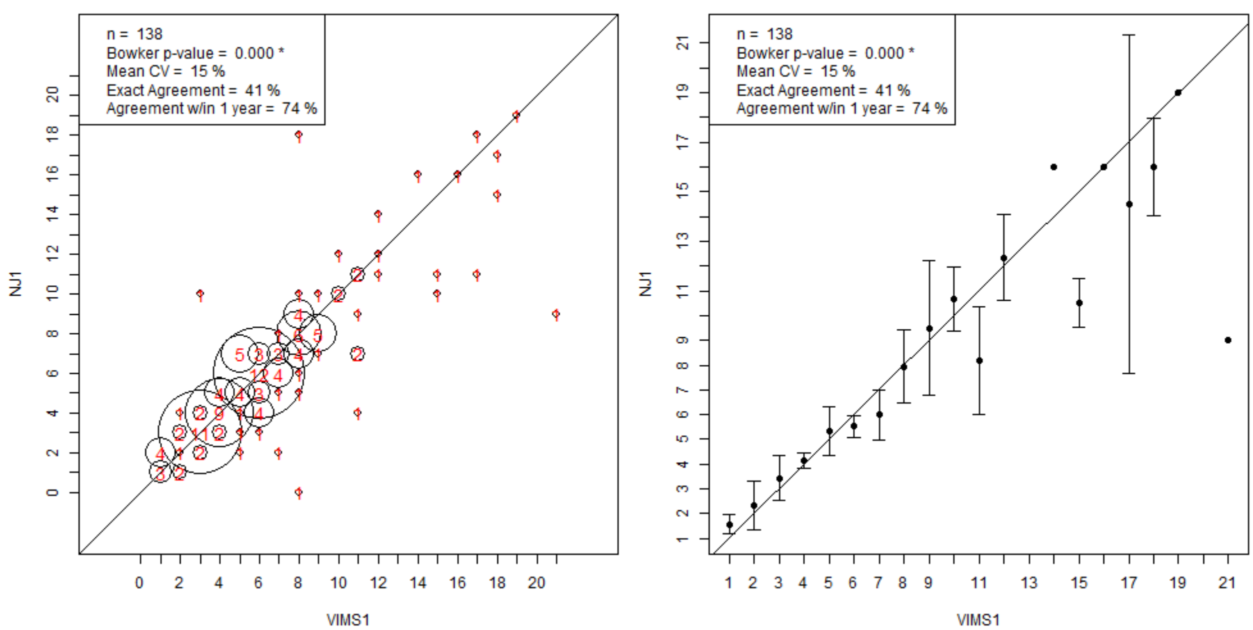



**Figure 60. Age frequency (left) and age bias (right) plots for NJ reader 1 and VIMS reader 1 American eel sectioned otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

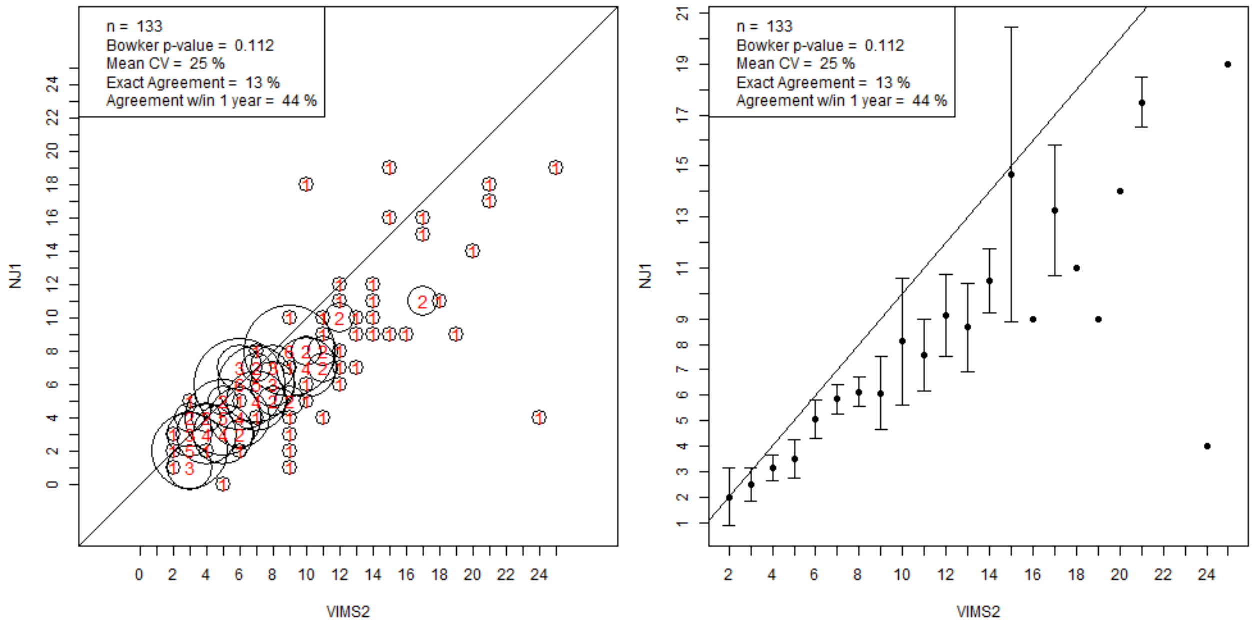



**Figure 61. Age frequency (left) and age bias (right) plots for NJ reader 1 and VIMS reader 2 American eel sectioned otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

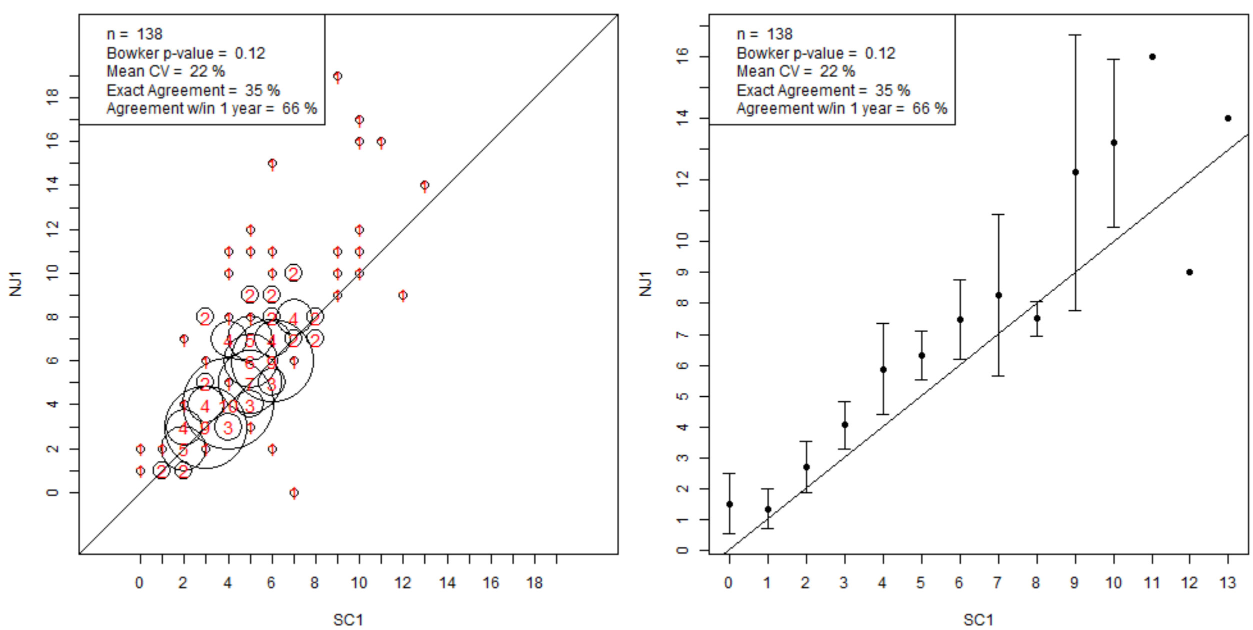



**Figure 62. Age frequency (left) and age bias (right) plots for NJ reader 1 and SC reader 1 American eel sectioned otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

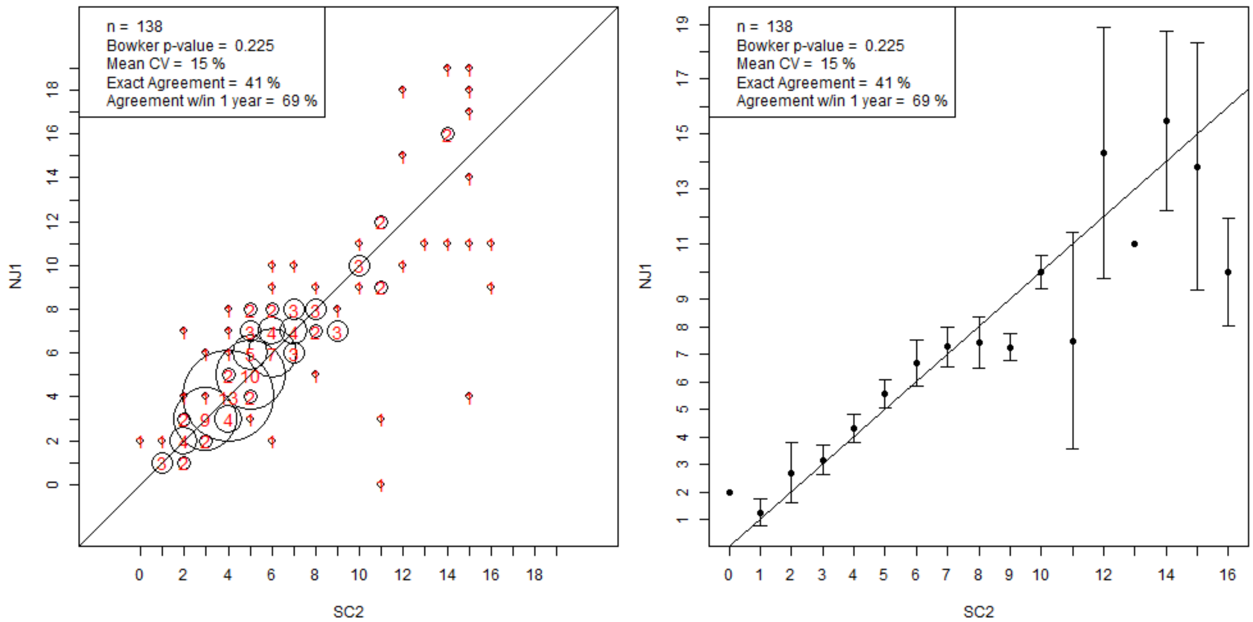



**Figure 63. Age frequency (left) and age bias (right) plots for NJ reader 1 and SC reader 2 American eel sectioned otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

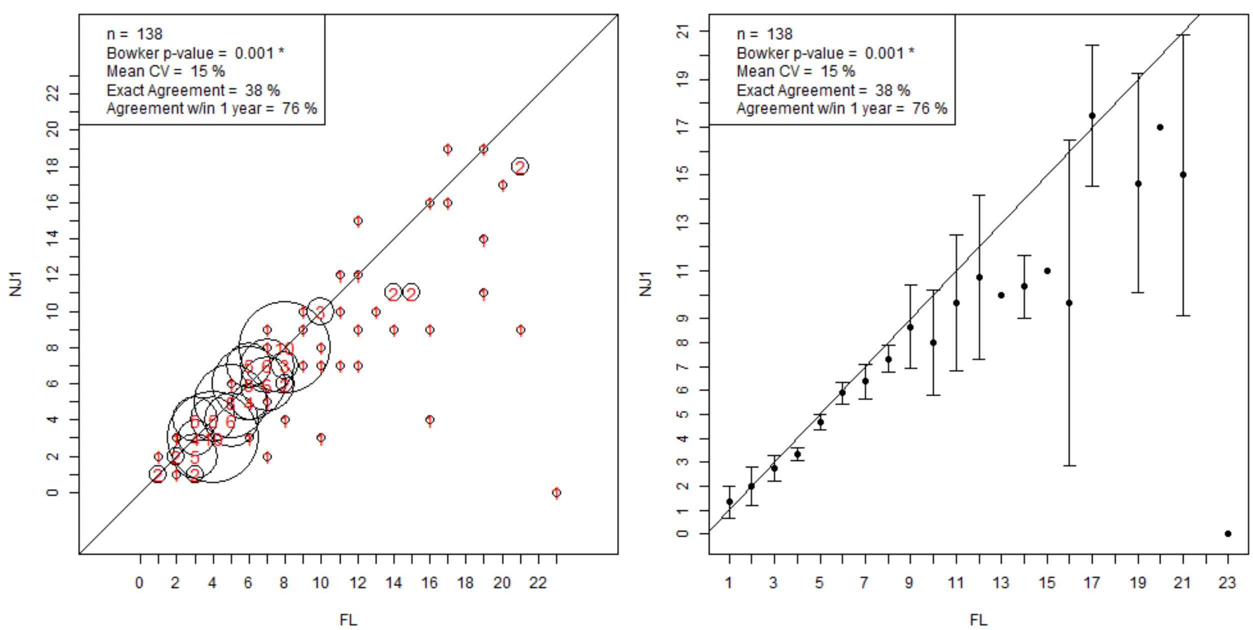



**Figure 64. Age frequency (left) and age bias (right) plots for NJ reader 1 and FL American eel sectioned otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

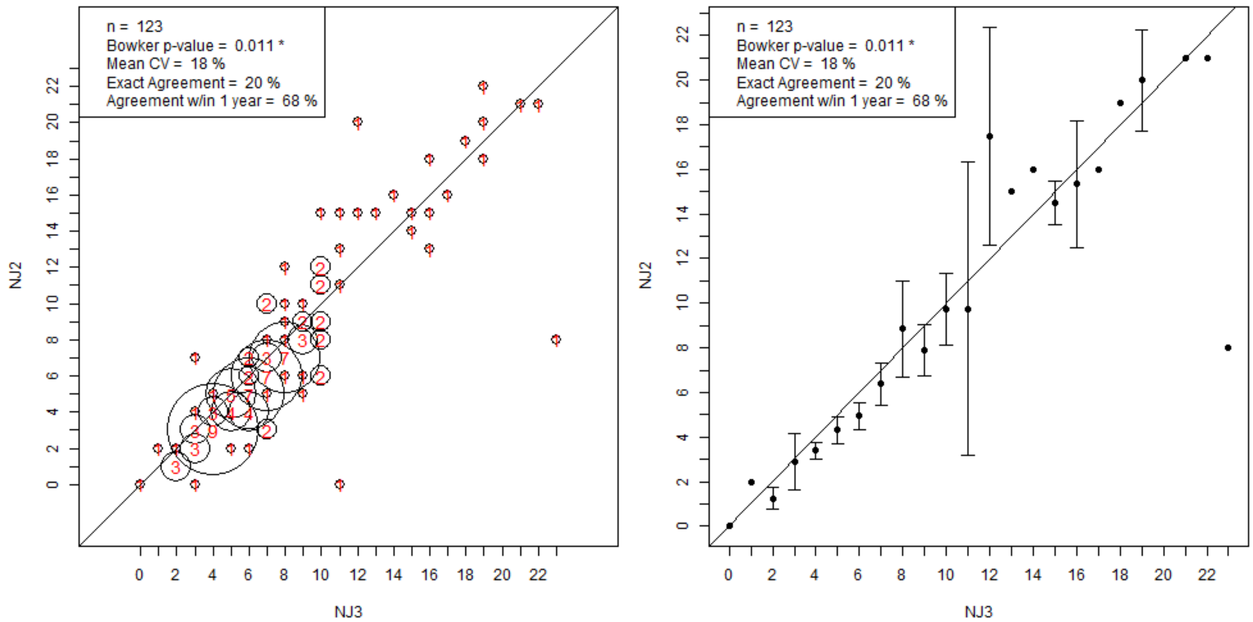



**Figure 65. Age frequency (left) and age bias (right) plots for NJ reader 2 and NJ reader 3 American eel sectioned otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

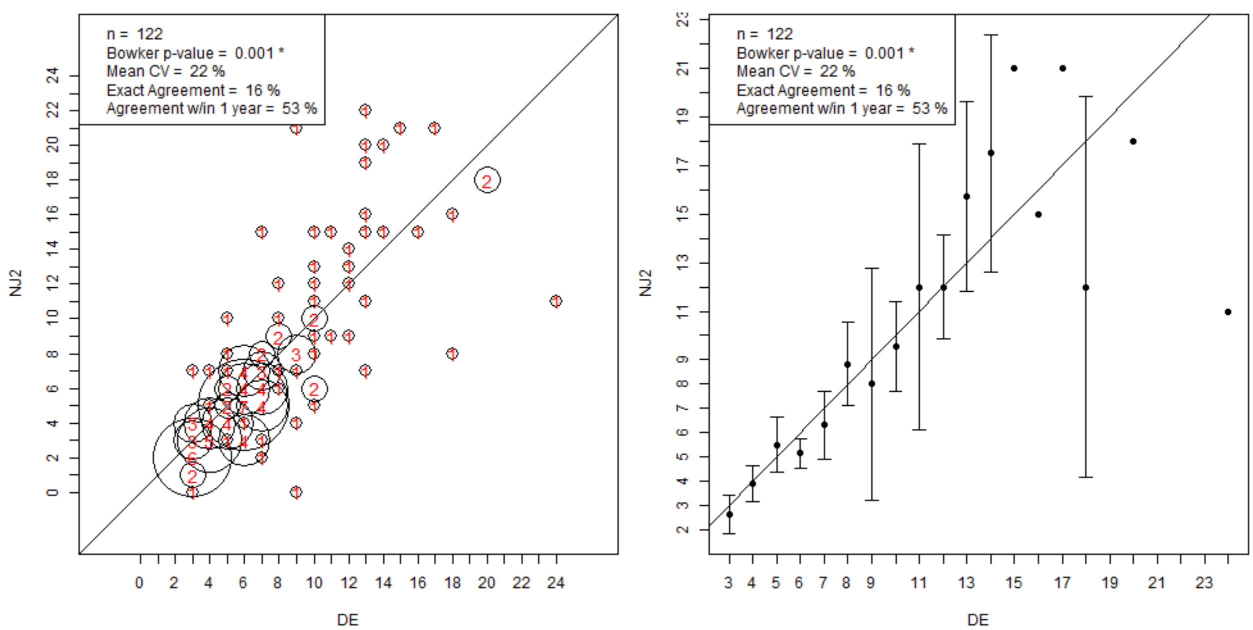



**Figure 66. Age frequency (left) and age bias (right) plots for NJ reader 2 and DE American eel sectioned otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

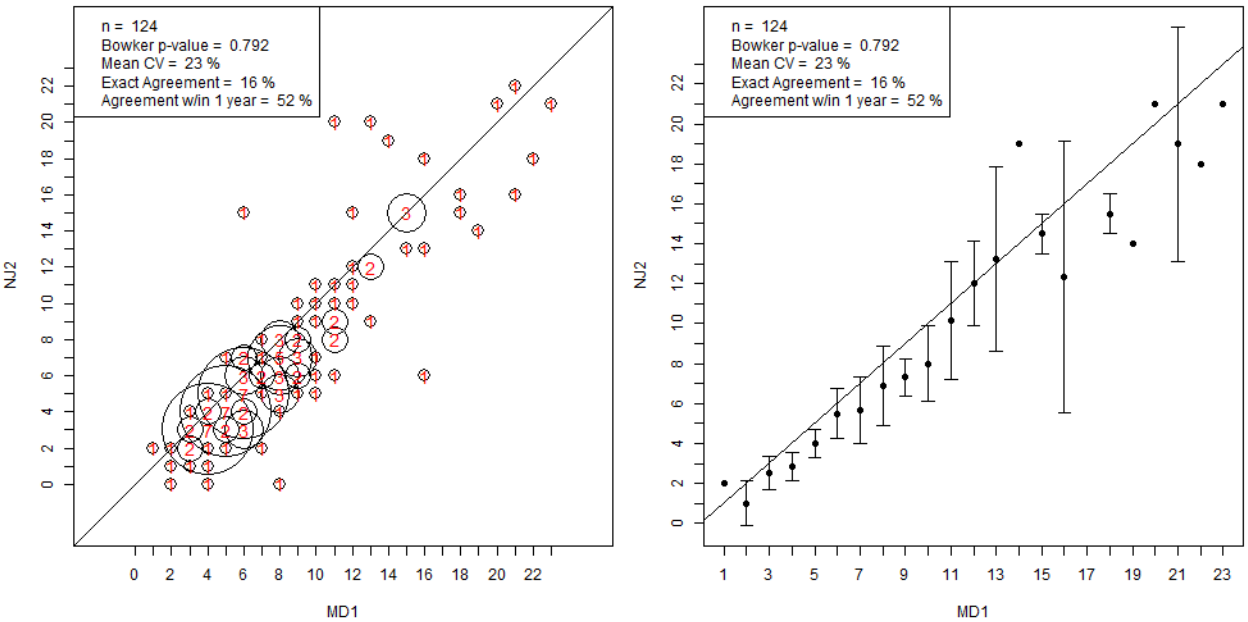



**Figure 67. Age frequency (left) and age bias (right) plots for NJ reader 2 and MD reader 1 American eel sectioned otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

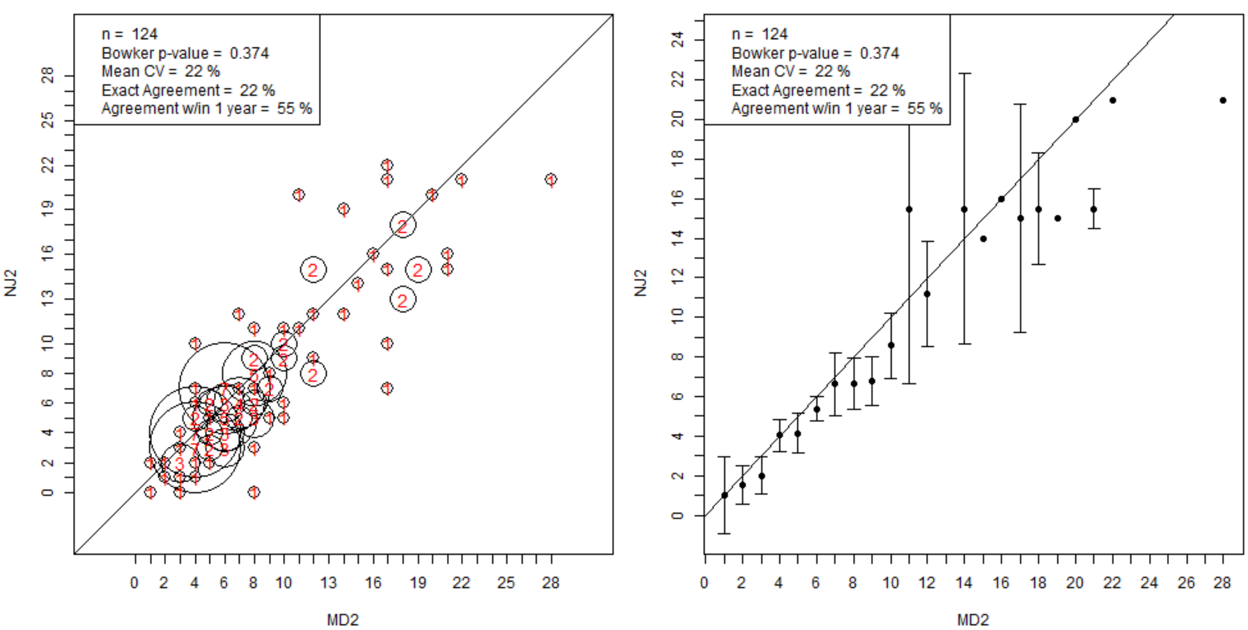



**Figure 68. Age frequency (left) and age bias (right) plots for NJ reader 2 and MD reader 2 American eel sectioned otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

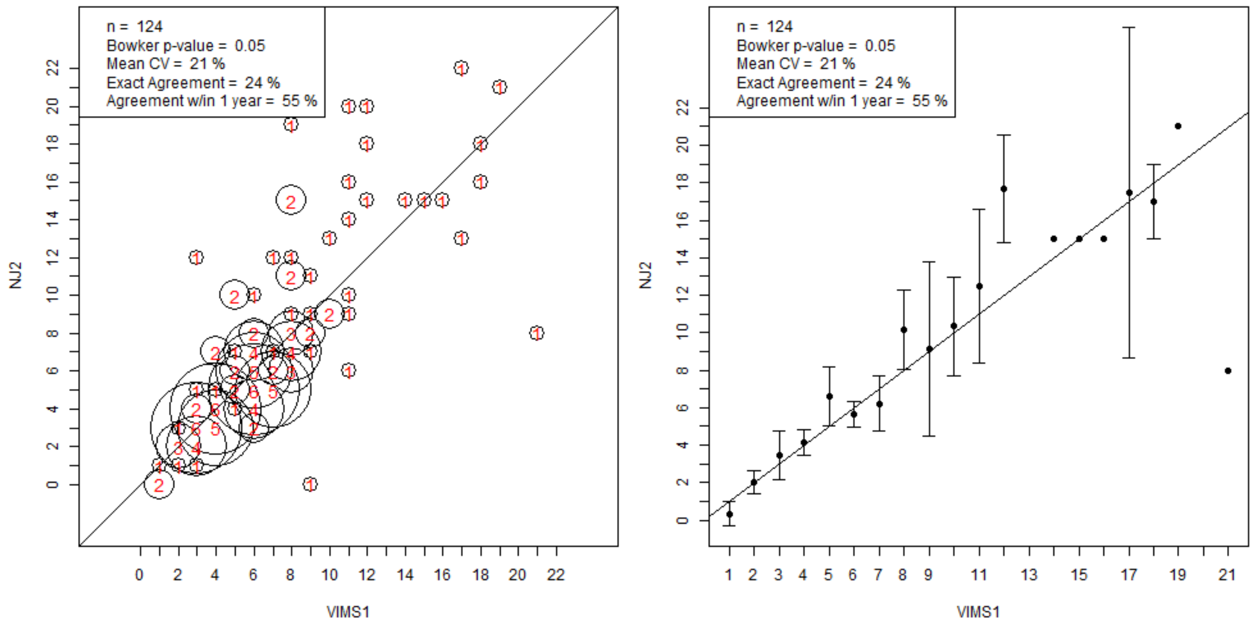



**Figure 69. Age frequency (left) and age bias (right) plots for NJ reader 2 and VIMS reader 1 American eel sectioned otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

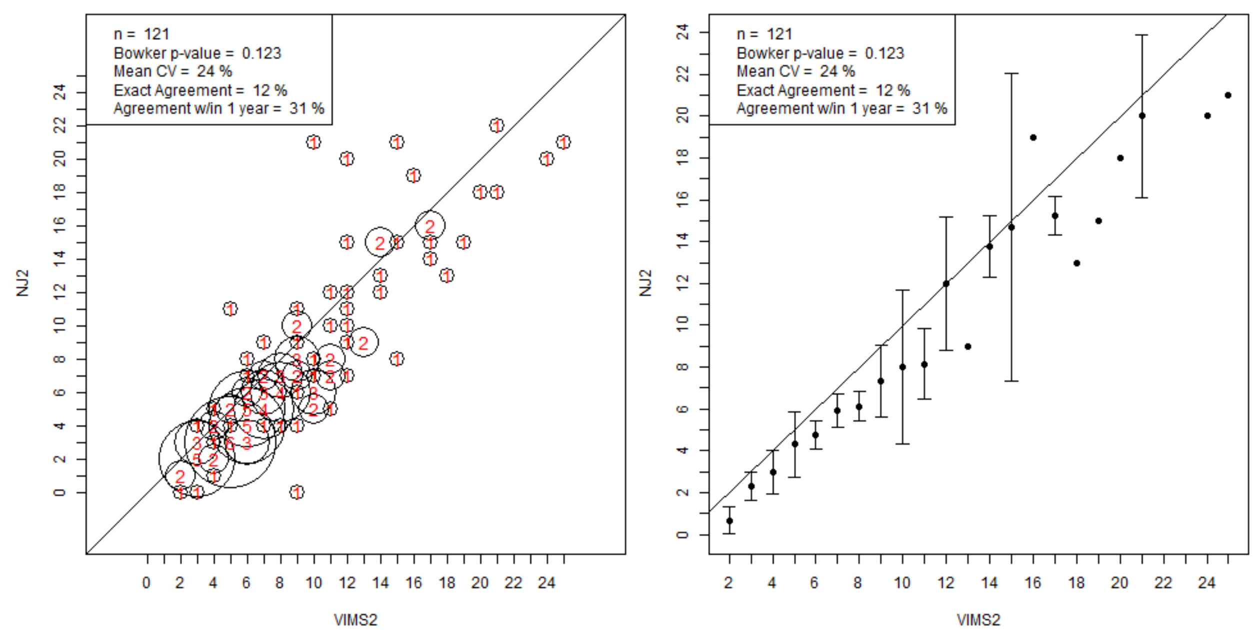



**Figure 70. Age frequency (left) and age bias (right) plots for NJ reader 2 and VIMS reader 2 American eel sectioned otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

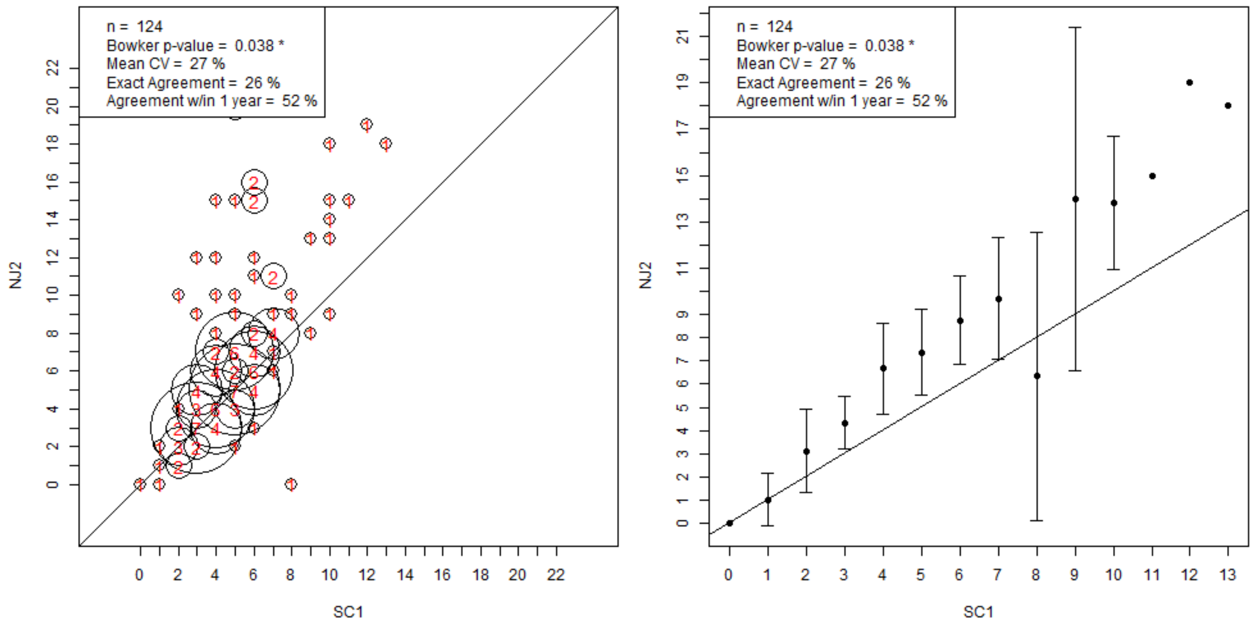



Figure 71. Age frequency (left) and age bias (right) plots for NJ reader 2 and SC reader 1 American eel sectioned otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.

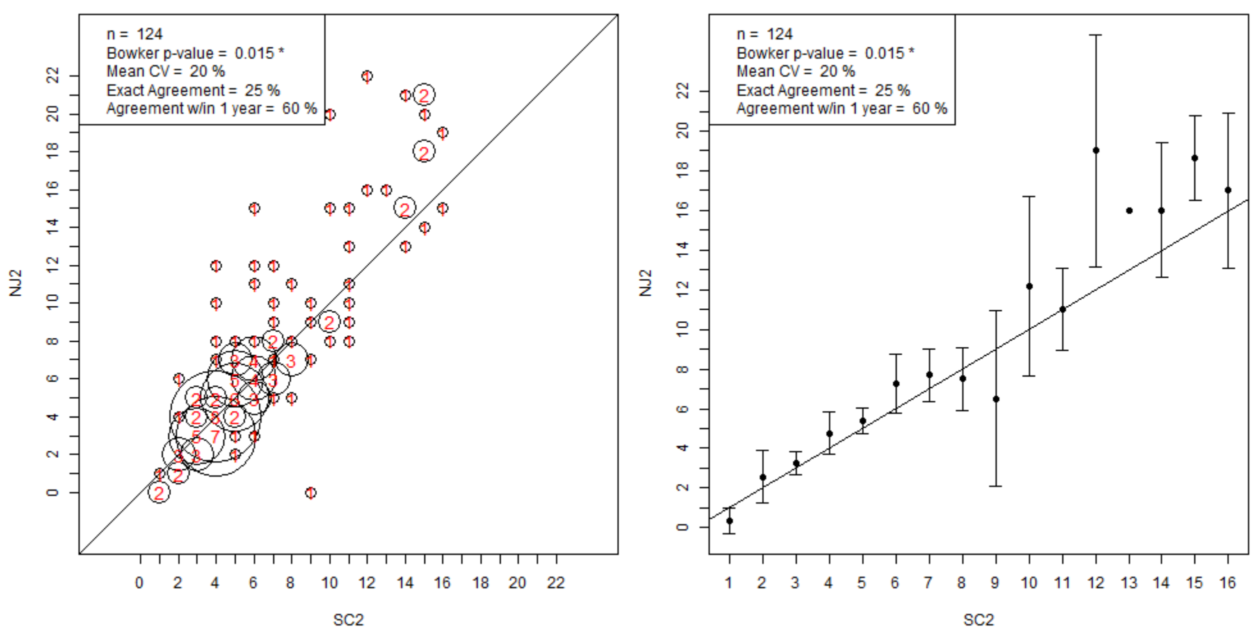



Figure 72. Age frequency (left) and age bias (right) plots for NJ reader 2 and SC reader 2 American eel sectioned otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.

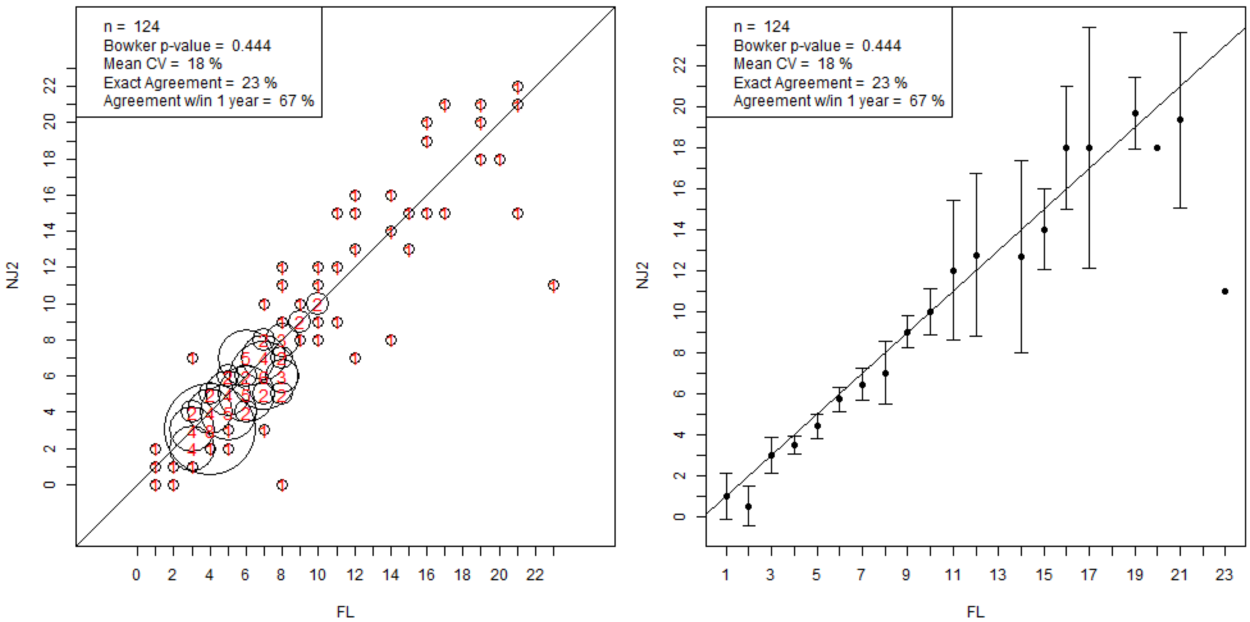



**Figure 73. Age frequency (left) and age bias (right) plots for NJ reader 2 and FL American eel sectioned otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

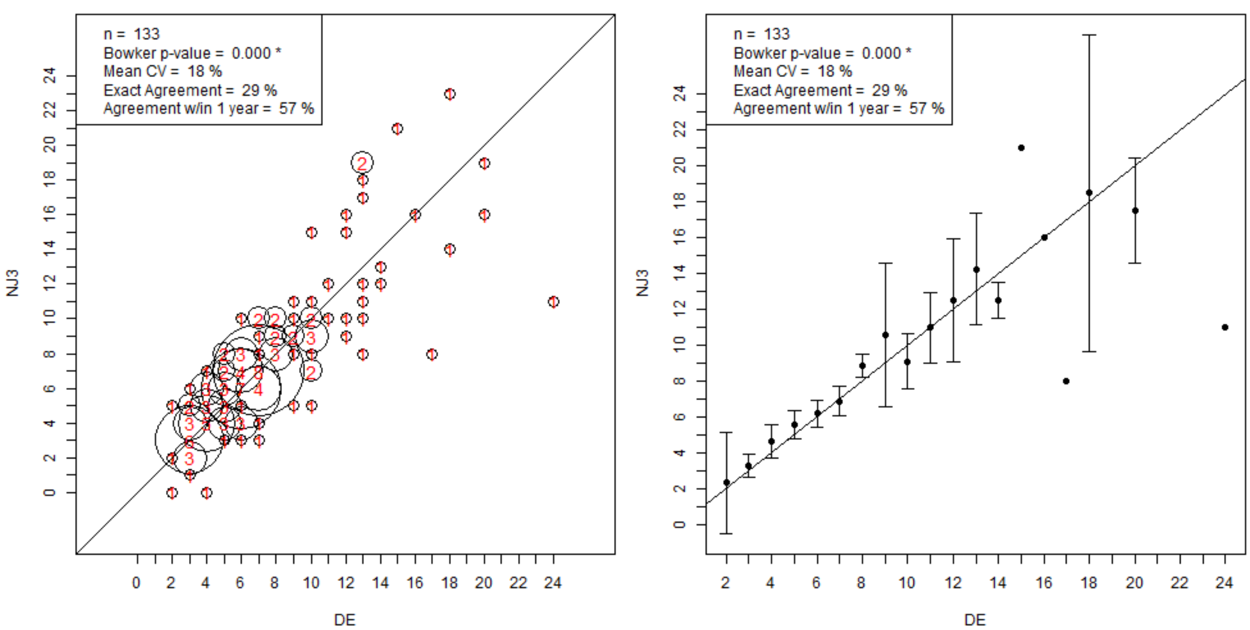



**Figure 74. Age frequency (left) and age bias (right) plots for NJ reader 3 and DE American eel sectioned otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

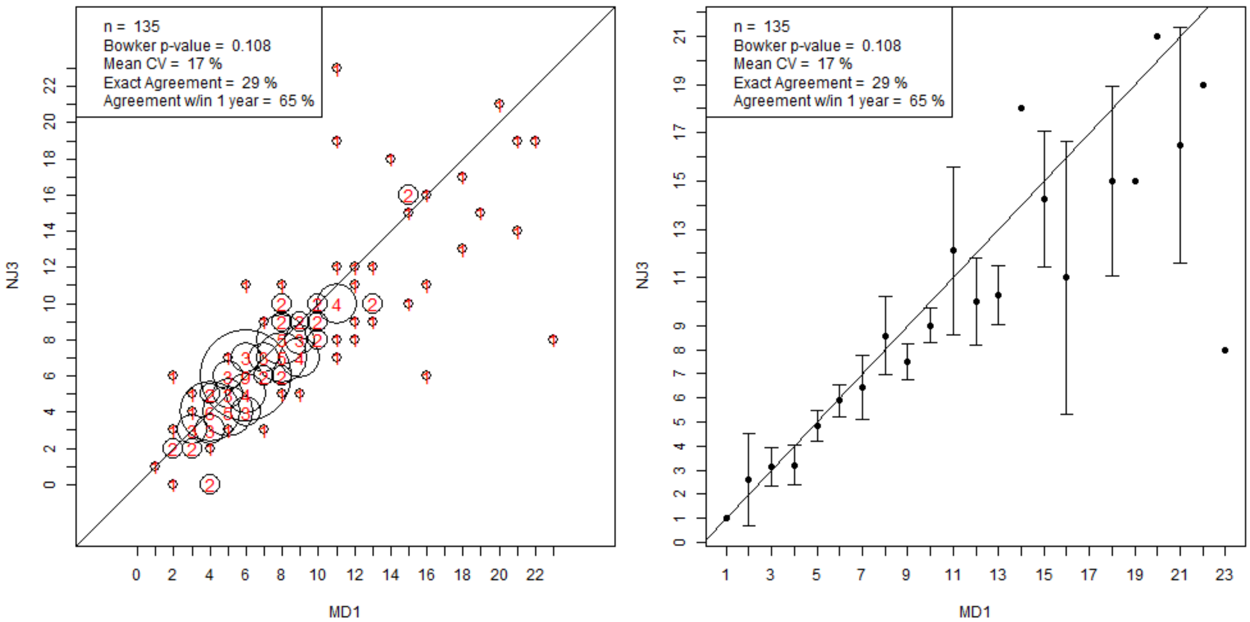



**Figure 75. Age frequency (left) and age bias (right) plots for NJ reader 3 and MD reader 1 American eel sectioned otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

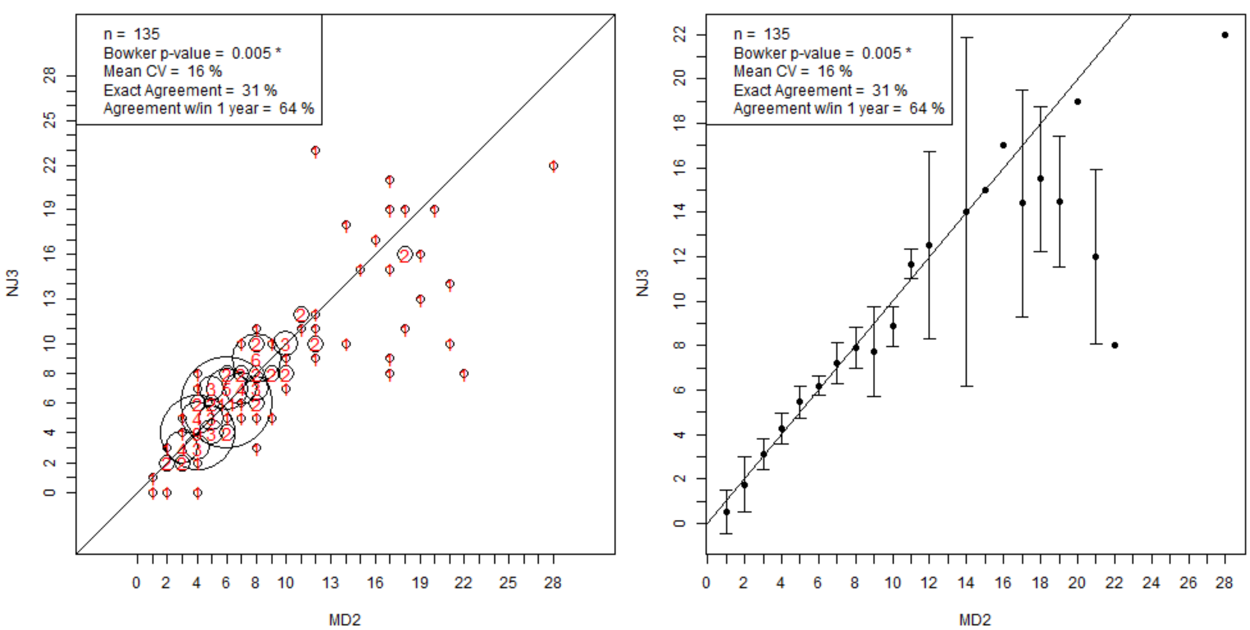



**Figure 76. Age frequency (left) and age bias (right) plots for NJ reader 3 and MD reader 2 American eel sectioned otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

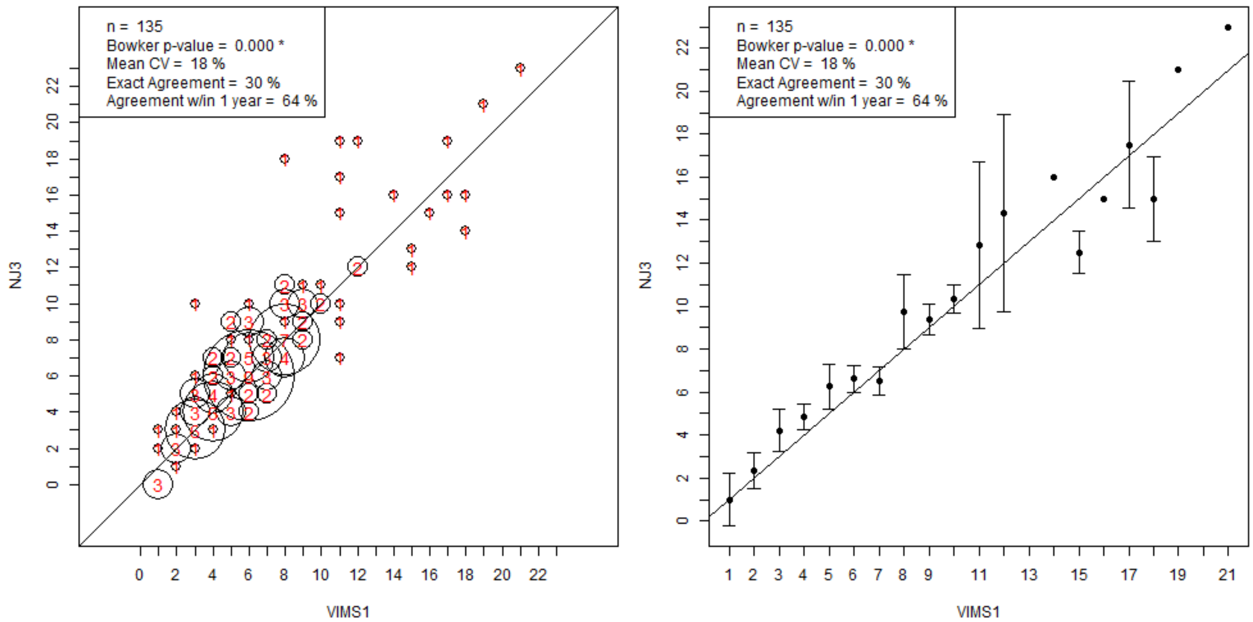



**Figure 77. Age frequency (left) and age bias (right) plots for NJ reader 3 and VIMS reader 1 American eel sectioned otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

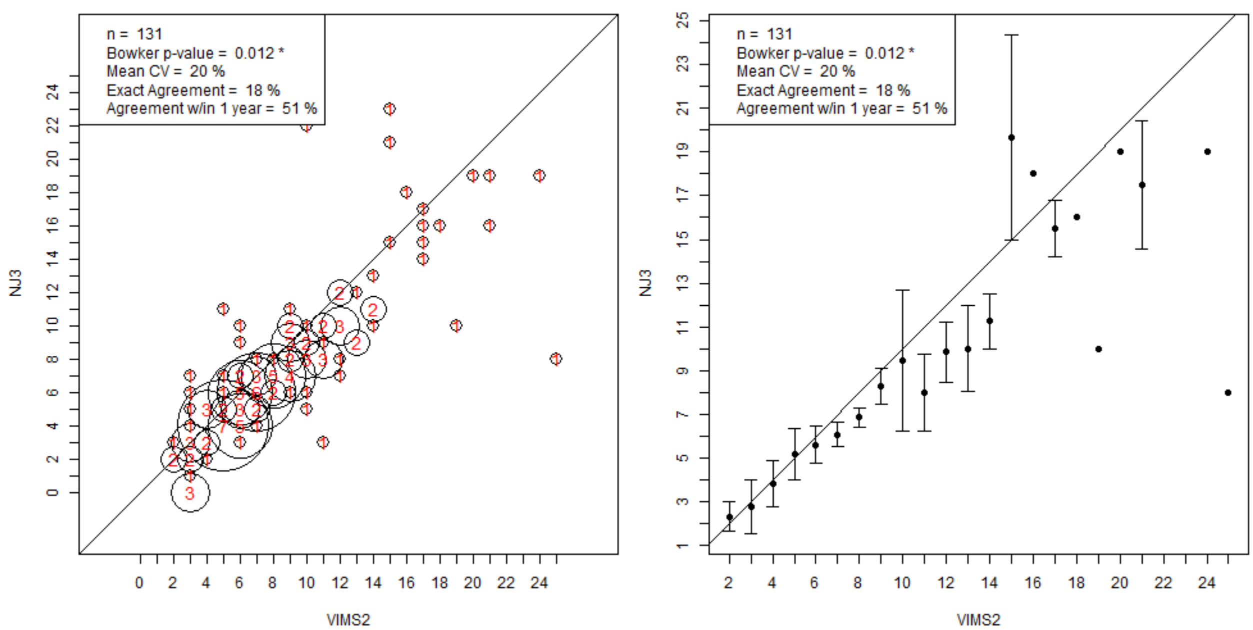



**Figure 78. Age frequency (left) and age bias (right) plots for NJ reader 3 and VIMS reader 2 American eel sectioned otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

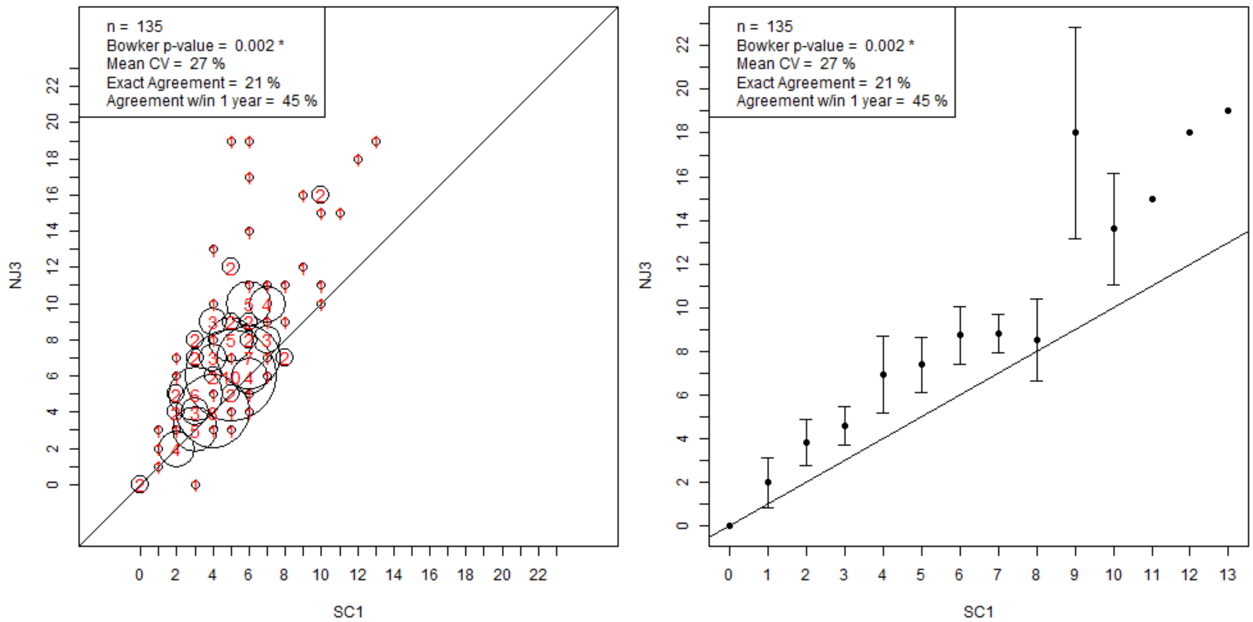



**Figure 79. Age frequency (left) and age bias (right) plots for NJ reader 3 and SC reader 1 American eel sectioned otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

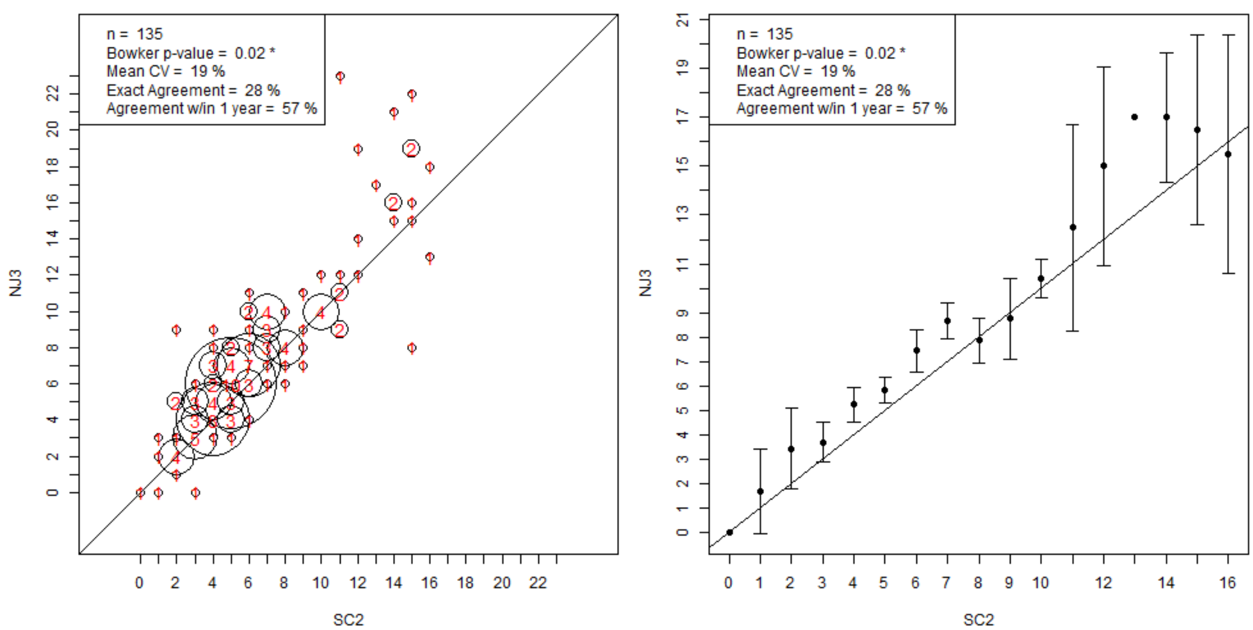



**Figure 80. Age frequency (left) and age bias (right) plots for NJ reader 3 and SC reader 2 American eel sectioned otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

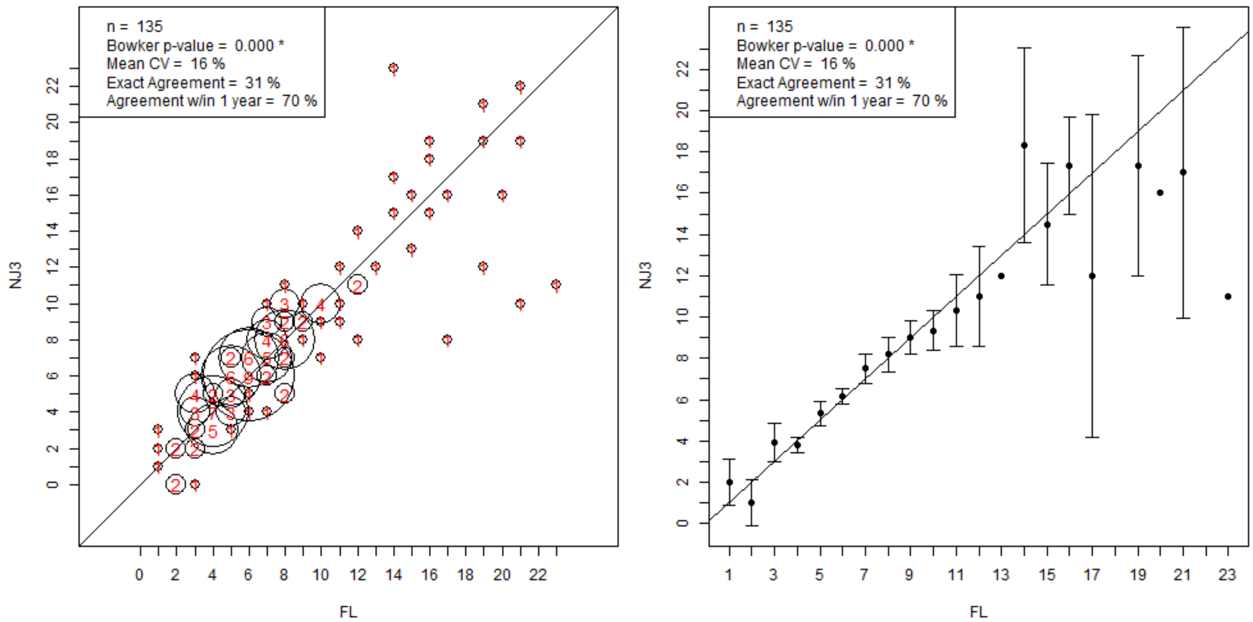



**Figure 81. Age frequency (left) and age bias (right) plots for NJ reader 3 and FL American eel sectioned otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

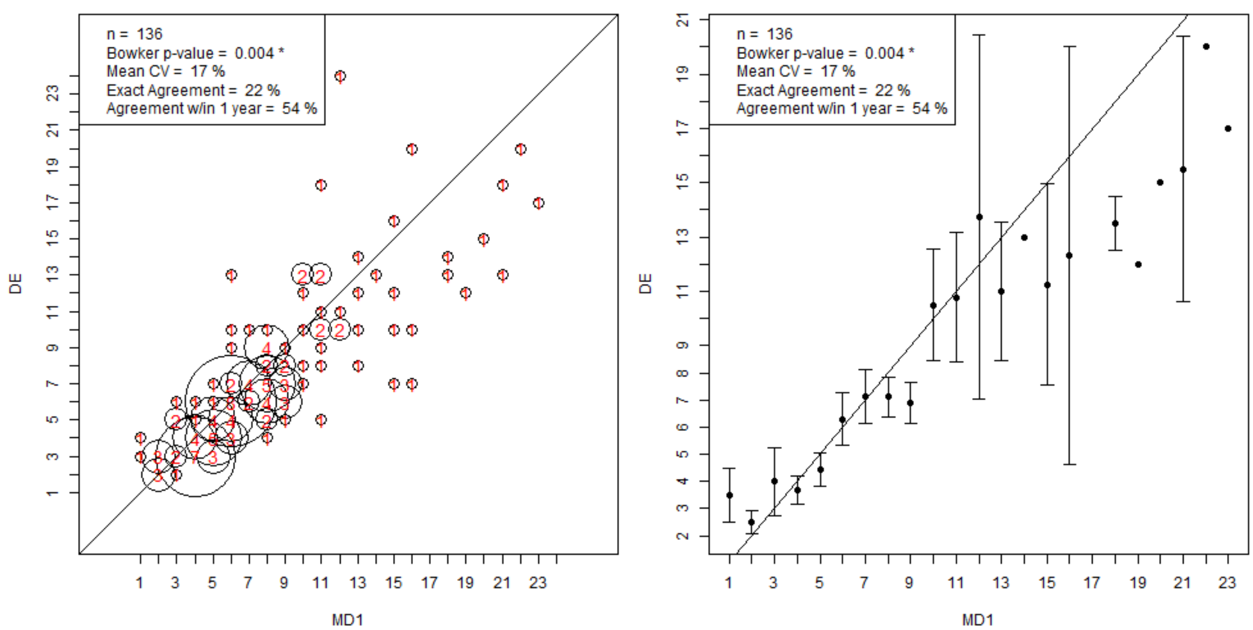



**Figure 82. Age frequency (left) and age bias (right) plots for DE and MD reader 1 American eel sectioned otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

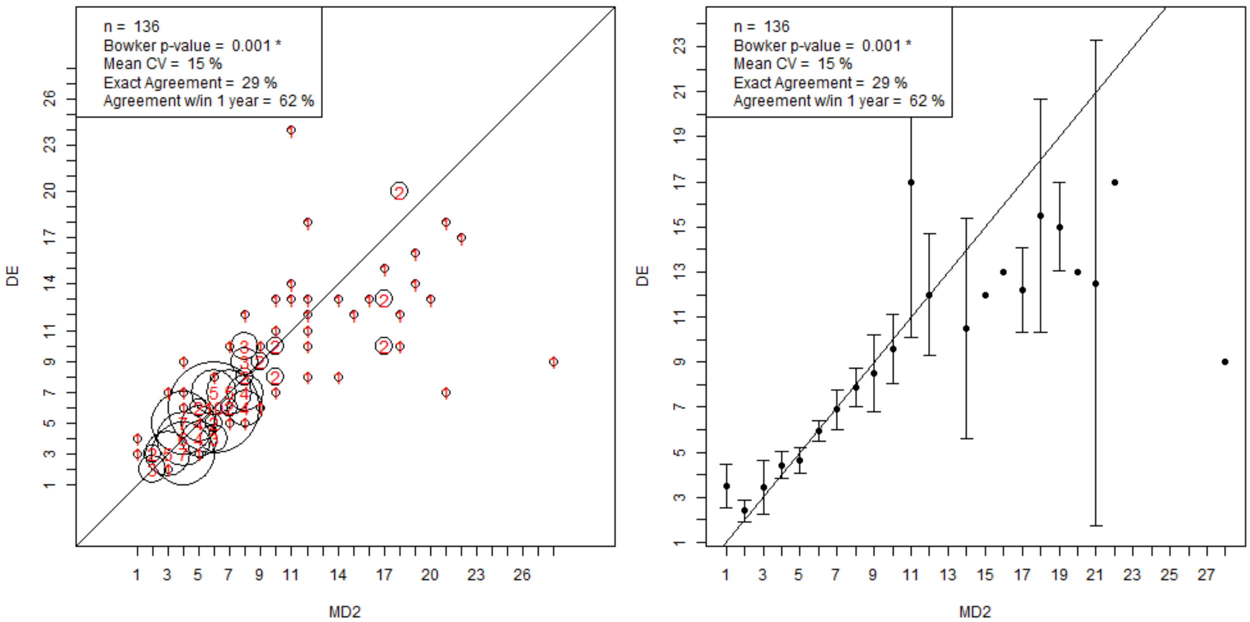



**Figure 83. Age frequency (left) and age bias (right) plots for DE and MD reader 2 American eel sectioned otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

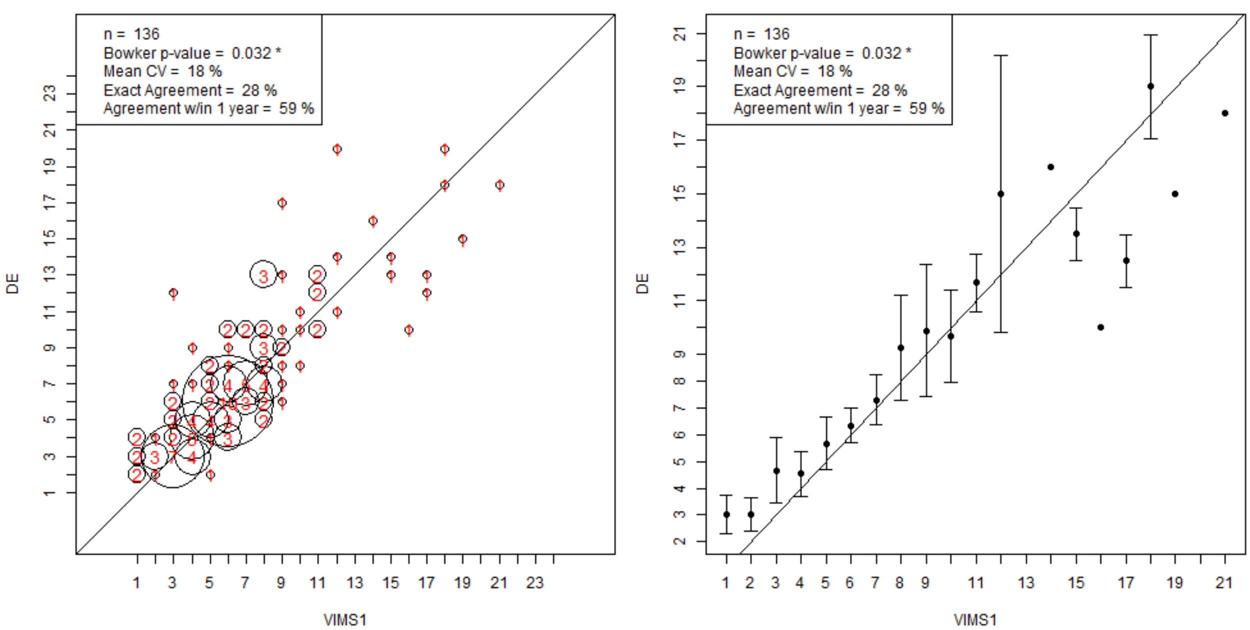



**Figure 84. Age frequency (left) and age bias (right) plots for DE and VIMS reader 1 American eel sectioned otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

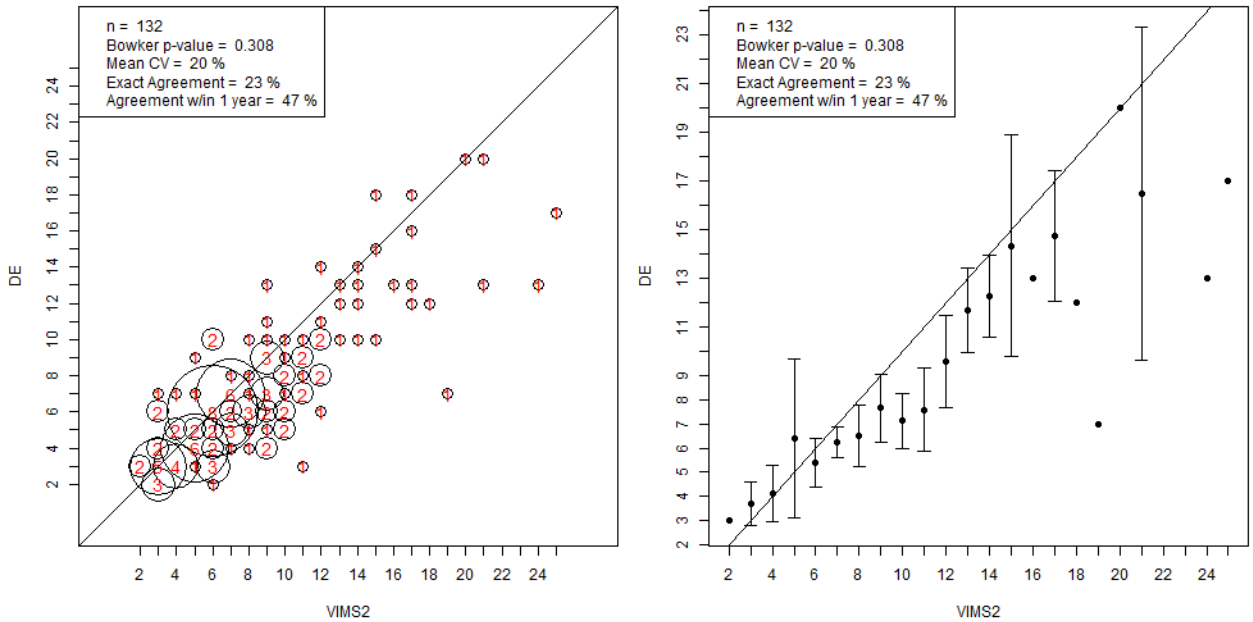



**Figure 85. Age frequency (left) and age bias (right) plots for DE and VIMS reader 2 American eel sectioned otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

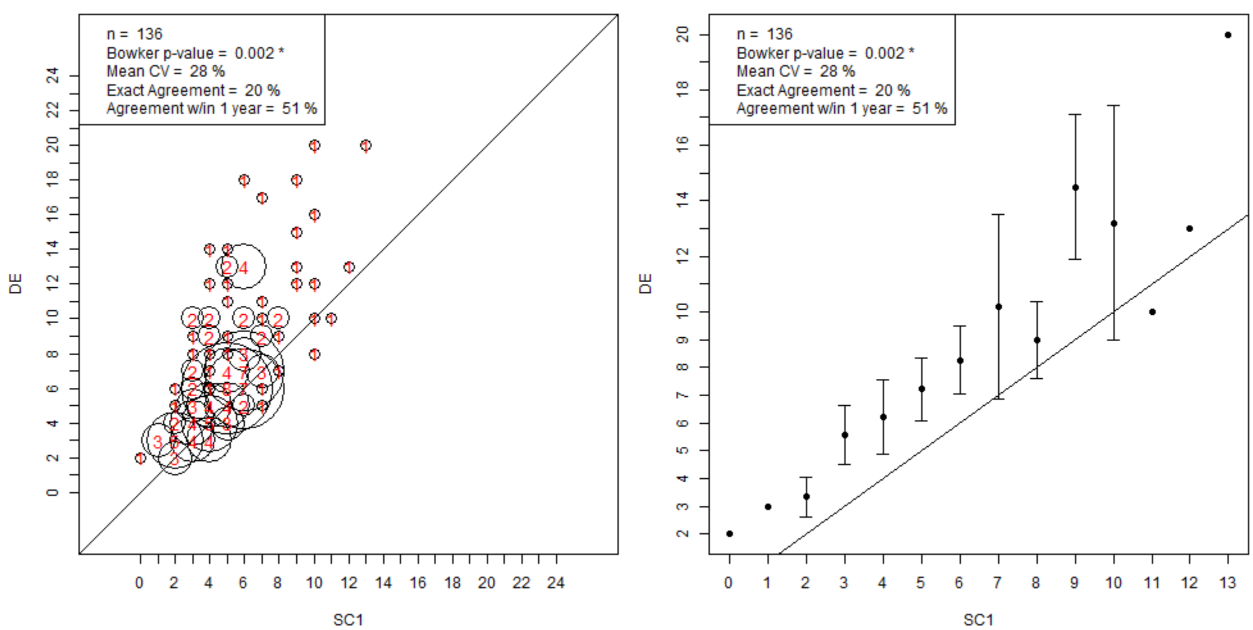



**Figure 86. Age frequency (left) and age bias (right) plots for DE and SC reader 1 American eel sectioned otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

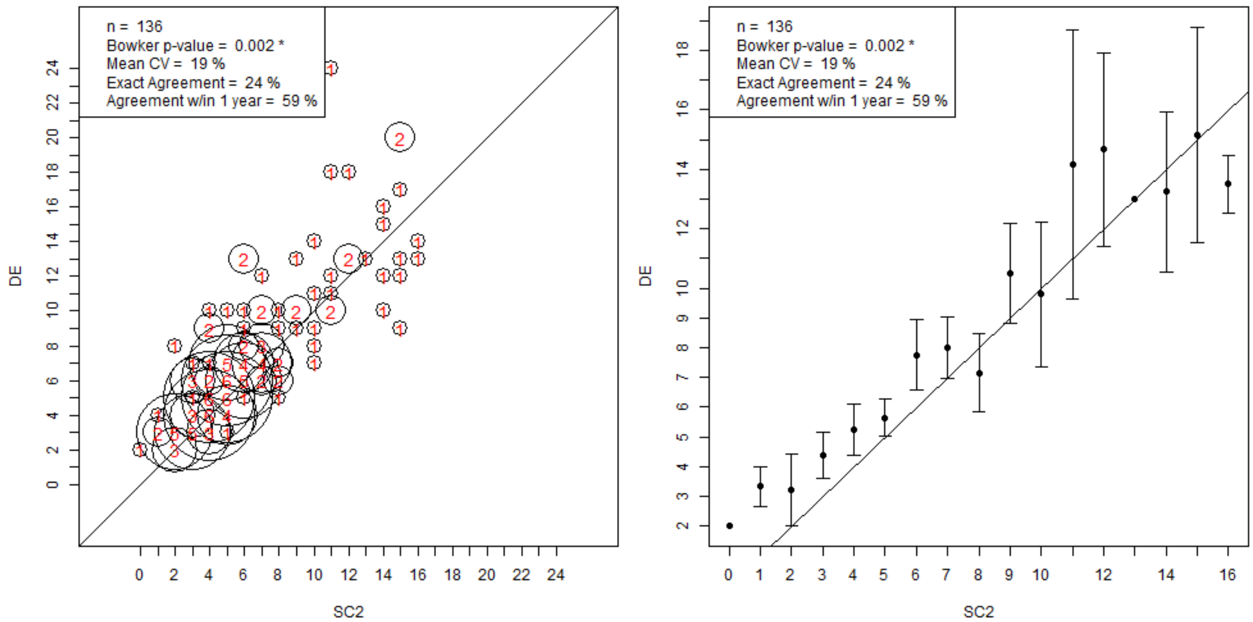



**Figure 87. Age frequency (left) and age bias (right) plots for DE and SC reader 2 American eel sectioned otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

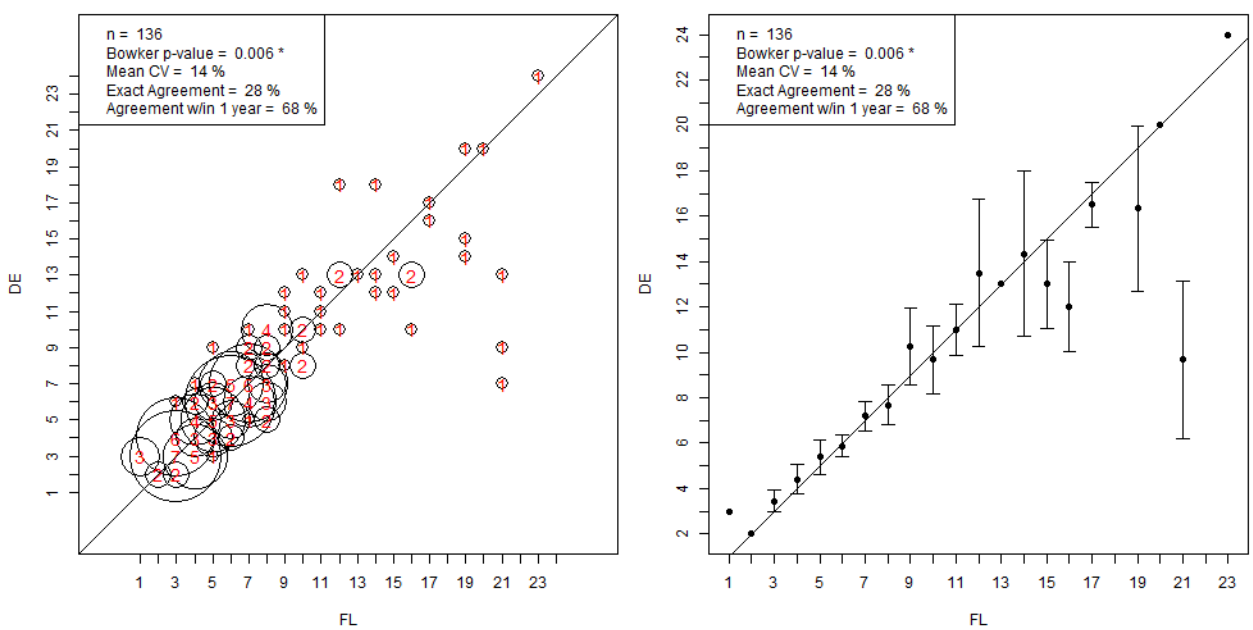



**Figure 88. Age frequency (left) and age bias (right) plots for DE and FL American eel sectioned otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

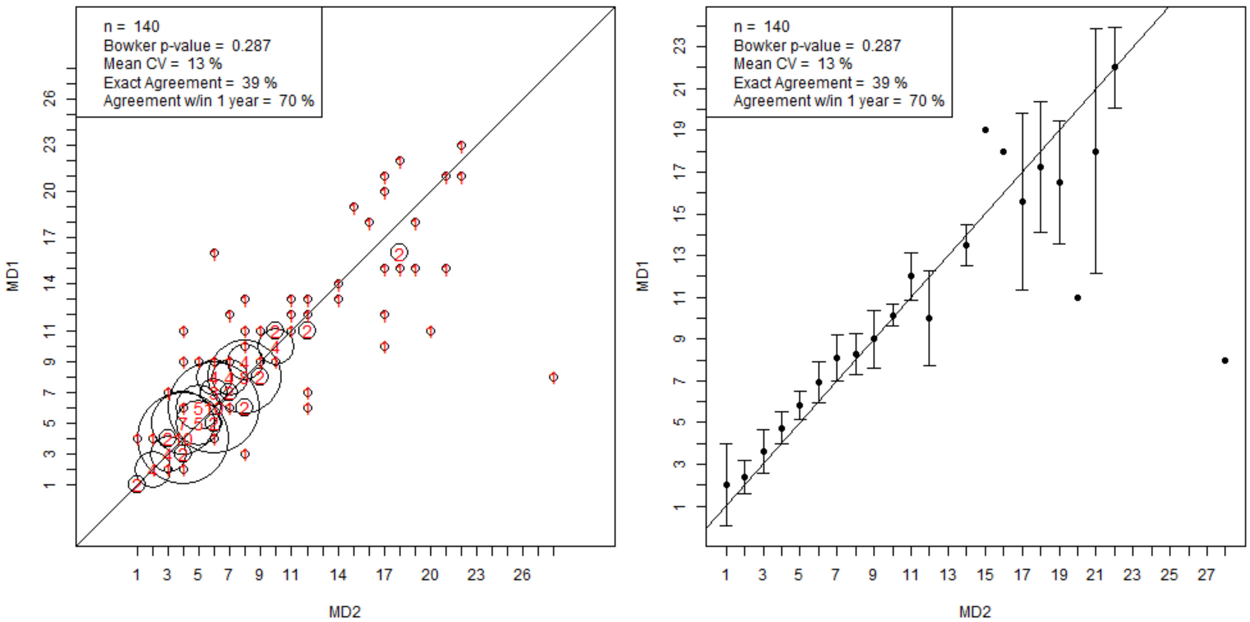



**Figure 89. Age frequency (left) and age bias (right) plots for MD reader 1 and MD reader 2 American eel sectioned otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

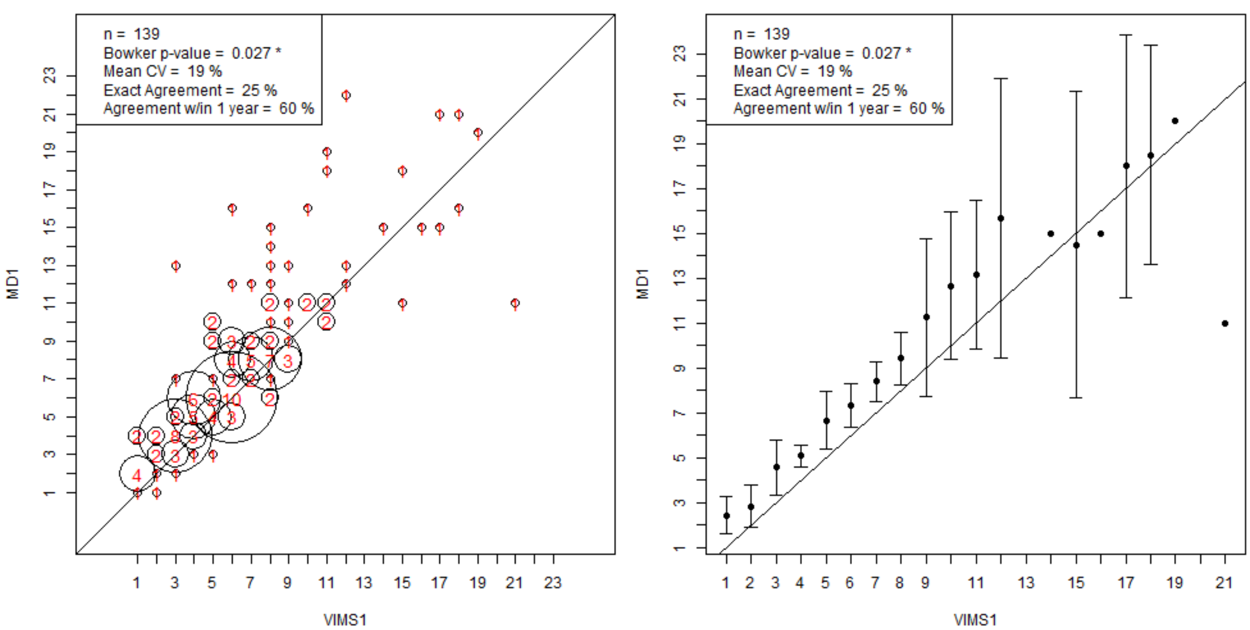



**Figure 90. Age frequency (left) and age bias (right) plots for MD reader 1 and VIMS reader 1 American eel sectioned otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

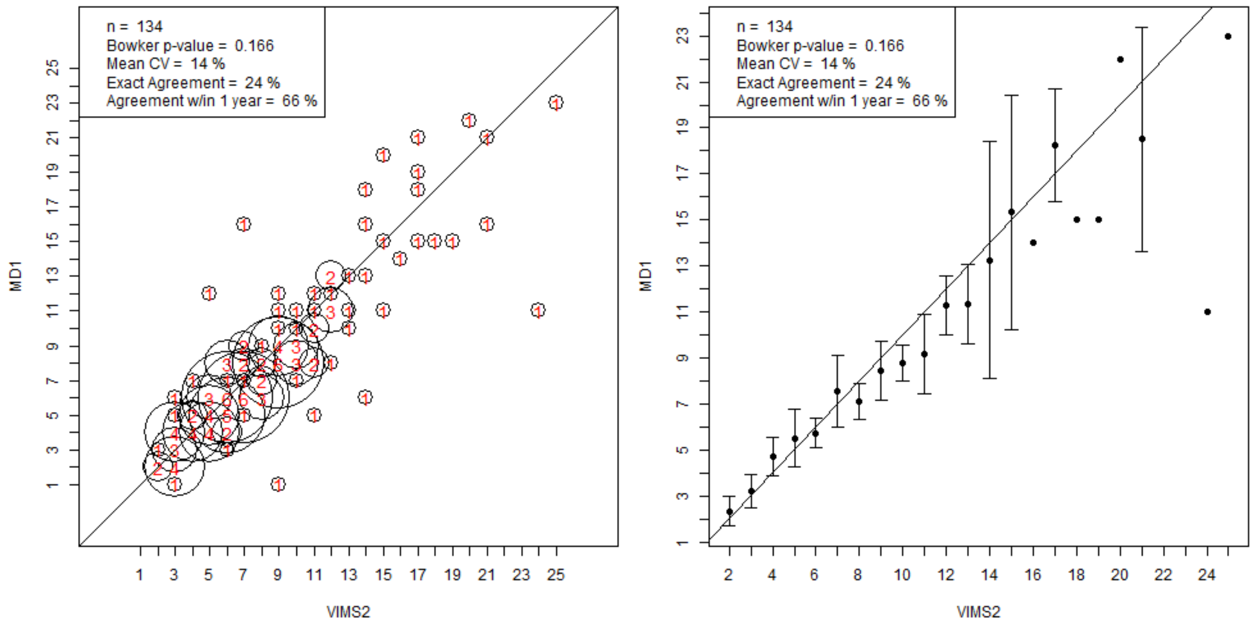



**Figure 91. Age frequency (left) and age bias (right) plots for MD reader 1 and VIMS reader 2 American eel sectioned otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

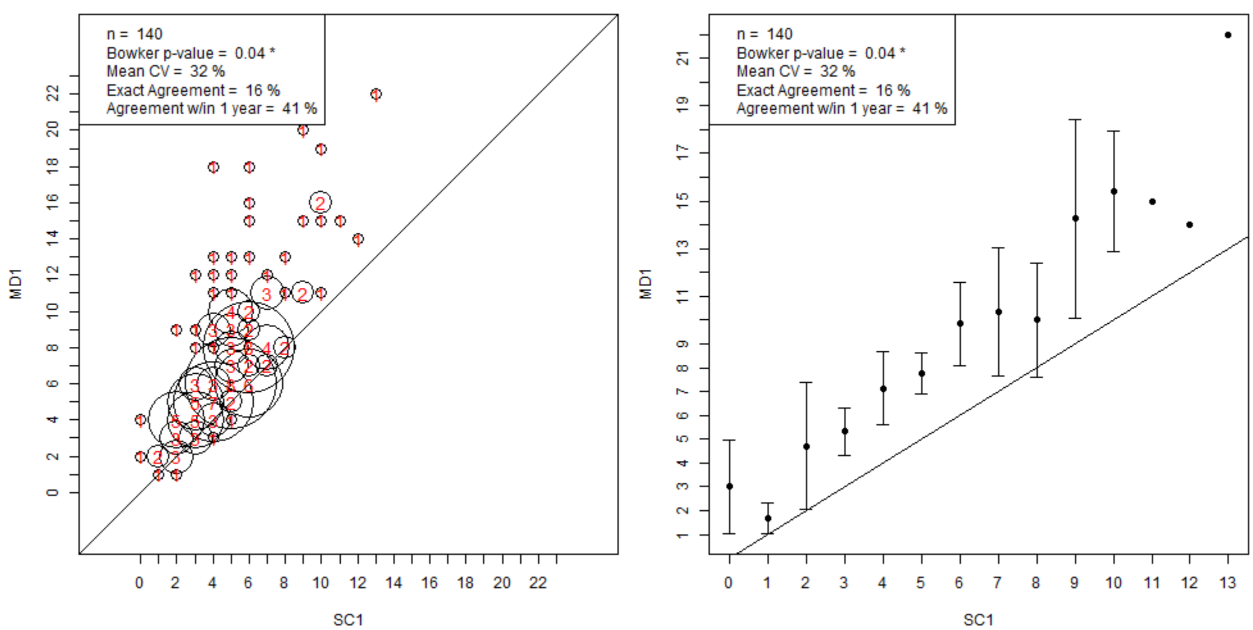



**Figure 92. Age frequency (left) and age bias (right) plots for MD reader 1 and SC reader 1 American eel sectioned otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

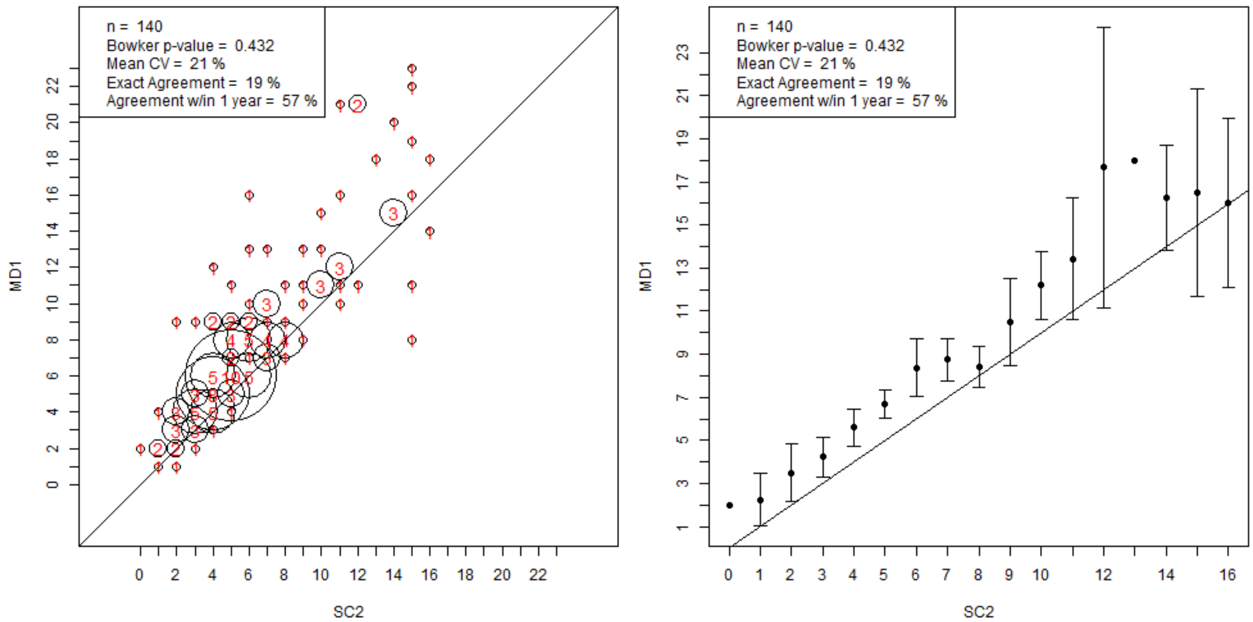



Figure 93. Age frequency (left) and age bias (right) plots for MD reader 1 and SC reader2 American eel sectioned otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.

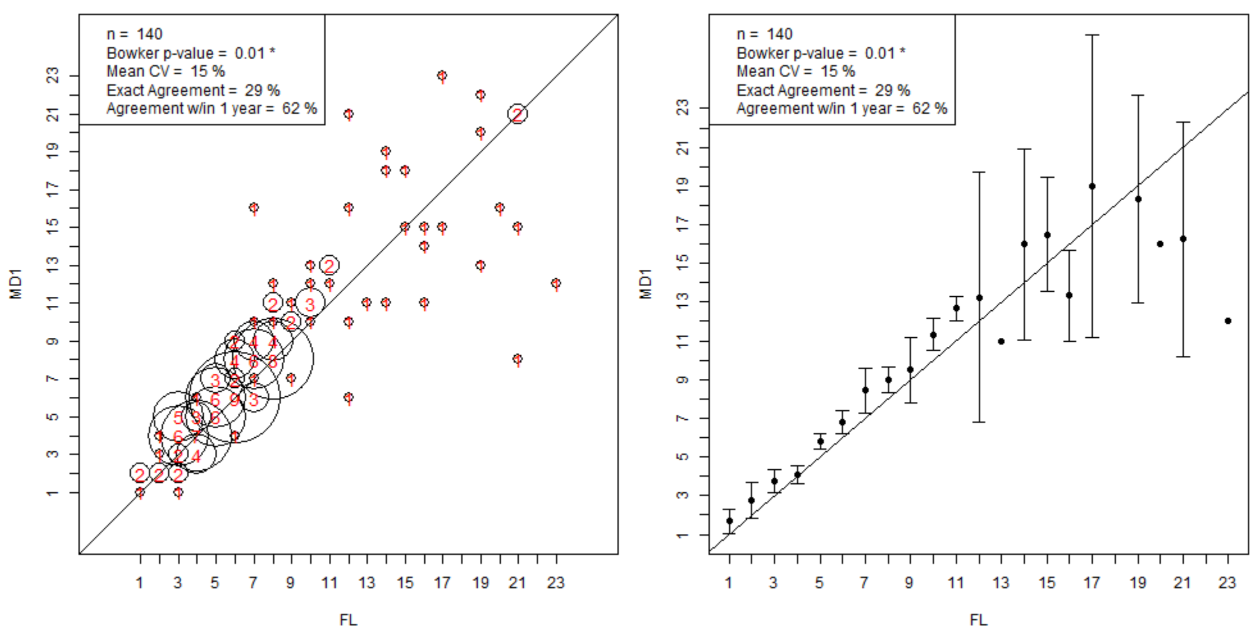



Figure 94. Age frequency (left) and age bias (right) plots for MD reader 1 and FL American eel sectioned otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.

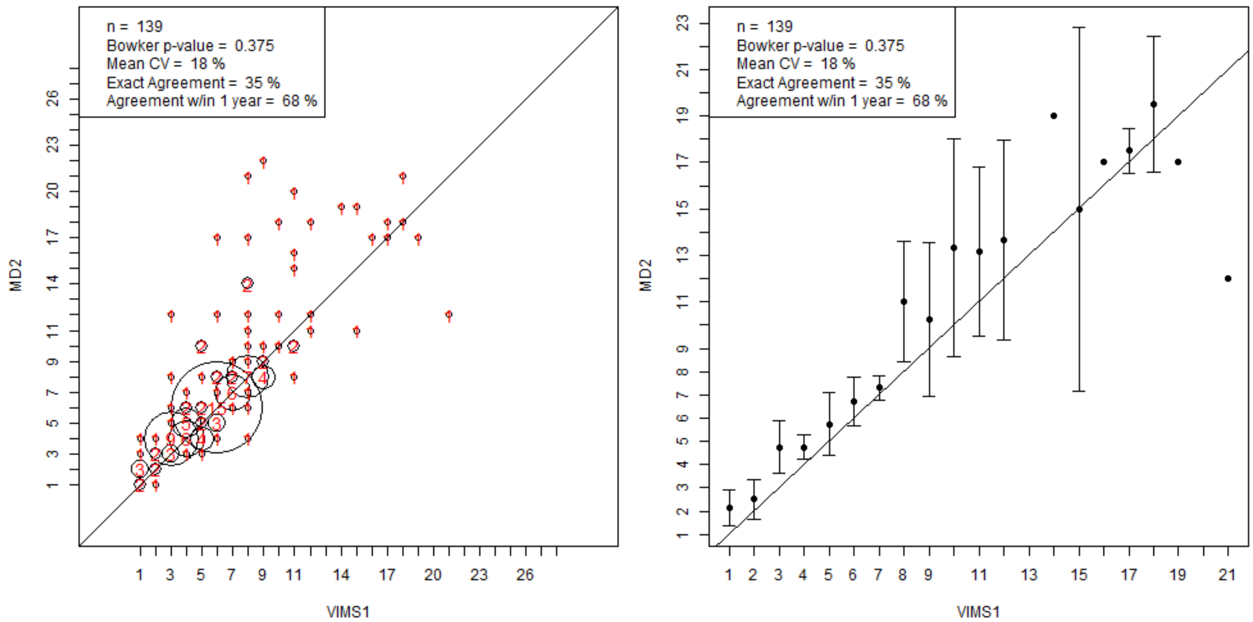



**Figure 95. Age frequency (left) and age bias (right) plots for MD reader 2 and VIMS reader 1 American eel sectioned otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

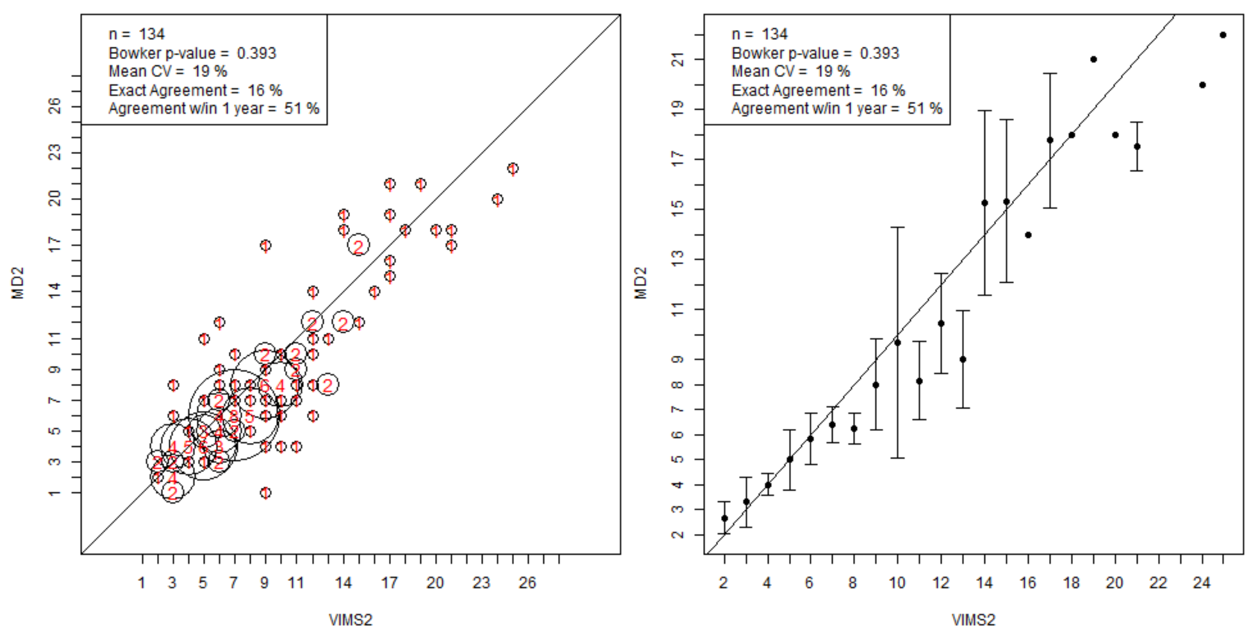



**Figure 96. Age frequency (left) and age bias (right) plots for MD reader 2 and VIMS reader 2 American eel sectioned otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

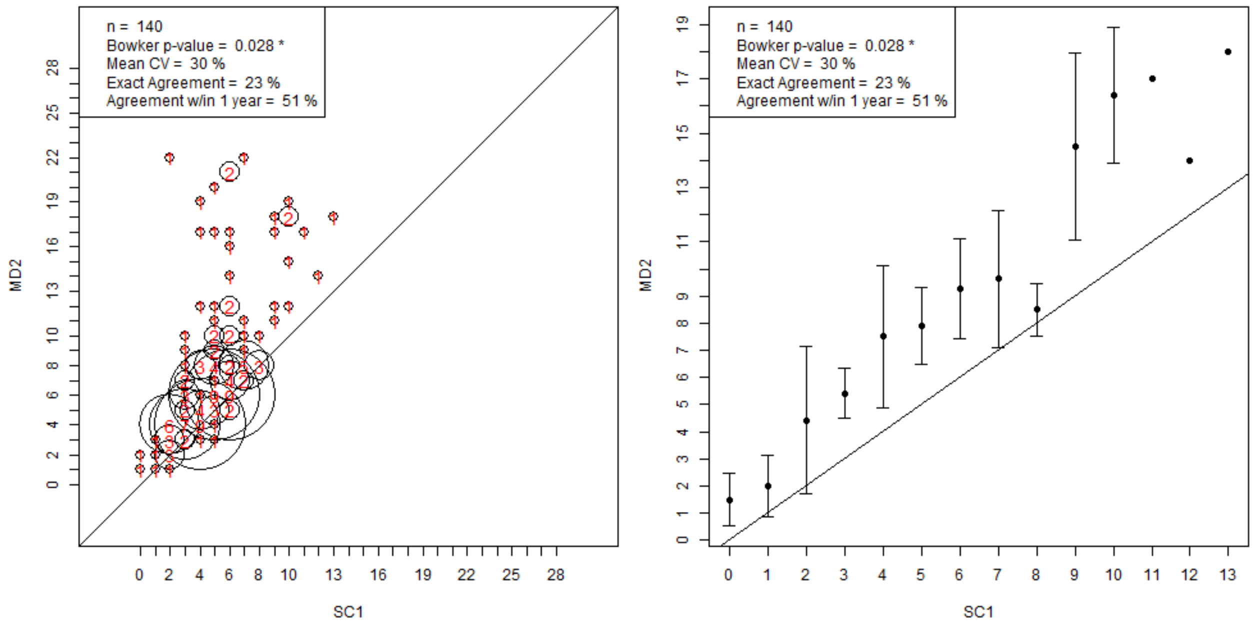



**Figure 97. Age frequency (left) and age bias (right) plots for MD reader 2 and SC reader 1 American eel sectioned otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

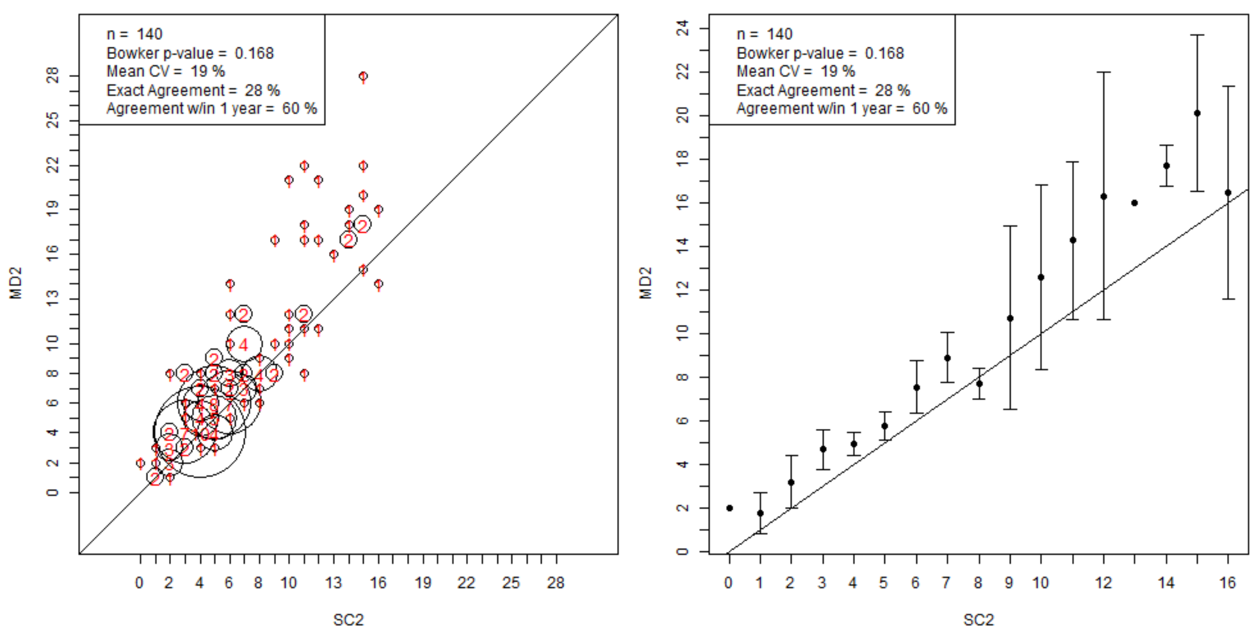



**Figure 98. Age frequency (left) and age bias (right) plots for MD reader2 and SC reader2 American eel sectioned otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

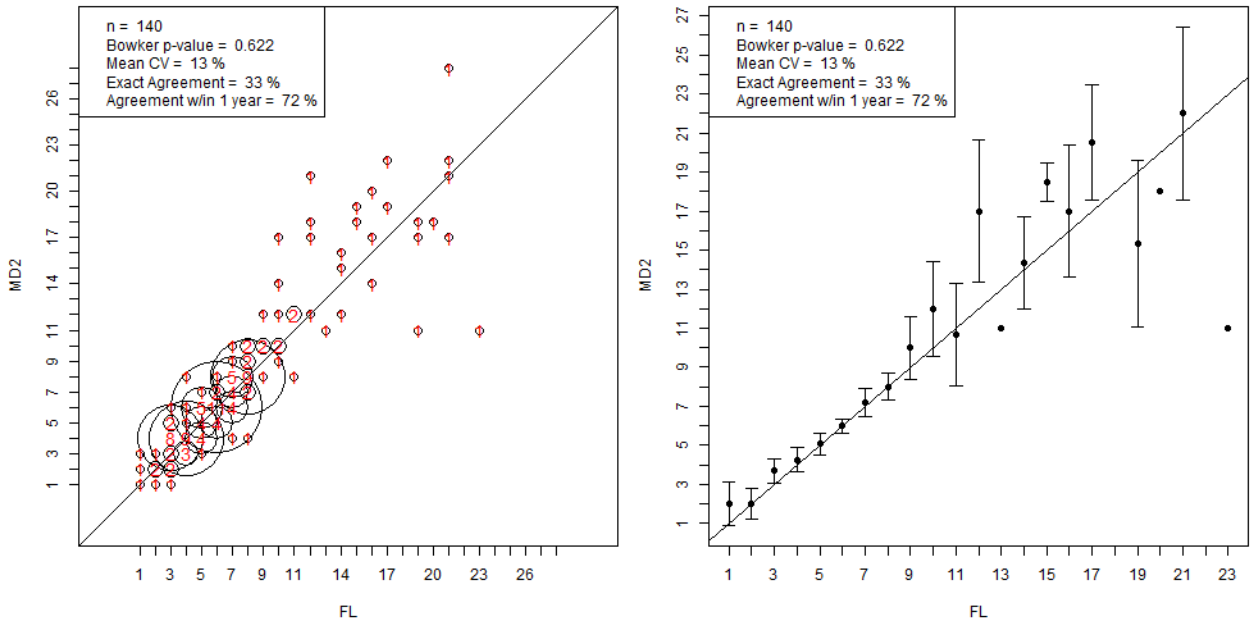



**Figure 99. Age frequency (left) and age bias (right) plots for MD reader 2 and FL American eel sectioned otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

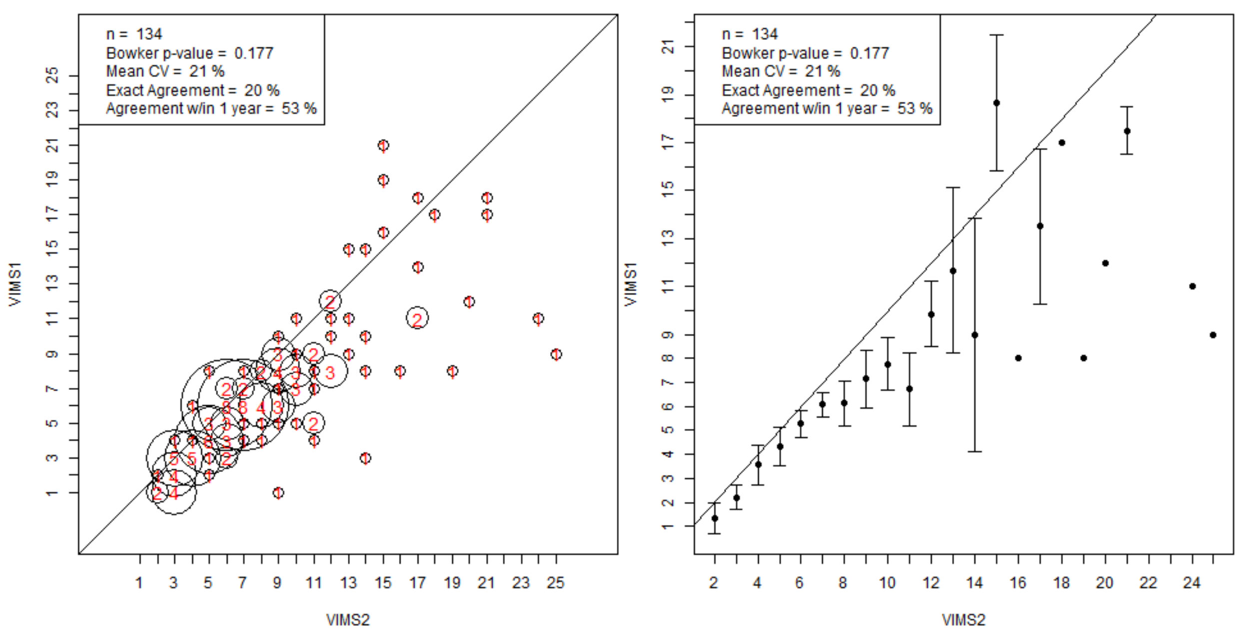



**Figure 100. Age frequency (left) and age bias (right) plots for VIMS reader 1 and VIMS reader 2 American eel sectioned otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

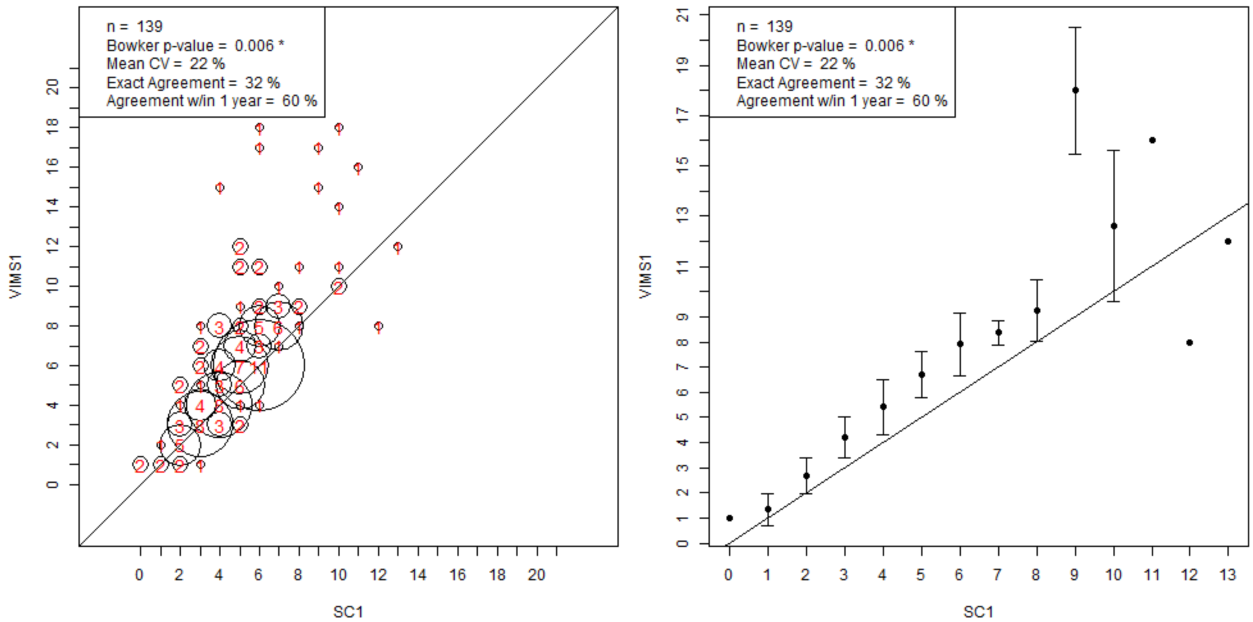



**Figure 101. Age frequency (left) and age bias (right) plots for VIMS reader 1 and SC reader 1 American eel sectioned otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

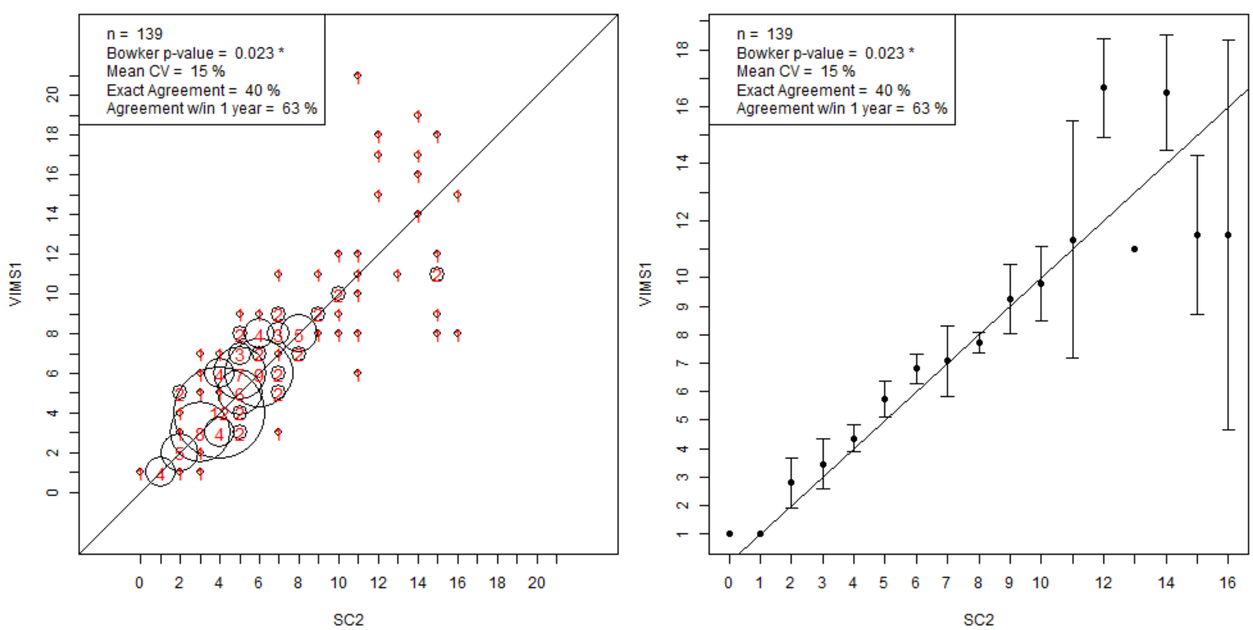



**Figure 102. Age frequency (left) and age bias (right) plots for VIMS reader 1 and SC reader 2 American eel sectioned otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

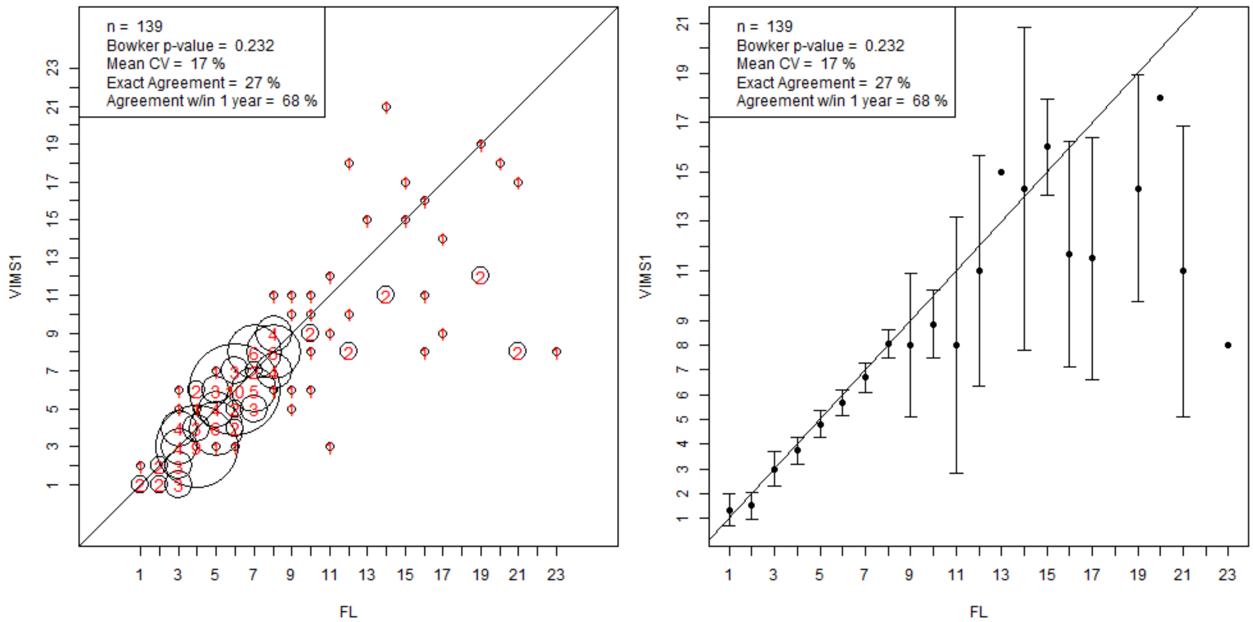



**Figure 103. Age frequency (left) and age bias (right) plots for VIMS reader 1 and FL American eel sectioned otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

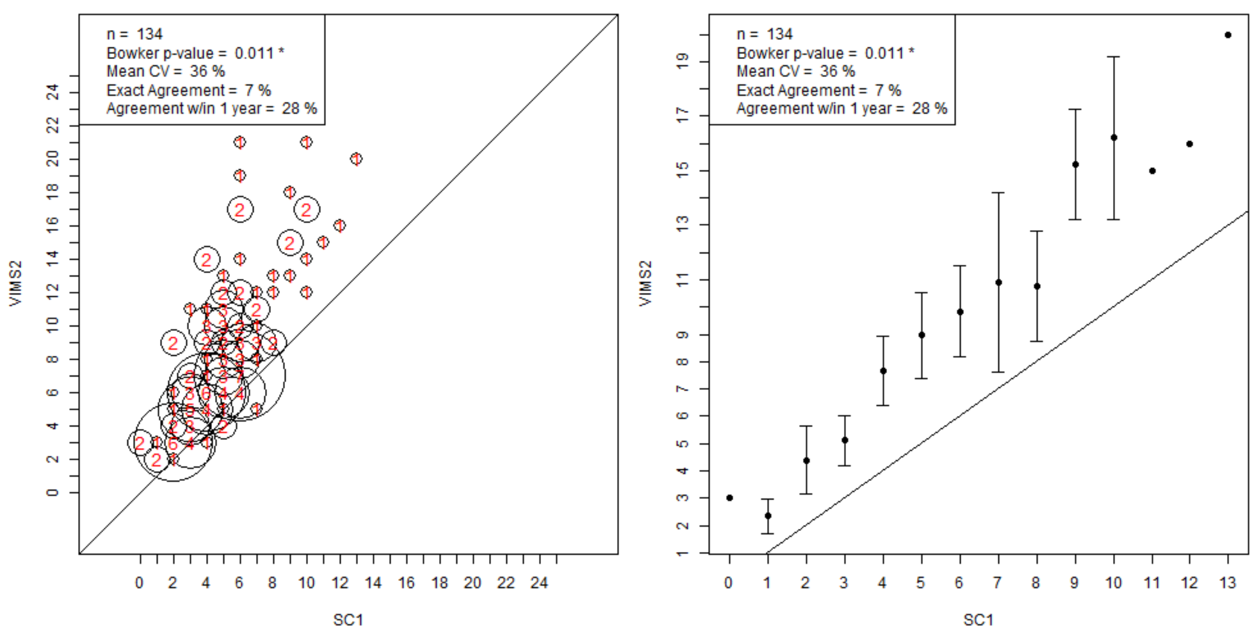



**Figure 104. Age frequency (left) and age bias (right) plots for VIMS reader 2 and SC reader 1 American eel sectioned otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

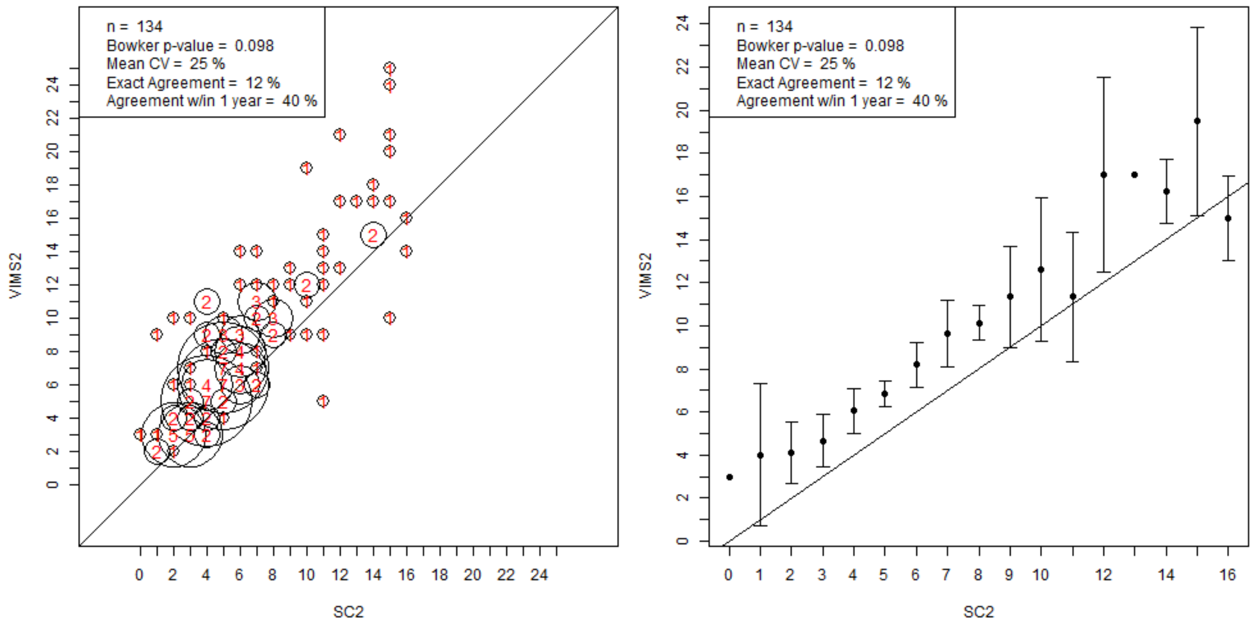



Figure 105. Age frequency (left) and age bias (right) plots for VIMS reader 2 and SC reader 2 American eel sectioned otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.

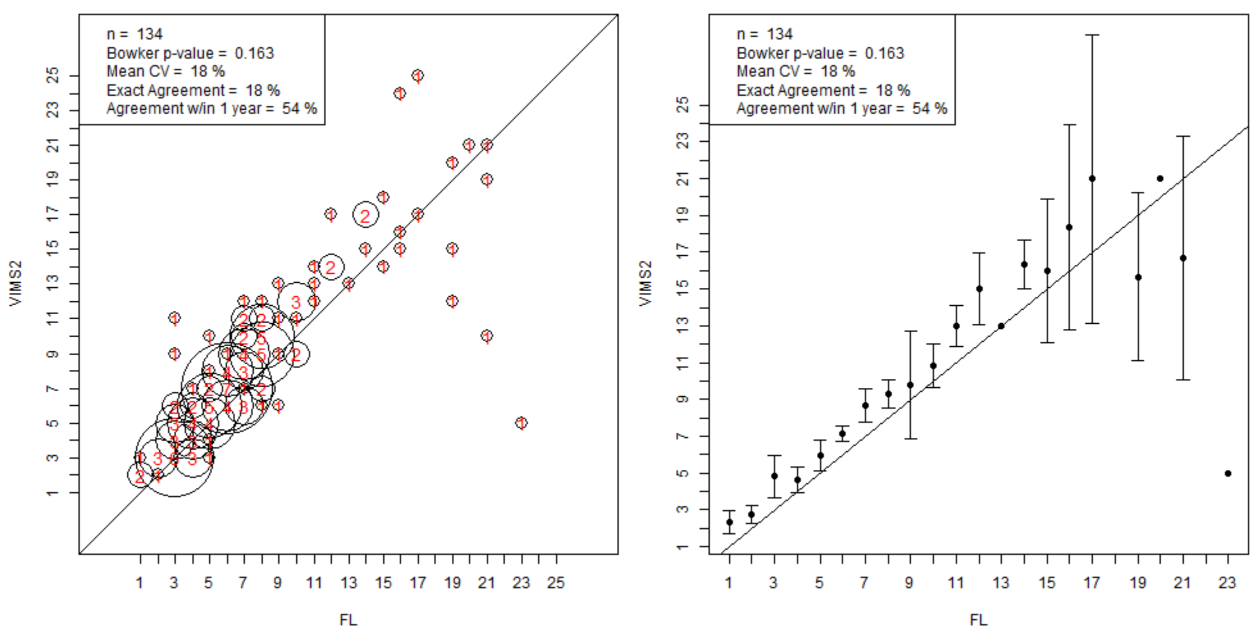



Figure 106. Age frequency (left) and age bias (right) plots for VIMS reader 2 and FL American eel sectioned otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.

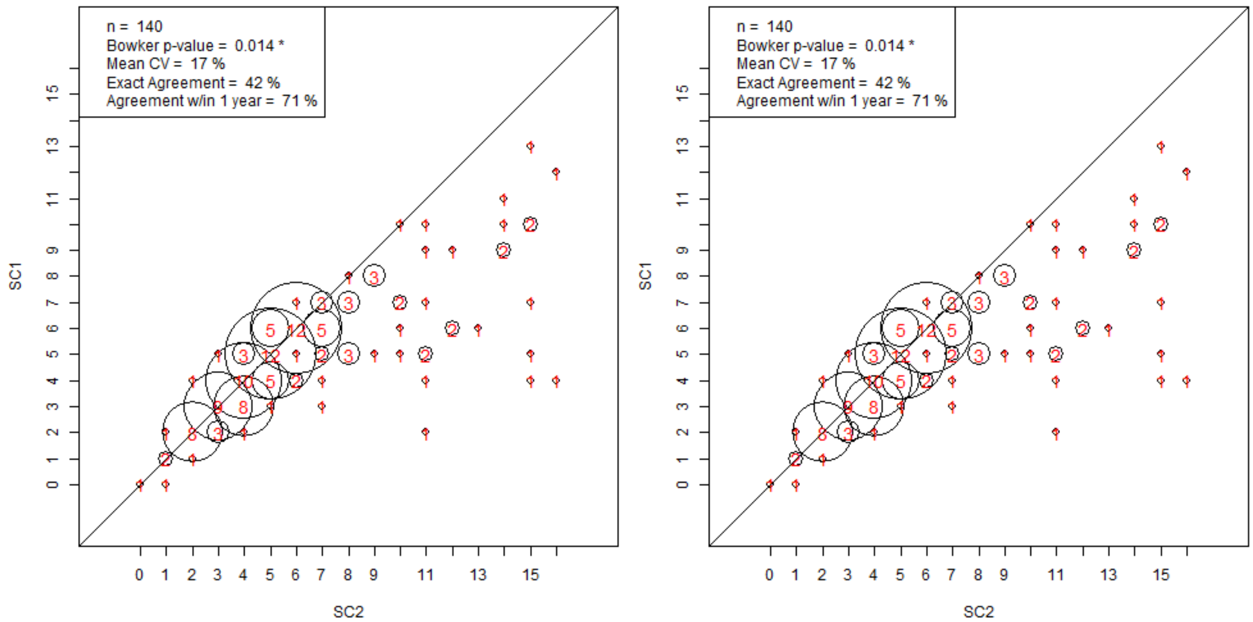



Figure 107. Age frequency (left) and age bias (right) plots for SC reader 1 and SC reader 2 American eel sectioned otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.

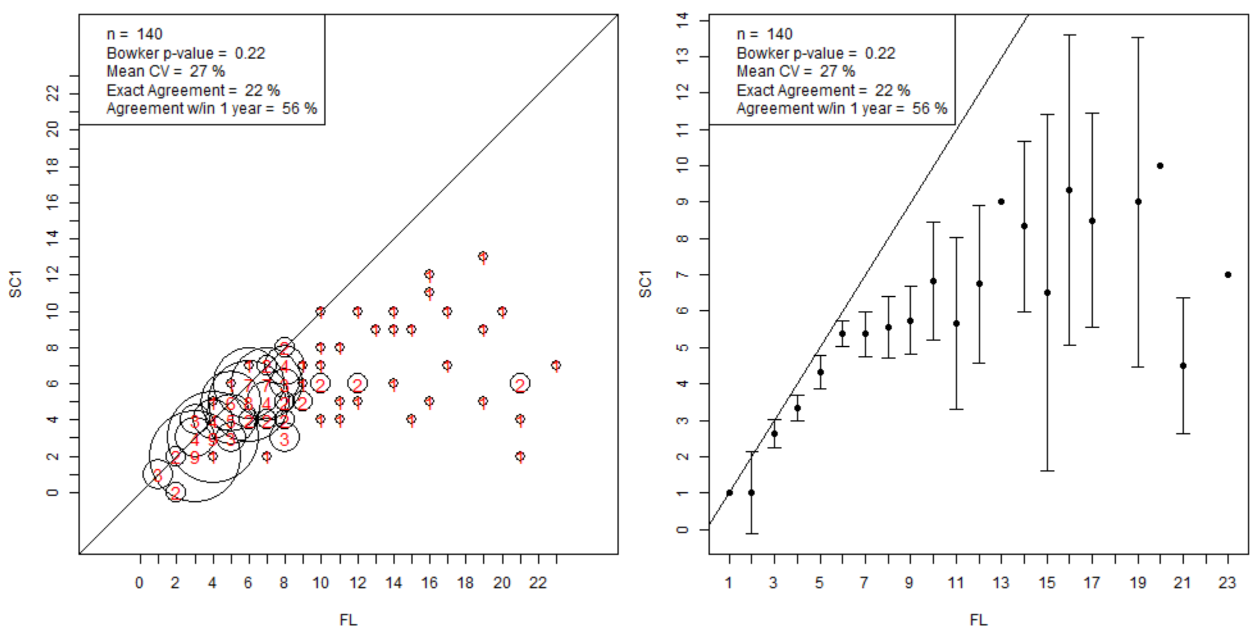



Figure 108. Age frequency (left) and age bias (right) plots for SC reader 1 and FL American eel sectioned otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.

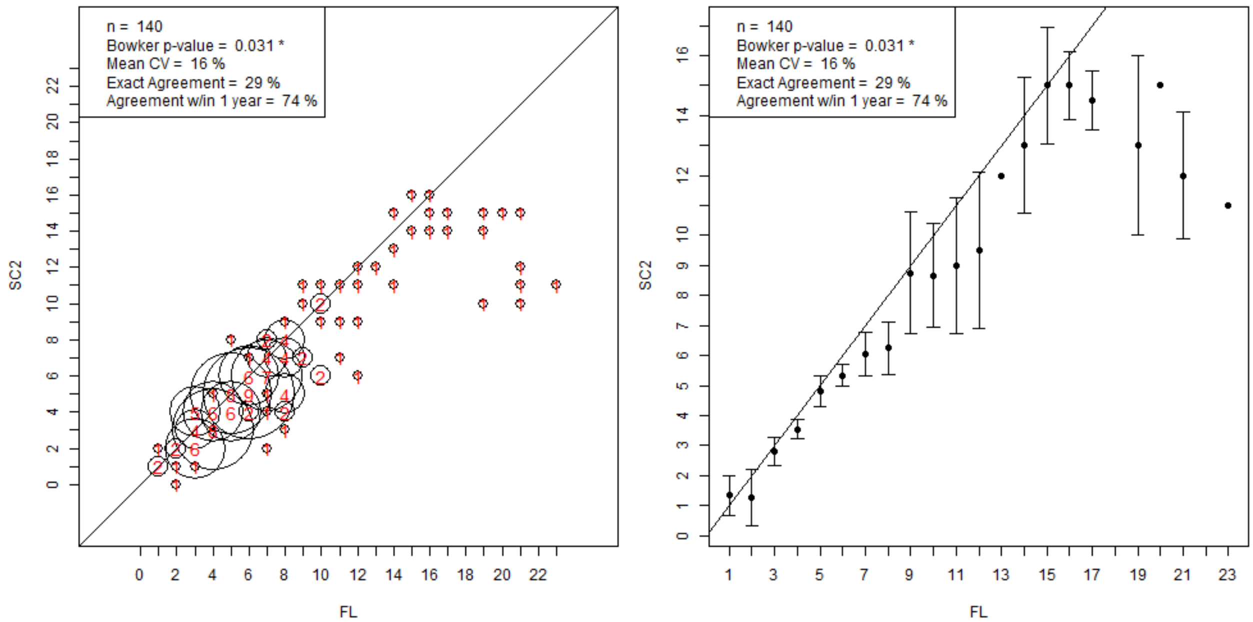



**Figure 109. Age frequency (left) and age bias (right) plots for SC reader 2 and FL American eel sectioned otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

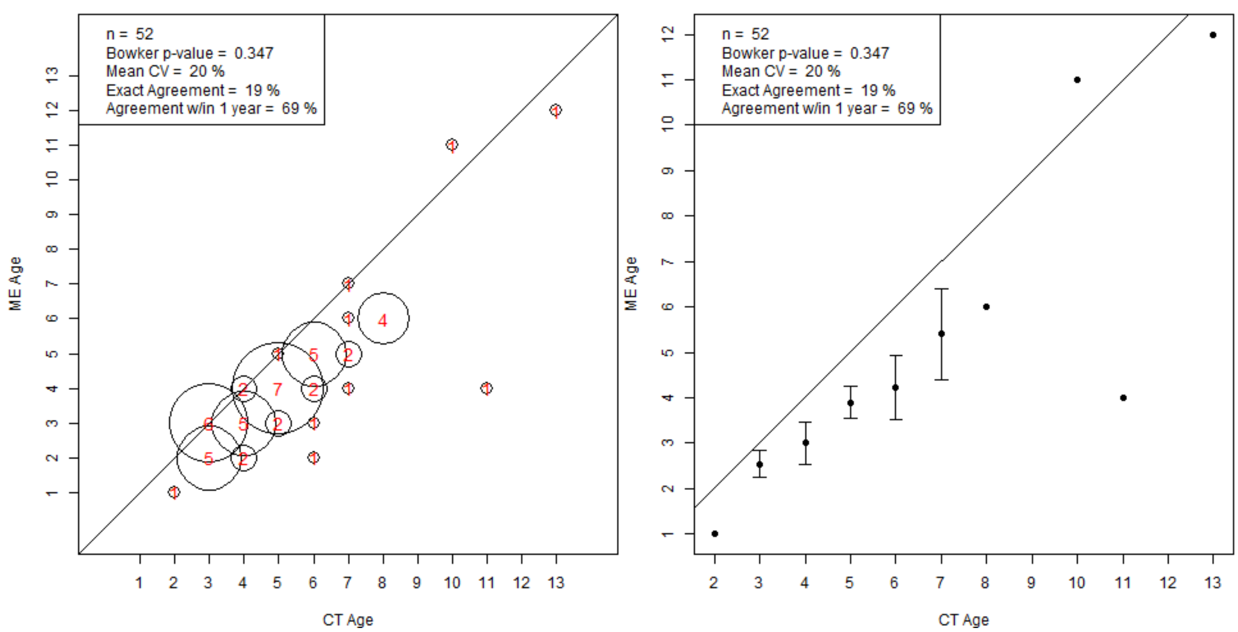



**Figure 110. Age frequency (left) and age bias (right) plots for ME and CT American eel whole otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

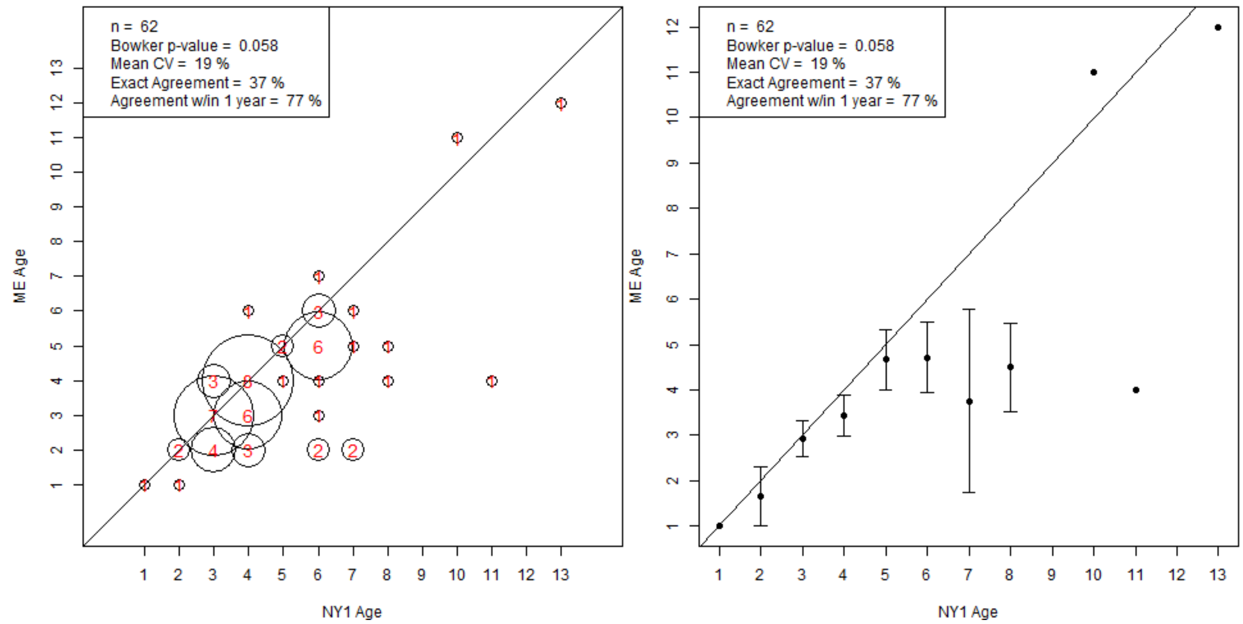



**Figure 111. Age frequency (left) and age bias (right) plots for ME and NY reader 1 American eel whole otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

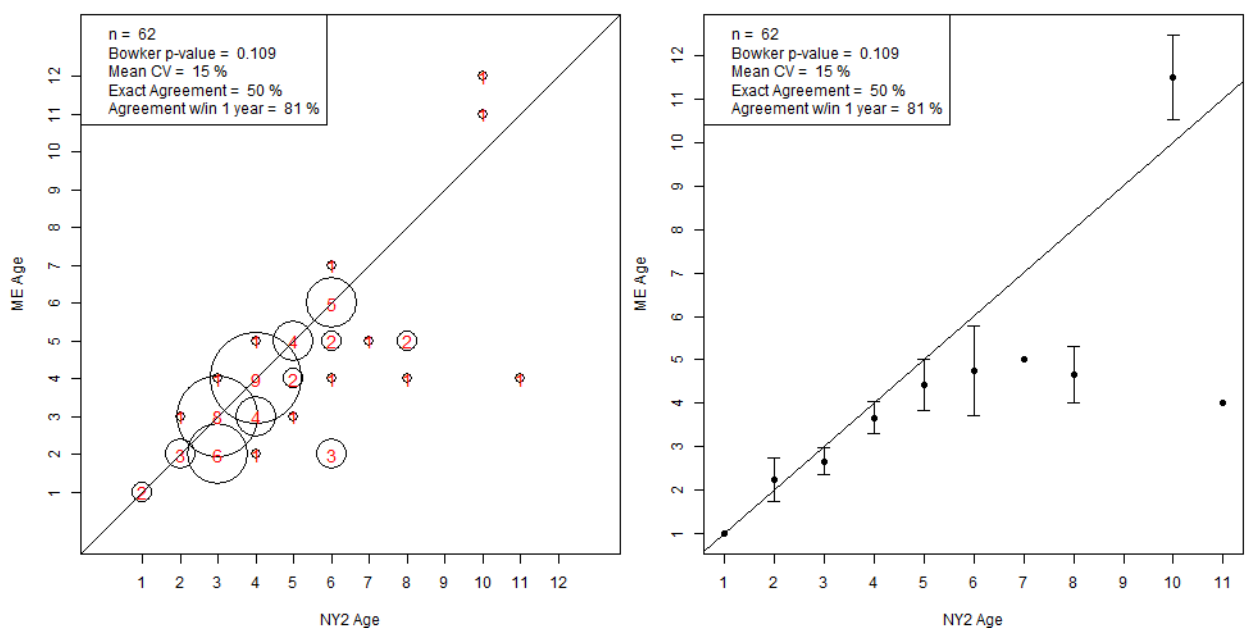



**Figure 112. Age frequency (left) and age bias (right) plots for ME and NY reader 2 American eel whole otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

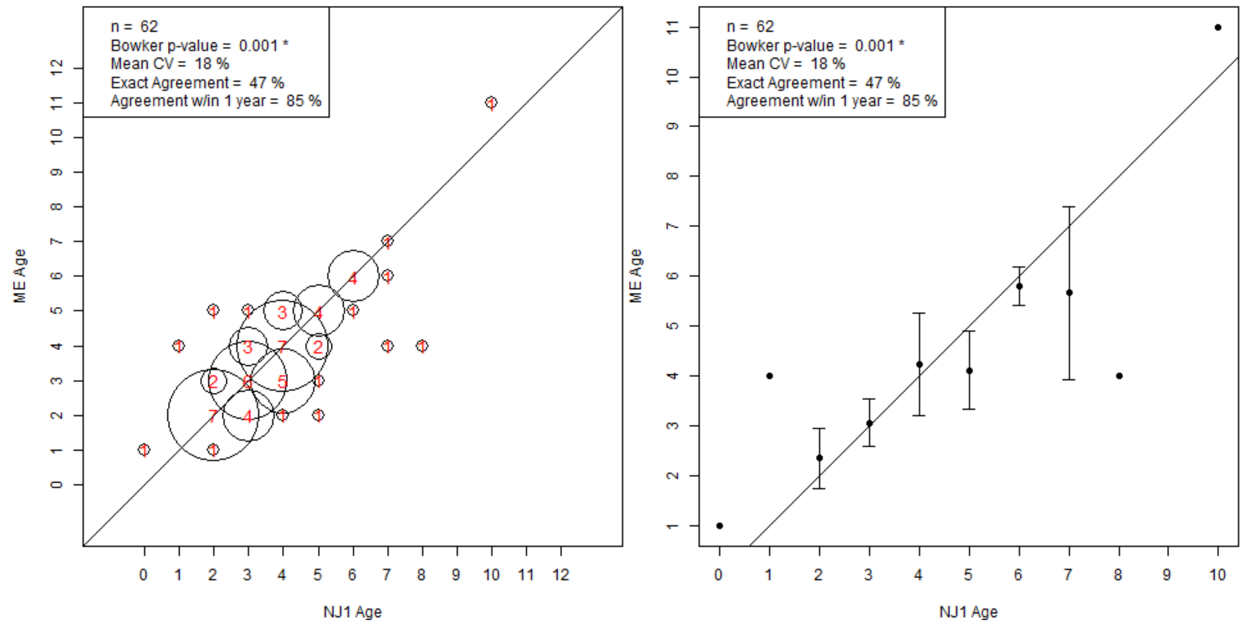



**Figure 113. Age frequency (left) and age bias (right) plots for ME and NJ reader 1 American eel whole otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

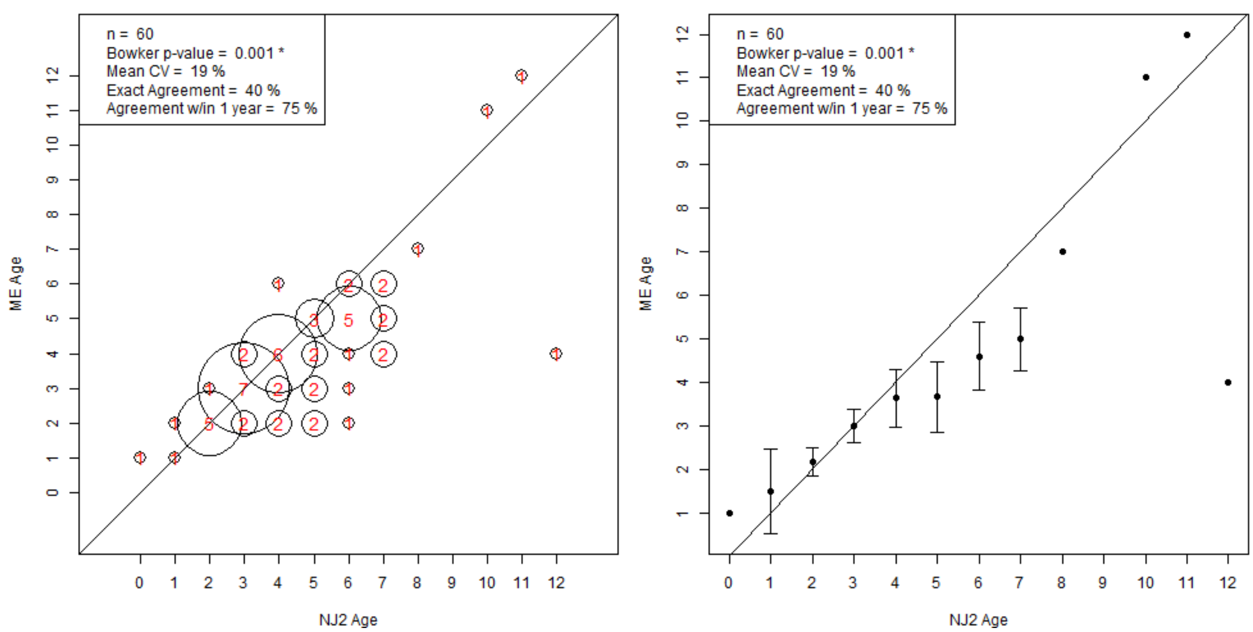



**Figure 114. Age frequency (left) and age bias (right) plots for ME and NJ reader 2 American eel whole otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

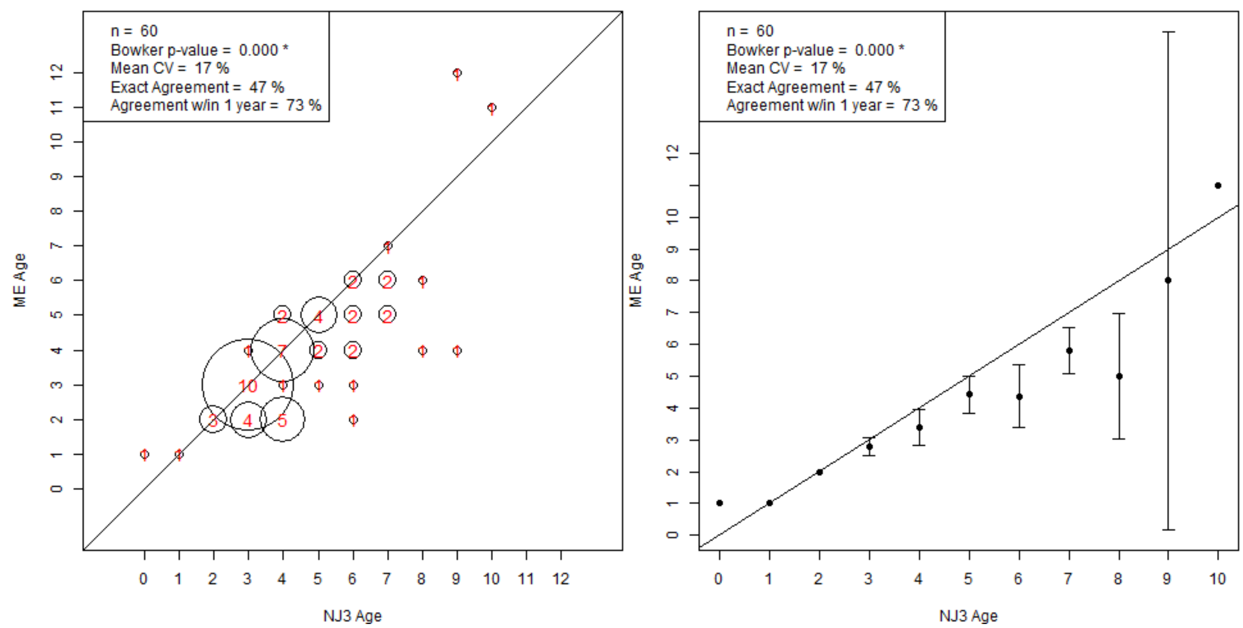



**Figure 115. Age frequency (left) and age bias (right) plots for ME and NJ reader 3 American eel whole otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

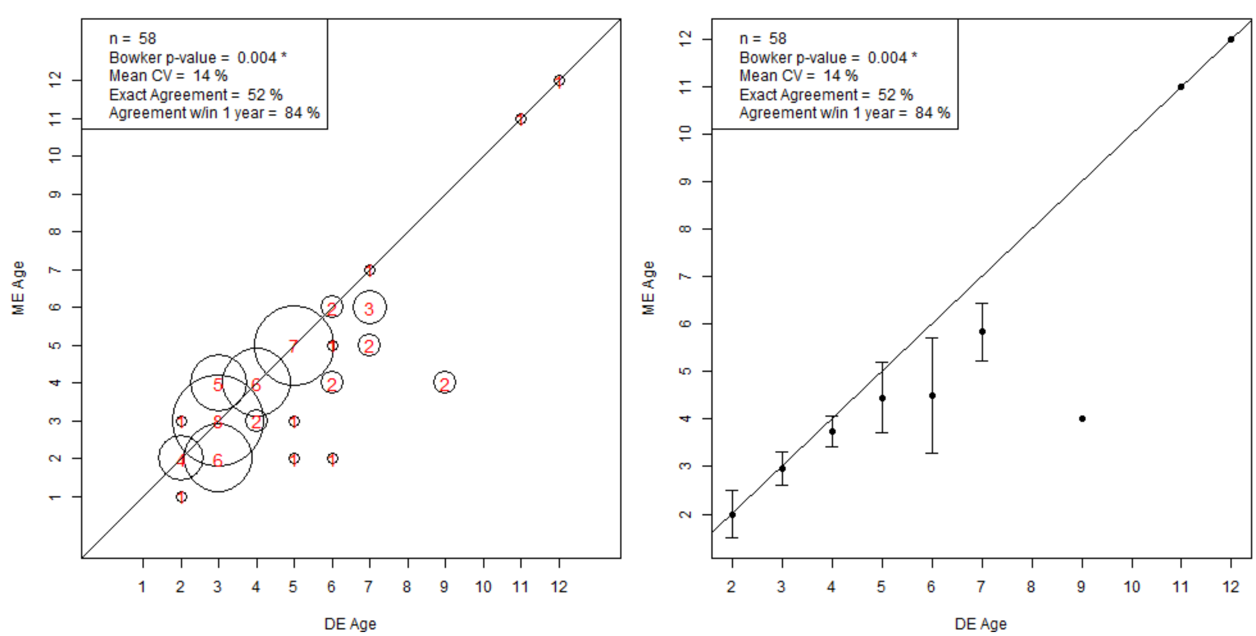



**Figure 116. Age frequency (left) and age bias (right) plots for ME and DE American eel whole otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

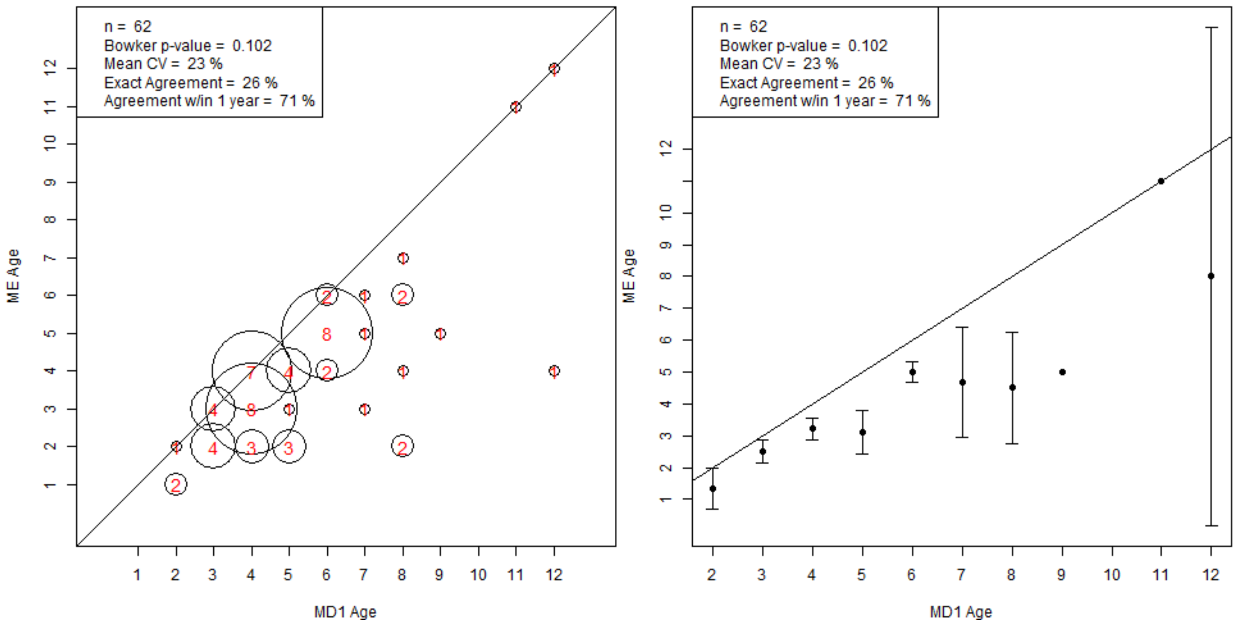



**Figure 117. Age frequency (left) and age bias (right) plots for ME and MD reader 1 American eel whole otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

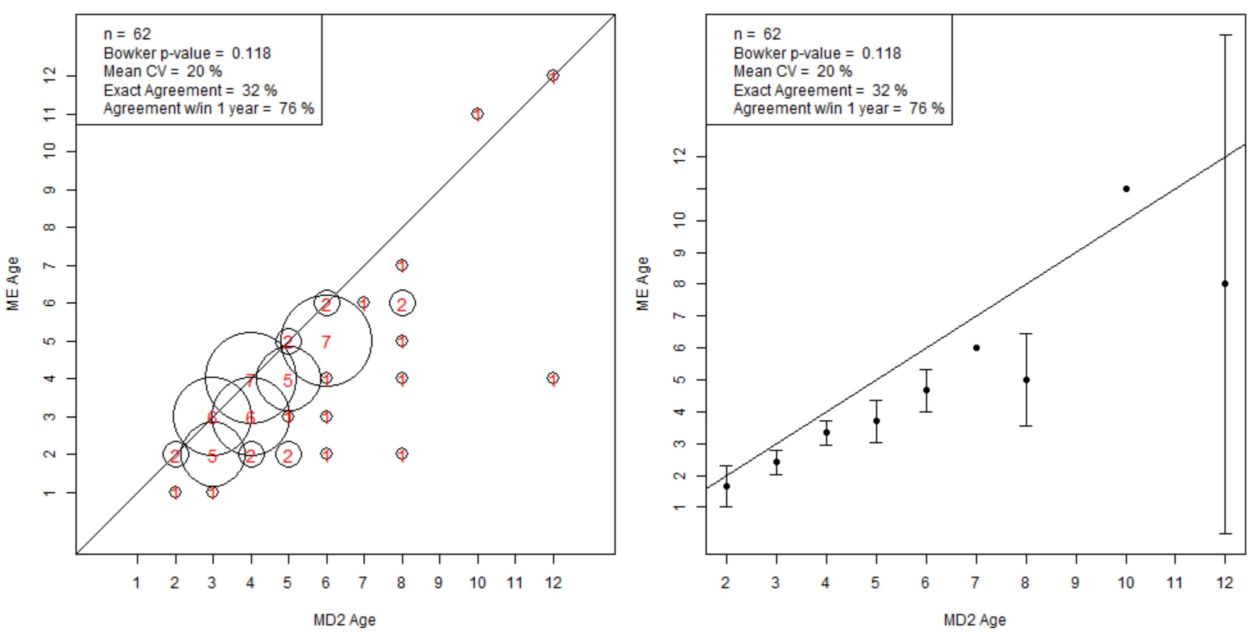



**Figure 118. Age frequency (left) and age bias (right) plots for ME and MD reader 2 American eel whole otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

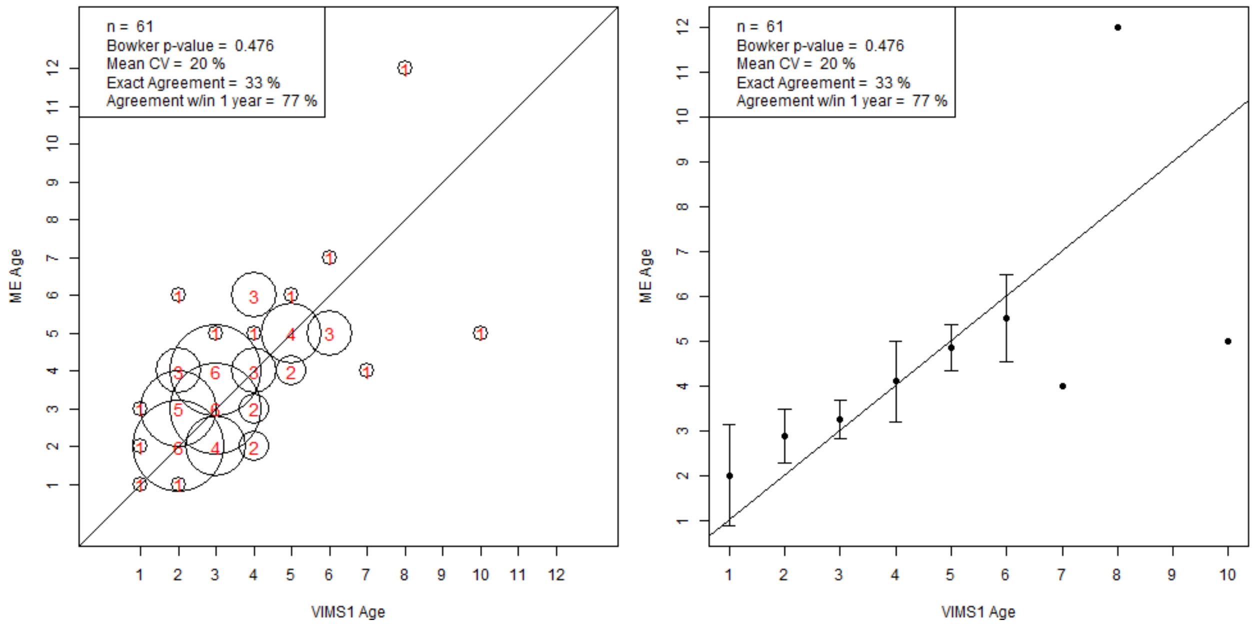



**Figure 119. Age frequency (left) and age bias (right) plots for ME and VIMS reader 1 American eel whole otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

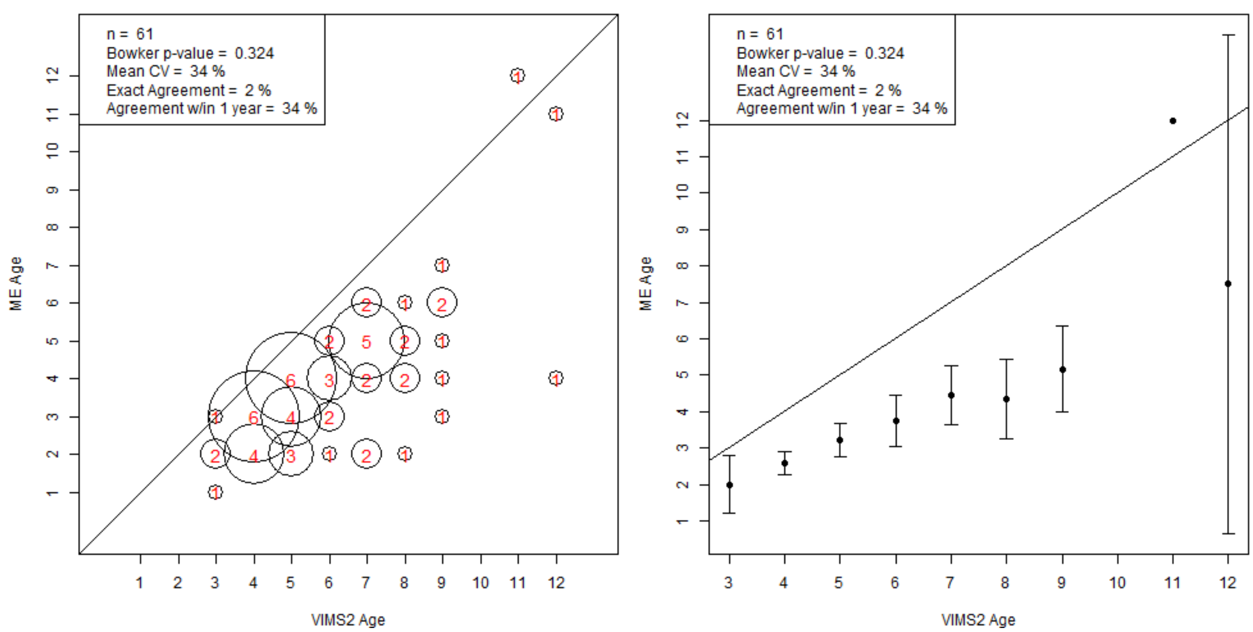



**Figure 120. Age frequency (left) and age bias (right) plots for ME and VIMS reader 2 American eel whole otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

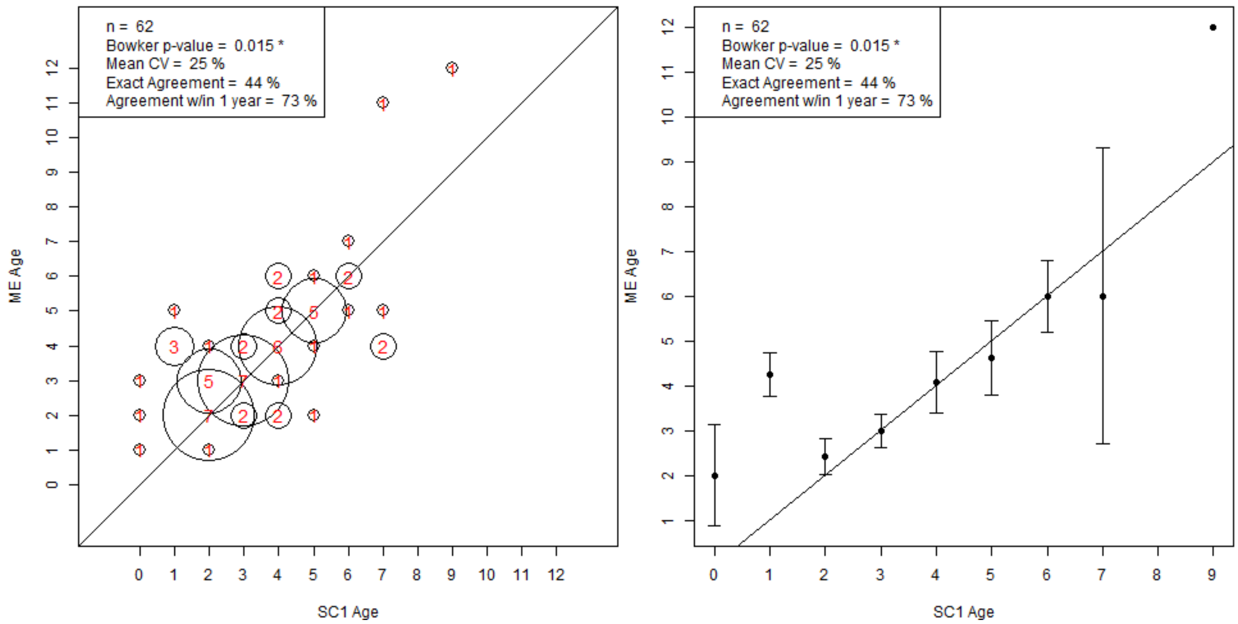



**Figure 121. Age frequency (left) and age bias (right) plots for ME and SC reader 1 American eel whole otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

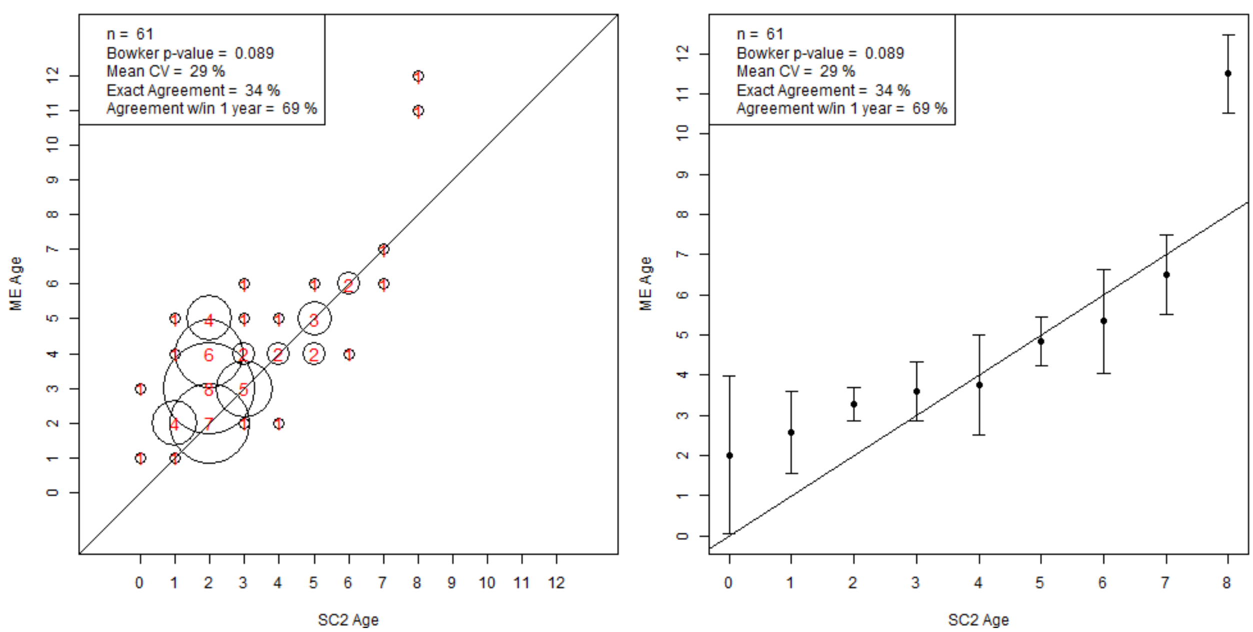



**Figure 122. Age frequency (left) and age bias (right) plots for ME and SC reader 2 American eel whole otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

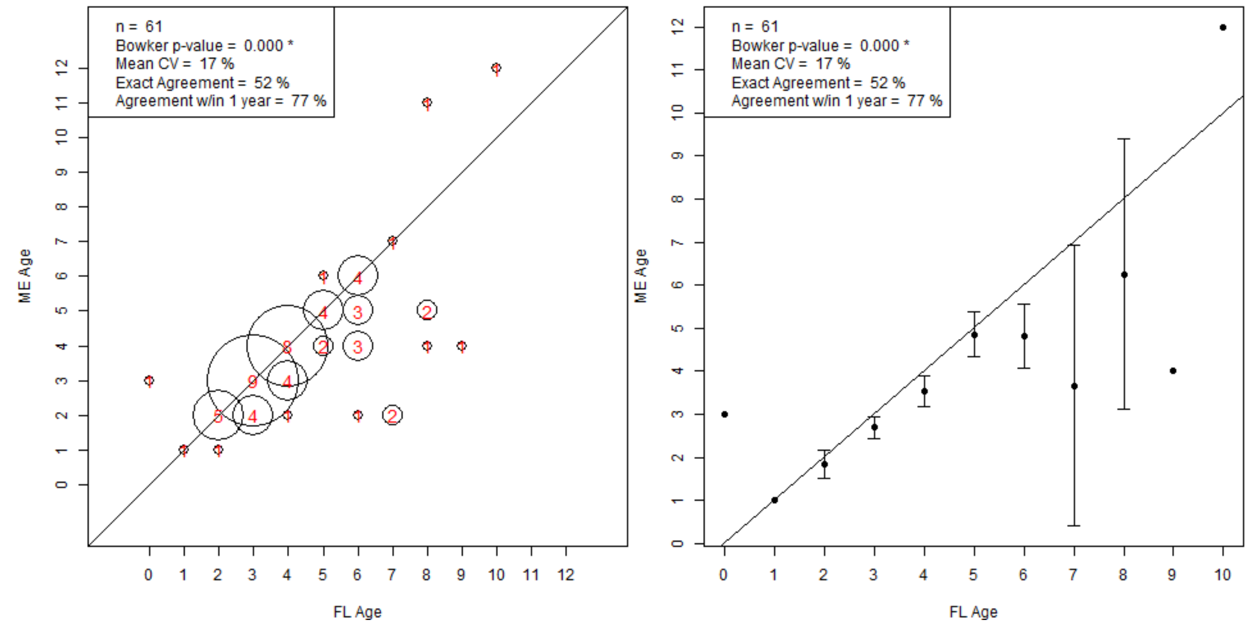



**Figure 123. Age frequency (left) and age bias (right) plots for ME and FL American eel whole otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

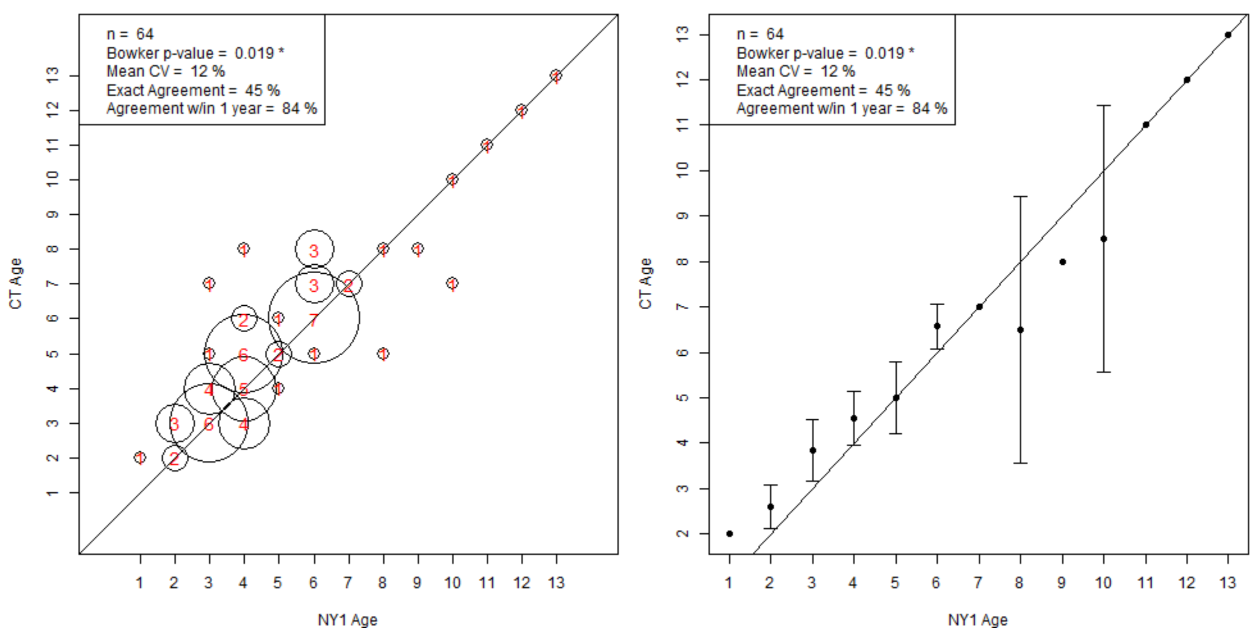



**Figure 124. Age frequency (left) and age bias (right) plots for CT and NY reader 1 American eel whole otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

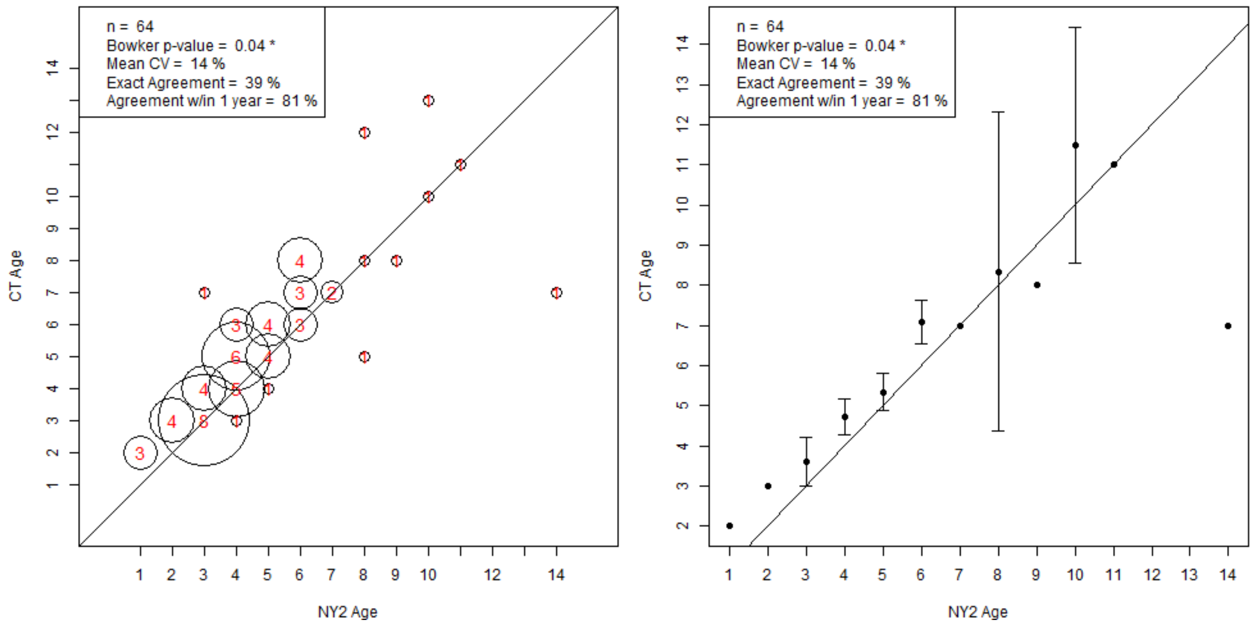



**Figure 126. Age frequency (left) and age bias (right) plots for CT and NY reader 2 American eel whole otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

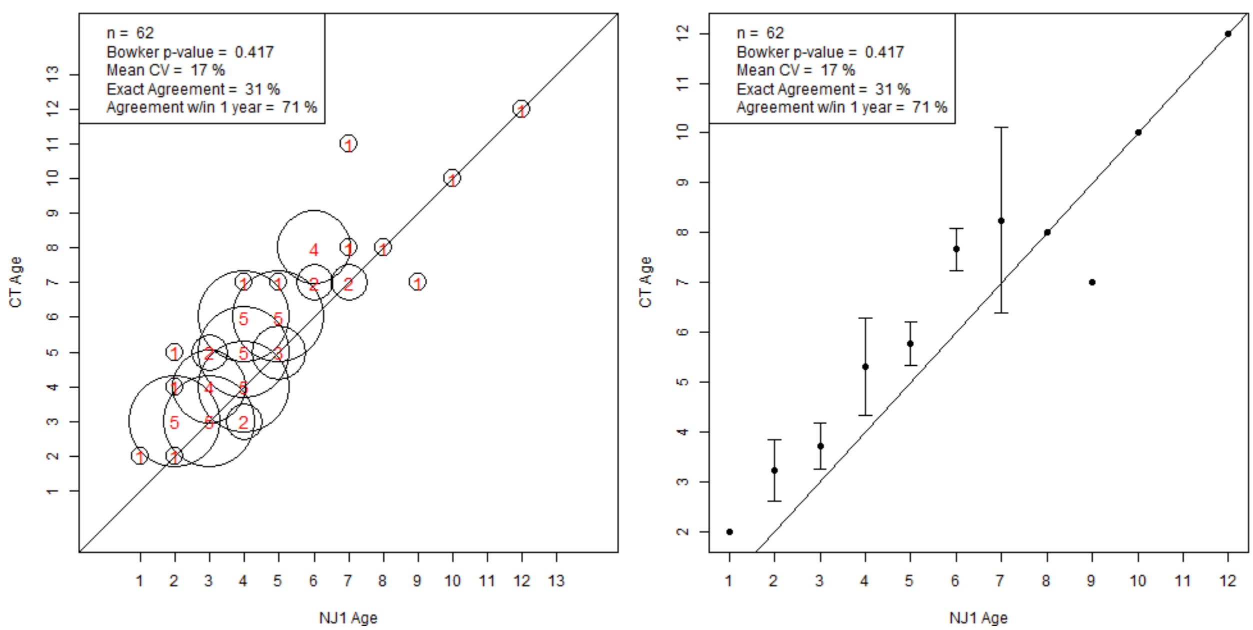



**Figure 127. Age frequency (left) and age bias (right) plots for CT and NJ reader 1 American eel whole otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

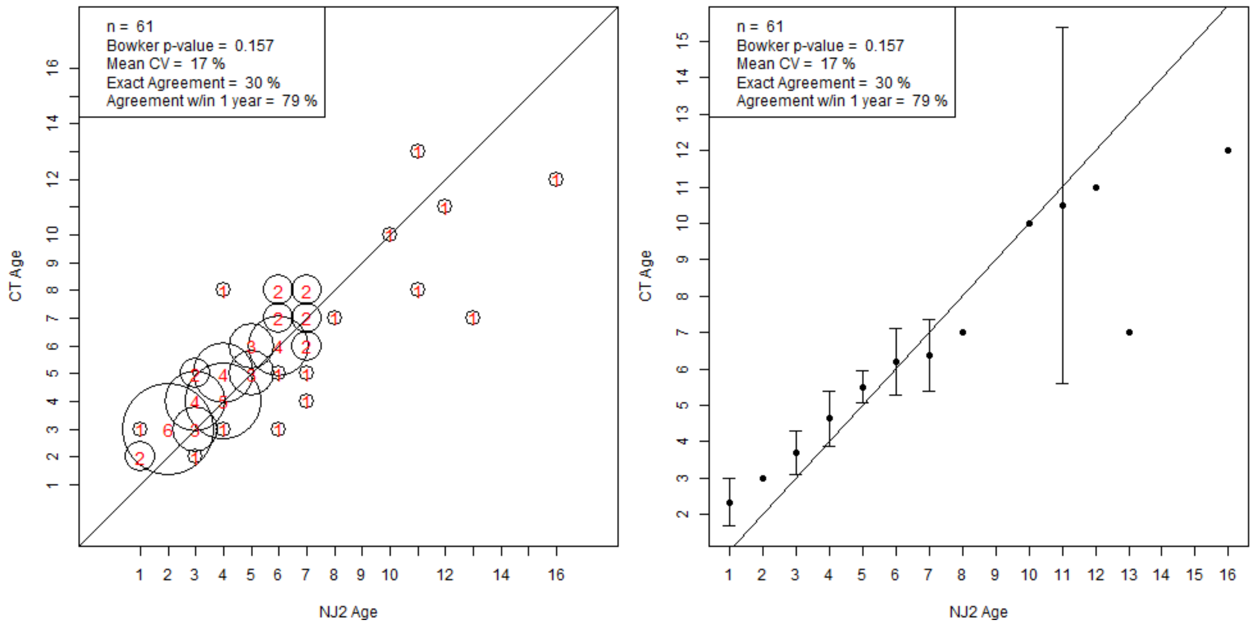



**Figure 128. Age frequency (left) and age bias (right) plots for CT and NJ reader 2 American eel whole otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

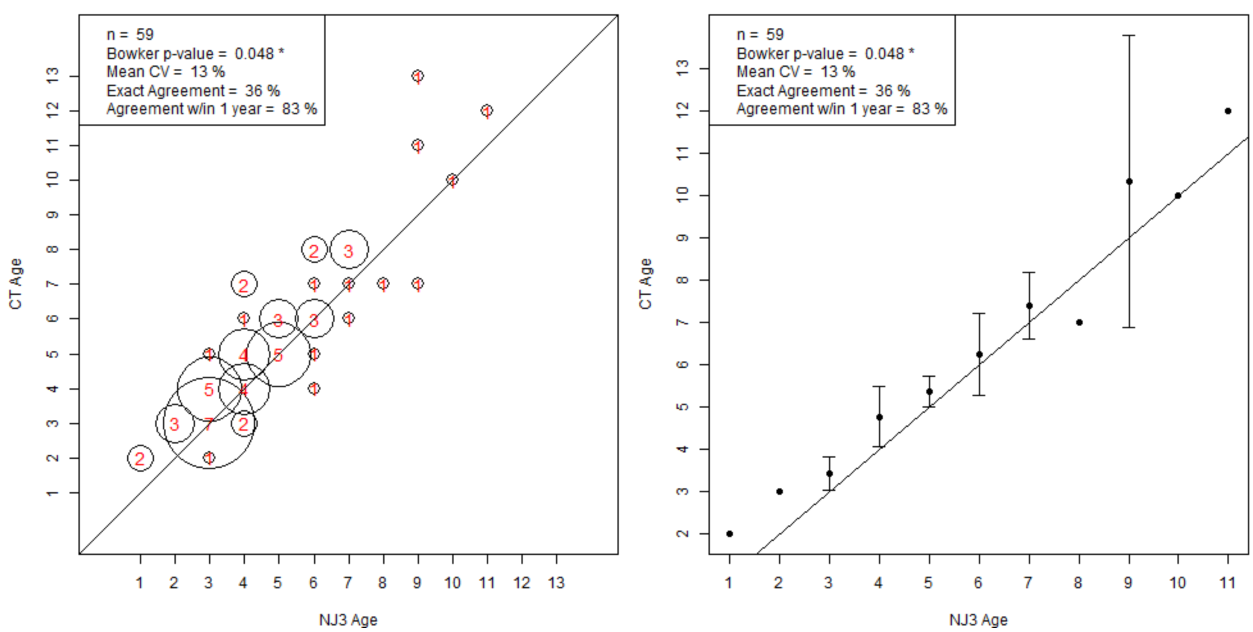



**Figure 129. Age frequency (left) and age bias (right) plots for CT and NJ reader 3 American eel whole otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

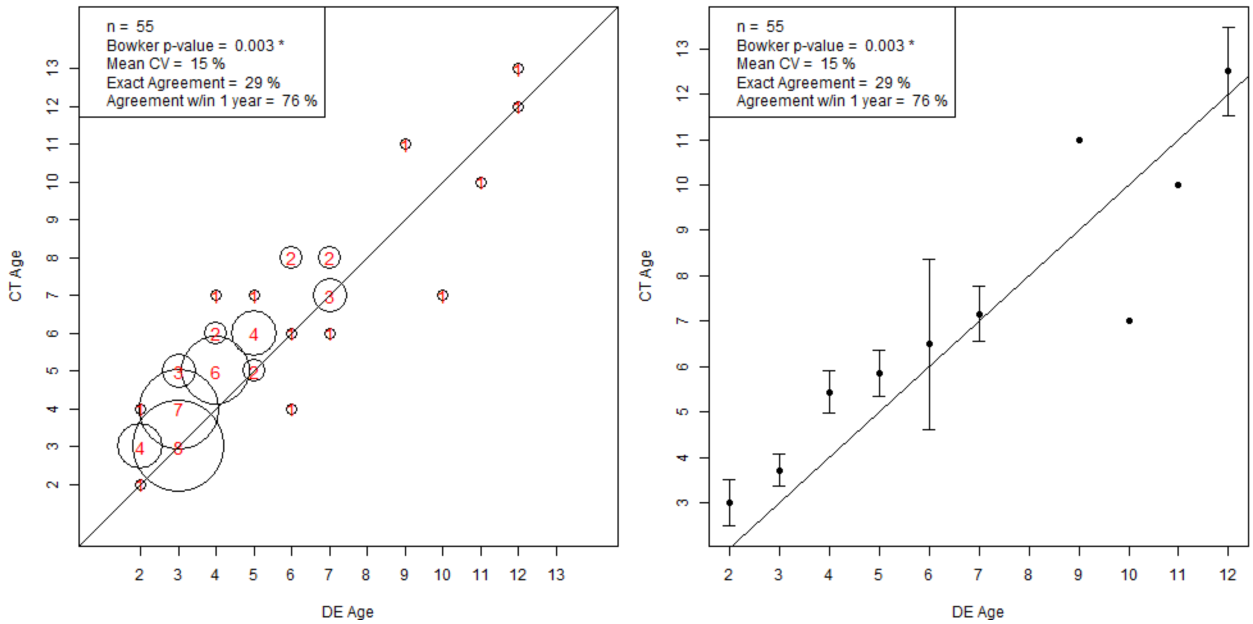



**Figure 130. Age frequency (left) and age bias (right) plots for CT and DE American eel whole otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

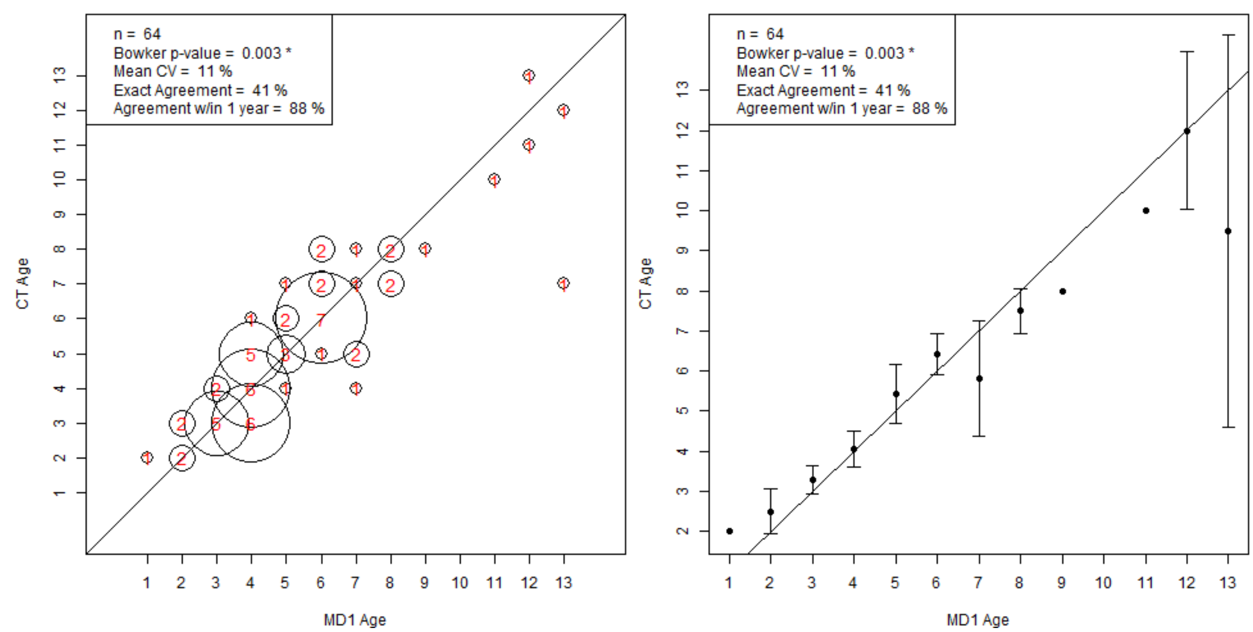



**Figure 131. Age frequency (left) and age bias (right) plots for CT and MD reader 1 American eel whole otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

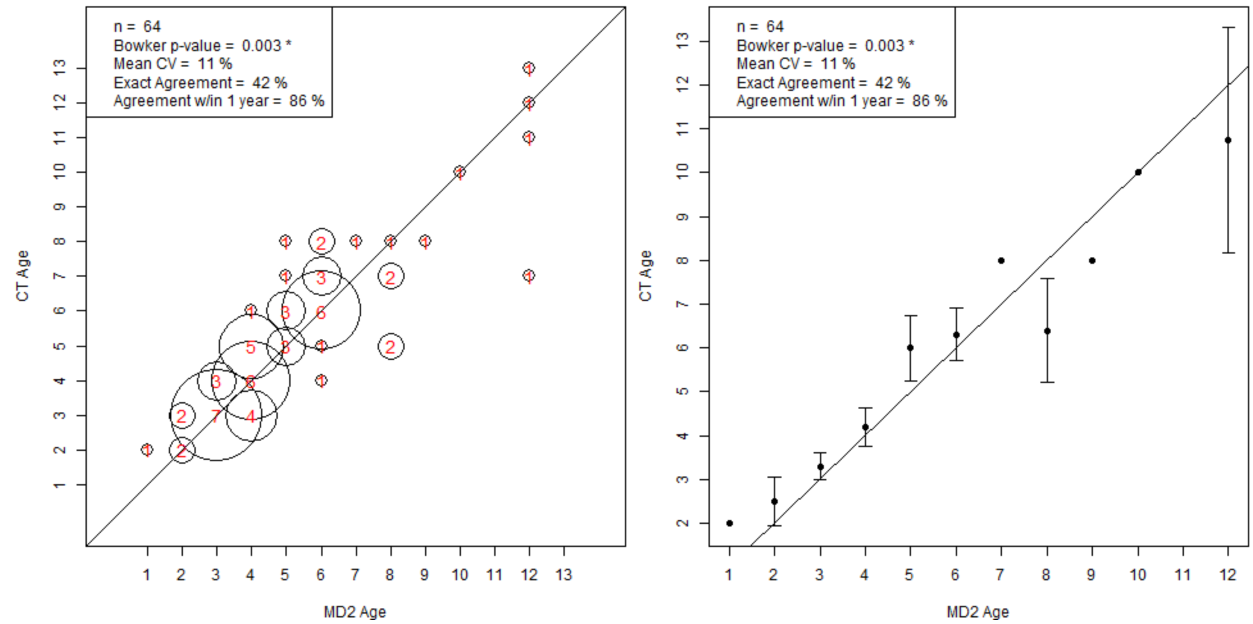



Figure 132. Age frequency (left) and age bias (right) plots for CT and MD reader 2 American eel whole otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.

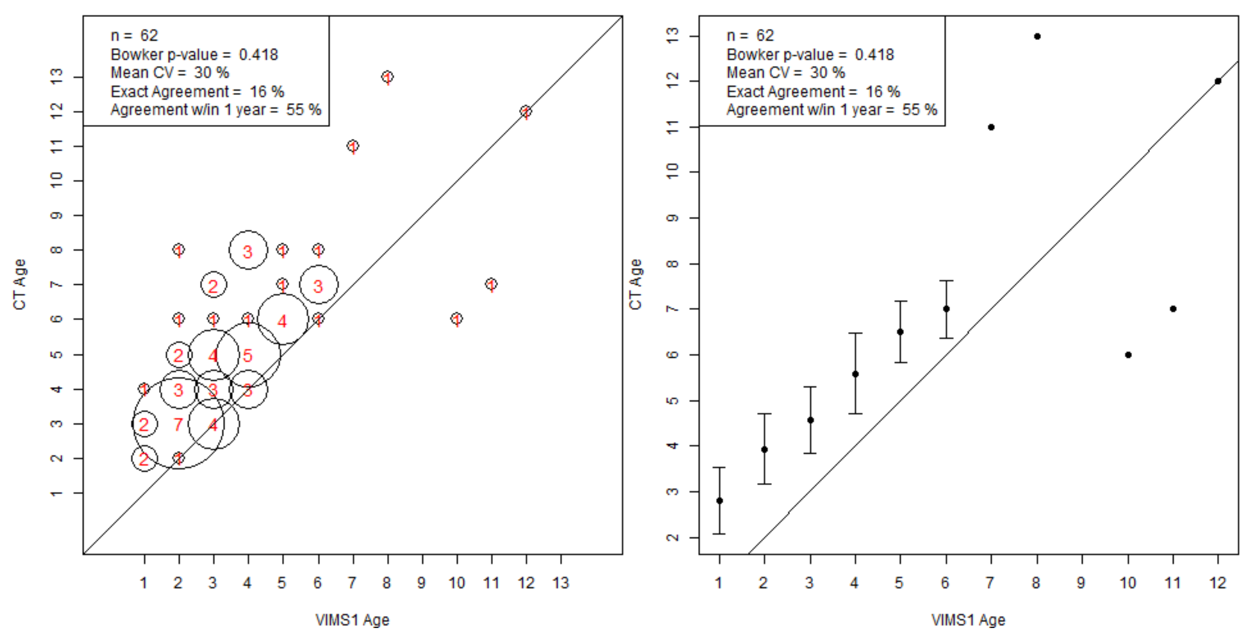



Figure 133. Age frequency (left) and age bias (right) plots for CT and VIMS reader 1 American eel whole otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.

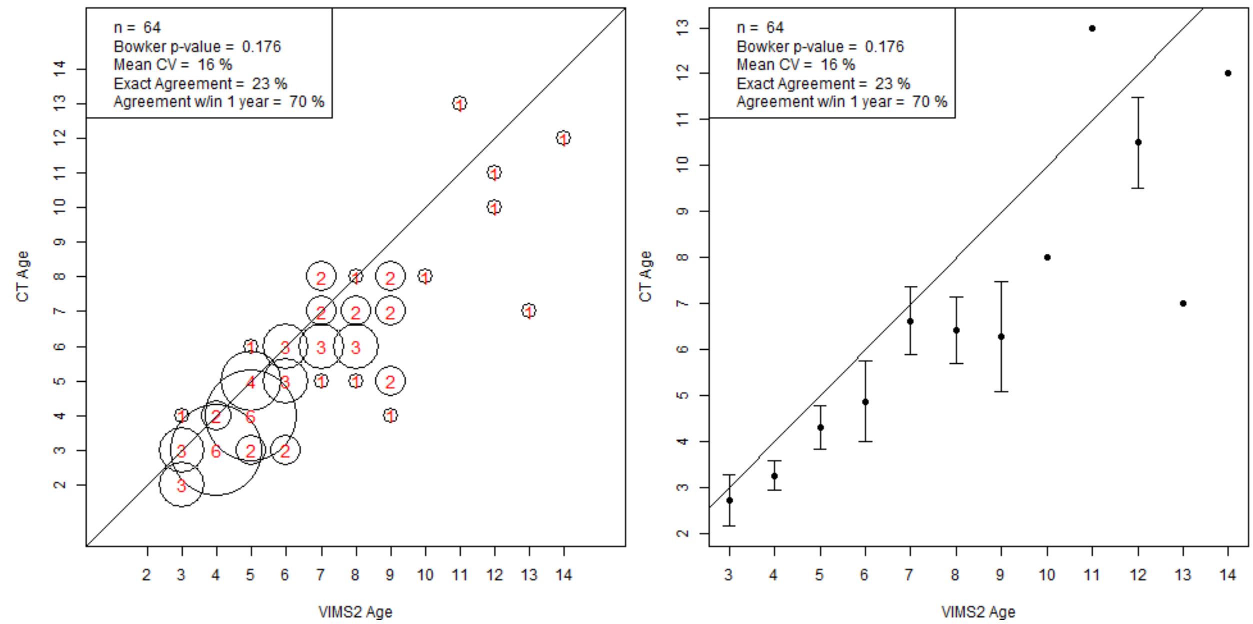



**Figure 134. Age frequency (left) and age bias (right) plots for CT and VIMS reader 2 American eel whole otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

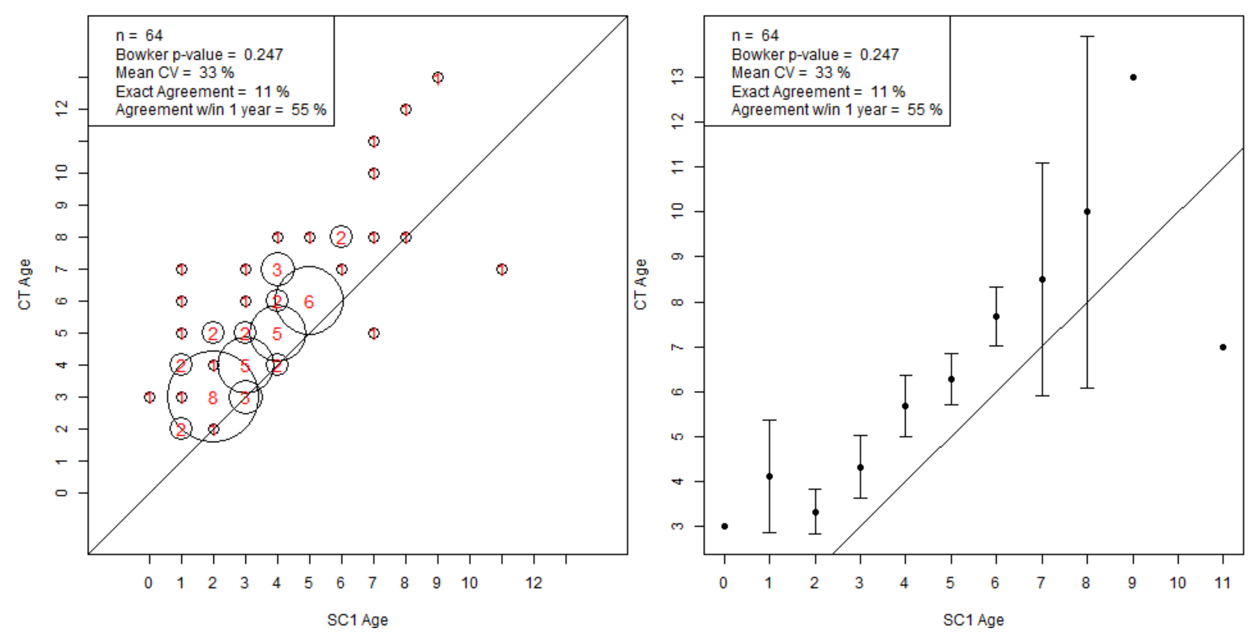



**Figure 135. Age frequency (left) and age bias (right) plots for CT and SC reader 1 American eel whole otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

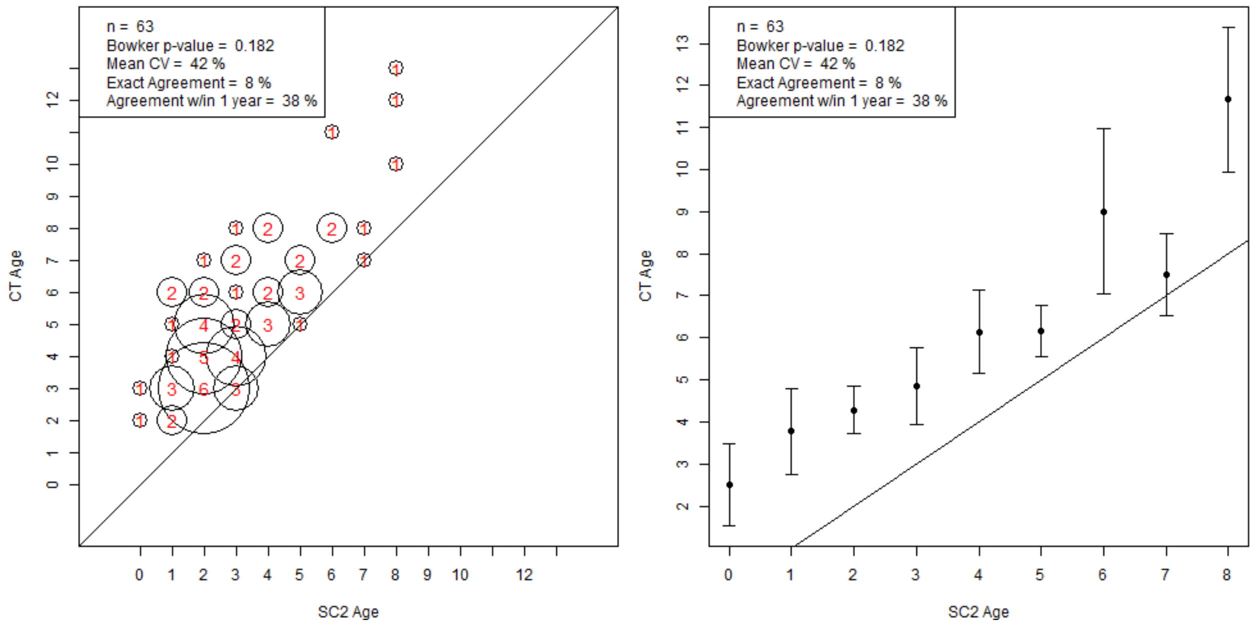



**Figure 136. Age frequency (left) and age bias (right) plots for CT and SC reader 2 American eel whole otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

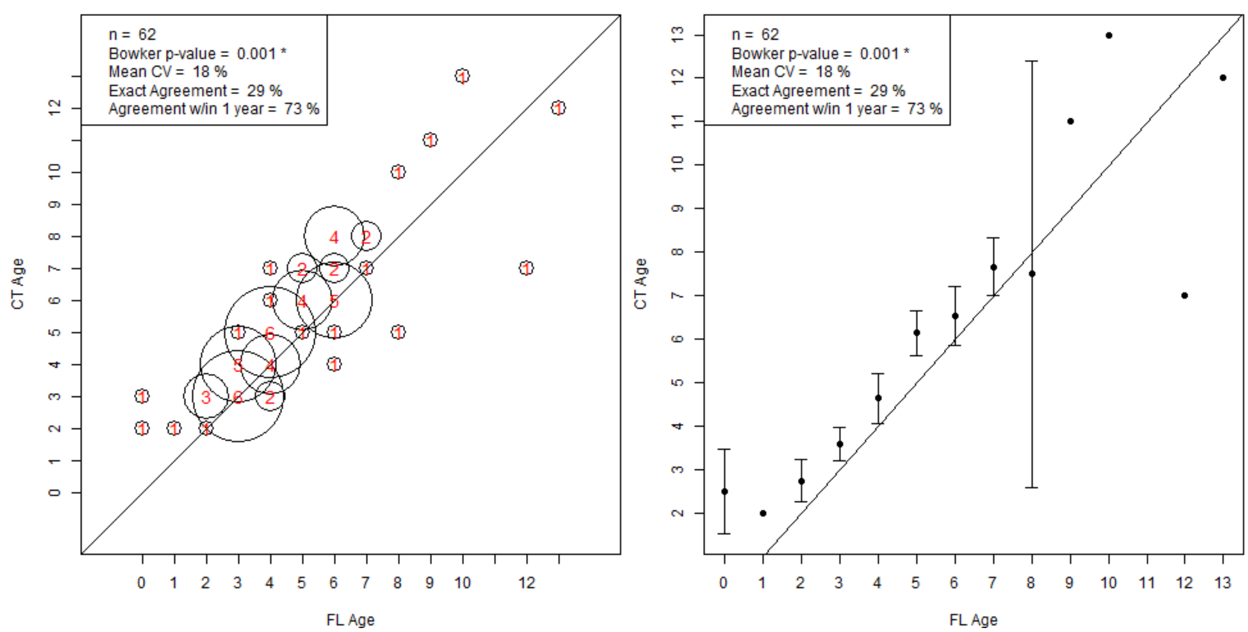



**Figure 137. Age frequency (left) and age bias (right) plots for CT and FL American eel whole otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

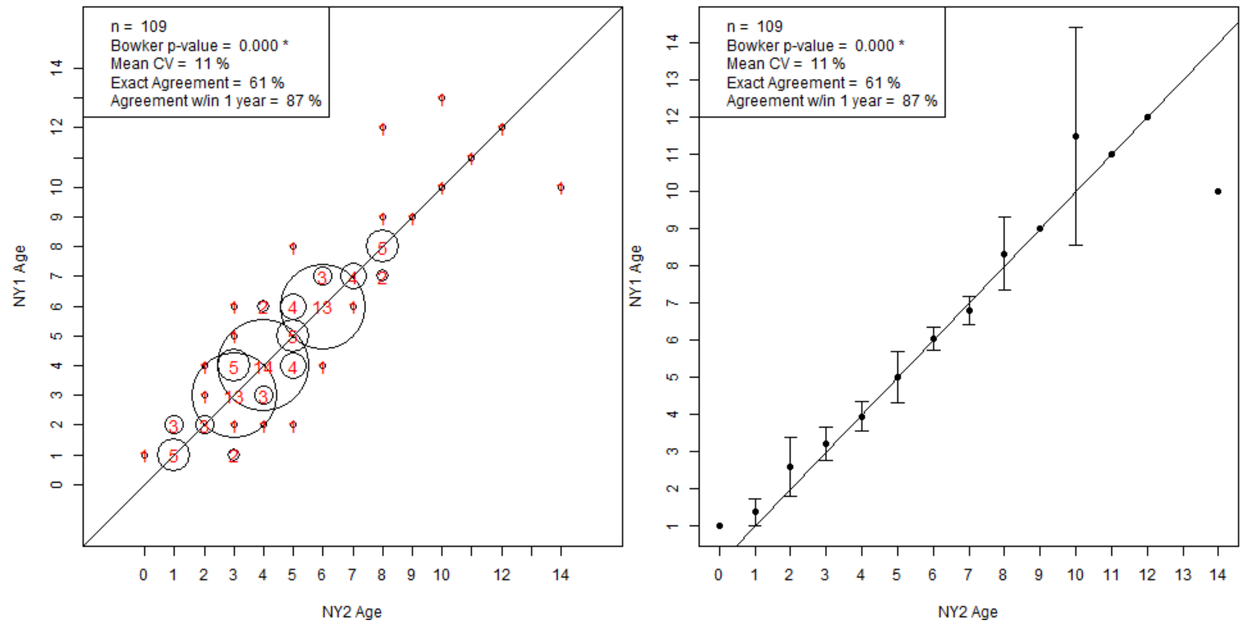



Figure 138. Age frequency (left) and age bias (right) plots for NY reader 1 and NY reader 2 American eel whole otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.

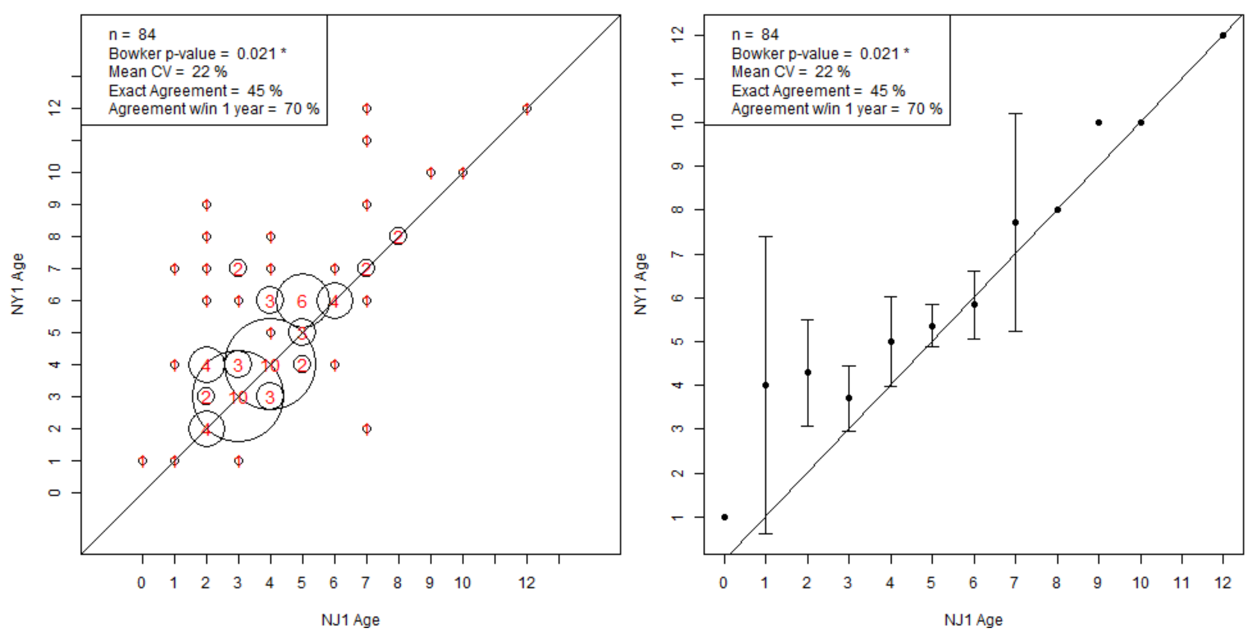



Figure 139. Age frequency (left) and age bias (right) plots for NY reader 1 and NJ reader 1 American eel whole otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.

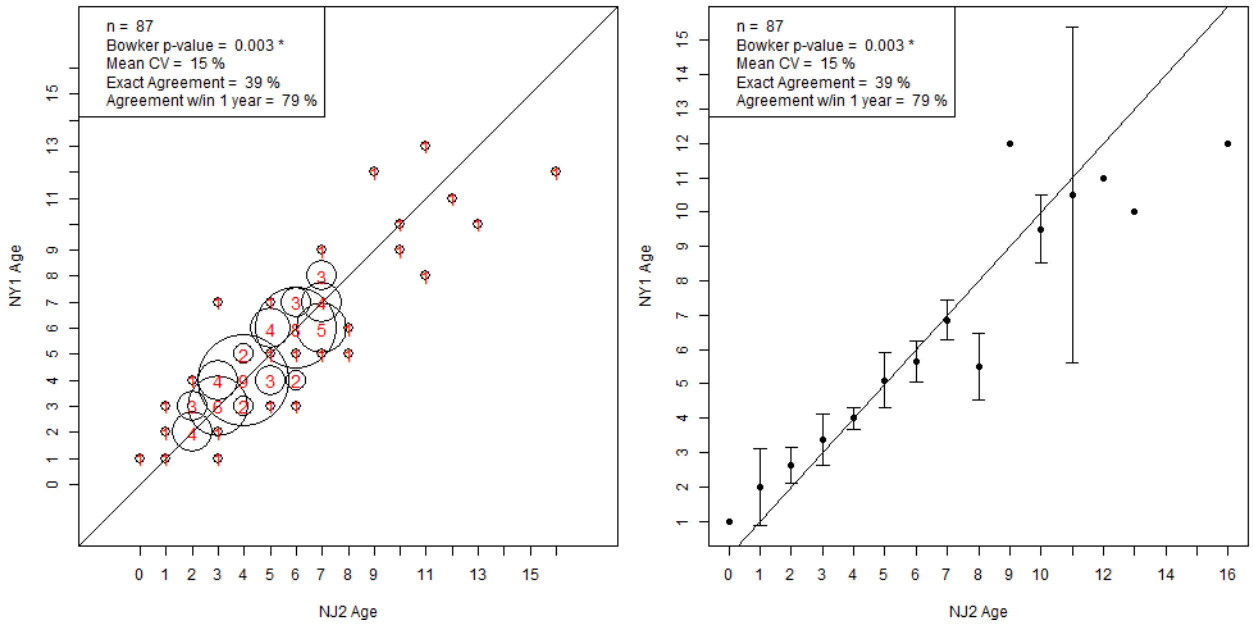



Figure 140. Age frequency (left) and age bias (right) plots for NY reader 1 and NJ reader 2 American eel whole otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.

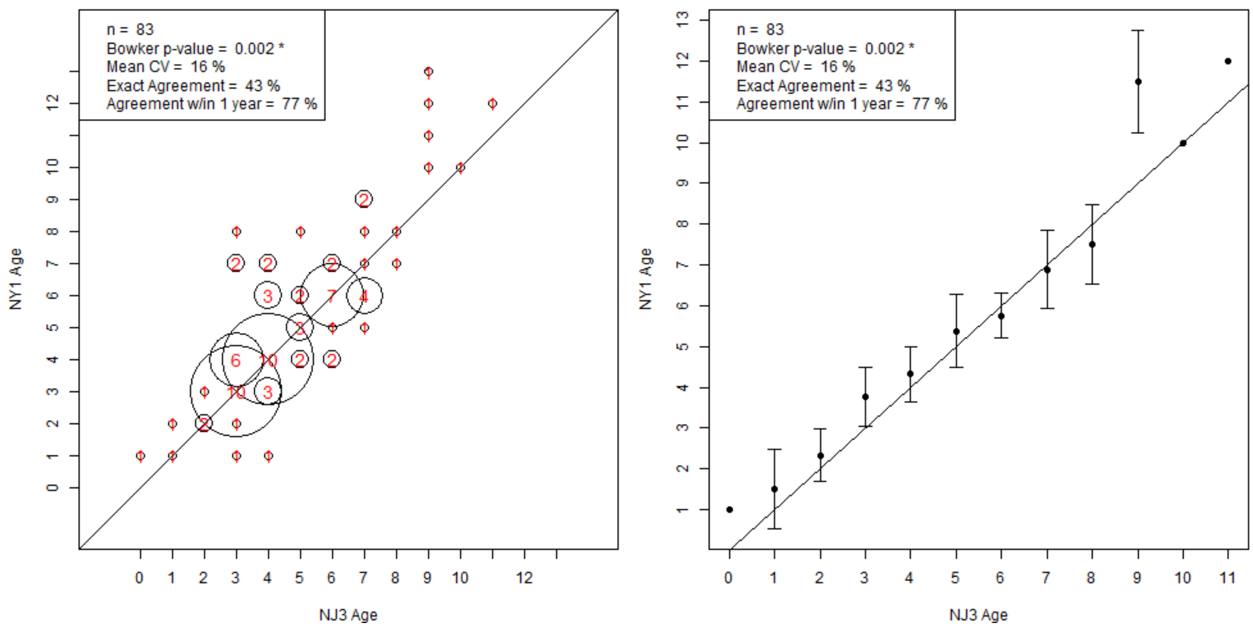



Figure 141. Age frequency (left) and age bias (right) plots for NY reader 1 and NJ reader 3 American eel whole otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.

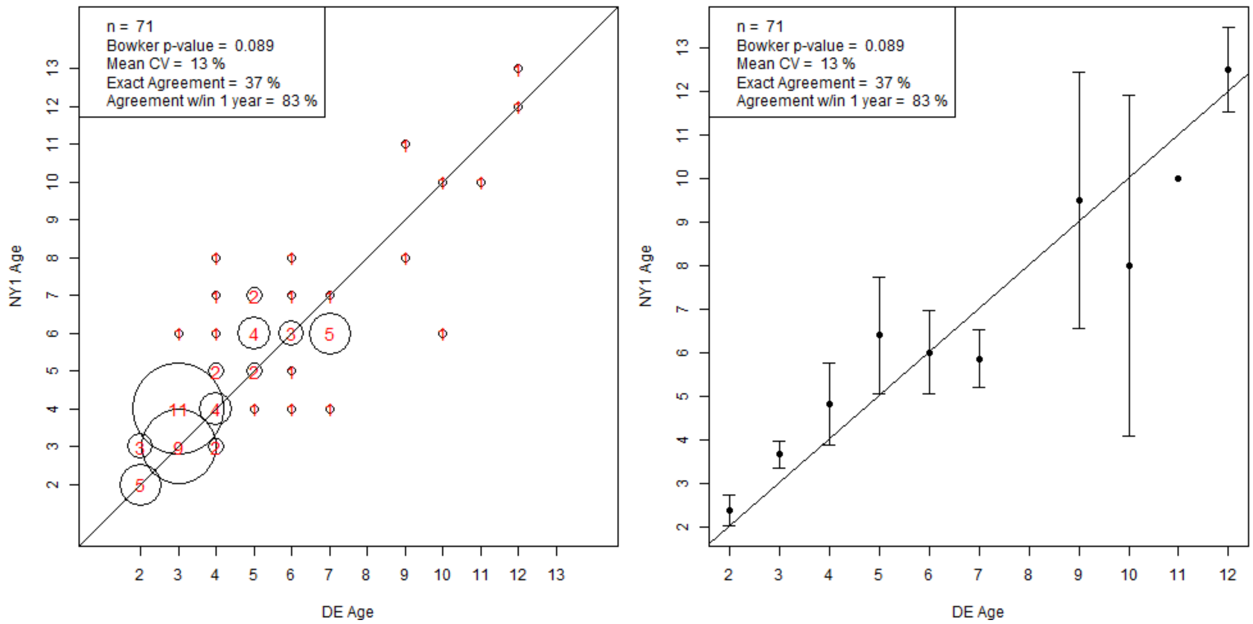



**Figure 142. Age frequency (left) and age bias (right) plots for NY reader 1 and DE American eel whole otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

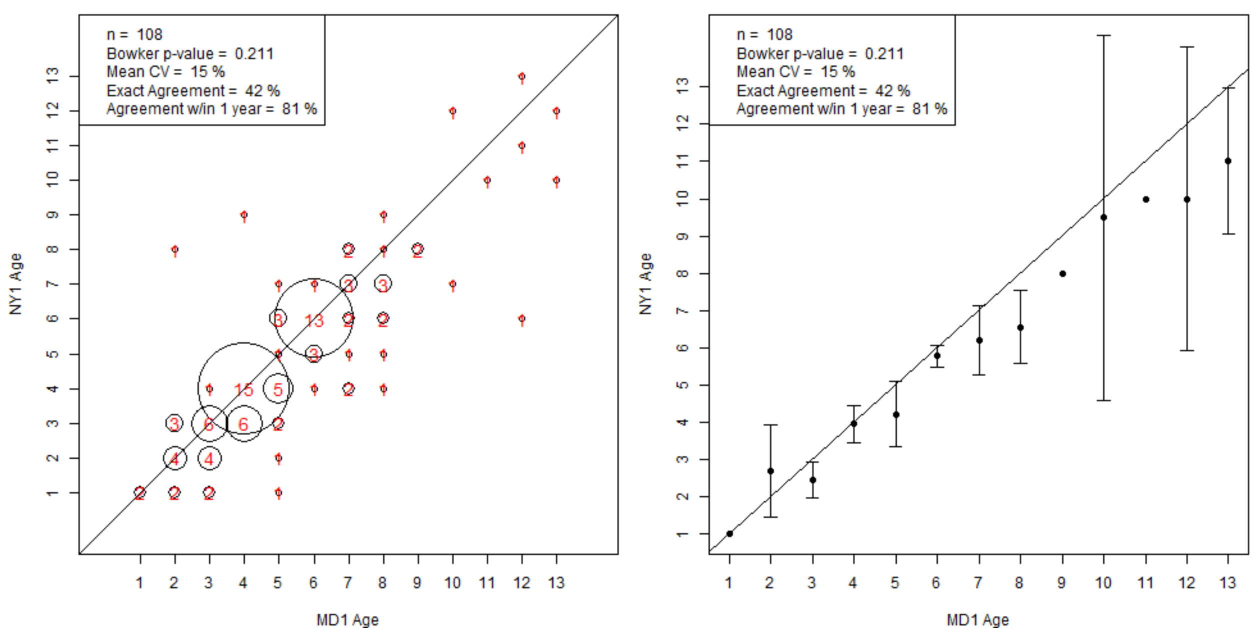



**Figure 143. Age frequency (left) and age bias (right) plots for NY reader 1 and MD reader 1 American eel whole otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

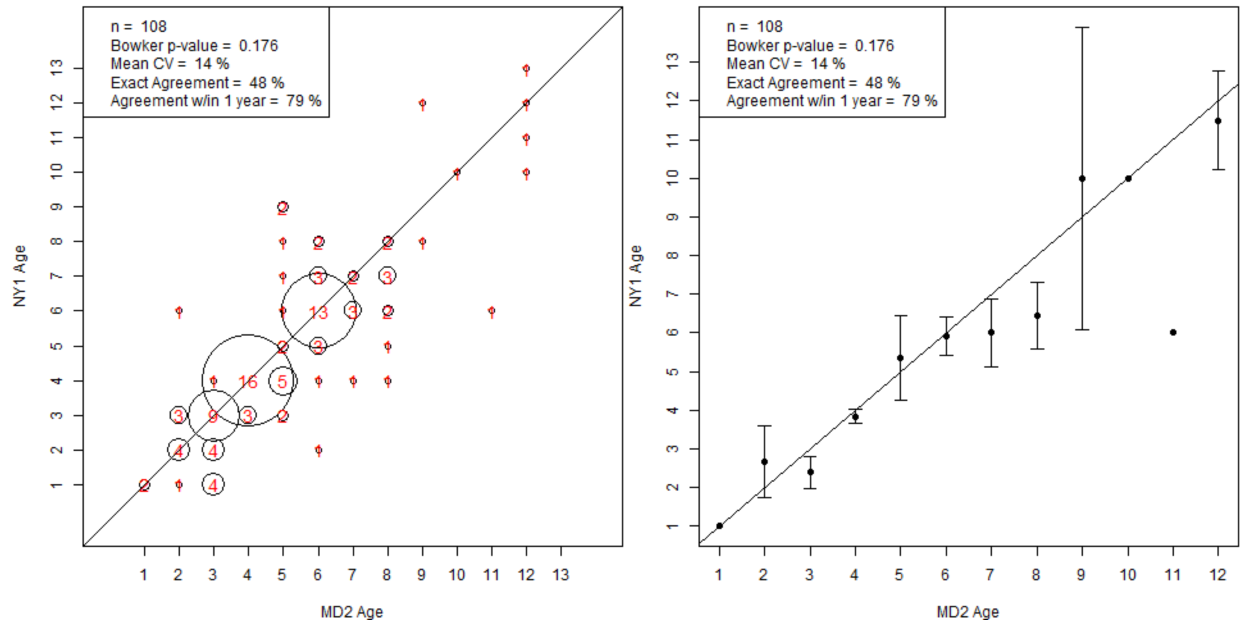



**Figure 144. Age frequency (left) and age bias (right) plots for NY reader 1 and MD reader 2 American eel whole otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

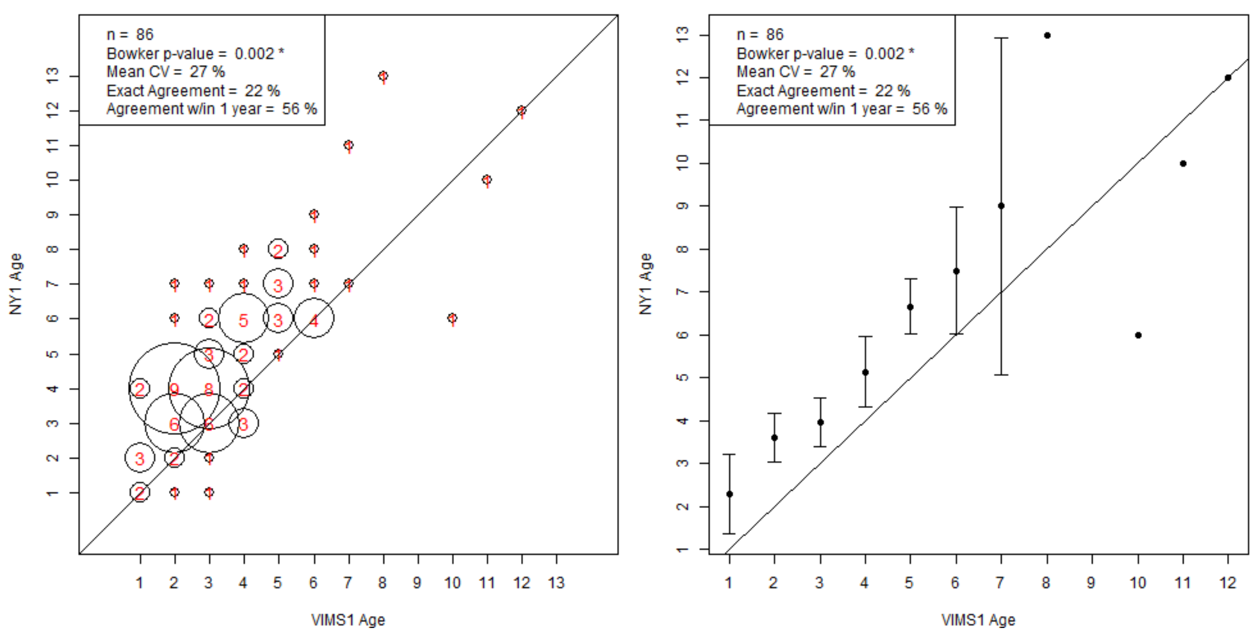



**Figure 145. Age frequency (left) and age bias (right) plots for NY reader 1 and VIMS reader 1 American eel whole otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

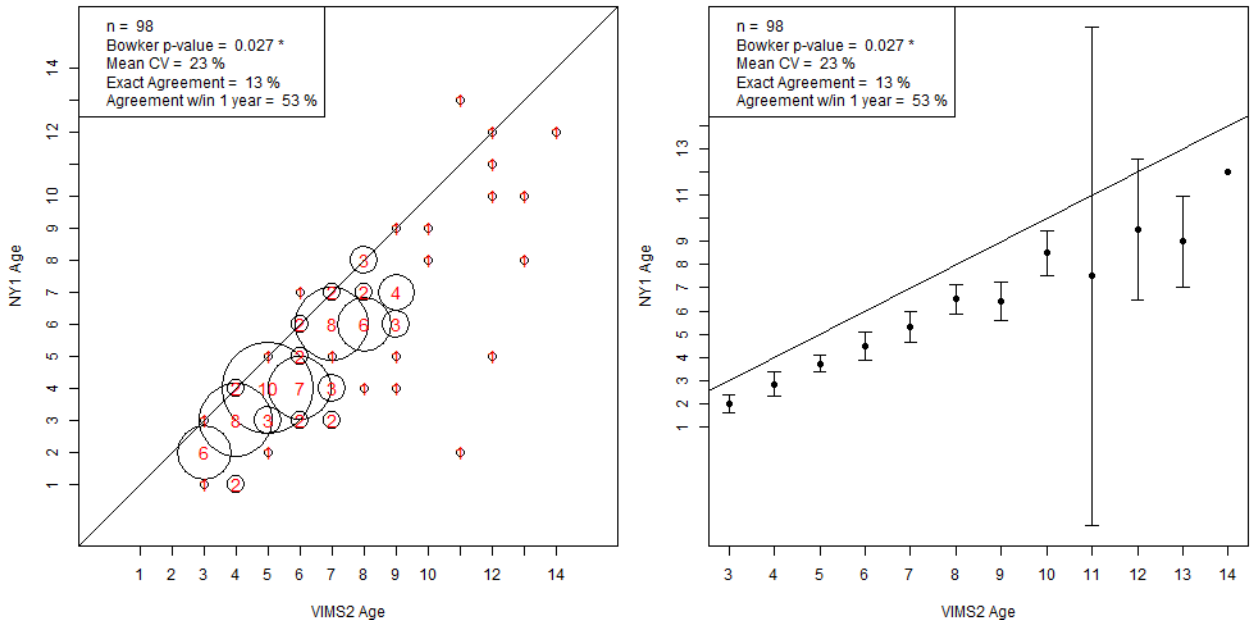



Figure 146. Age frequency (left) and age bias (right) plots for NY reader 1 and VIMS reader 2 American eel whole otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.

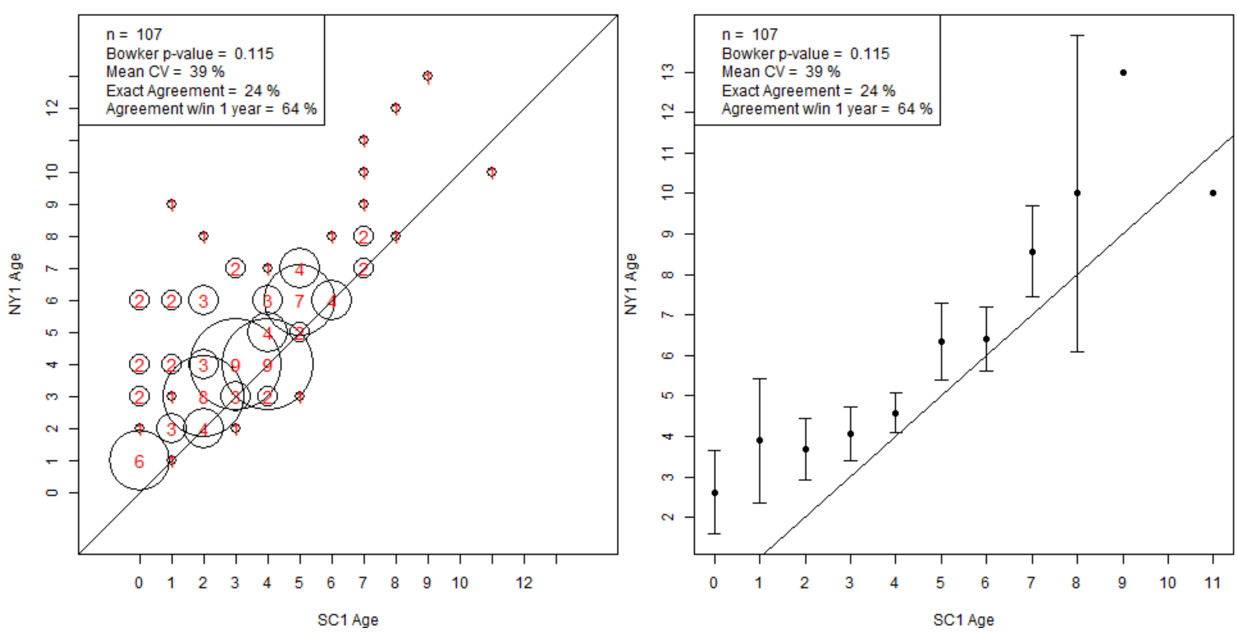



Figure 147. Age frequency (left) and age bias (right) plots for NY reader 1 and SC reader 1 American eel whole otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.

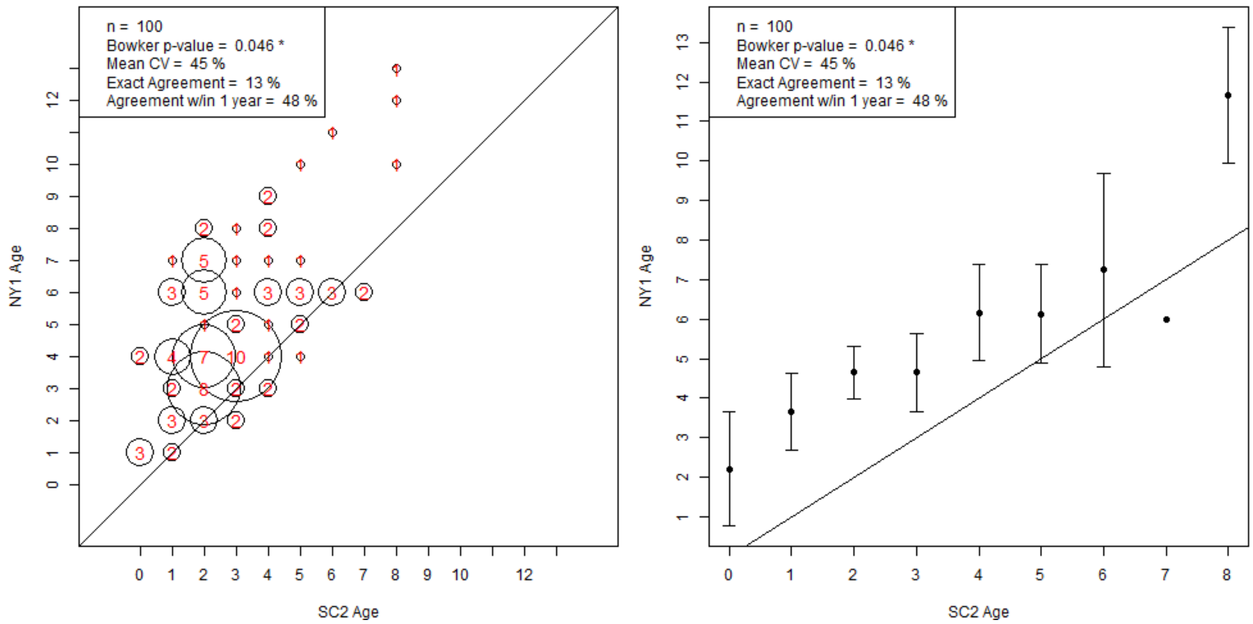



Figure 148. Age frequency (left) and age bias (right) plots plot for NY reader 1 and SC reader 2 American eel whole otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.

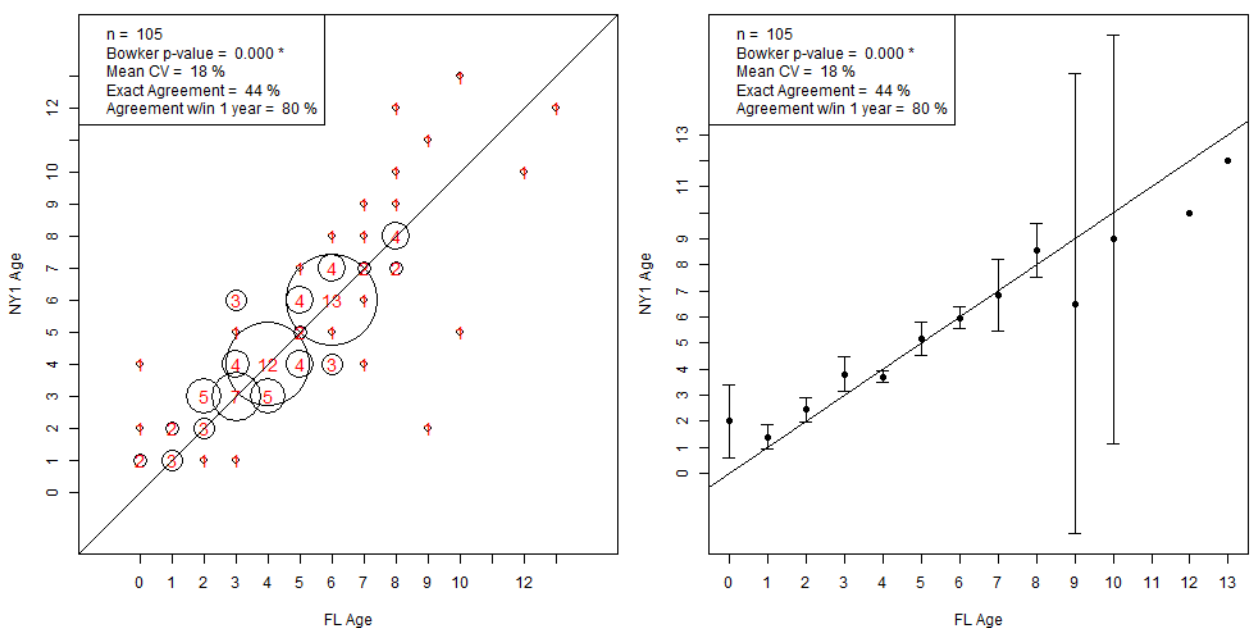



Figure 149. Age frequency (left) and age bias (right) plots for NY reader 1 and FL American eel whole otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.

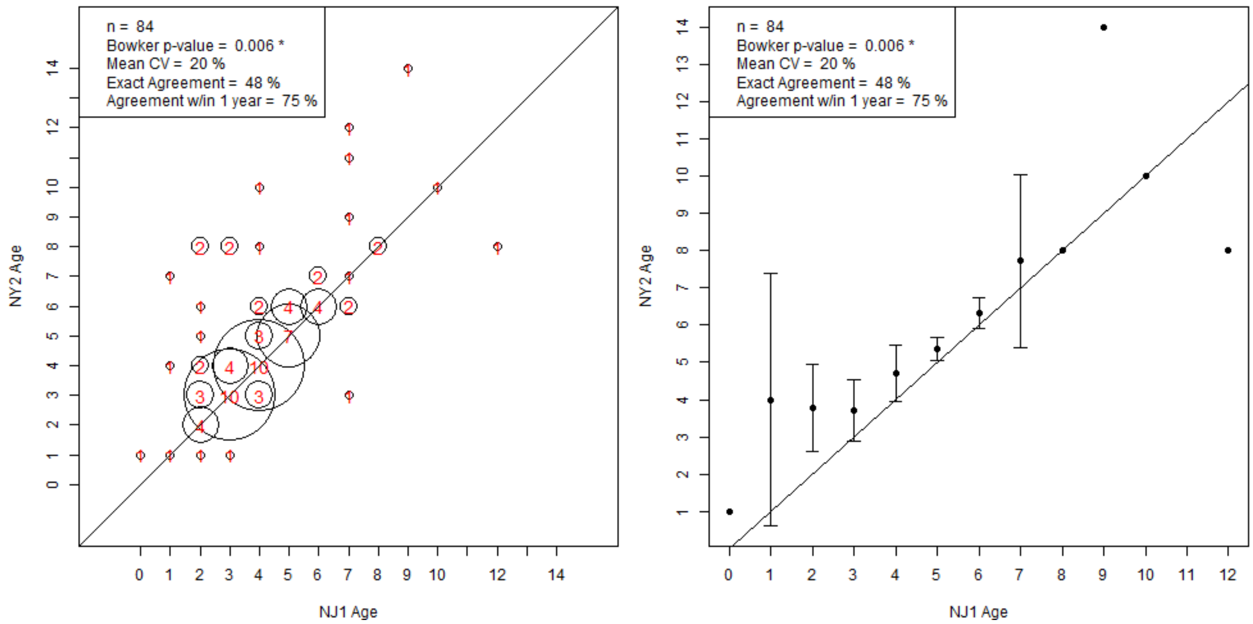



**Figure 150. Age frequency (left) and age bias (right) plots for NY reader 2 and NJ reader 1 American eel whole otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

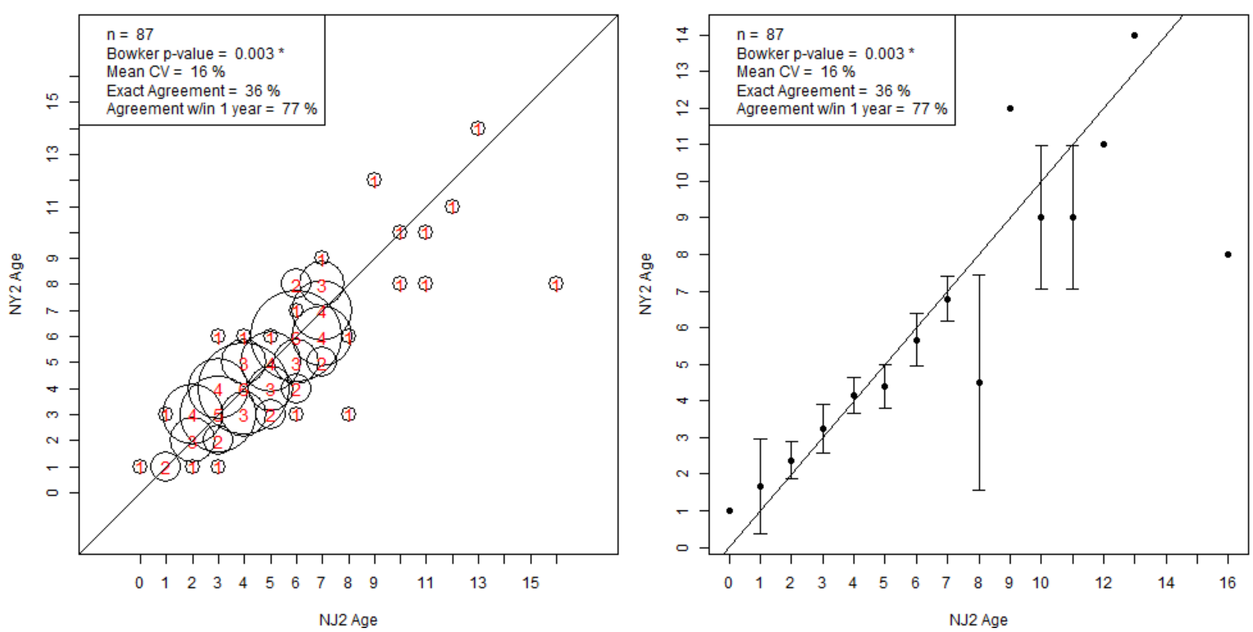



**Figure 151. Age frequency (left) and age bias (right) plots for NY reader 2 and NJ reader 2 American eel whole otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

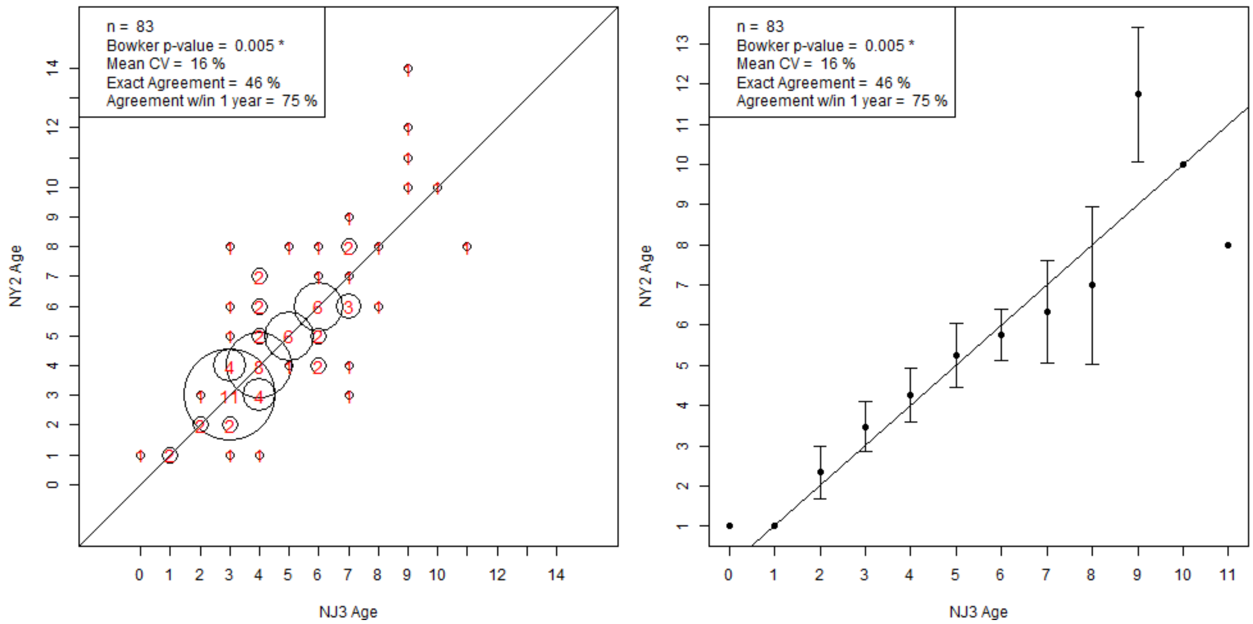



**Figure 152. Age frequency (left) and age bias (right) plots plot for NY reader 2 and NJ reader 3 American eel whole otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

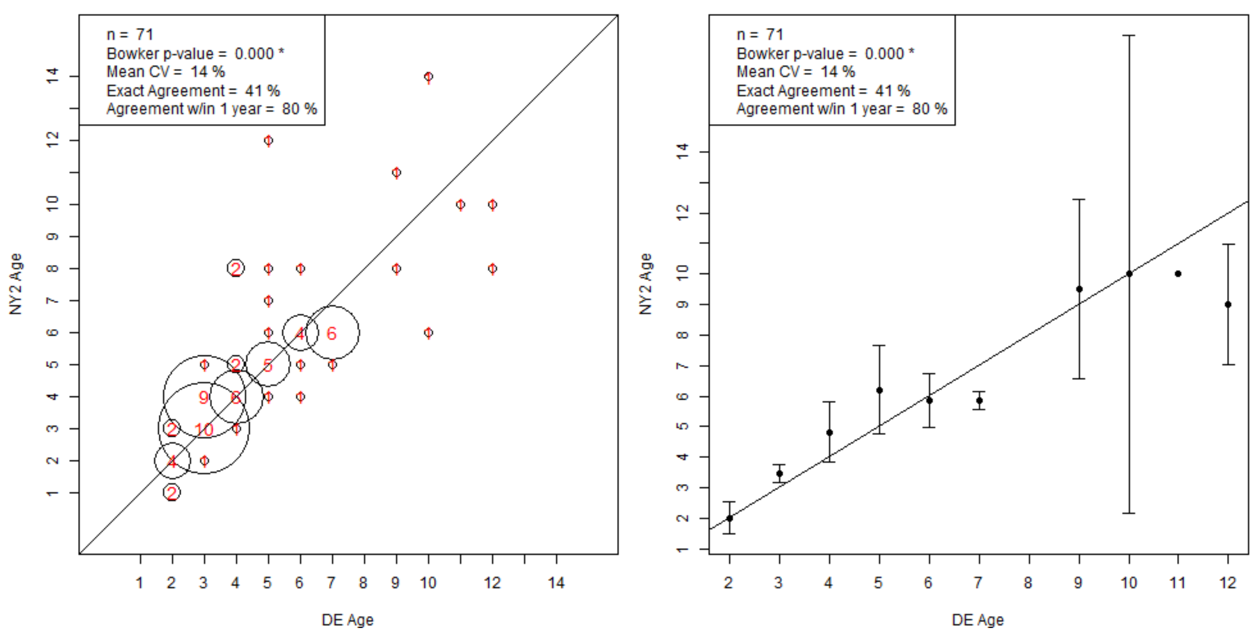



**Figure 153. Age frequency (left) and age bias (right) plots plot for NY reader 2 and DE American eel whole otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

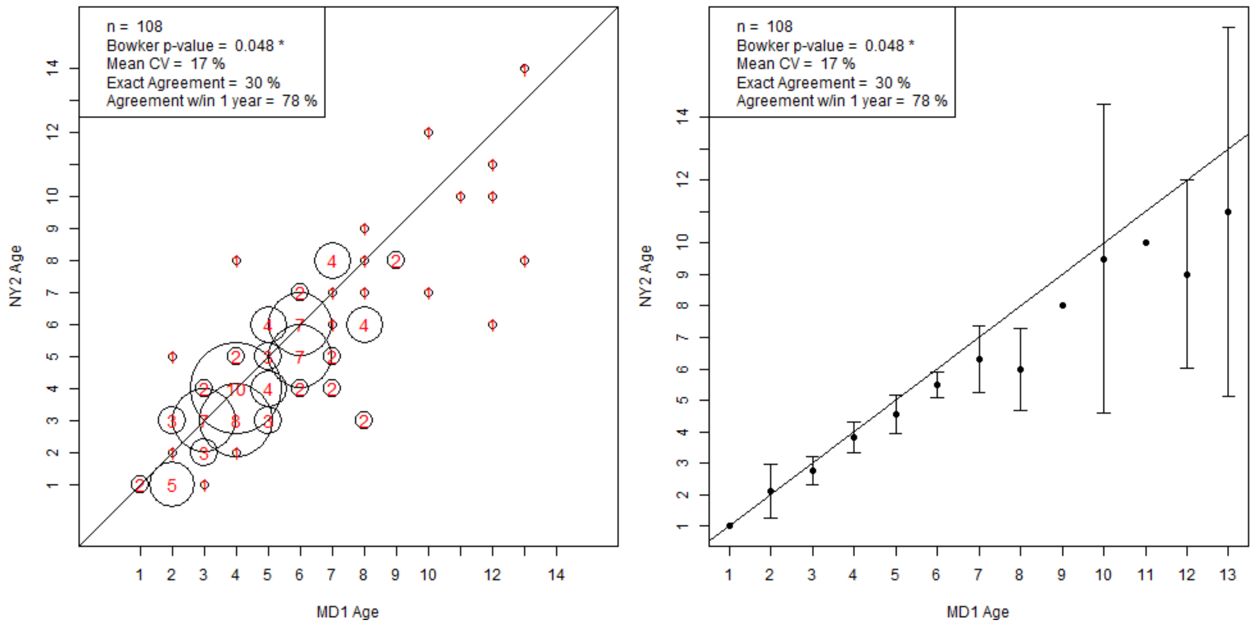



Figure 154. Age frequency (left) and age bias (right) plots for NY reader 2 and MD reader 1 American eel whole otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.

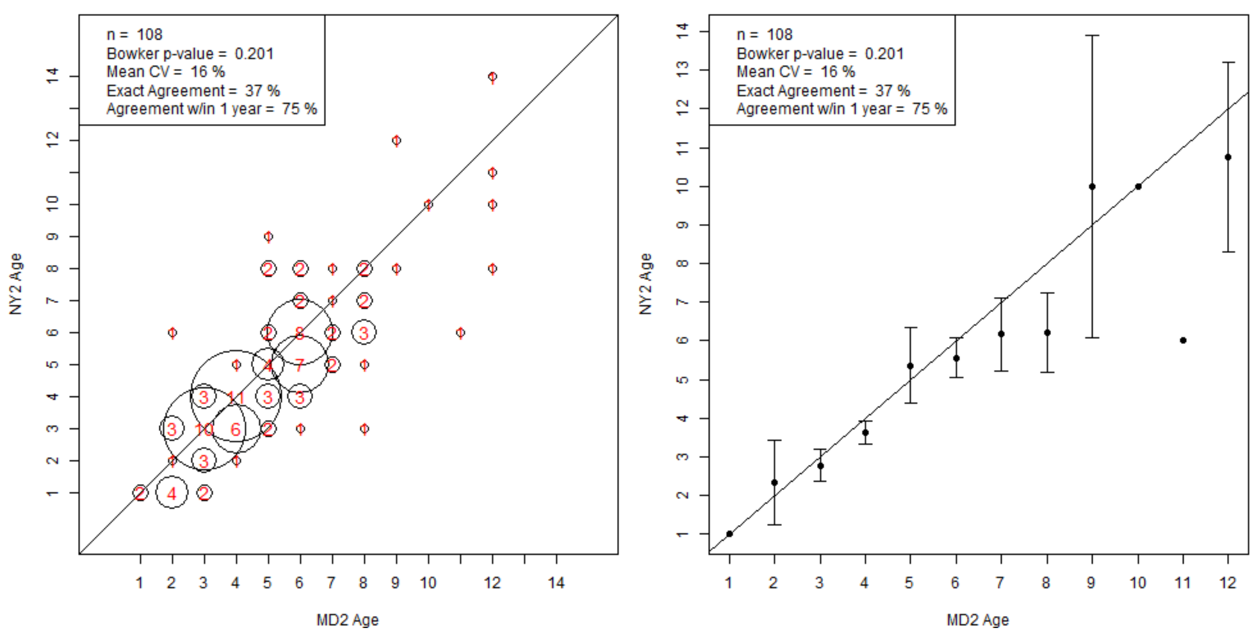



Figure 155. Age frequency (left) and age bias (right) plots for NY reader 2 and MD reader 2 American eel whole otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.

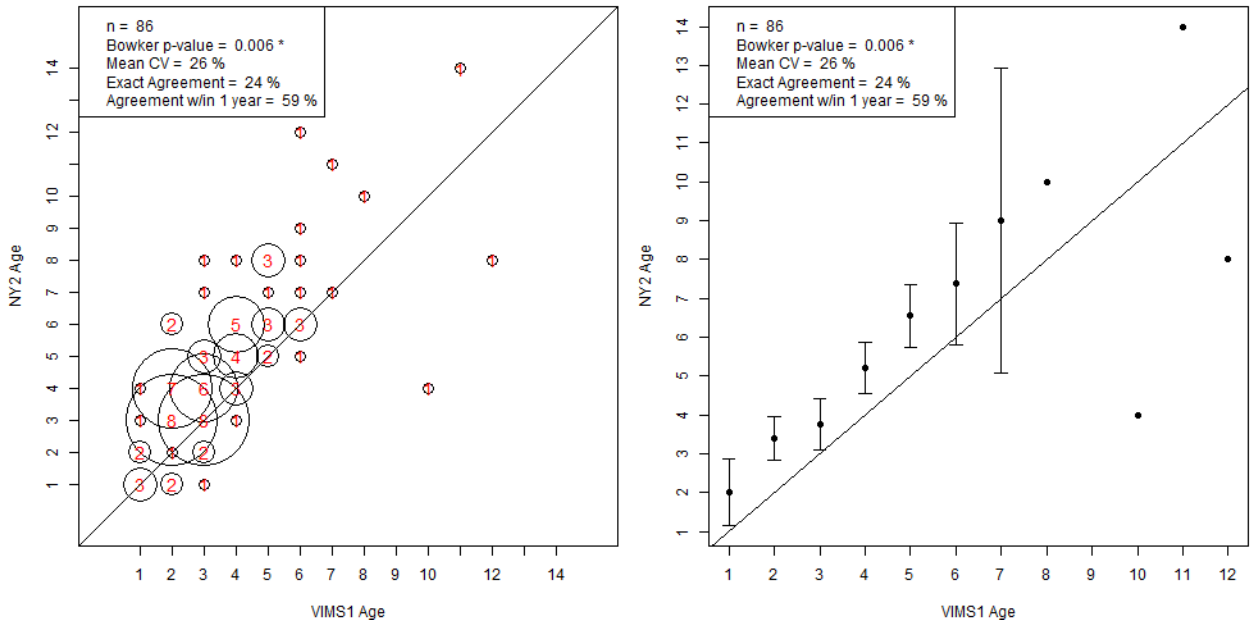



**Figure 156. Age frequency (left) and age bias (right) plots plot for NY reader 2 and VIMS reader 1 American eel whole otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

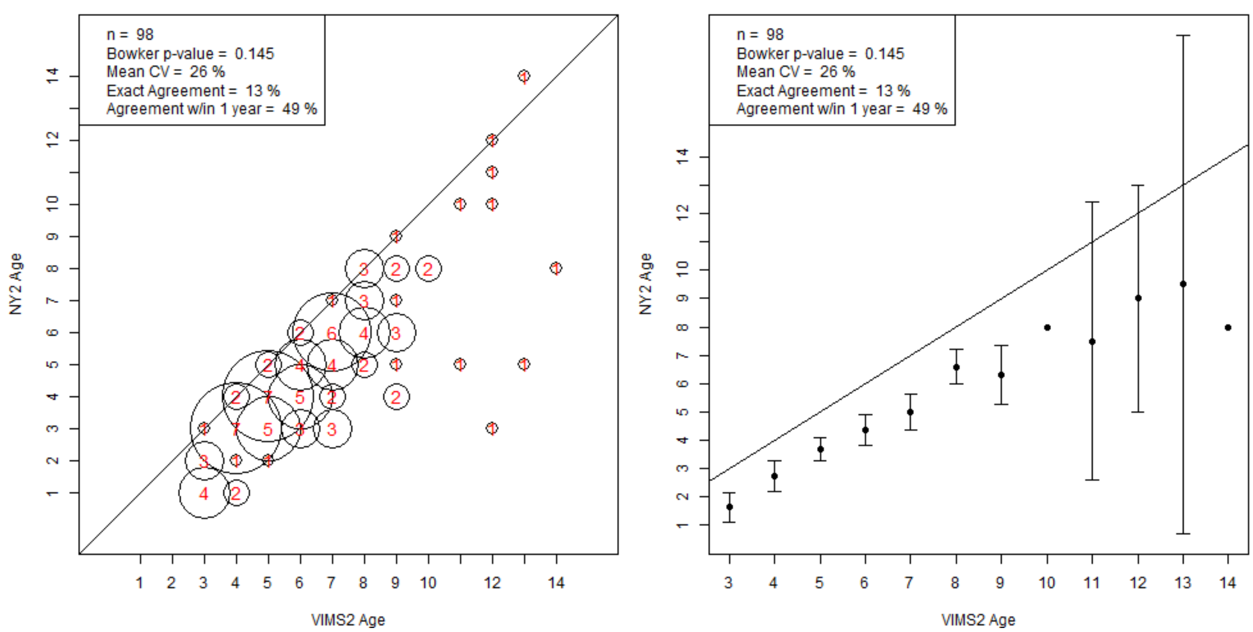



**Figure 157. Age frequency (left) and age bias (right) plots for NY reader 2 and VIMS reader 2 American eel whole otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

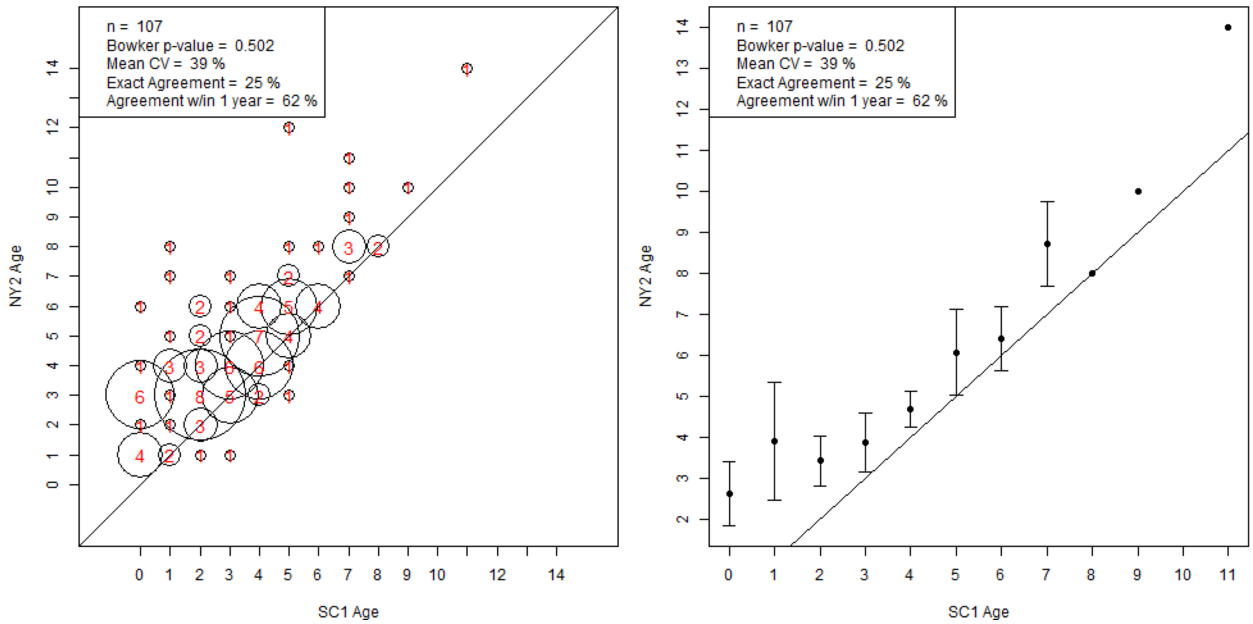



Figure 158. Age frequency (left) and age bias (right) plots for NY reader 2 and SC reader 1 American eel whole otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.

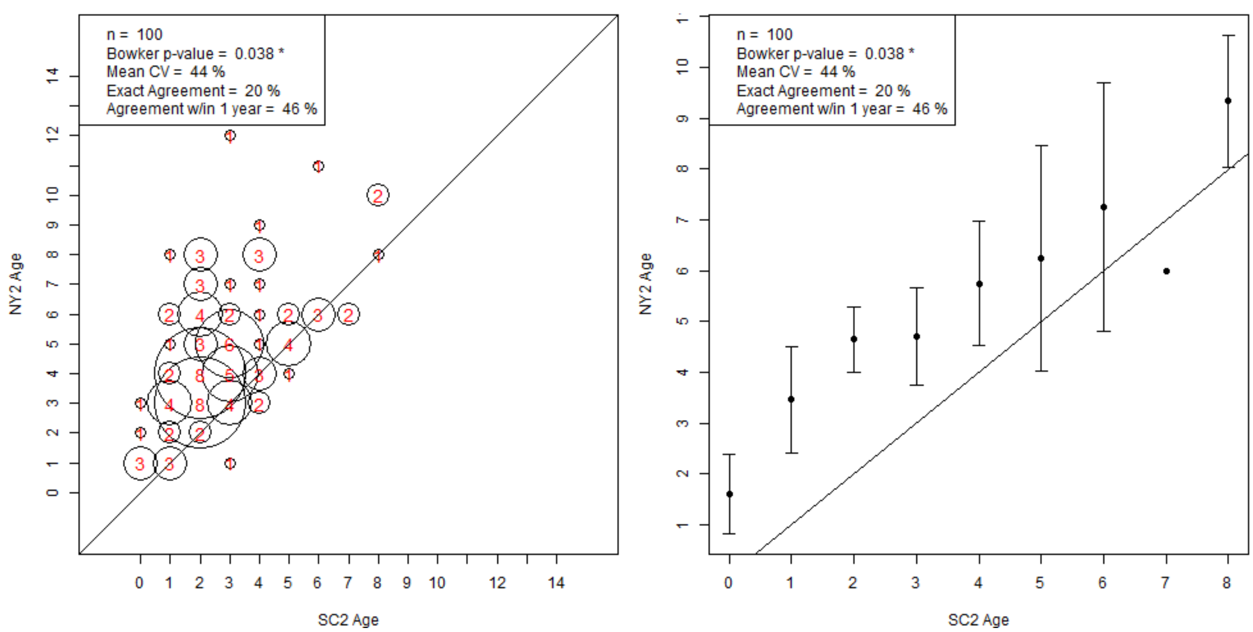



Figure 159. Age frequency (left) and age bias (right) plots for NY reader 2 and SC reader 2 American eel whole otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.

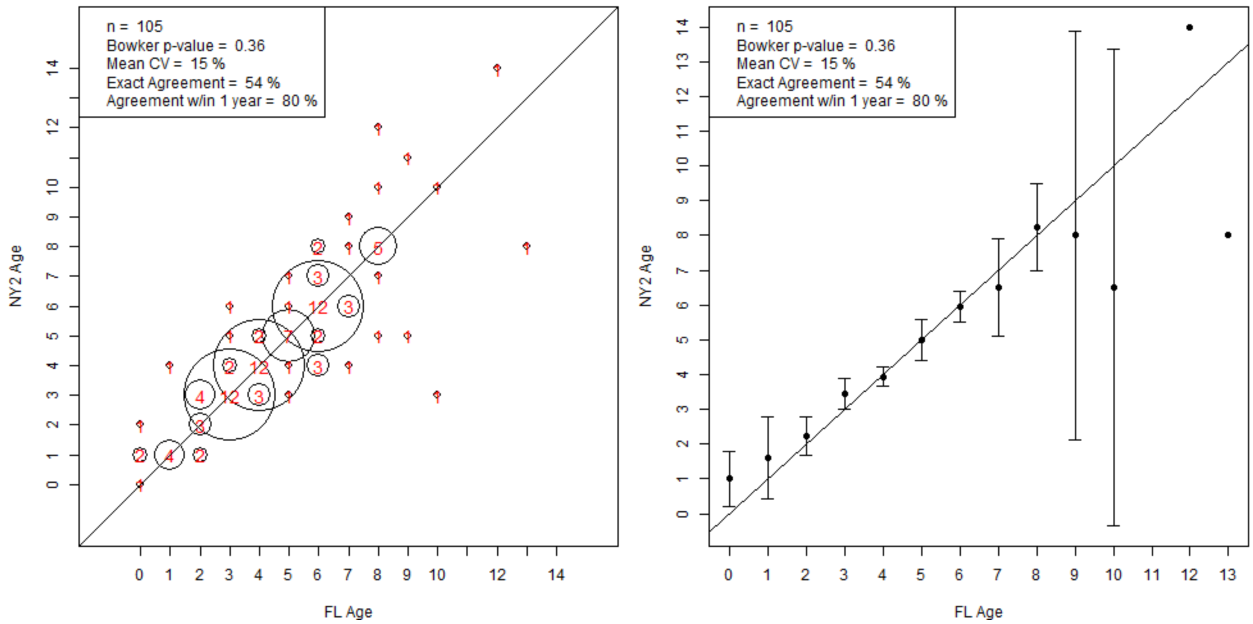



Figure 160. Age frequency (left) and age bias (right) plots for NY reader 2 and FL American eel whole otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.

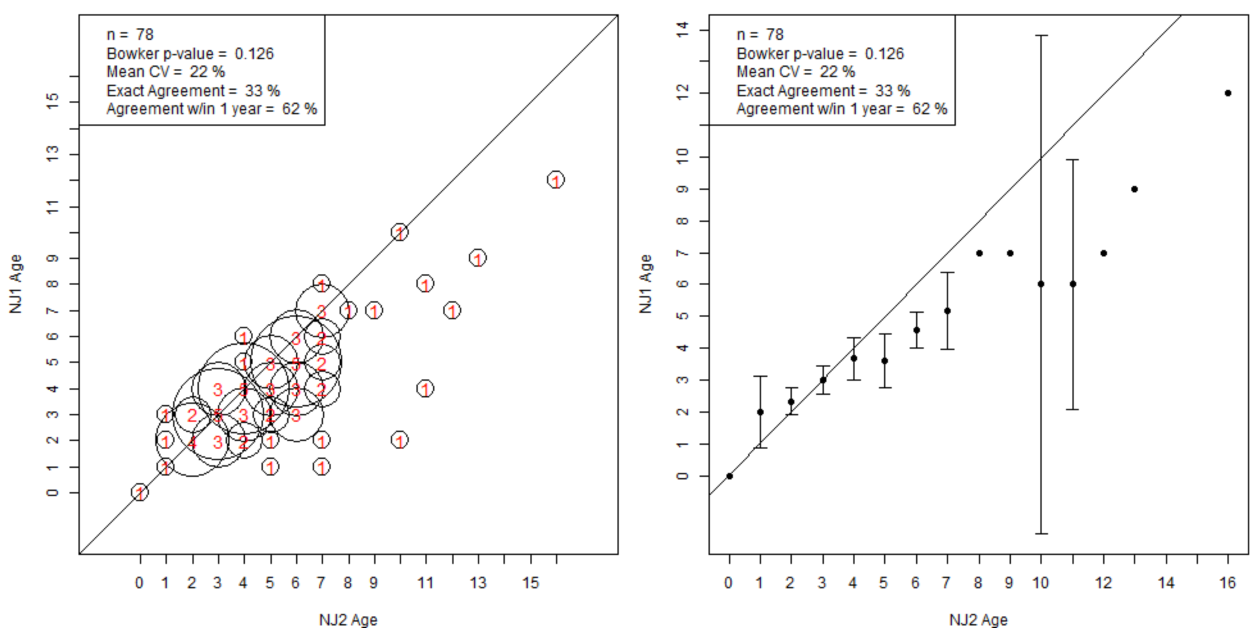



Figure 161. Age frequency (left) and age bias (right) plots for NJ reader 1 and NJ reader 2 American eel whole otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.

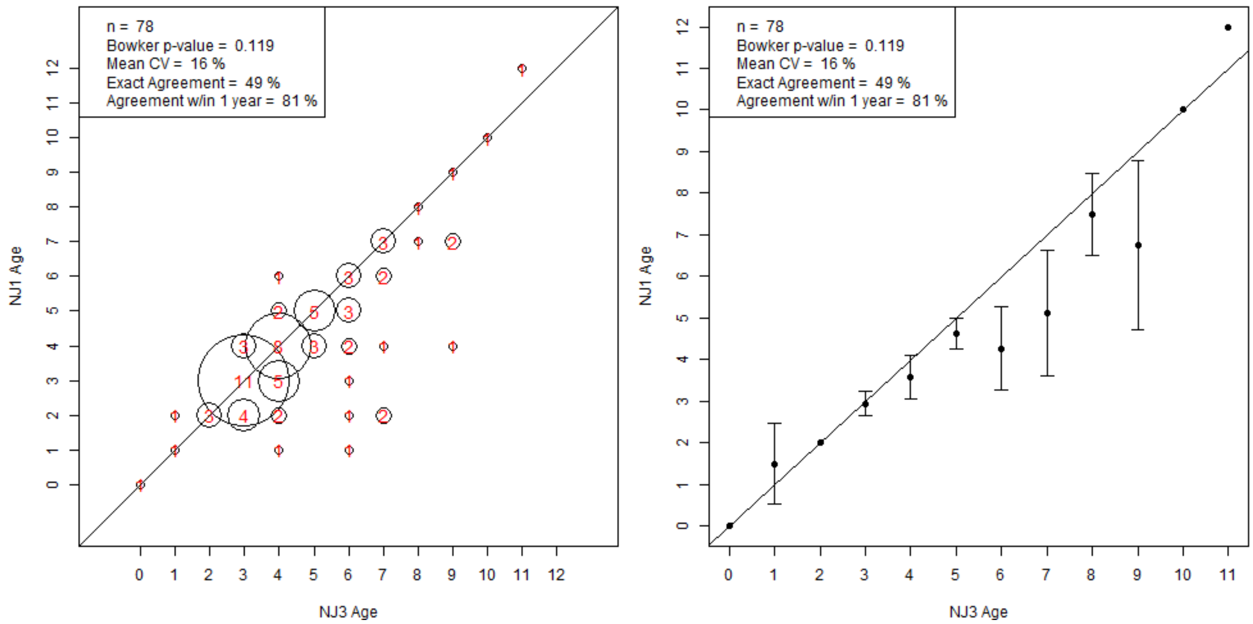



**Figure 162. Age frequency (left) and age bias (right) plots for NJ reader 1 and NJ reader 3 American eel whole otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

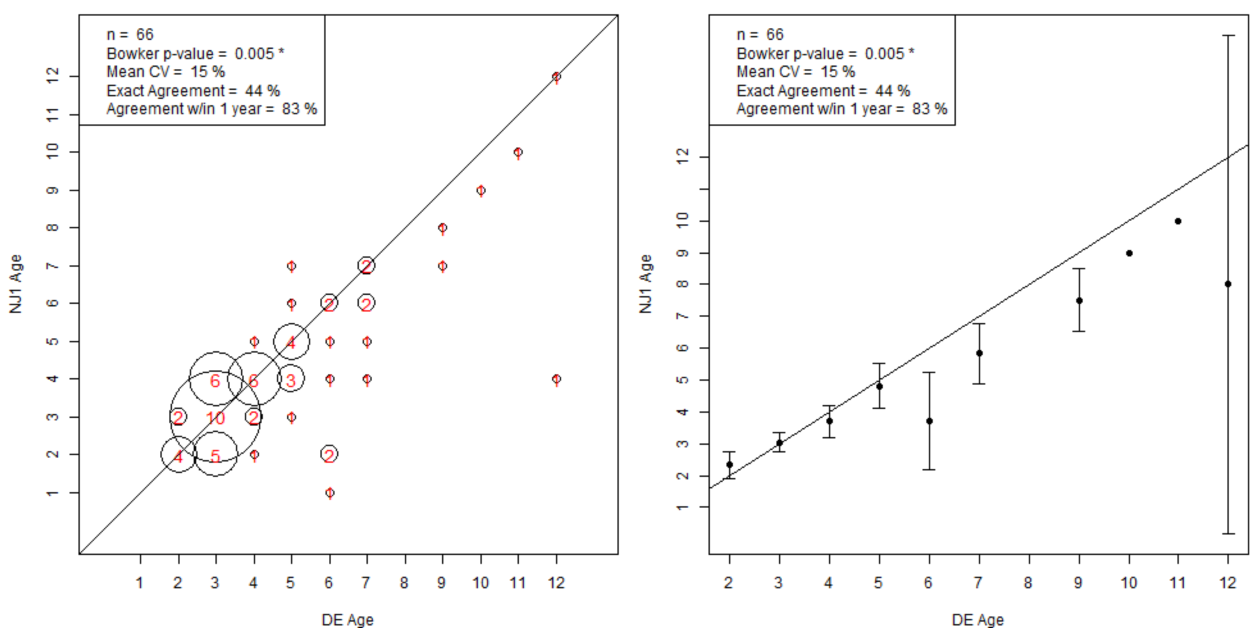



**Figure 163. Age frequency (left) and age bias (right) plots for NJ reader 1 and DE American eel whole otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

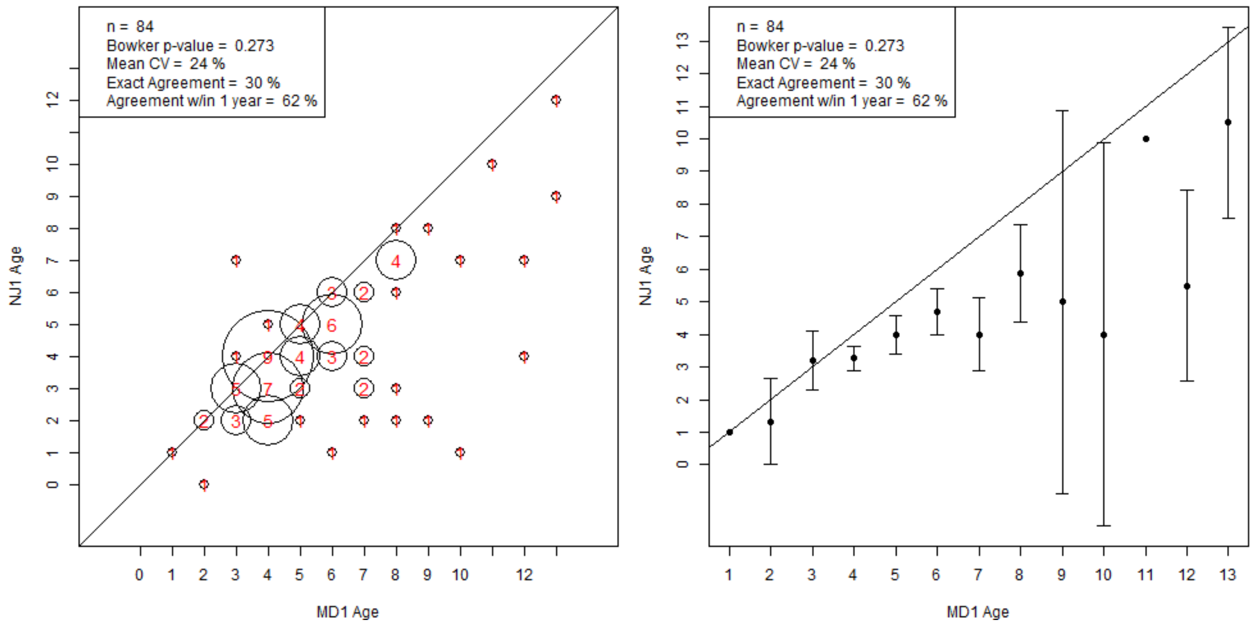



**Figure 164. Age frequency (left) and age bias (right) plots for NJ reader 1 and MD reader 1 American eel whole otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

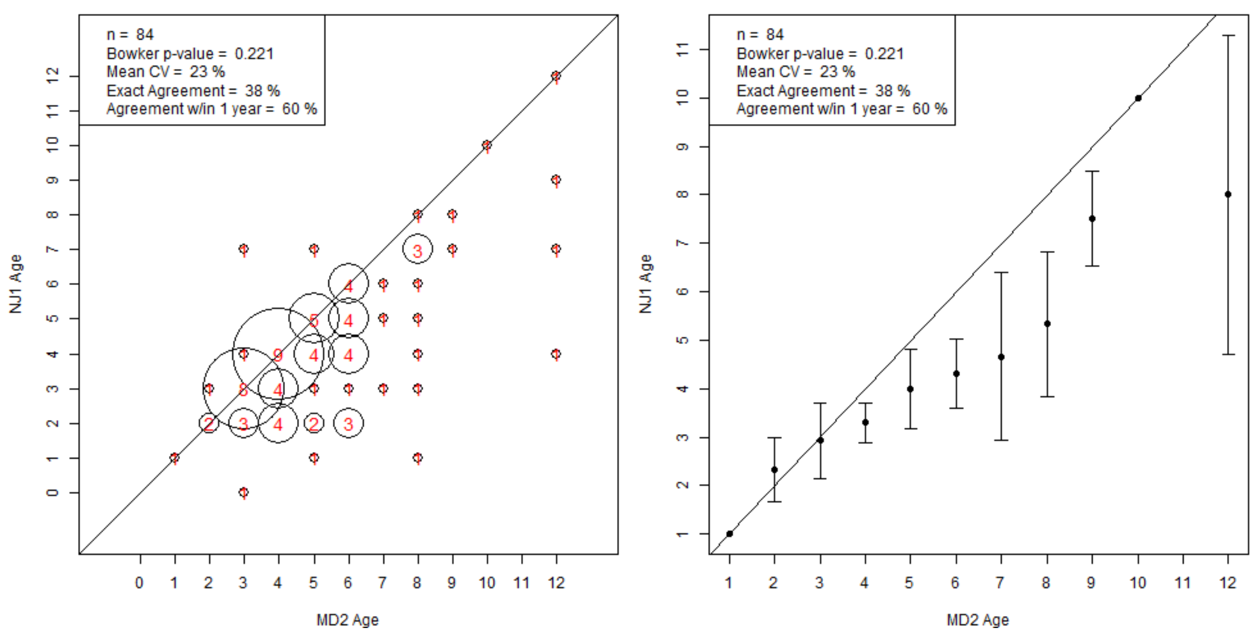



**Figure 165. Age frequency (left) and age bias (right) plots for NJ reader 1 and MD reader 2 American eel whole otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

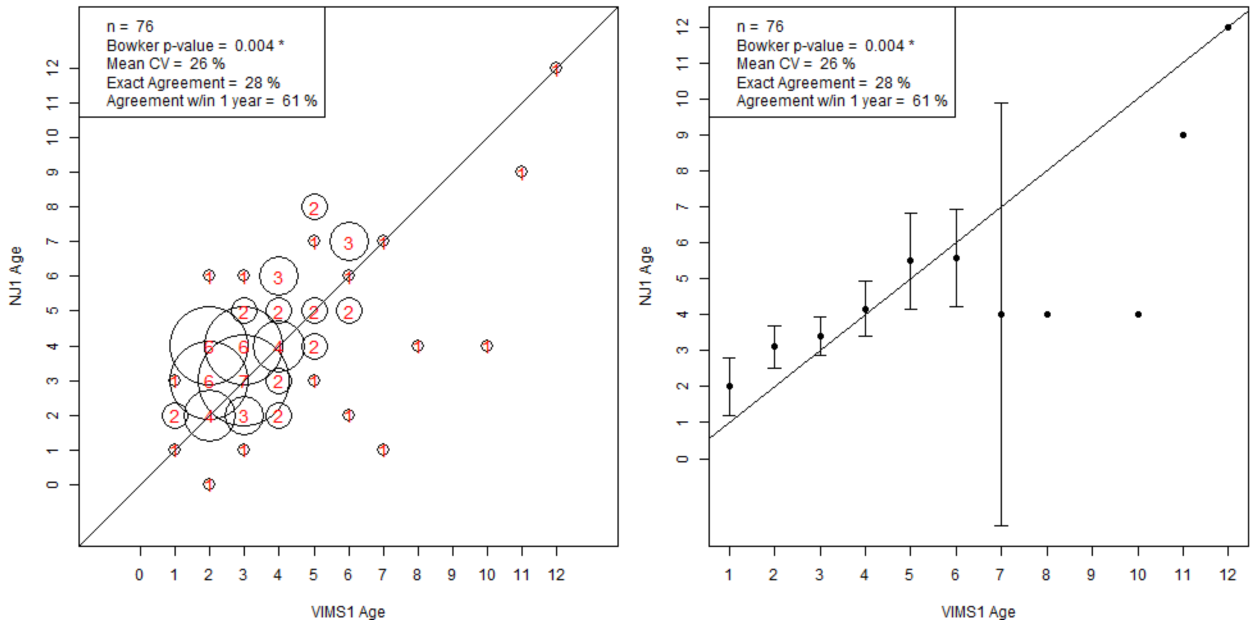



Figure 166. Age frequency (left) and age bias (right) plots for NJ reader 1 and VIMS reader 1 American eel whole otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.

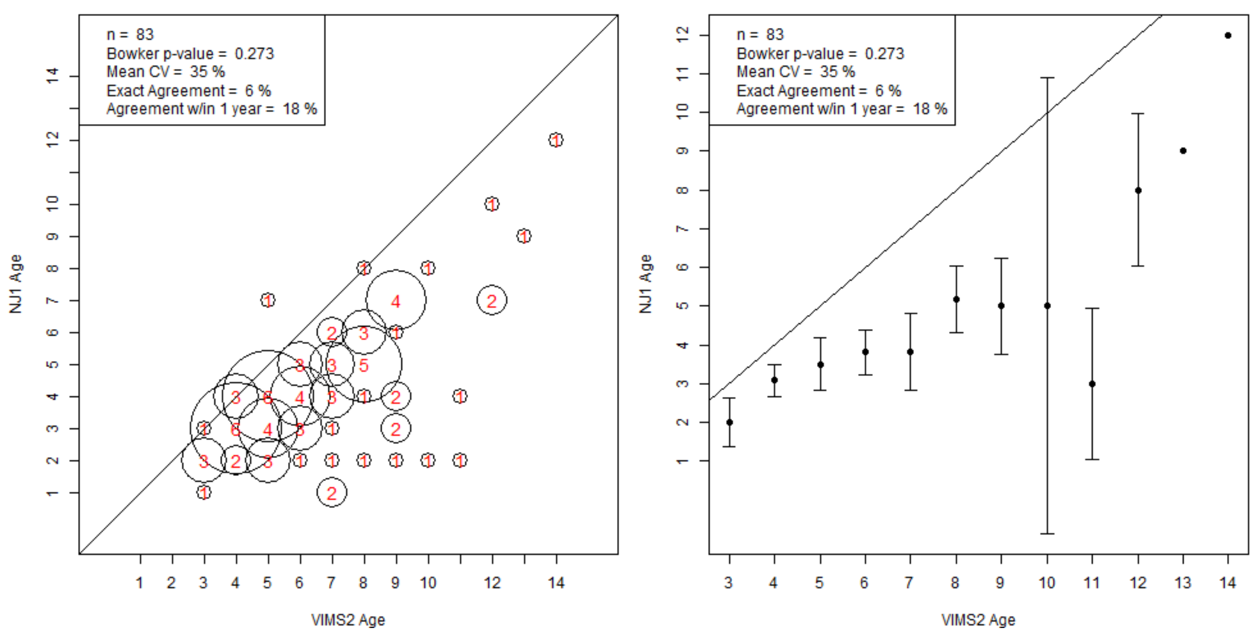



Figure 167. Age frequency (left) and age bias (right) plots for NJ reader 1 and VIMS reader 2 American eel whole otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.

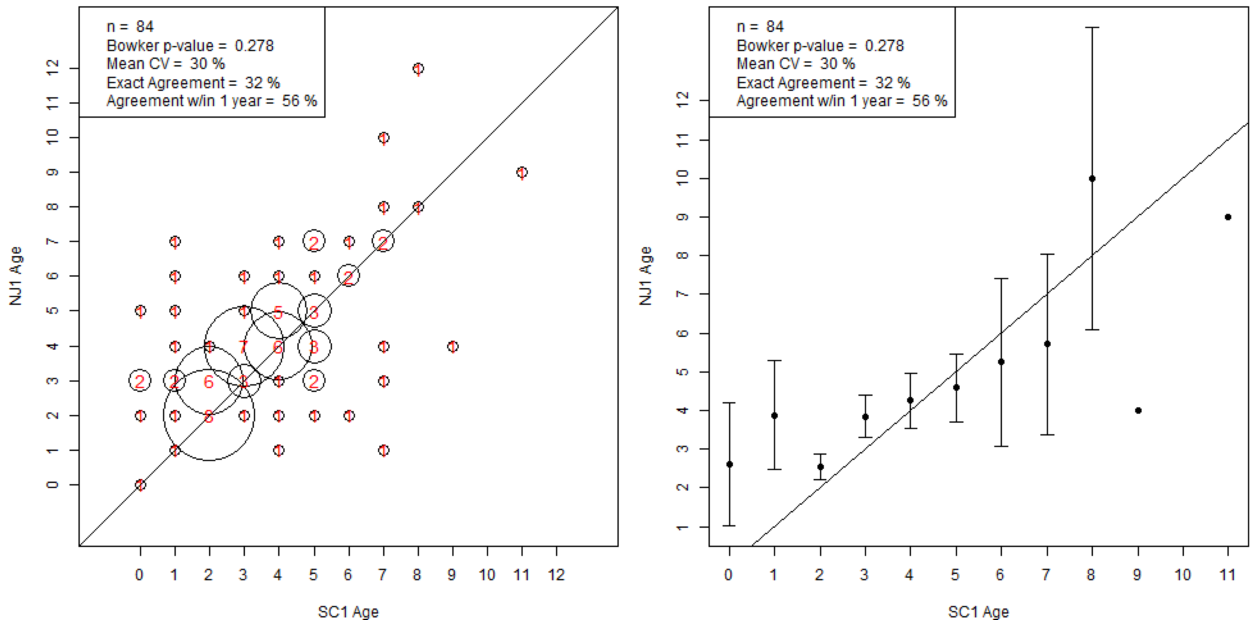



Figure 168. Age frequency (left) and age bias (right) plots for NJ reader 1 and SC reader 1 American eel whole otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.

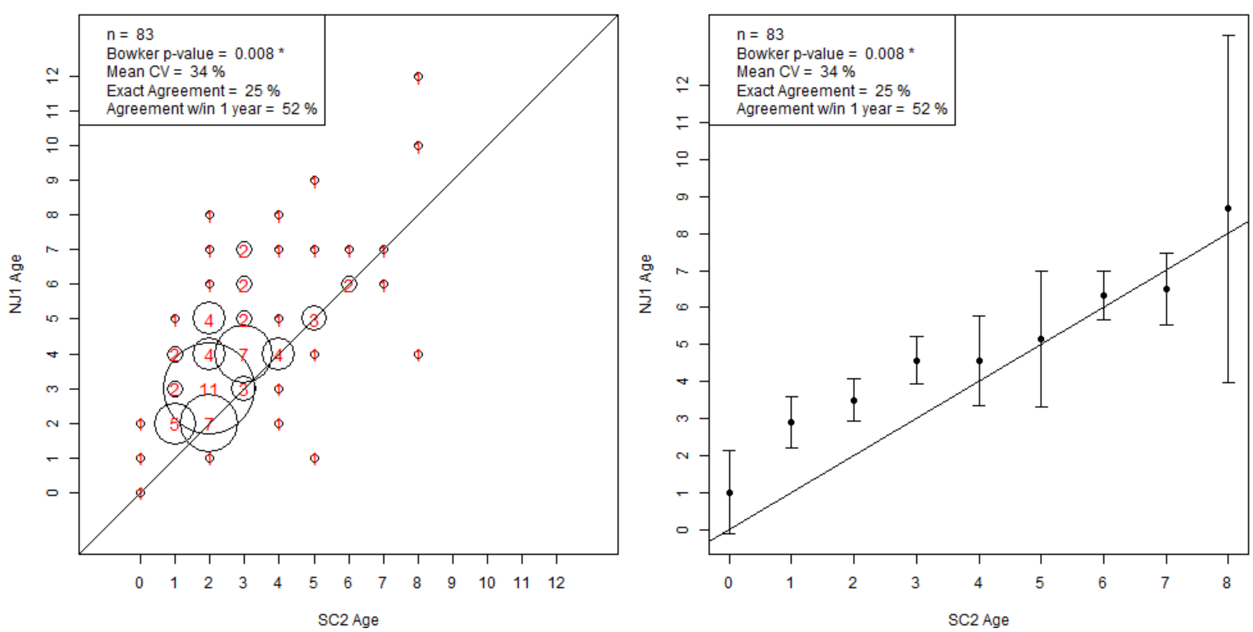



Figure 169. Age frequency (left) and age bias (right) plots for NJ reader 1 and SC reader 2 American eel whole otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.

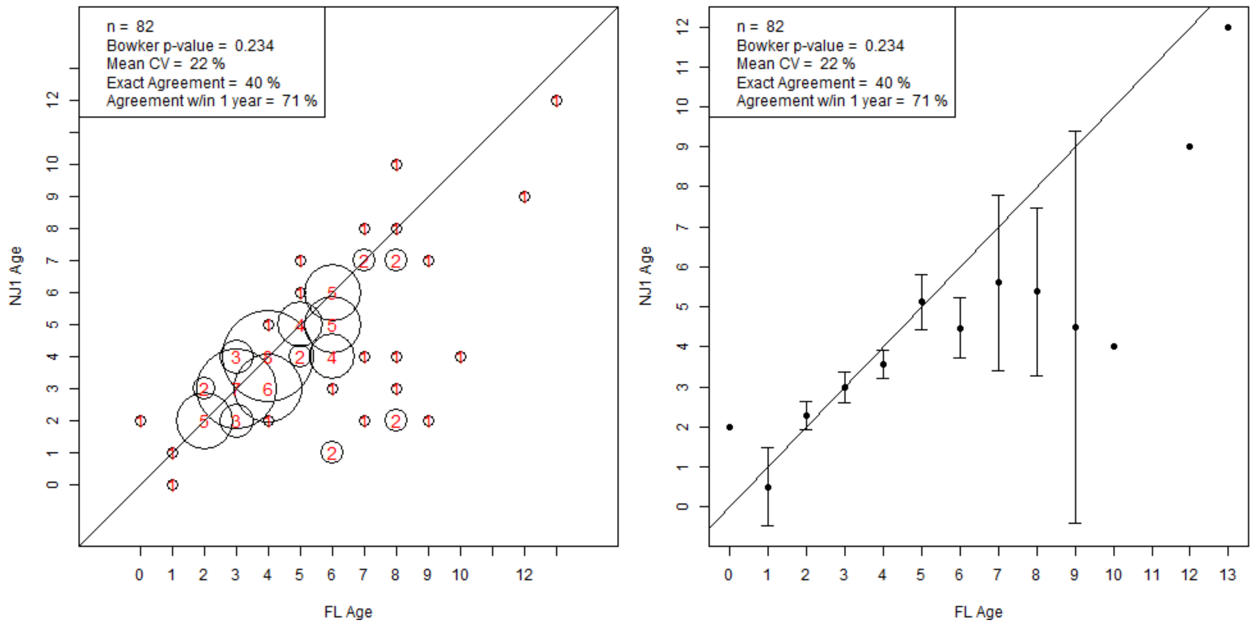



**Figure 170. Age frequency (left) and age bias (right) plots for NJ reader 1 and FL American eel whole otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

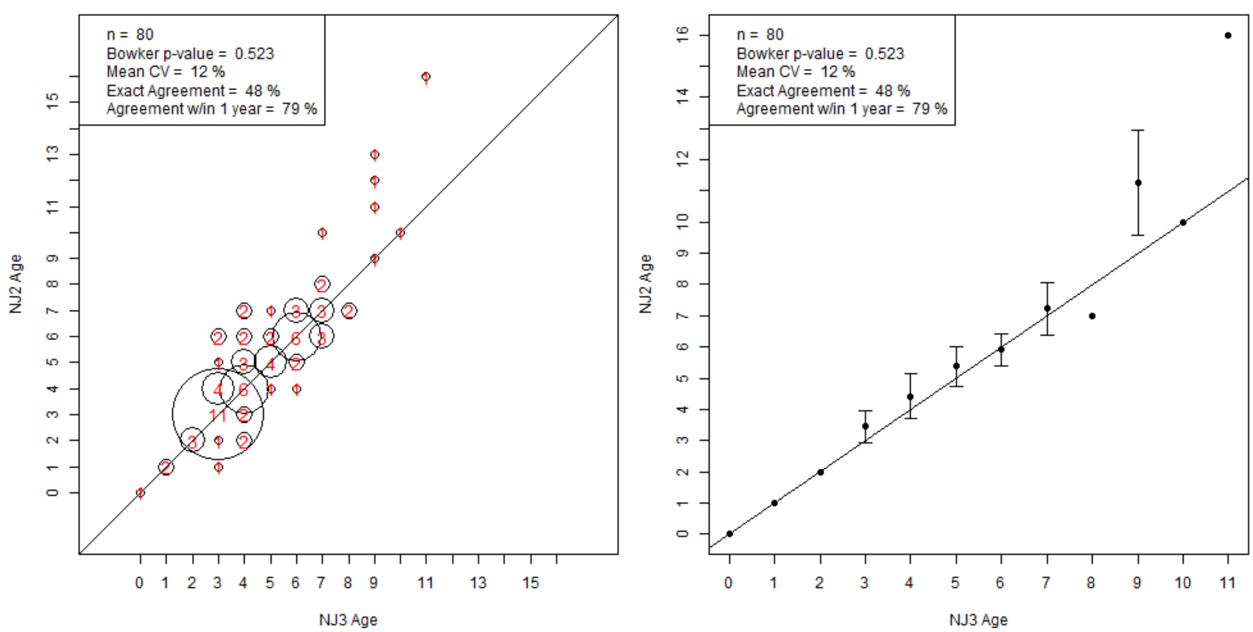



**Figure 171. Age frequency (left) and age bias (right) plots for NJ reader 2 and NJ reader 3 American eel whole otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

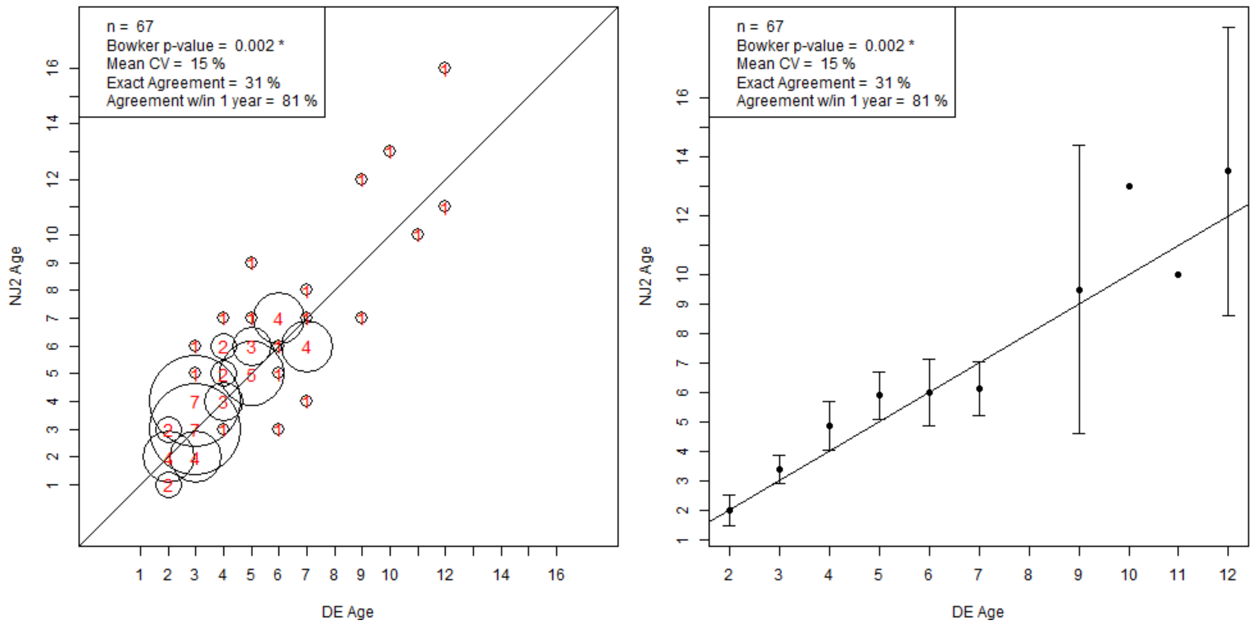



**Figure 172. Age frequency (left) and age bias (right) plots for NJ reader 2 and DE American eel whole otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

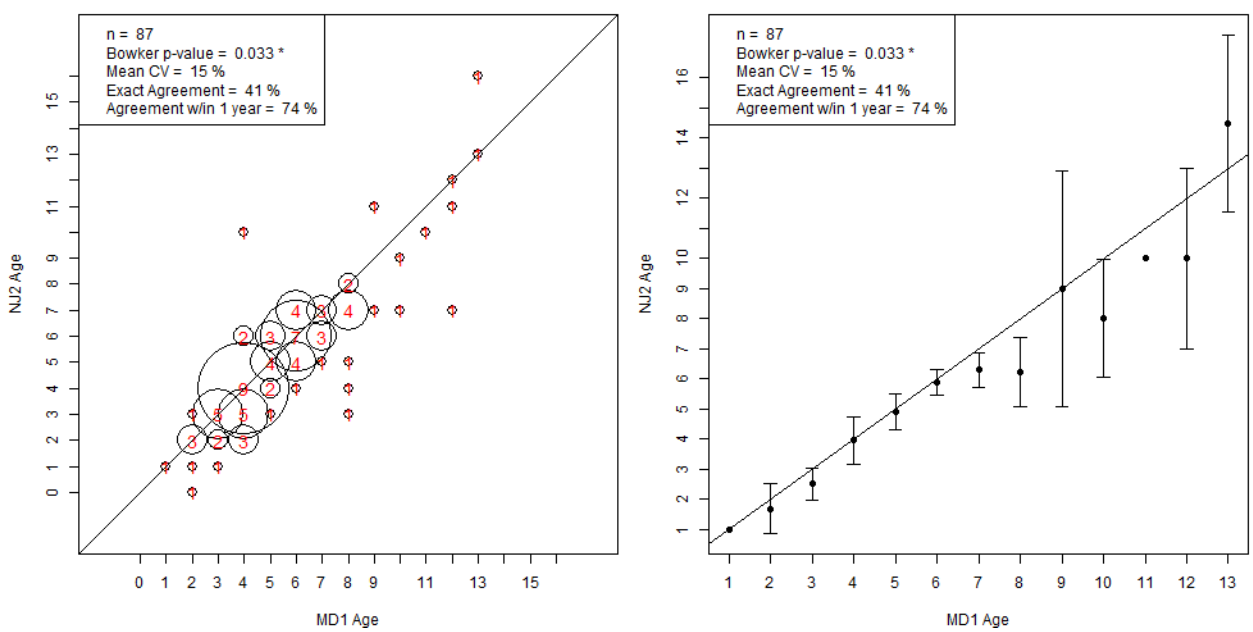



**Figure 173. Age frequency (left) and age bias (right) plots for NJ reader 2 and MD reader 1 American eel whole otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

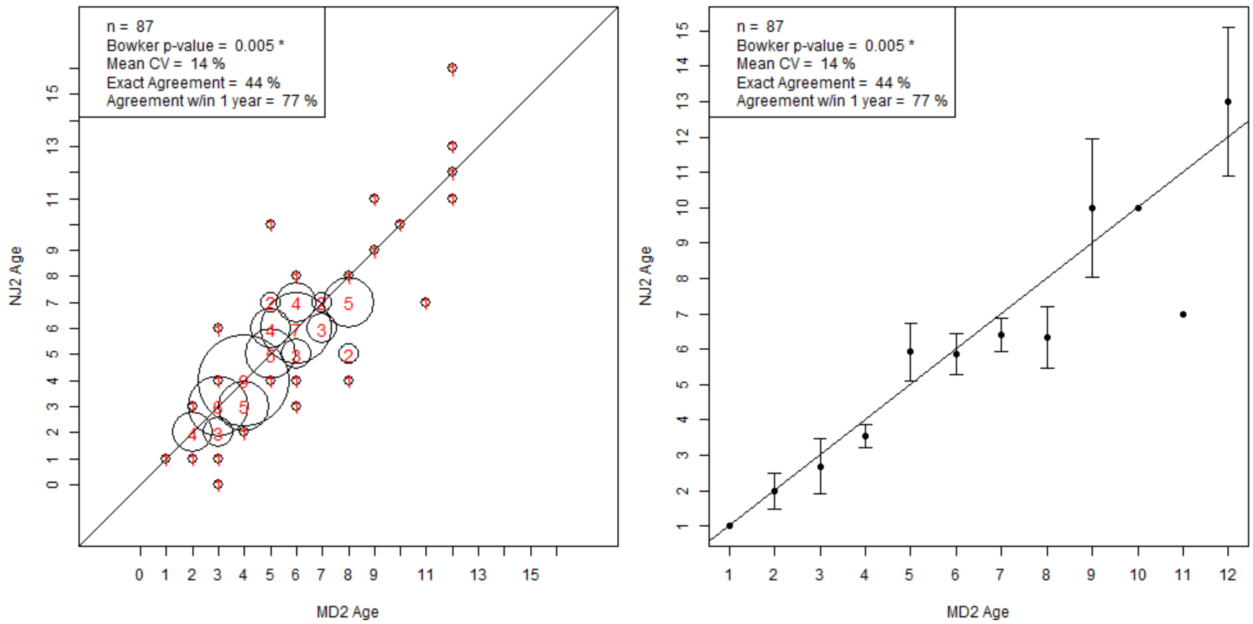



**Figure 174. Age frequency (left) and age bias (right) plots for NJ reader 2 and MD reader 2 American eel whole otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

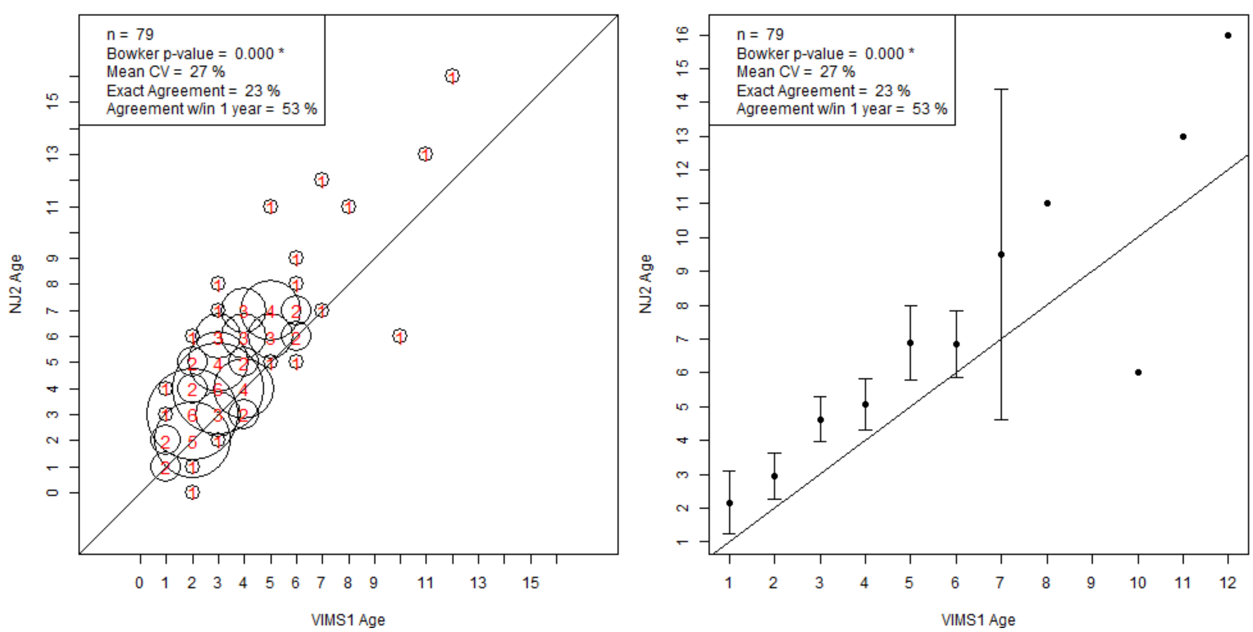



**Figure 175. Age frequency (left) and age bias (right) plots for NJ reader 2 and VIMS reader 1 American eel whole otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

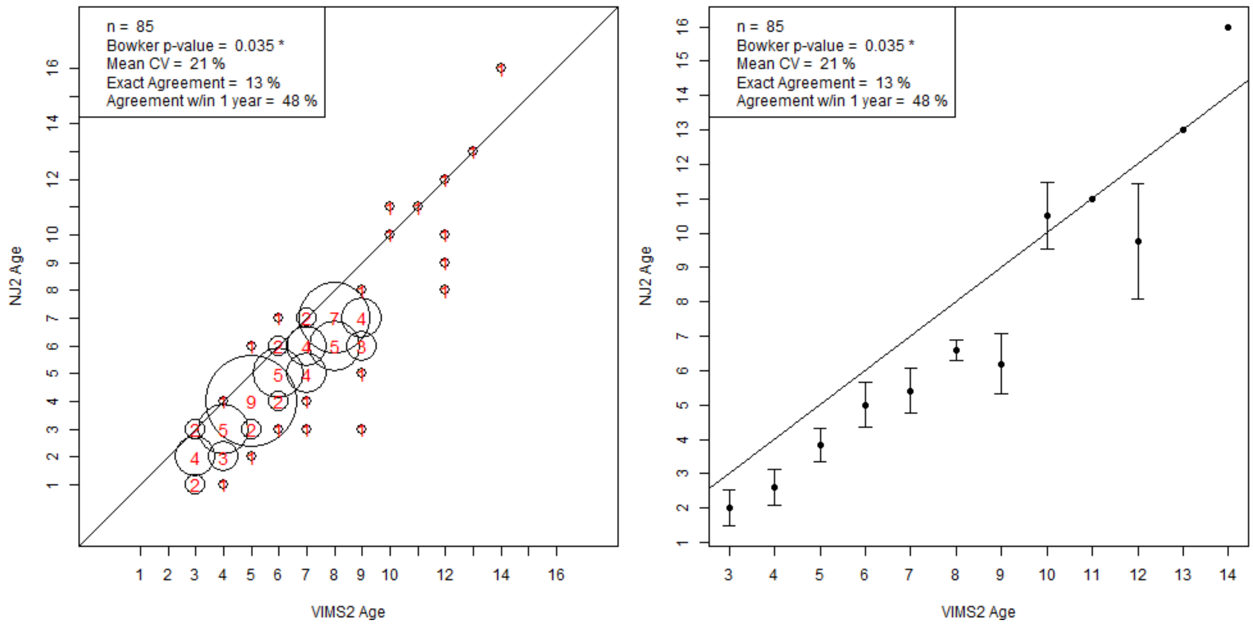



Figure 176. Age frequency (left) and age bias (right) plots for NJ reader 2 and VIMS reader 2 American eel whole otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.

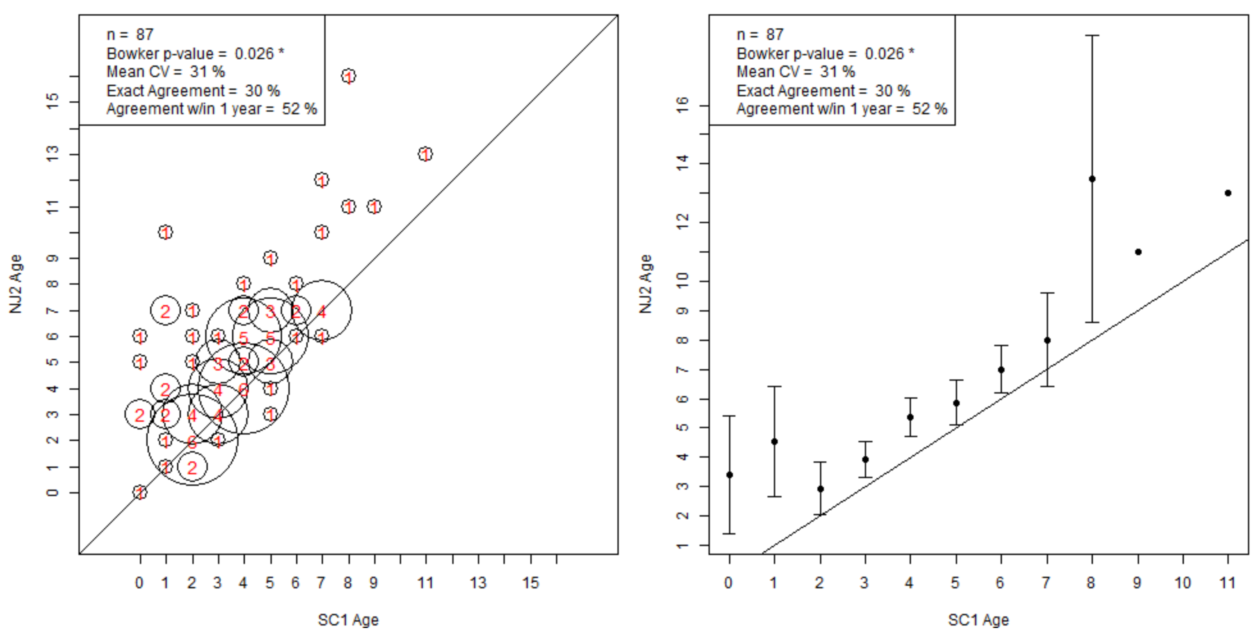



Figure 177. Age frequency (left) and age bias (right) plots for NJ reader 2 and SC reader 1 American eel whole otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.

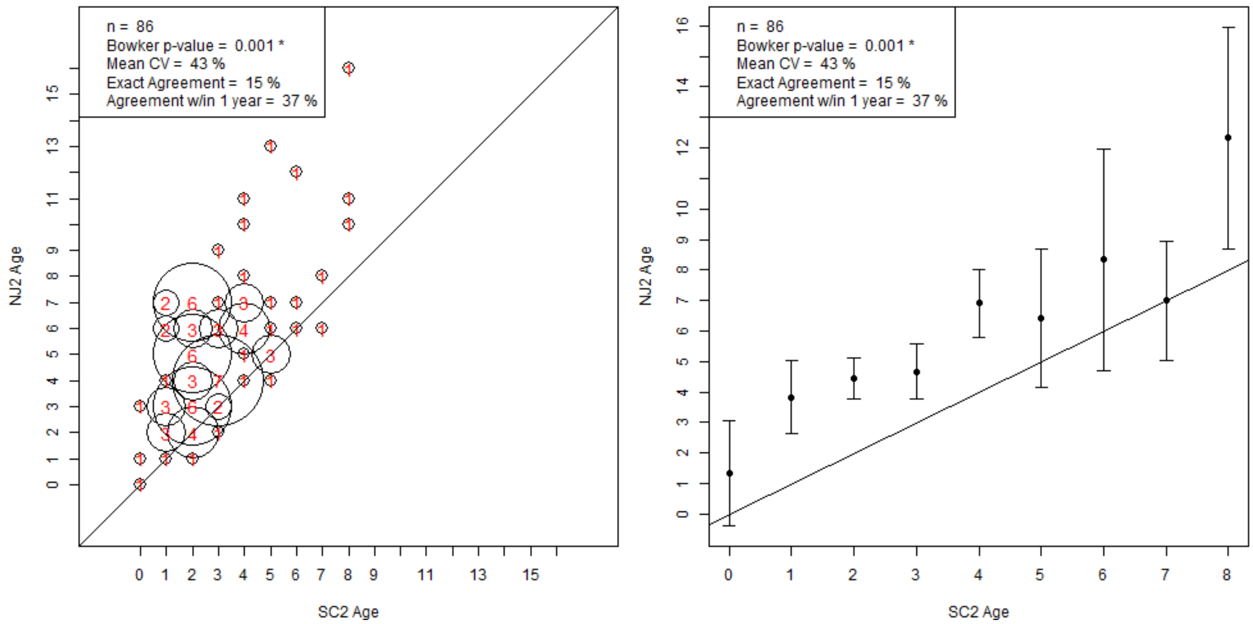



Figure 178. Age frequency (left) and age bias (right) plots for NJ reader 2 and SC reader 2 American eel whole otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.

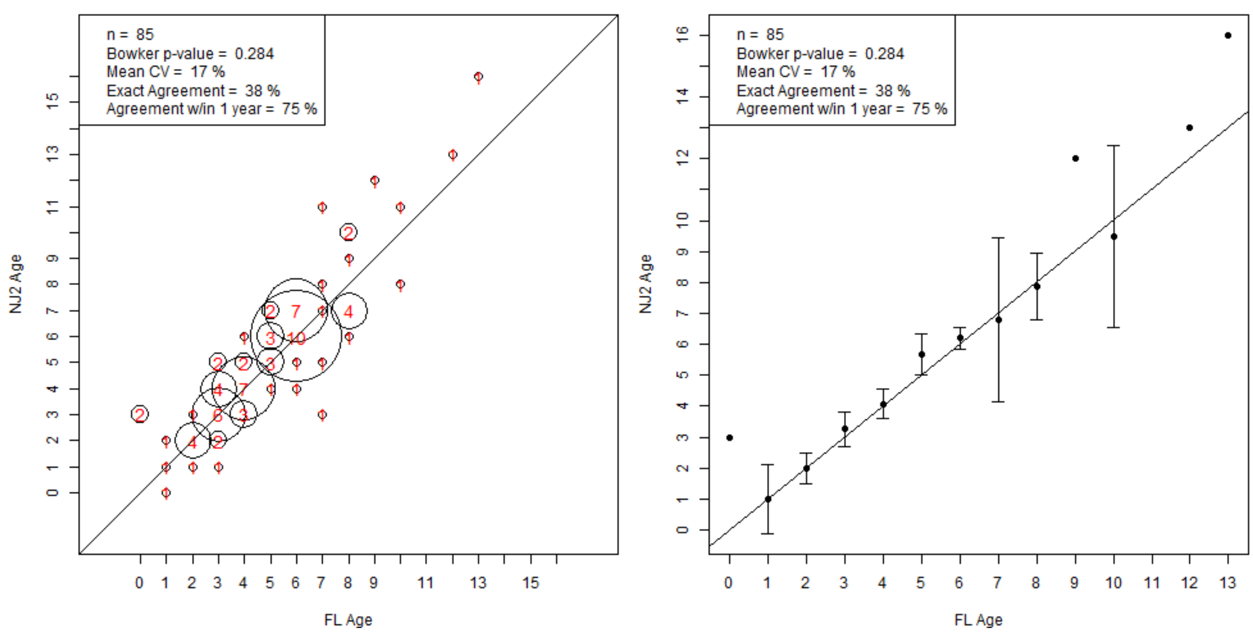



Figure 179. Age frequency (left) and age bias (right) plots for NJ reader 2 and FL American eel whole otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.

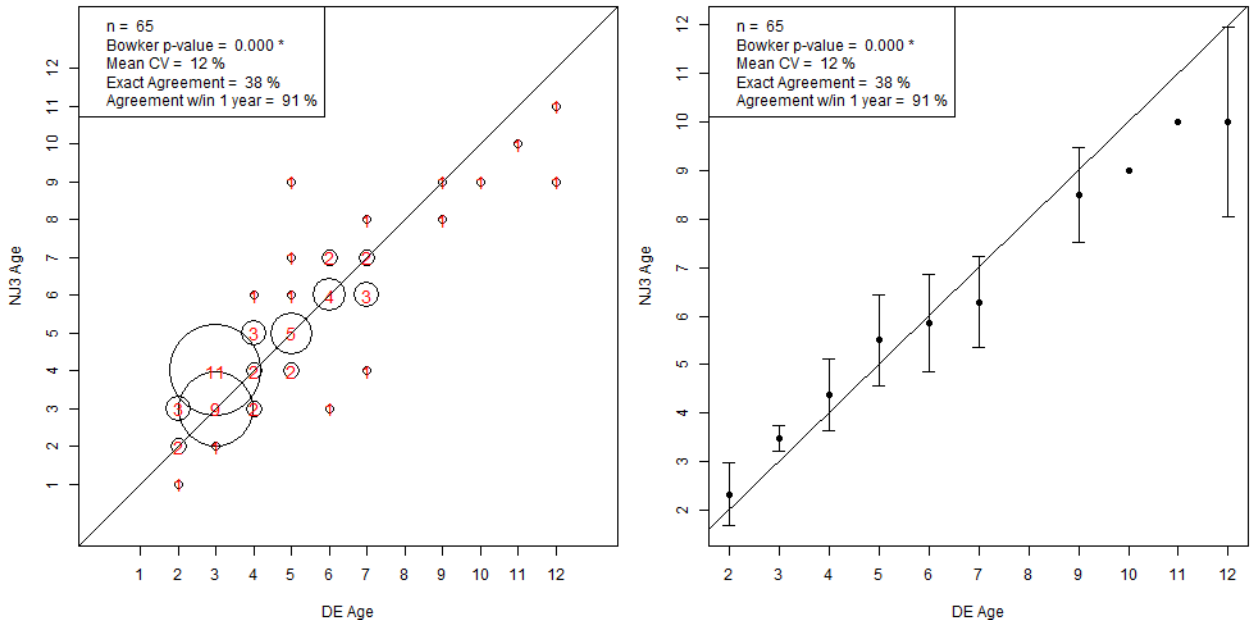



**Figure 180. Age frequency (left) and age bias (right) plots for NJ reader 3 and DE American eel whole otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

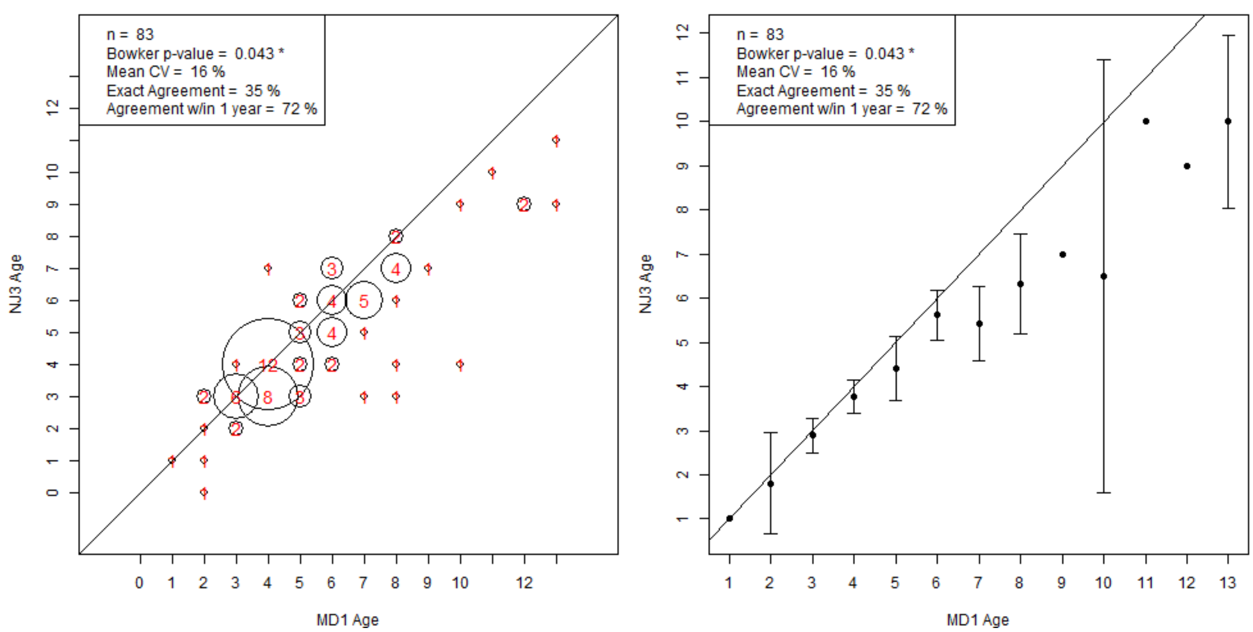



**Figure 181. Age frequency (left) and age bias (right) plots for NJ reader 3 and MD reader 1 American eel whole otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

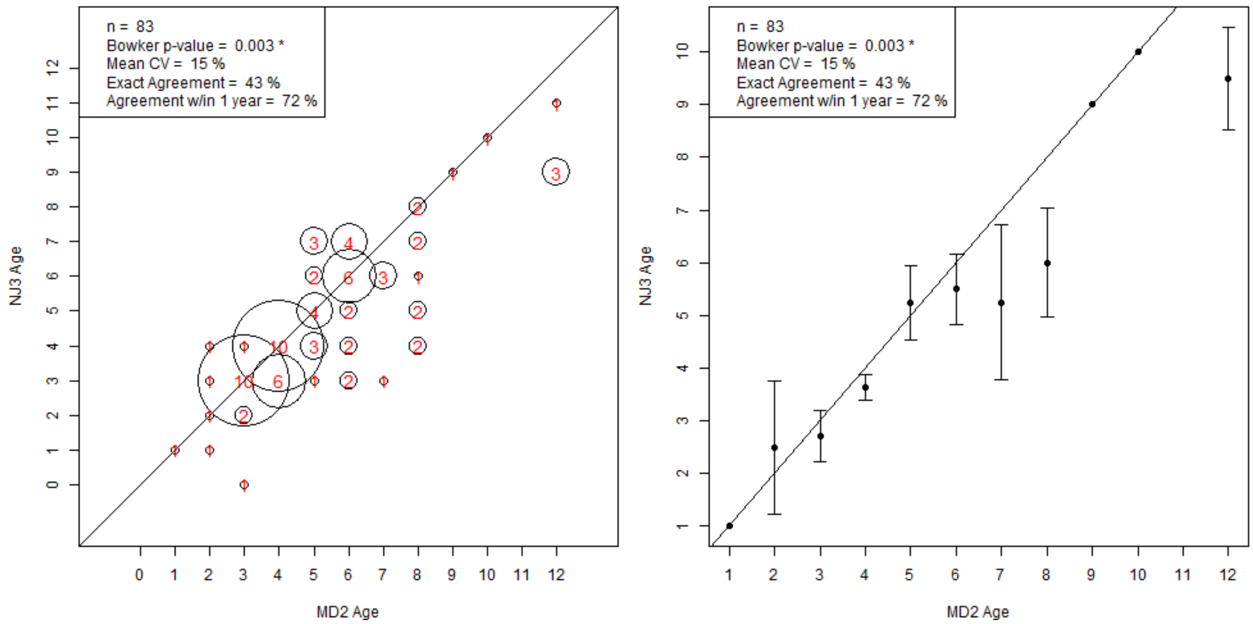



Figure 182. Age frequency (left) and age bias (right) plots for NJ reader 3 and MD reader 2 American eel whole otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.

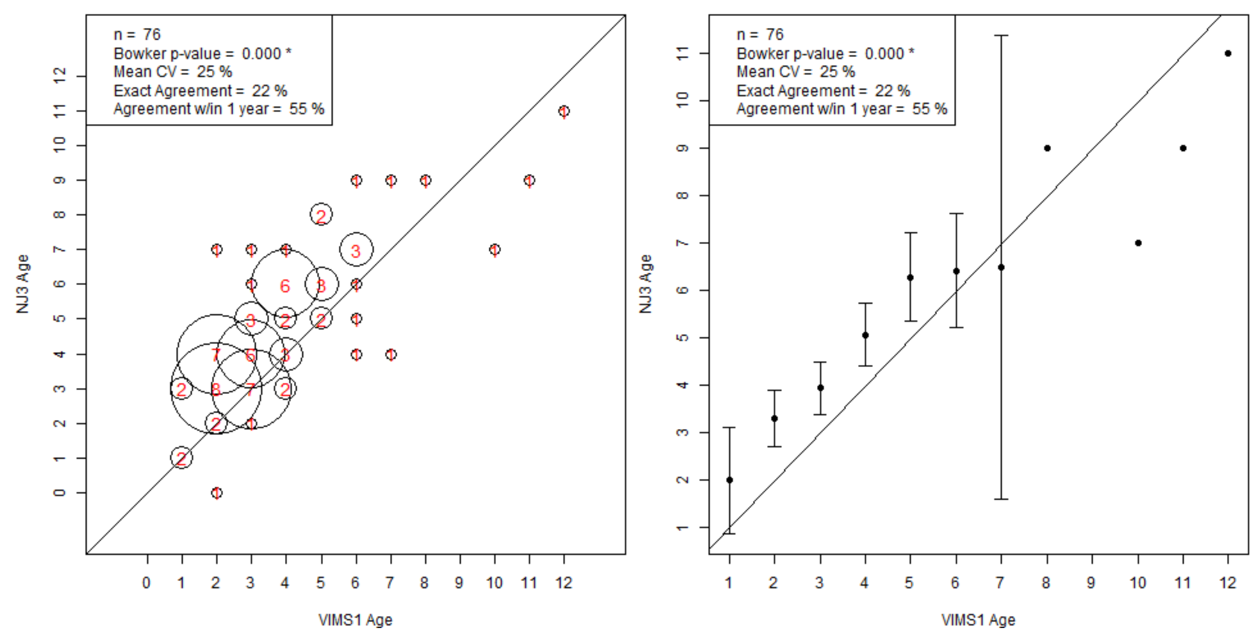



Figure 183. Age frequency (left) and age bias (right) plots for NJ reader 3 and VIMS reader 1 American eel whole otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.

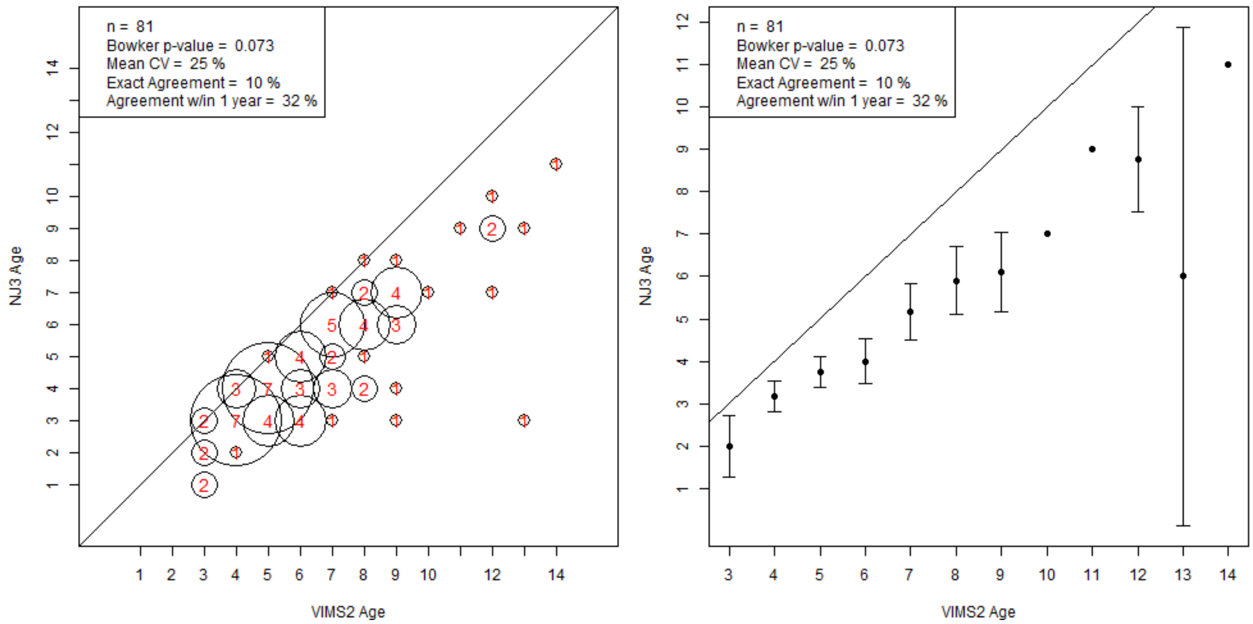



Figure 184. Age frequency (left) and age bias (right) plots for NJ reader 3 and VIMS reader 2 American eel whole otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.

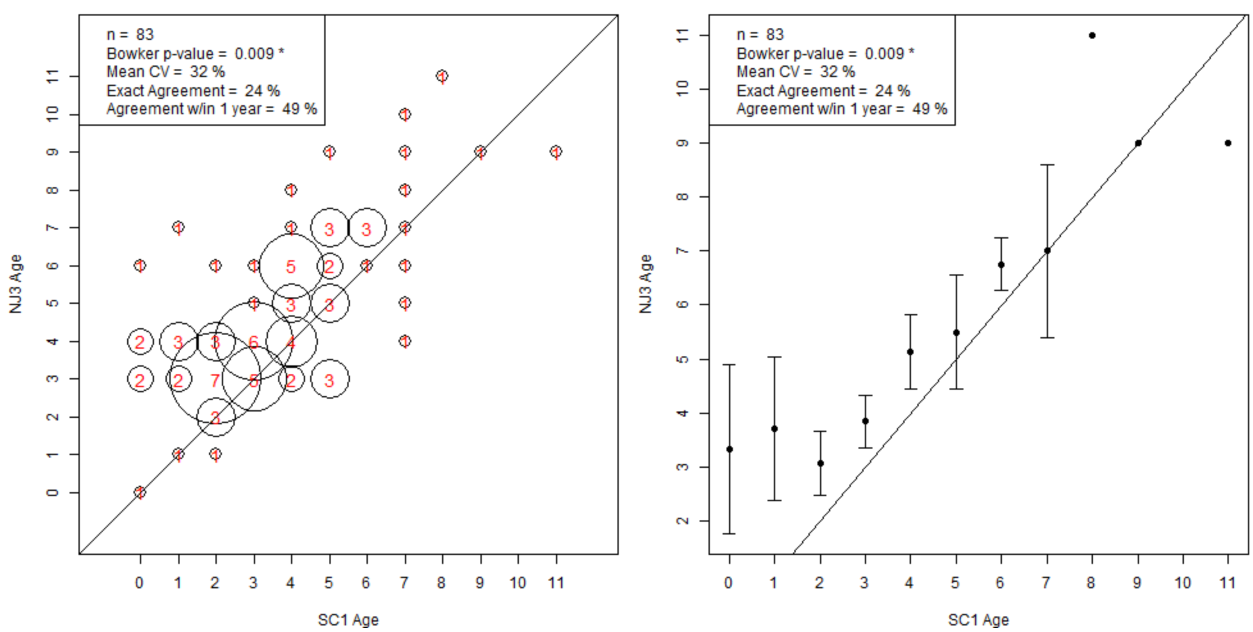



Figure 185. Age frequency (left) and age bias (right) plots for NJ reader 3 and SC reader 1 American eel whole otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.

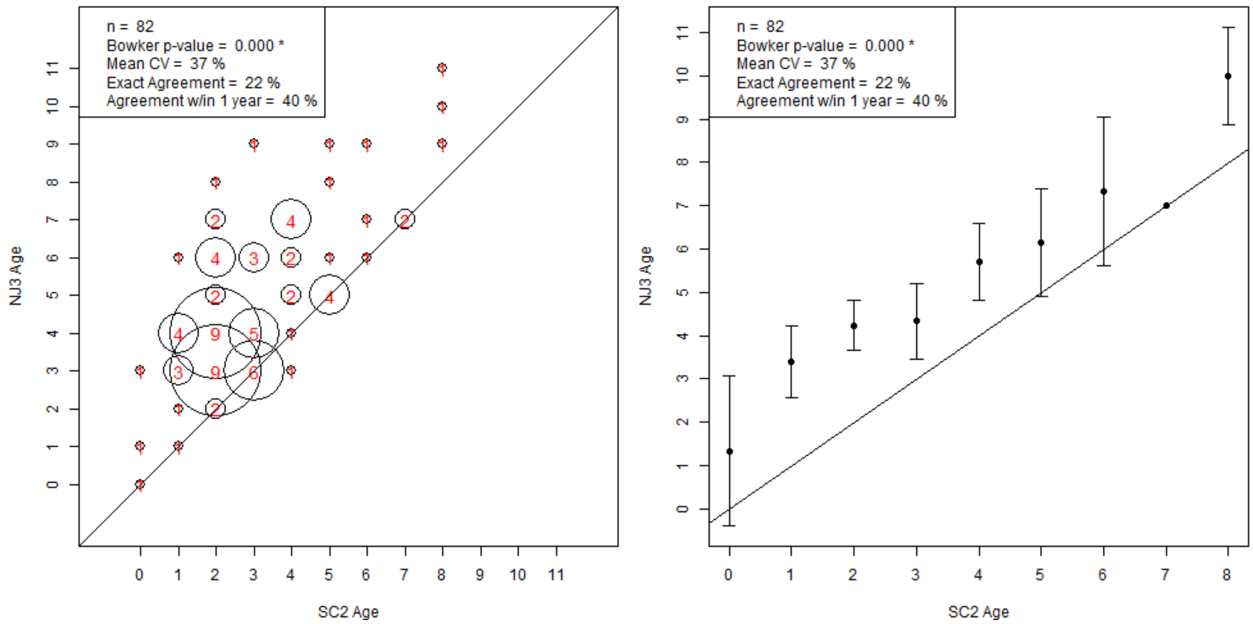



**Figure 186. Age frequency (left) and age bias (right) plots for NJ reader 3 and SC reader 2 American eel whole otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

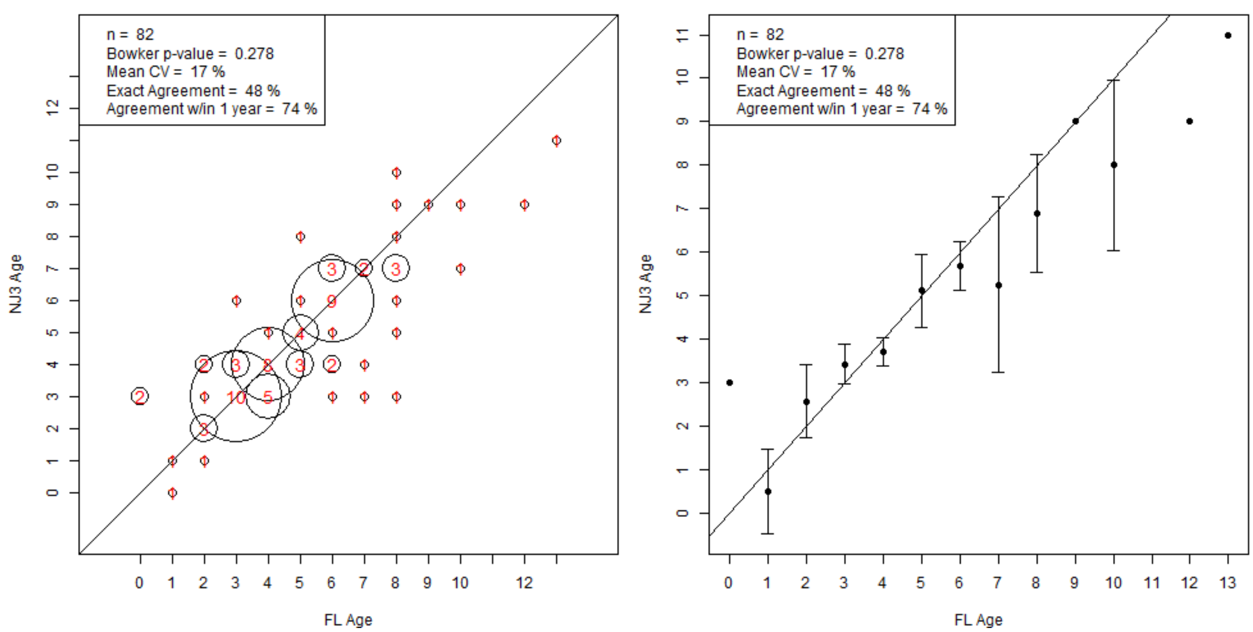



**Figure 187. Age frequency (left) and age bias (right) plots for NJ reader 3 and FL American eel whole otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

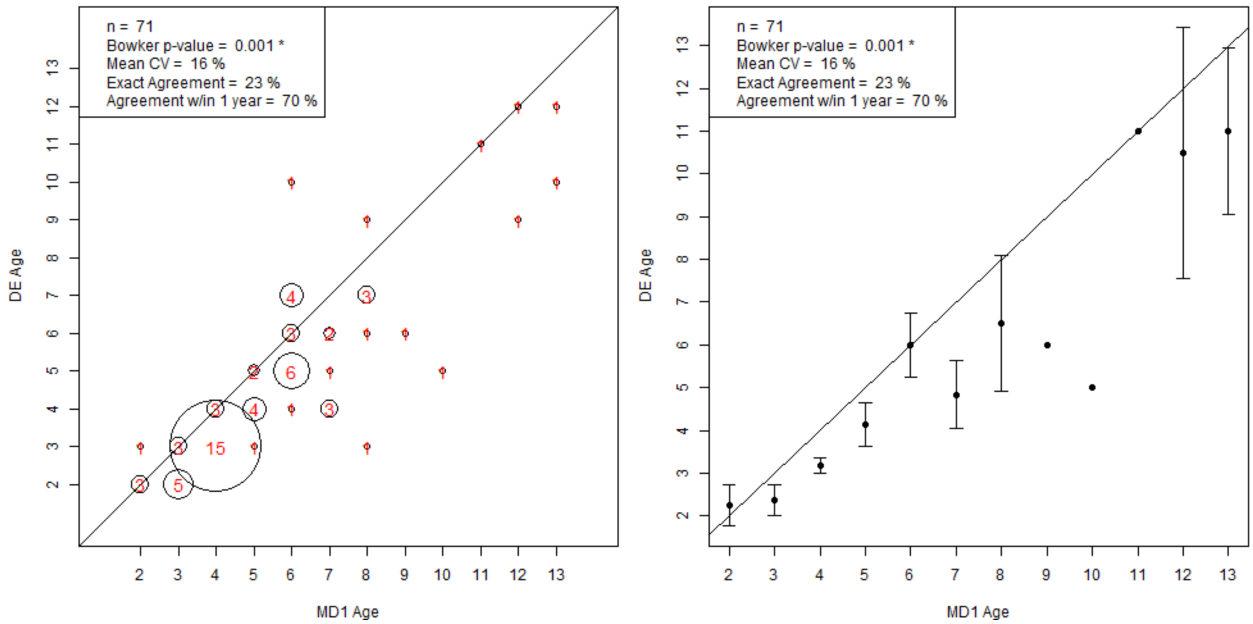



**Figure 188. Age frequency (left) and age bias (right) plots for DE and MD reader 1 American eel whole otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

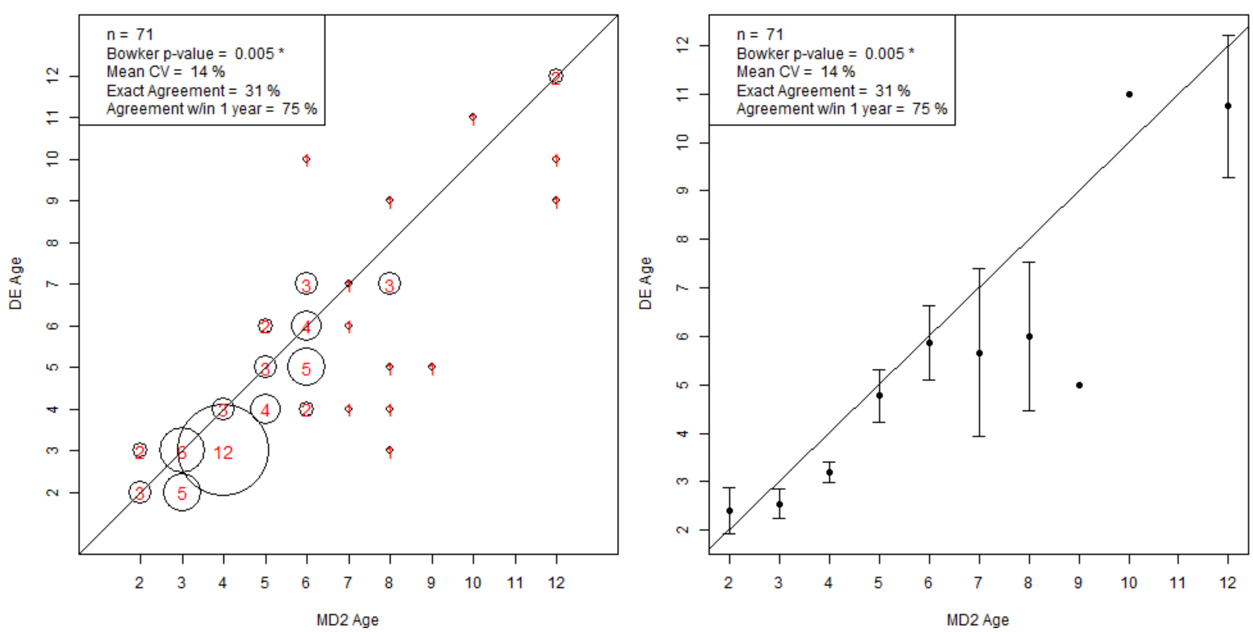



**Figure 189. Age frequency (left) and age bias (right) plots for DE and MD reader 2 American eel whole otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

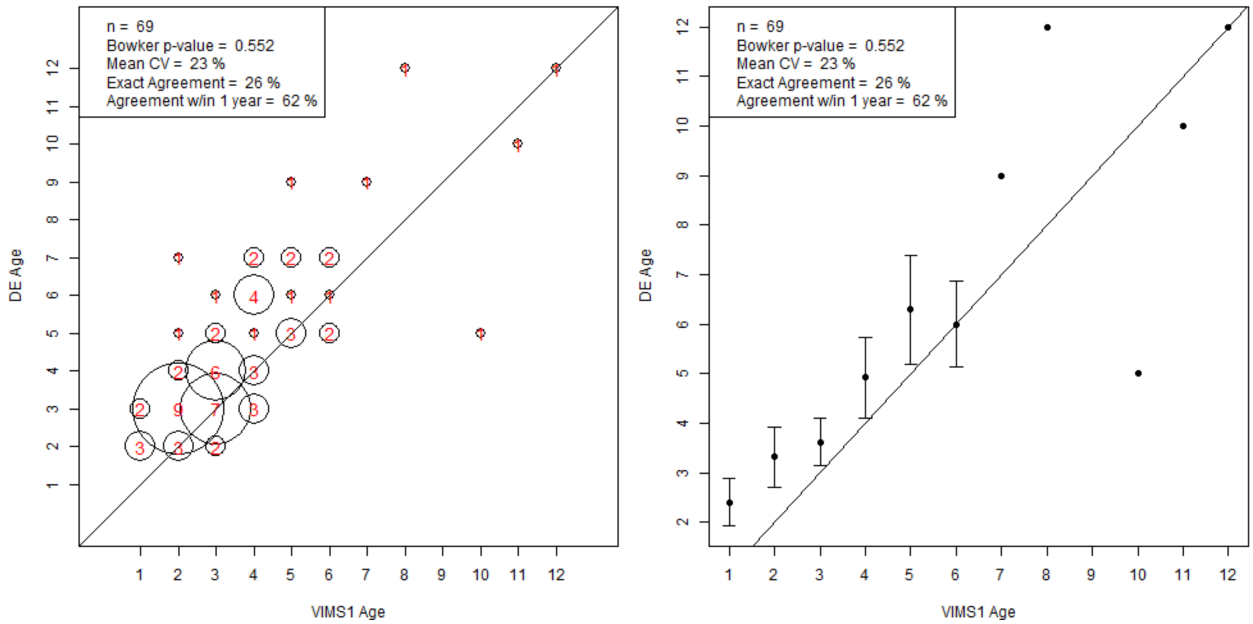



Figure 190. Age frequency (left) and age bias (right) plots for DE and VIMS reader 1 American eel whole otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.

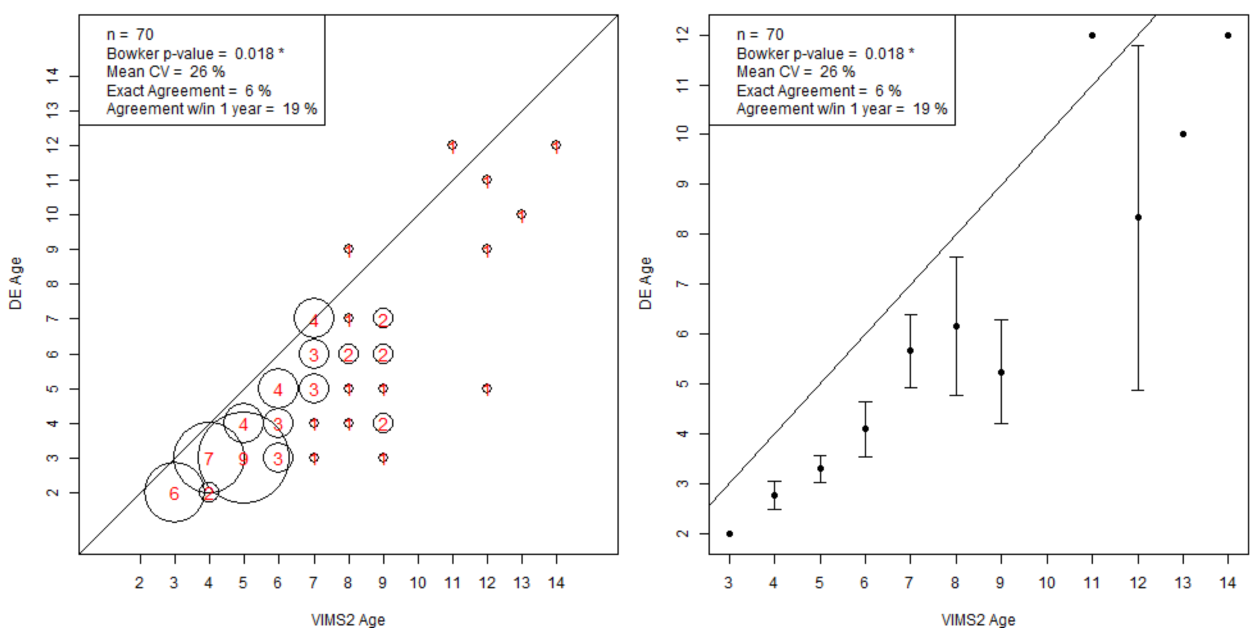



Figure 191. Age frequency (left) and age bias (right) plots for DE and VIMS reader 2 American eel whole otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.

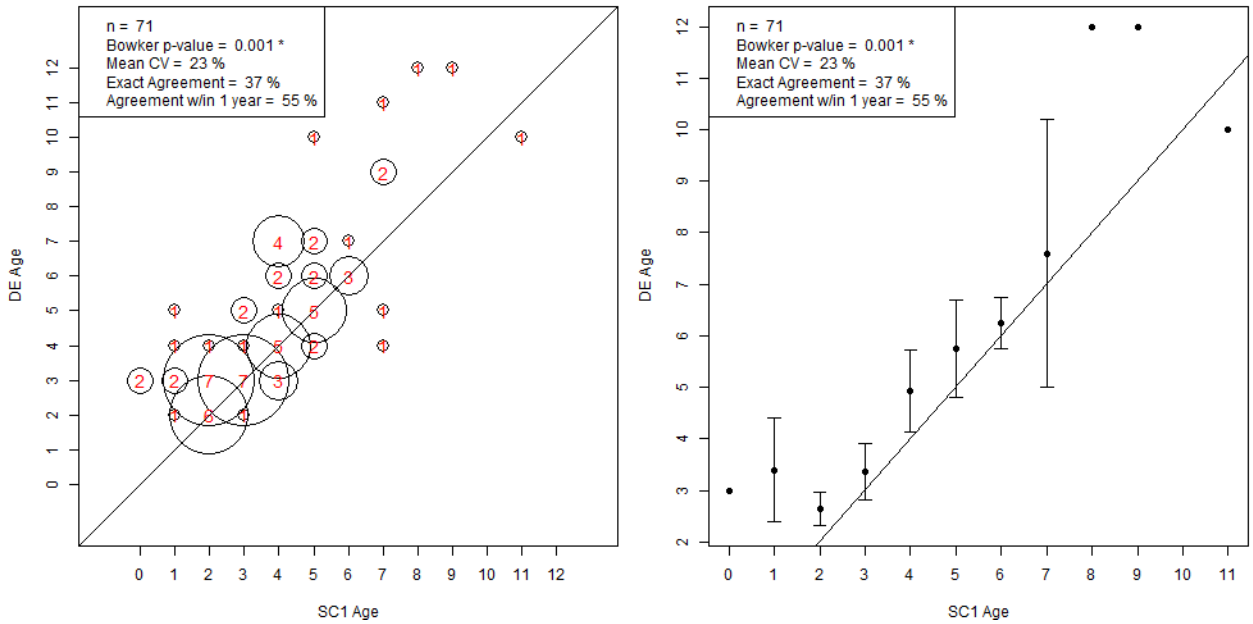



**Figure 192. Age frequency (left) and age bias (right) plots for DE and SC reader 1 American eel whole otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

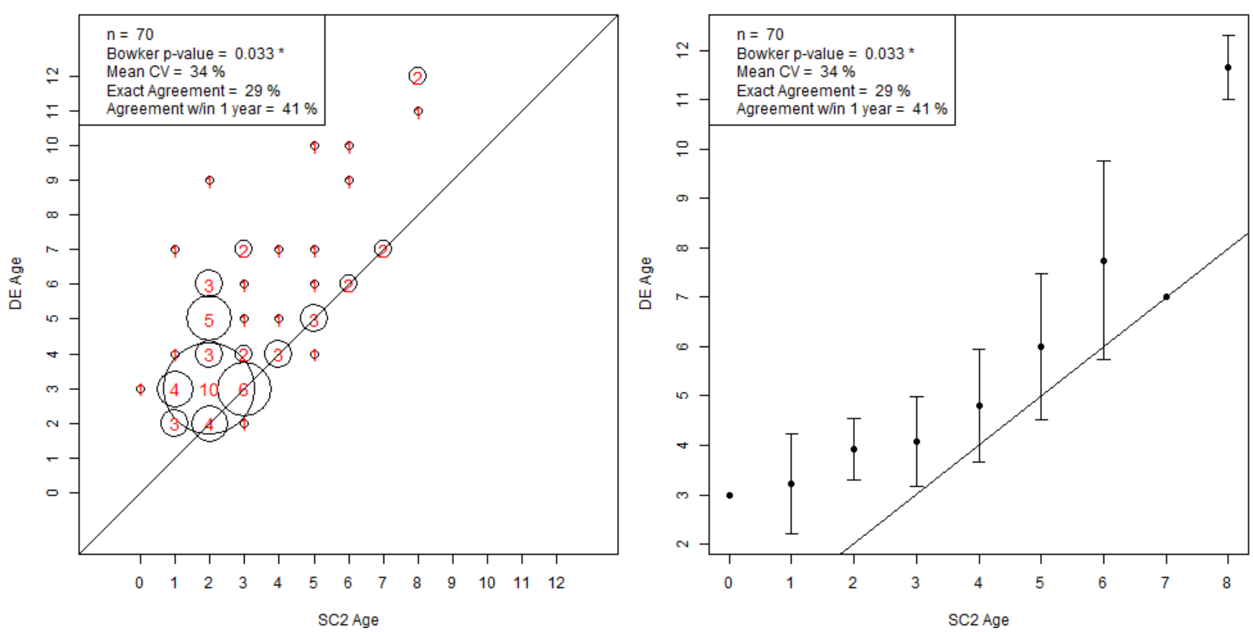



**Figure 193. Age frequency (left) and age bias (right) plots for DE and SC reader 2 American eel whole otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

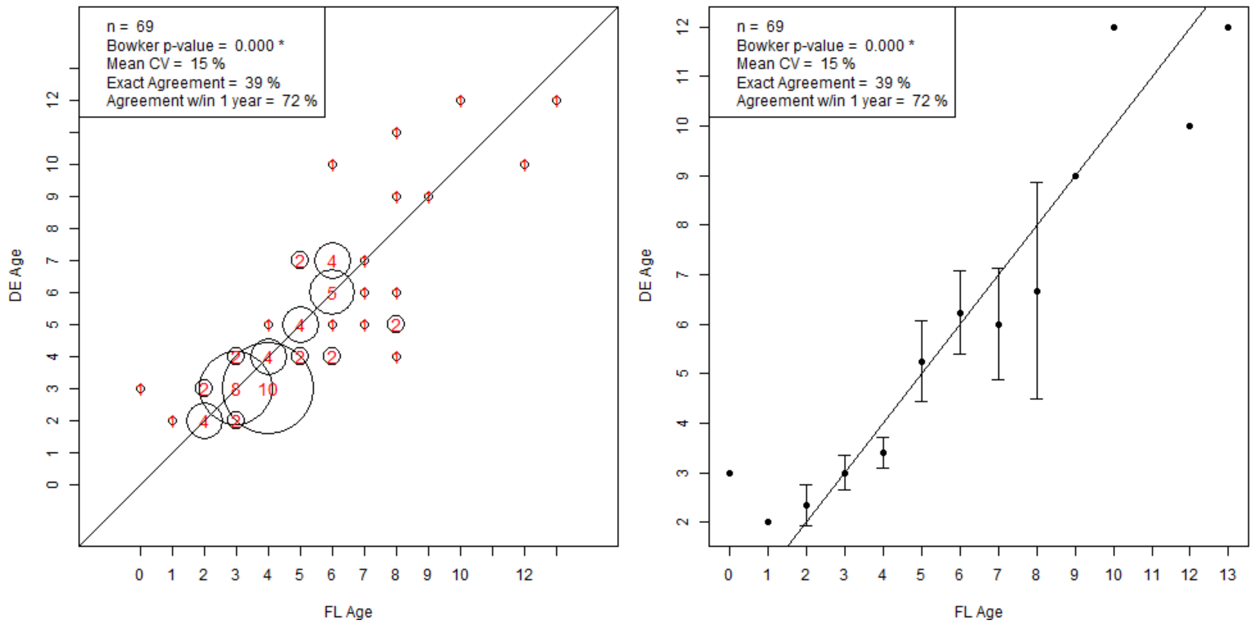



**Figure 194. Age frequency (left) and age bias (right) plots for DE and FL American eel whole otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

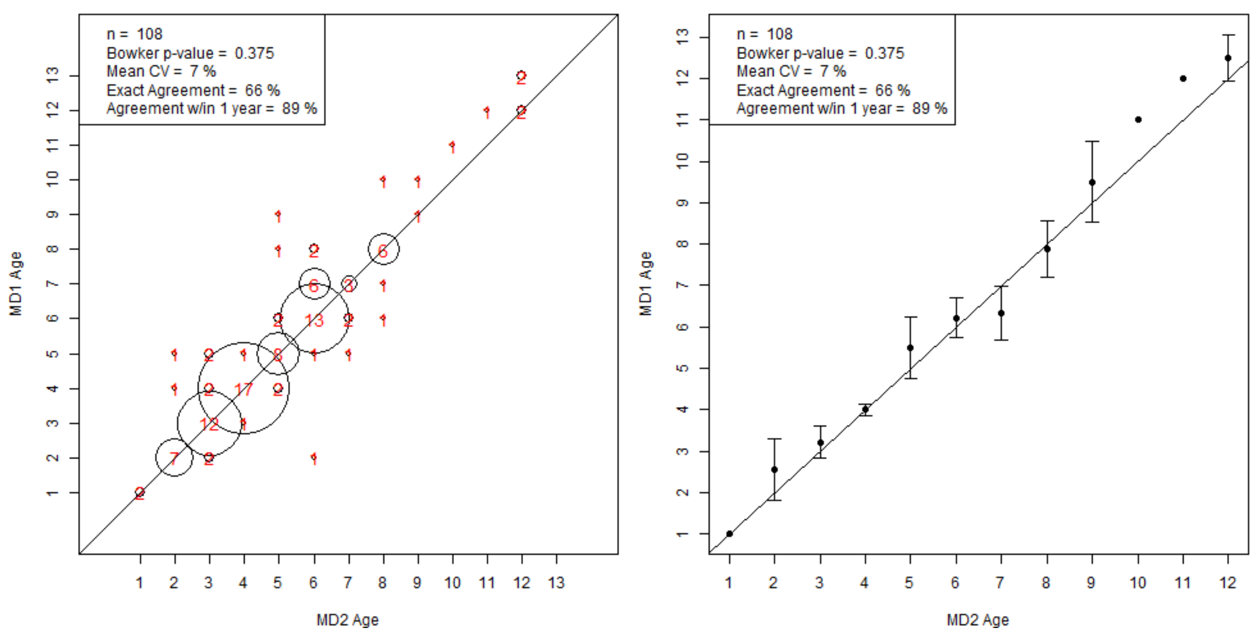



**Figure 195. Age frequency (left) and age bias (right) plots for MD reader 1 and MD reader 2 American eel whole otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

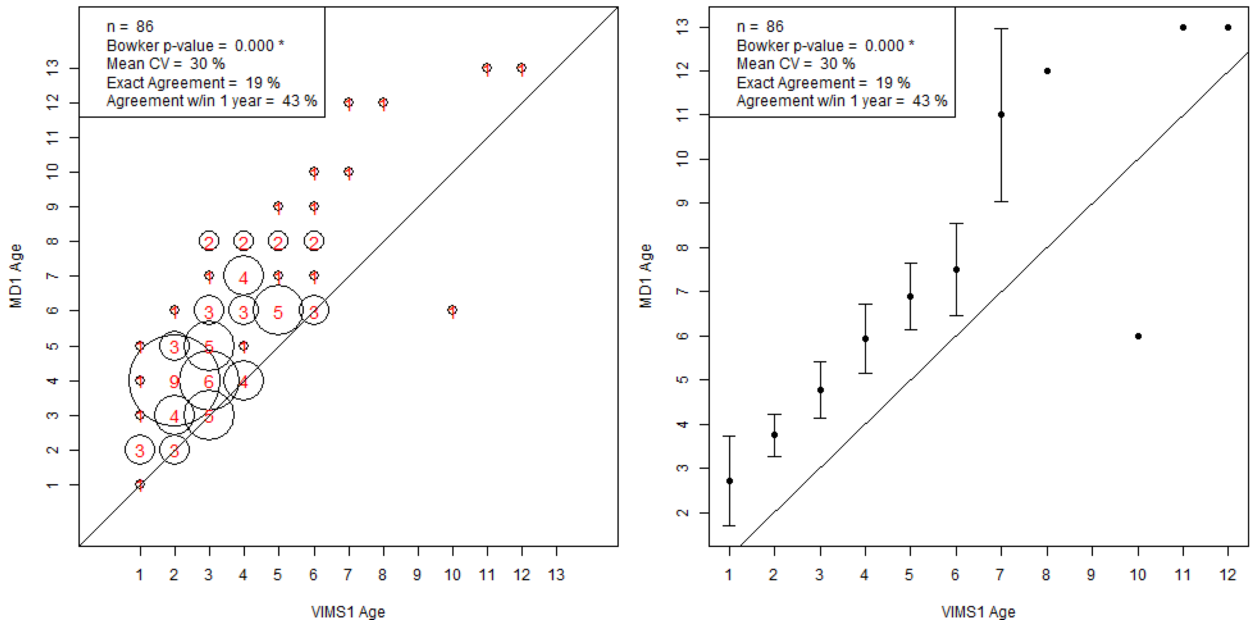



Figure 196. Age frequency (left) and age bias (right) plots for MD reader 1 and VIMS reader 1 American eel whole otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.

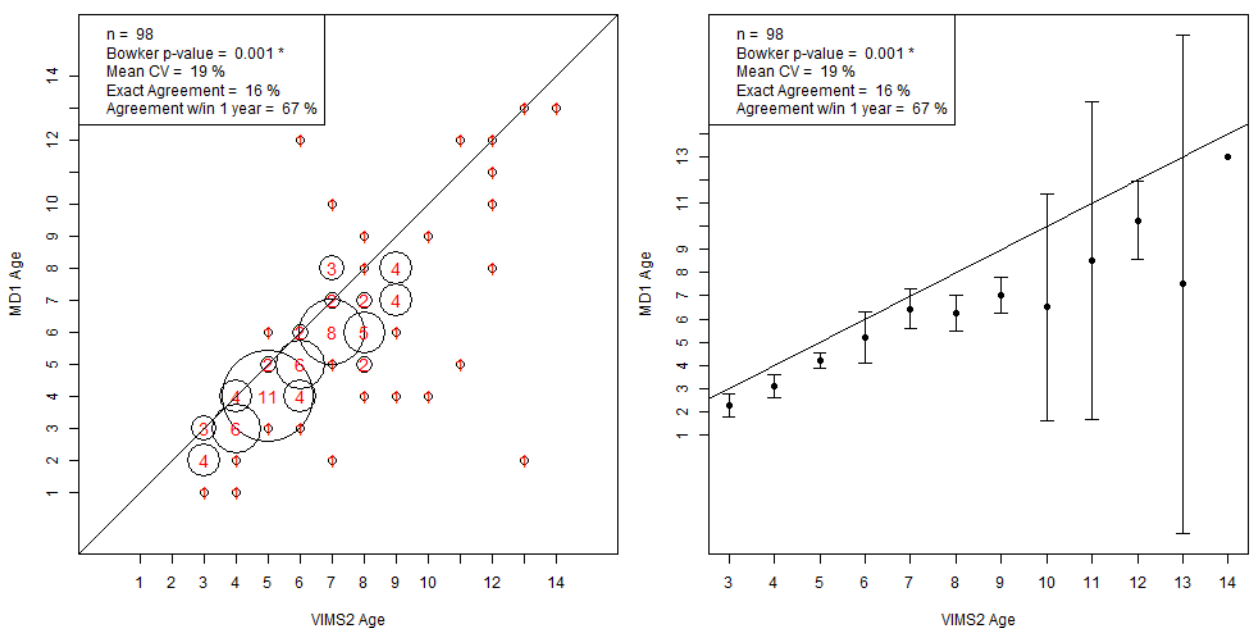



Figure 197. Age frequency (left) and age bias (right) plots for MD reader 1 and VIMS reader 2 American eel whole otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.

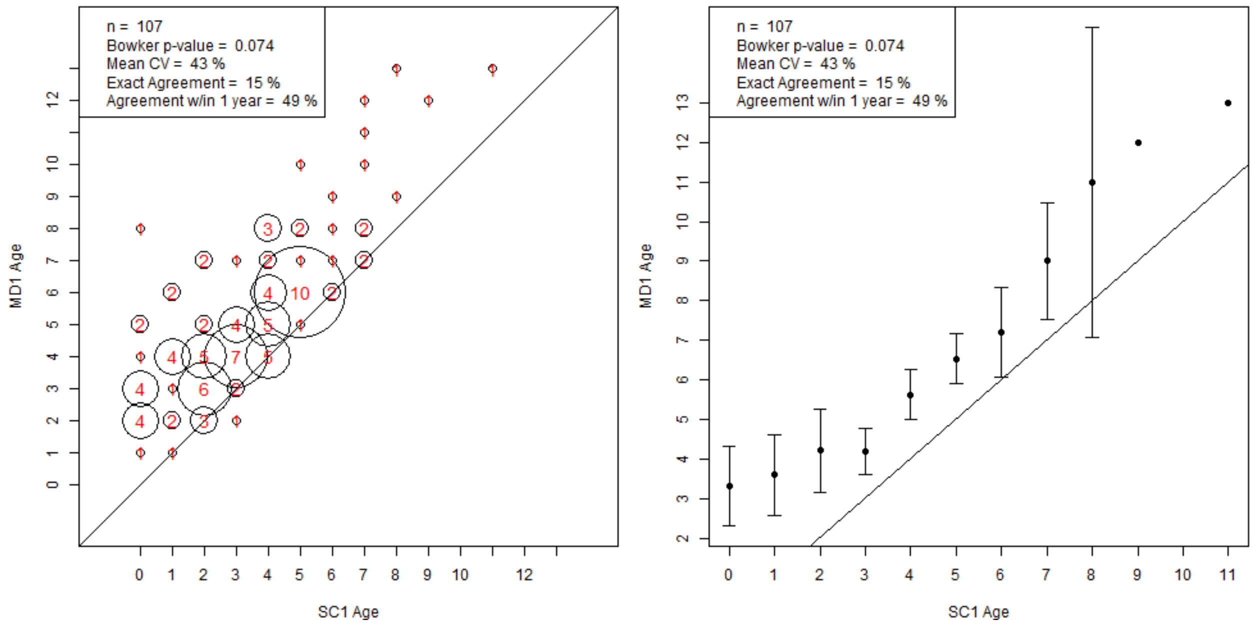



**Figure 198. Age frequency (left) and age bias (right) plots for MD reader 1 and SC reader 1 American eel whole otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

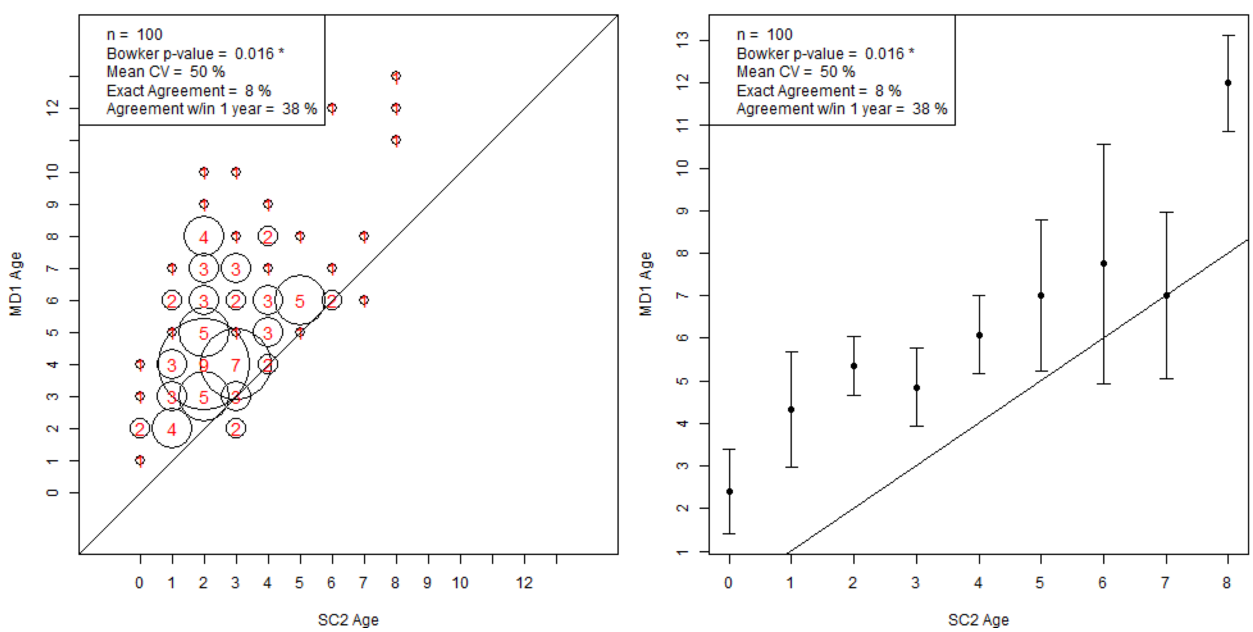



**Figure 199. Age frequency (left) and age bias (right) plots for MD reader 1 and SC reader2 American eel whole otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

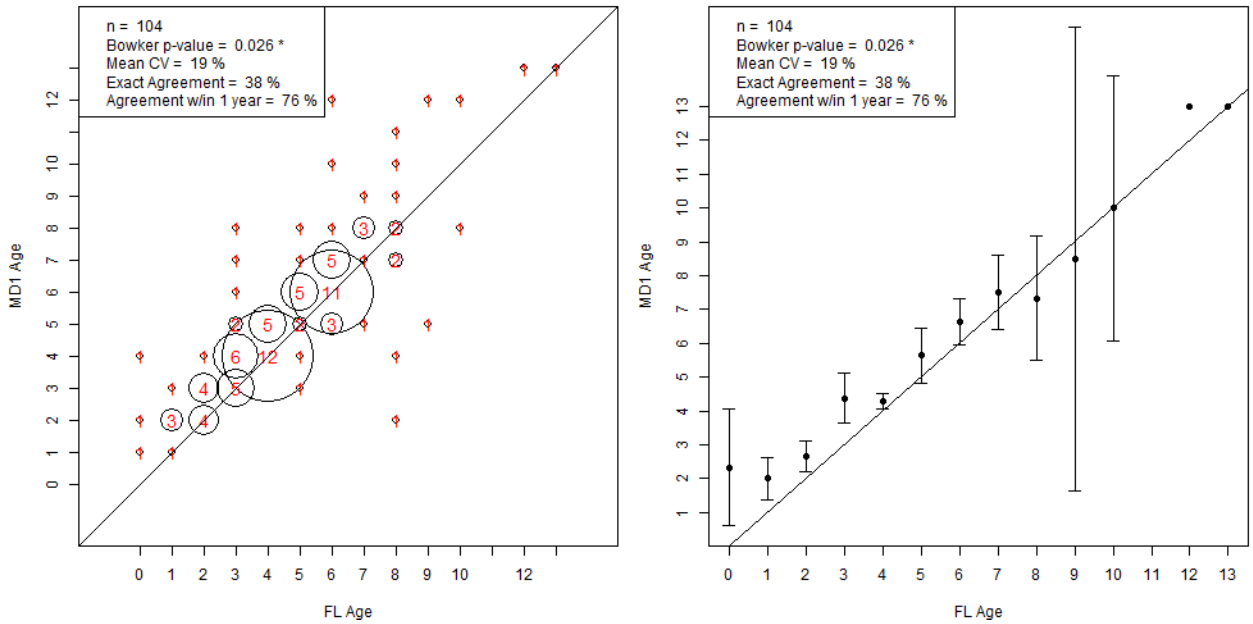



**Figure 200. Age frequency (left) and age bias (right) plots for MD reader 1 and FL American eel whole otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

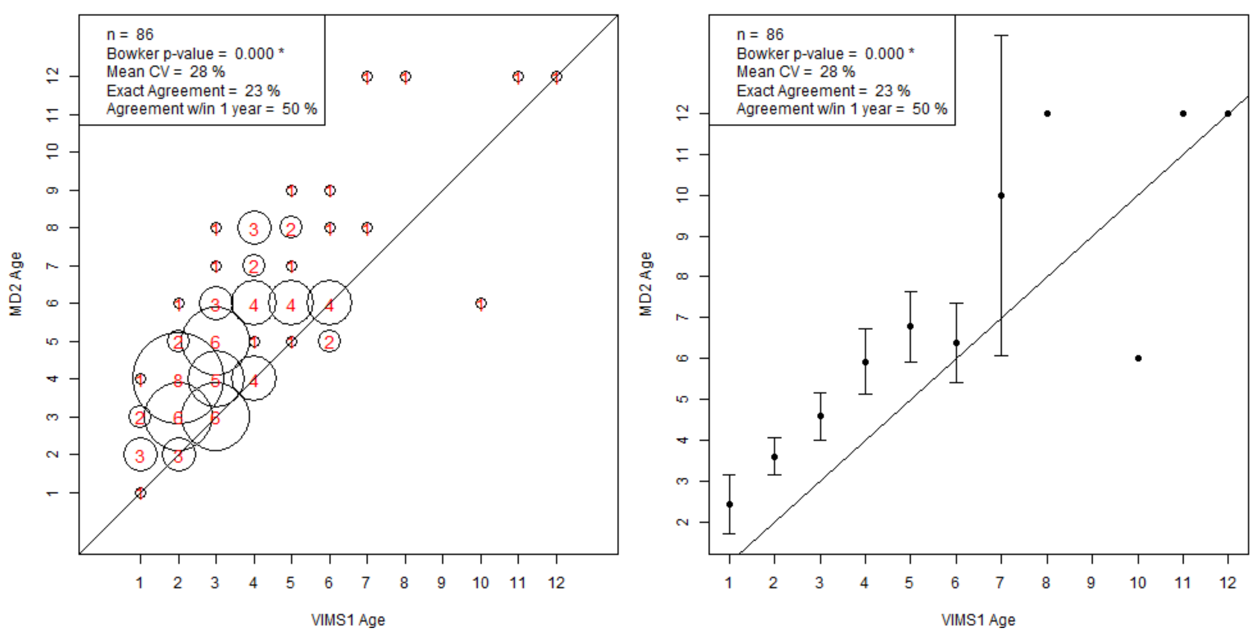



**Figure 201. Age frequency (left) and age bias (right) plots for MD reader 2 and VIMS reader 1 American eel whole otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

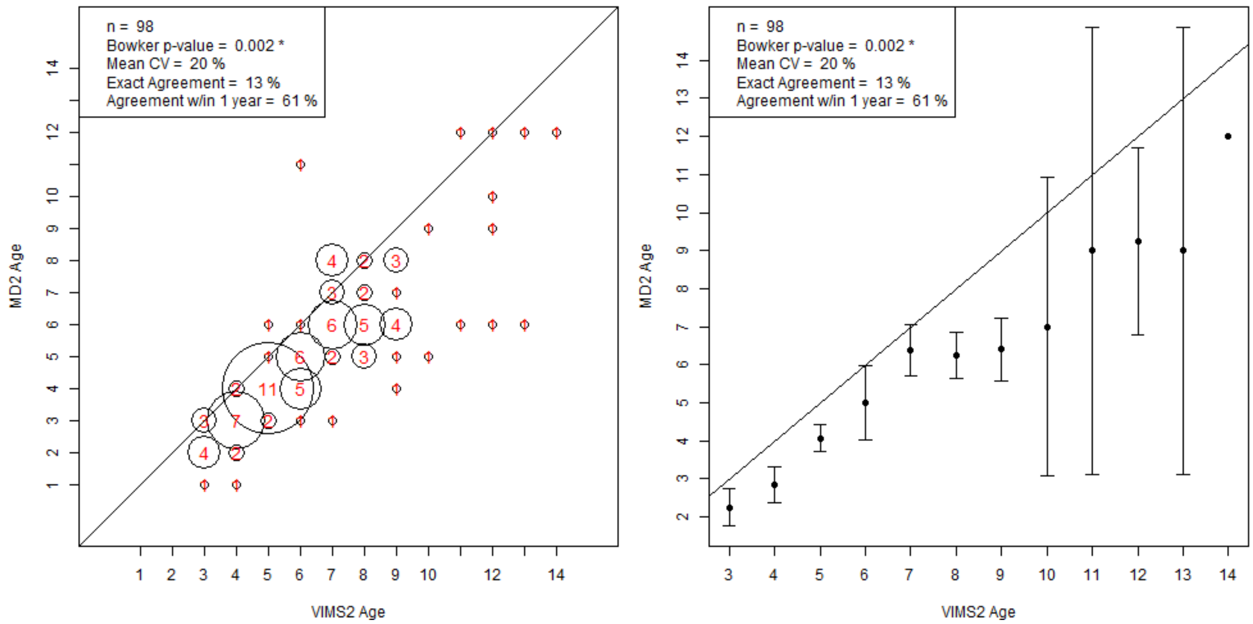



**Figure 202. Age frequency (left) and age bias (right) plots for MD reader 2 and VIMS reader 2 American eel whole otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

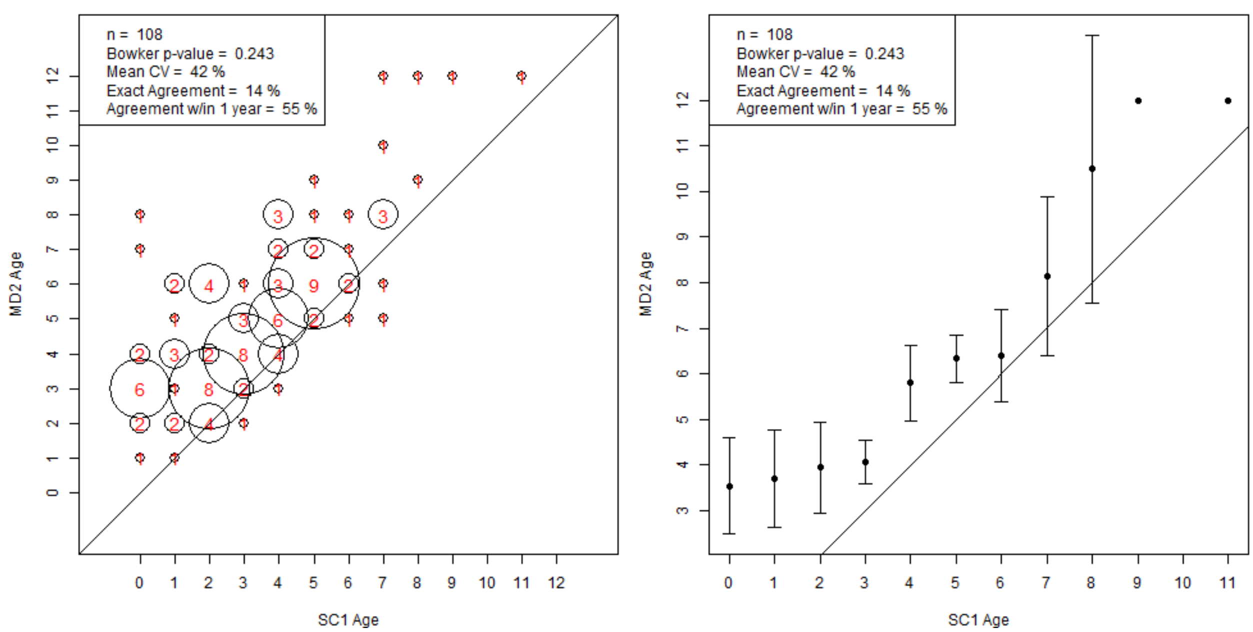



**Figure 203. Age frequency (left) and age bias (right) plots for MD reader 2 and SC reader 1 American eel whole otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

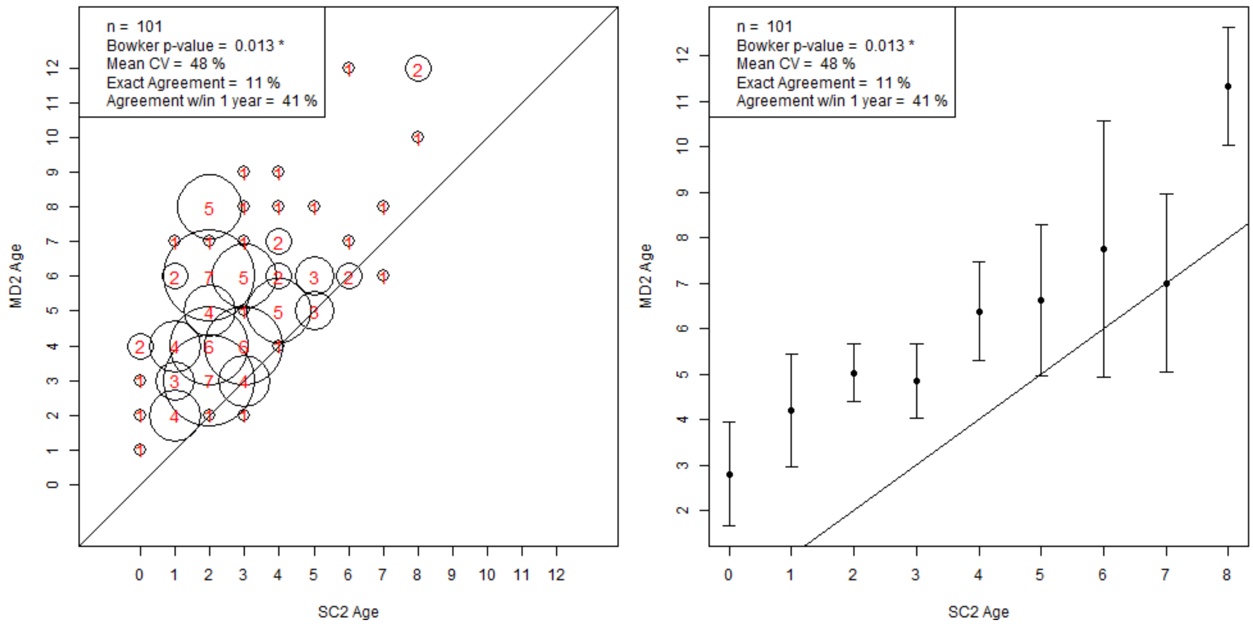



**Figure 204. Age frequency (left) and age bias (right) plots for MD reader2 and SC reader2 American eel whole otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

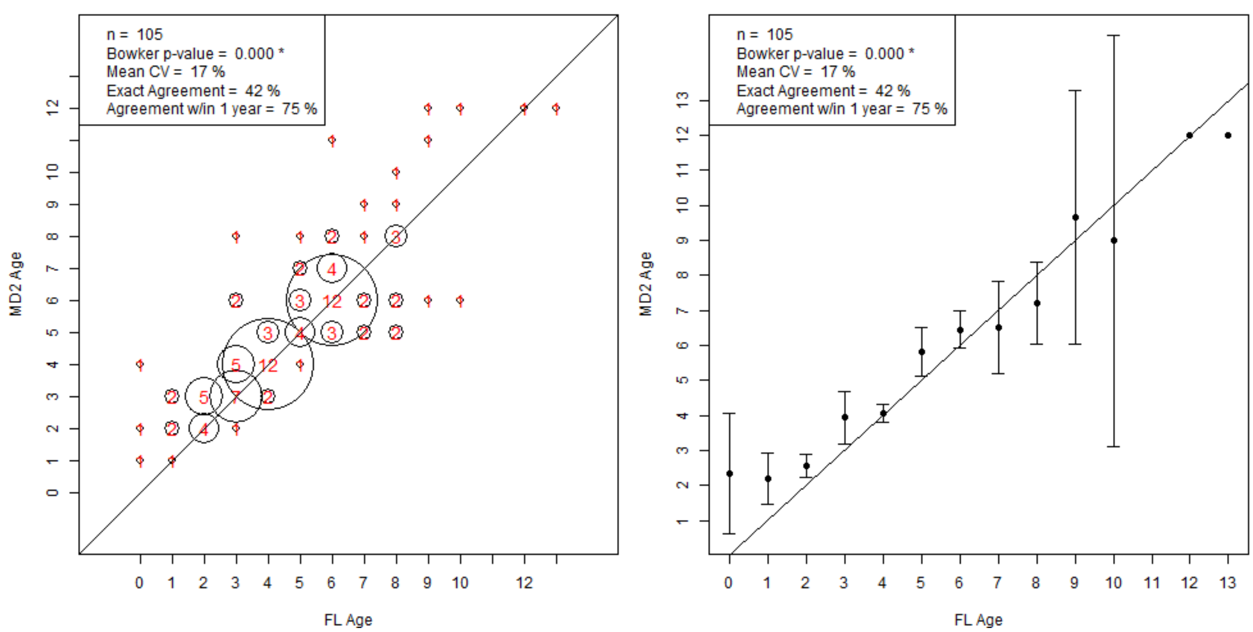



**Figure 205. Age frequency (left) and age bias (right) plots for MD reader 2 and FL American eel whole otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

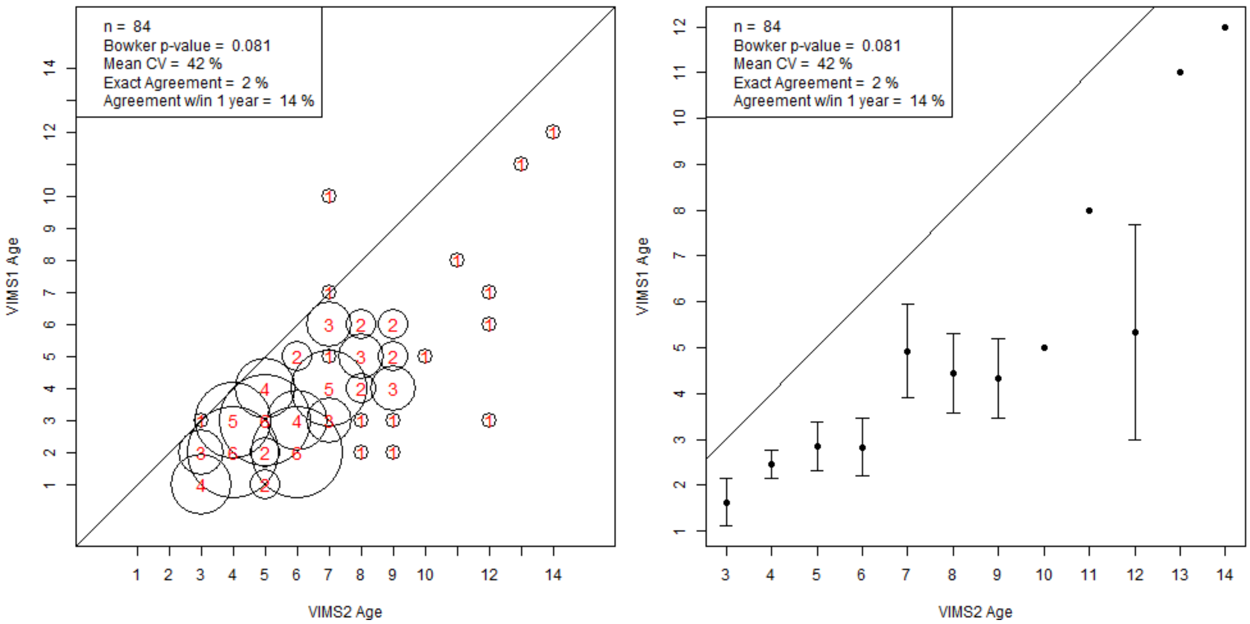



Figure 206. Age frequency (left) and age bias (right) plots for VIMS reader 1 and VIMS reader 2 American eel whole otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.

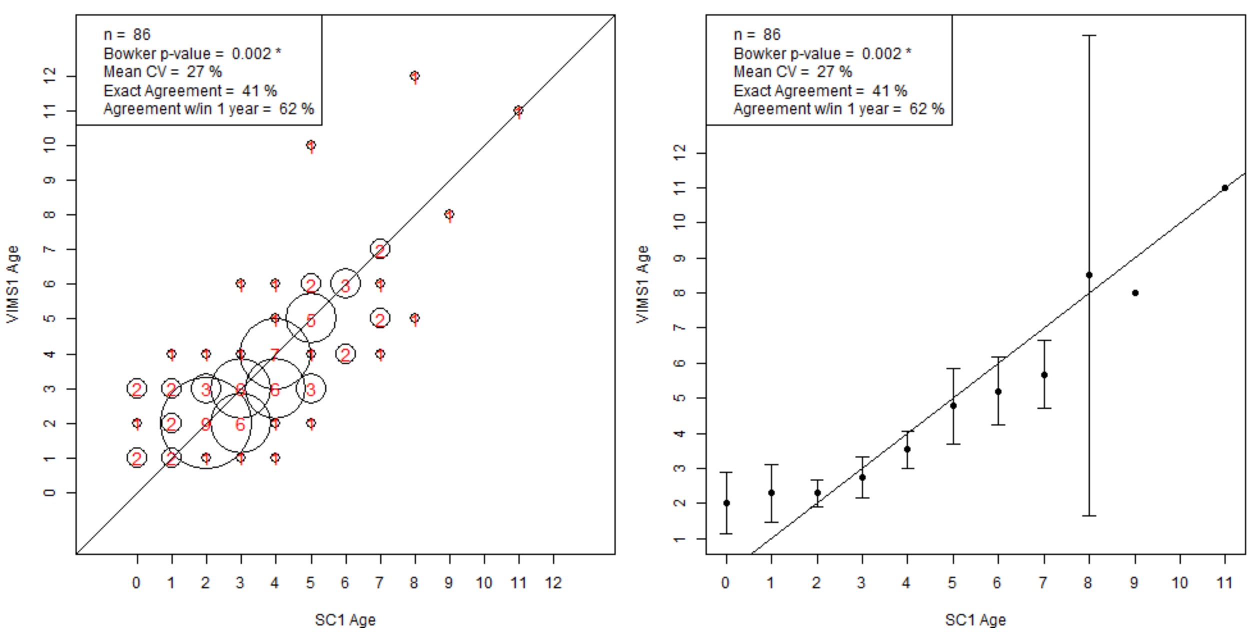



Figure 207. Age frequency (left) and age bias (right) plots for VIMS reader 1 and SC reader 1 American eel whole otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.

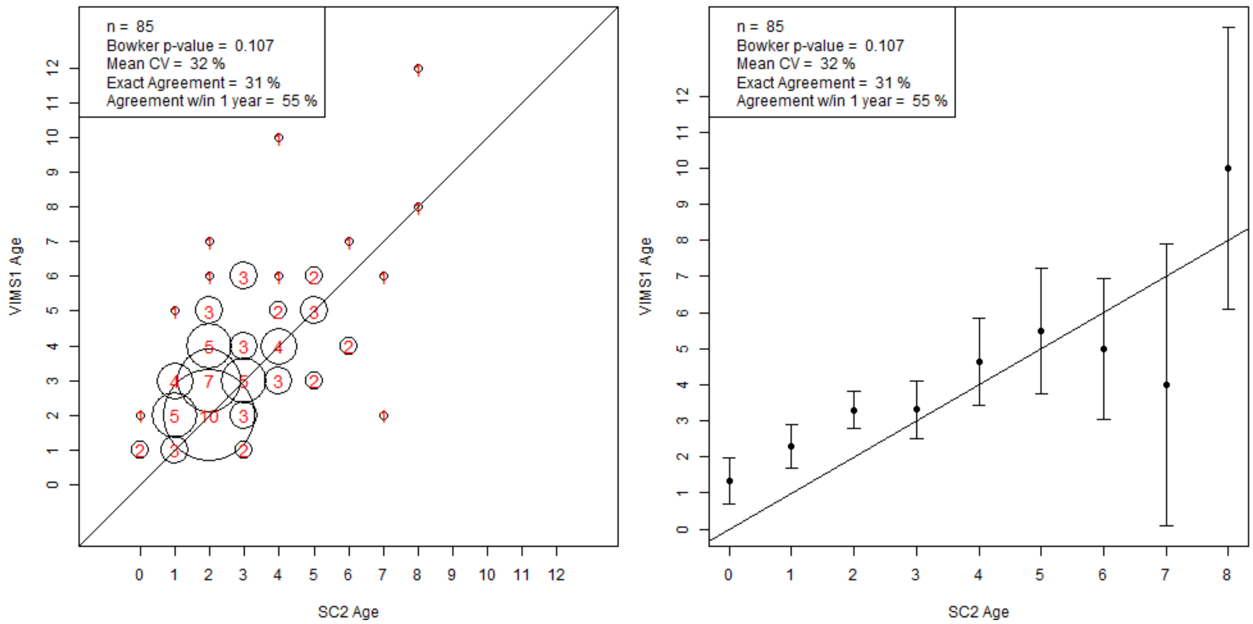



Figure 208. Age frequency (left) and age bias (right) plots for VIMS reader 1 and SC reader 2 American eel whole otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.

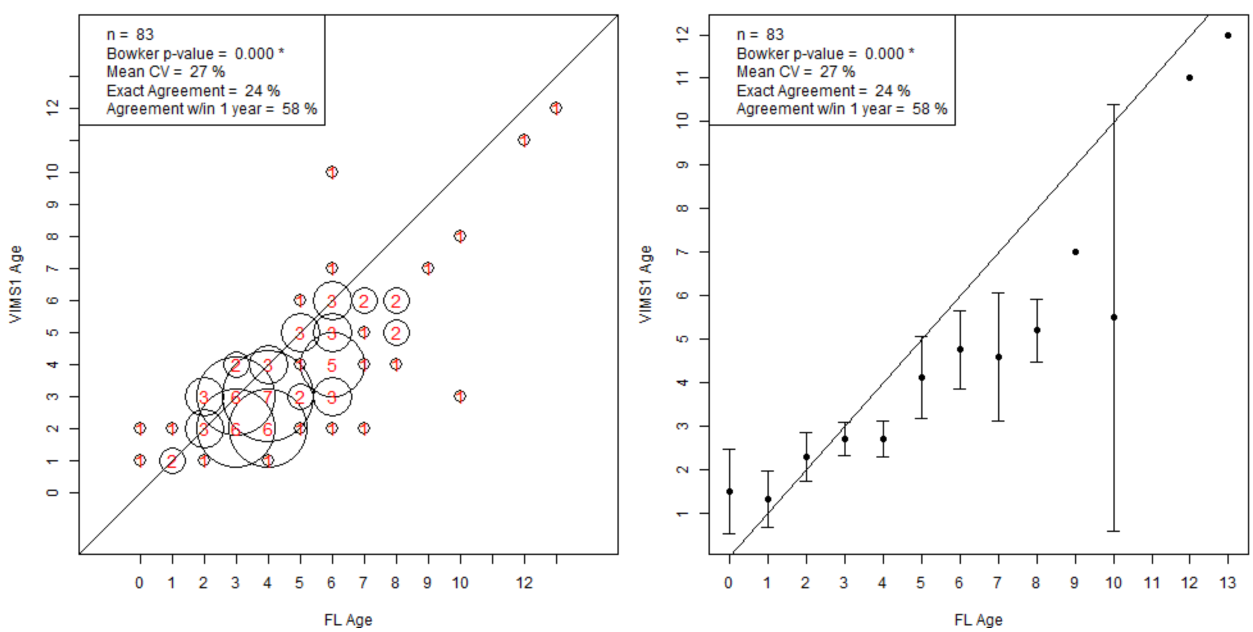



Figure 209. Age frequency (left) and age bias (right) plots for VIMS reader 1 and FL American eel whole otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.

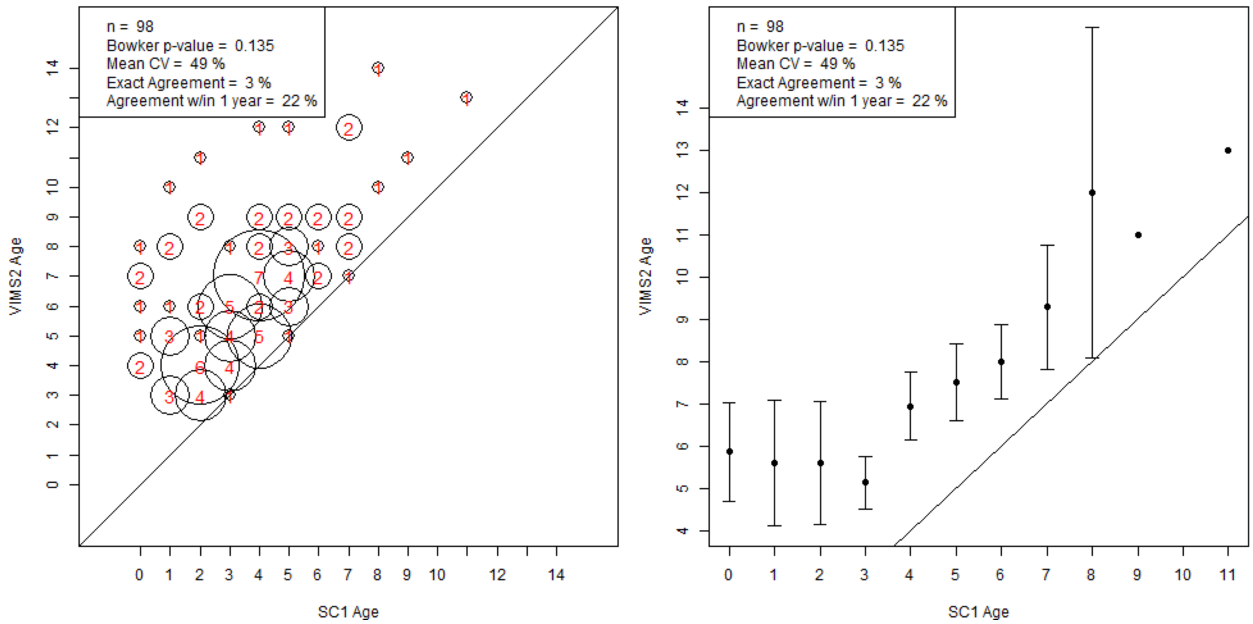



**Figure 210. Age frequency (left) and age bias (right) plots for VIMS reader 2 and SC reader 1 American eel whole otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

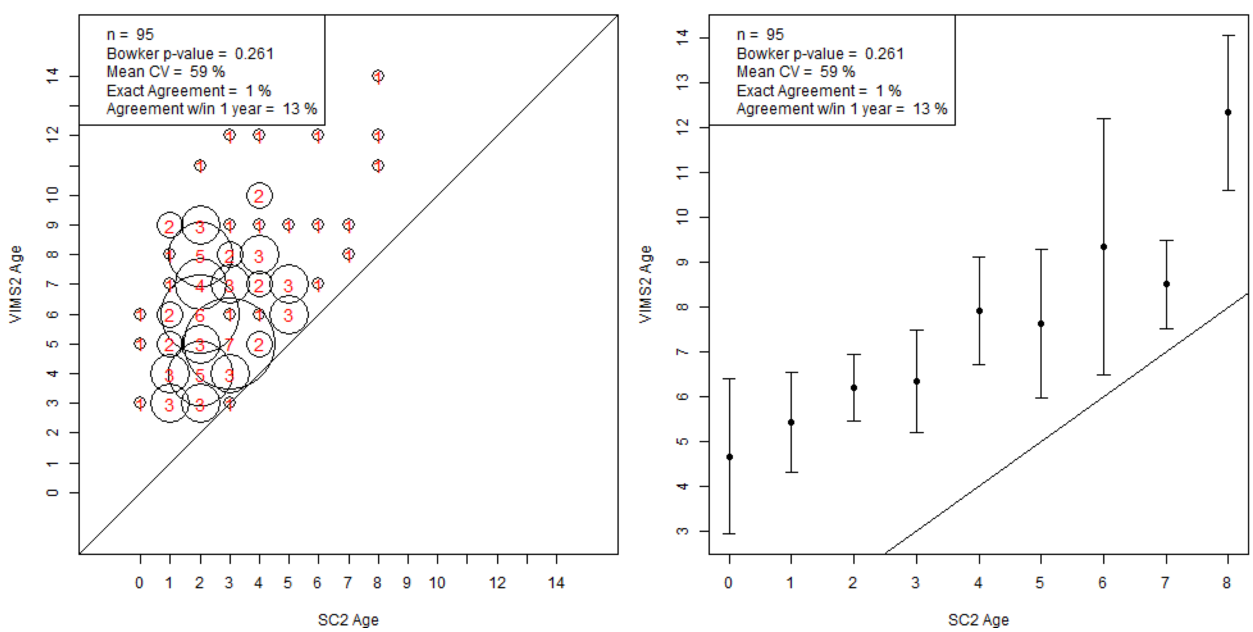



**Figure 211. Age frequency (left) and age bias (right) plots for VIMS reader 2 and SC reader 2 American eel whole otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

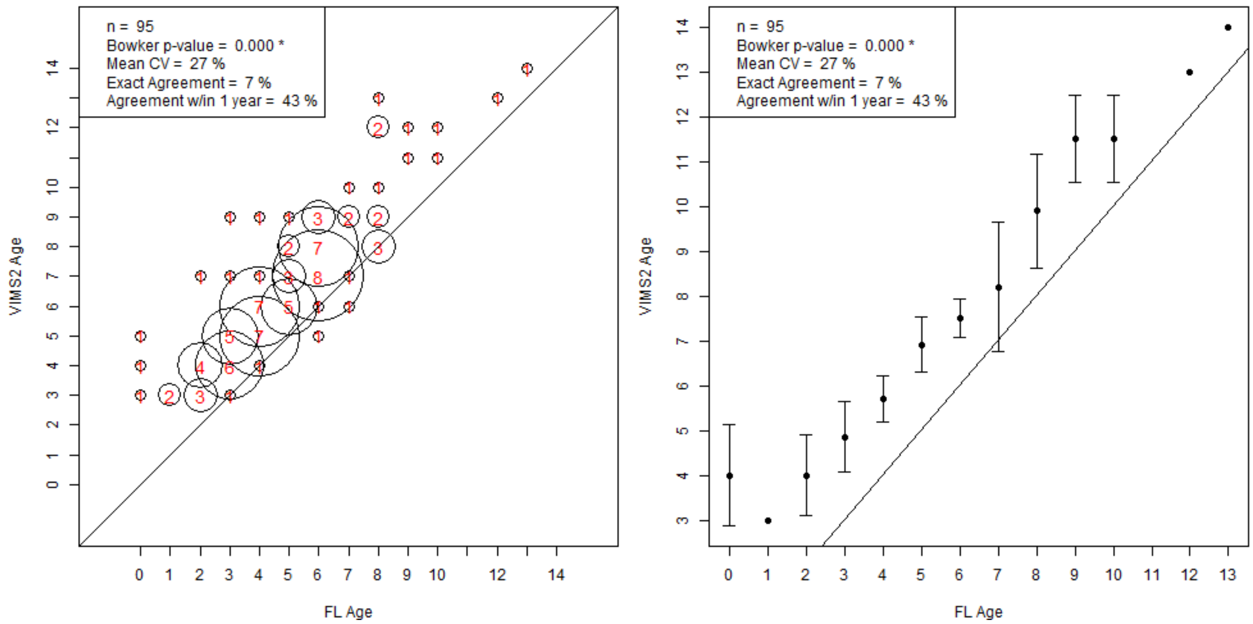



**Figure 212. Age frequency (left) and age bias (right) plots for VIMS reader 2 and FL American eel whole otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

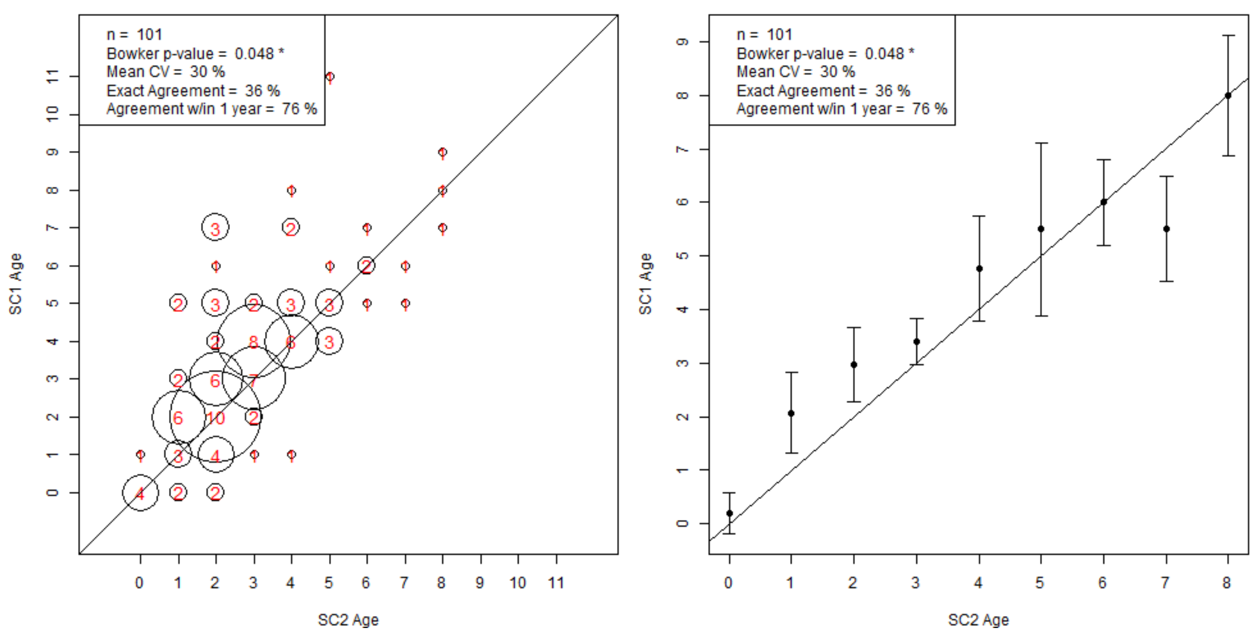



**Figure 213. Age frequency (left) and age bias (right) plots for SC reader 1 and SC reader 2 American eel whole otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

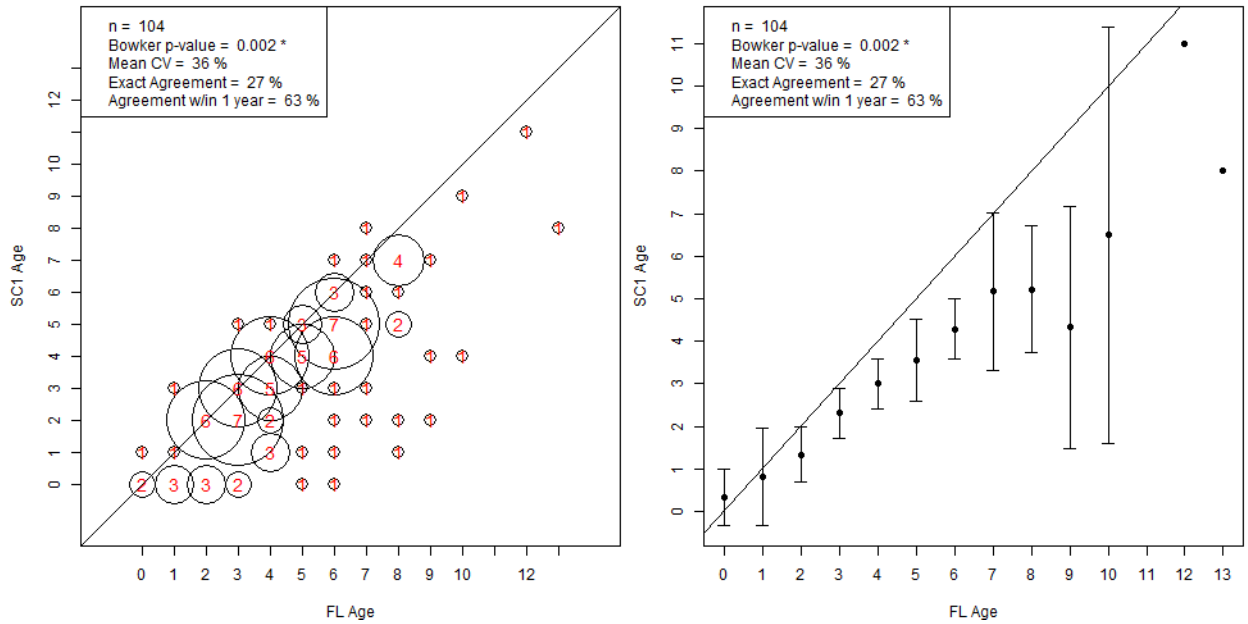



**Figure 214. Age frequency (left) and age bias (right) plots for SC reader 1 and FL American eel whole otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

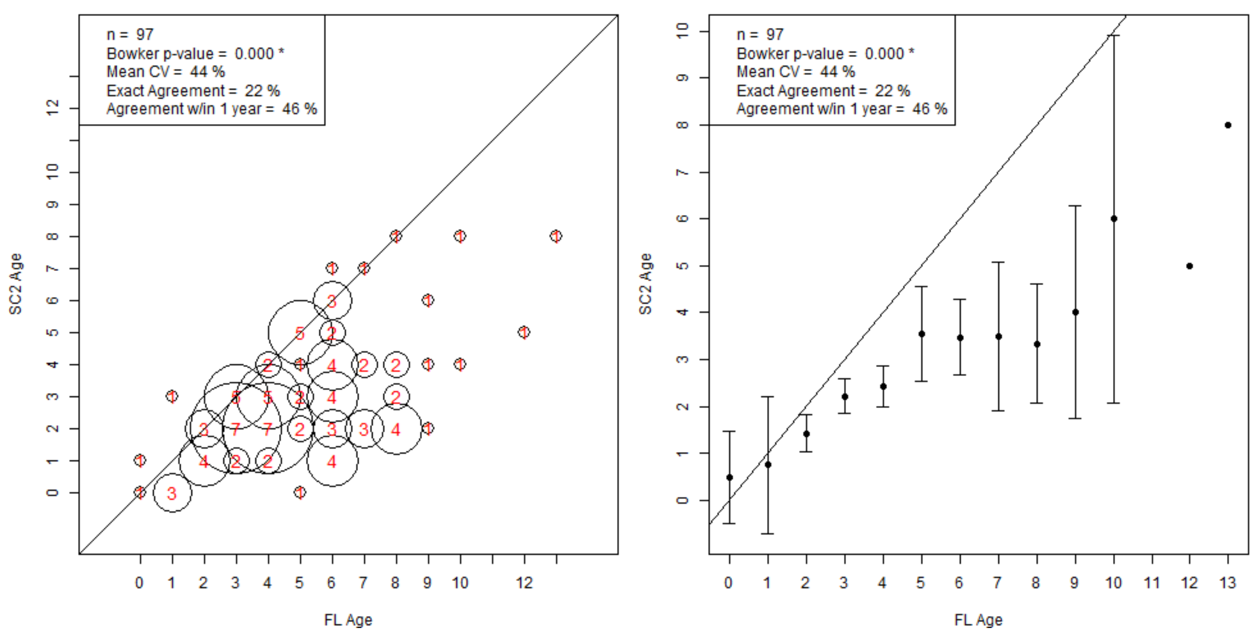



**Figure 215. Age frequency (left) and age bias (right) plots for SC reader 2 and FL American eel whole otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

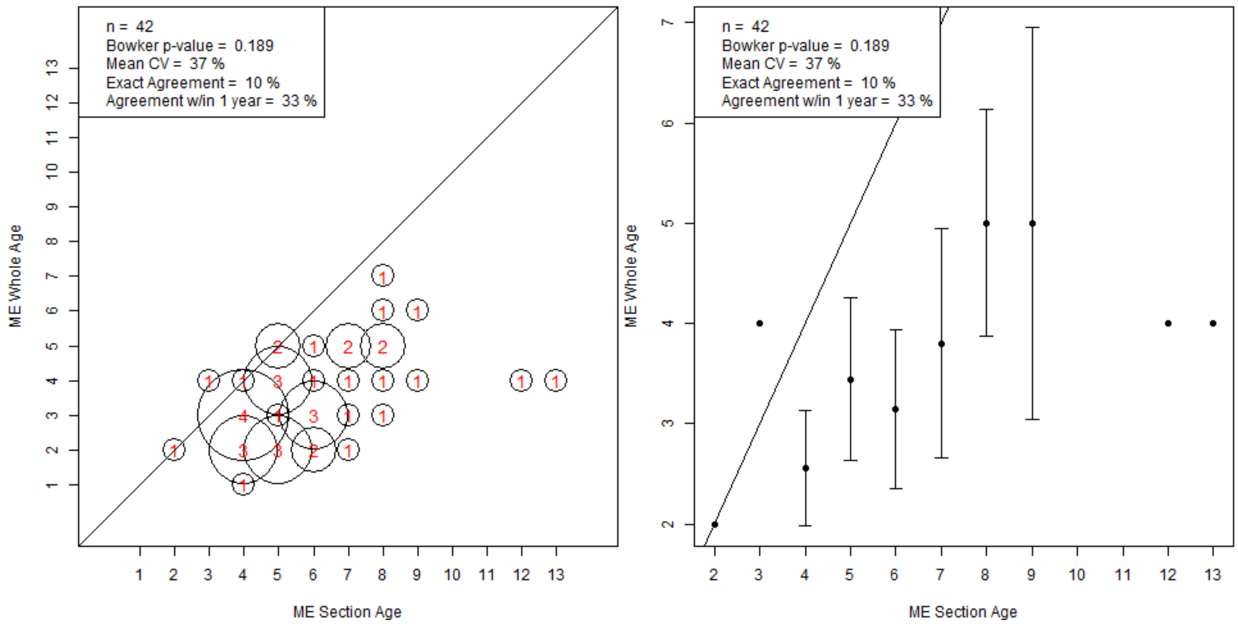



**Figure 216. Age frequency (left) and age bias (right) plot for ME reader paired American eel sectioned and whole otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

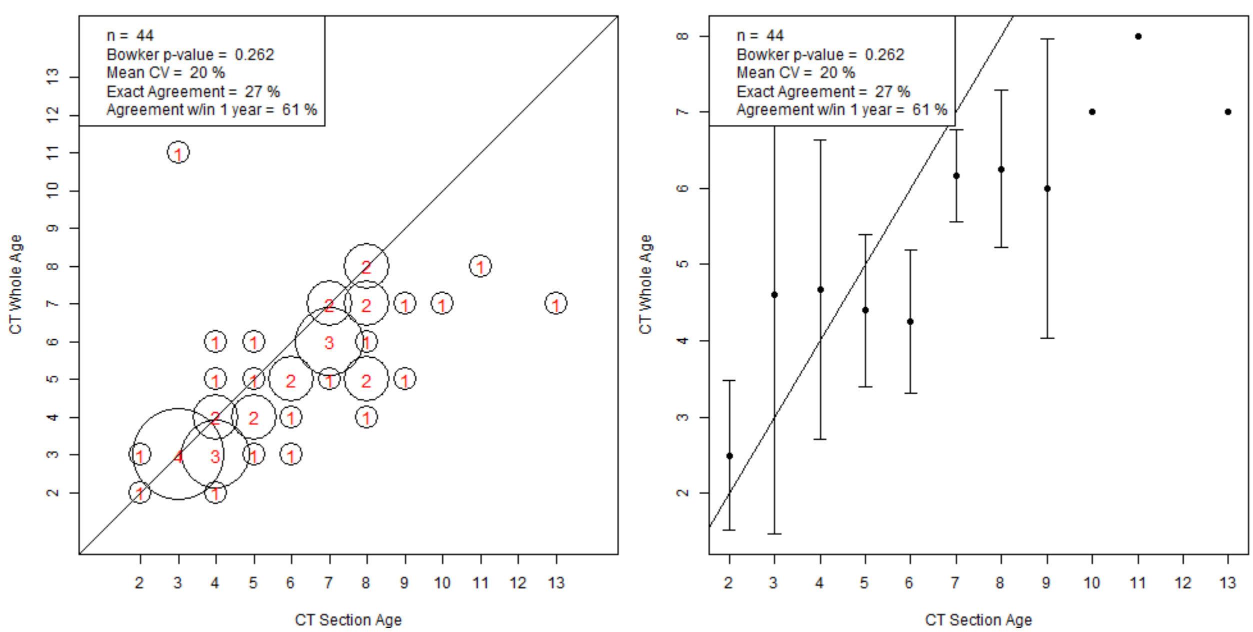



**Figure 217. Age frequency (left) and age bias (right) plot for CT reader paired American eel sectioned and whole otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

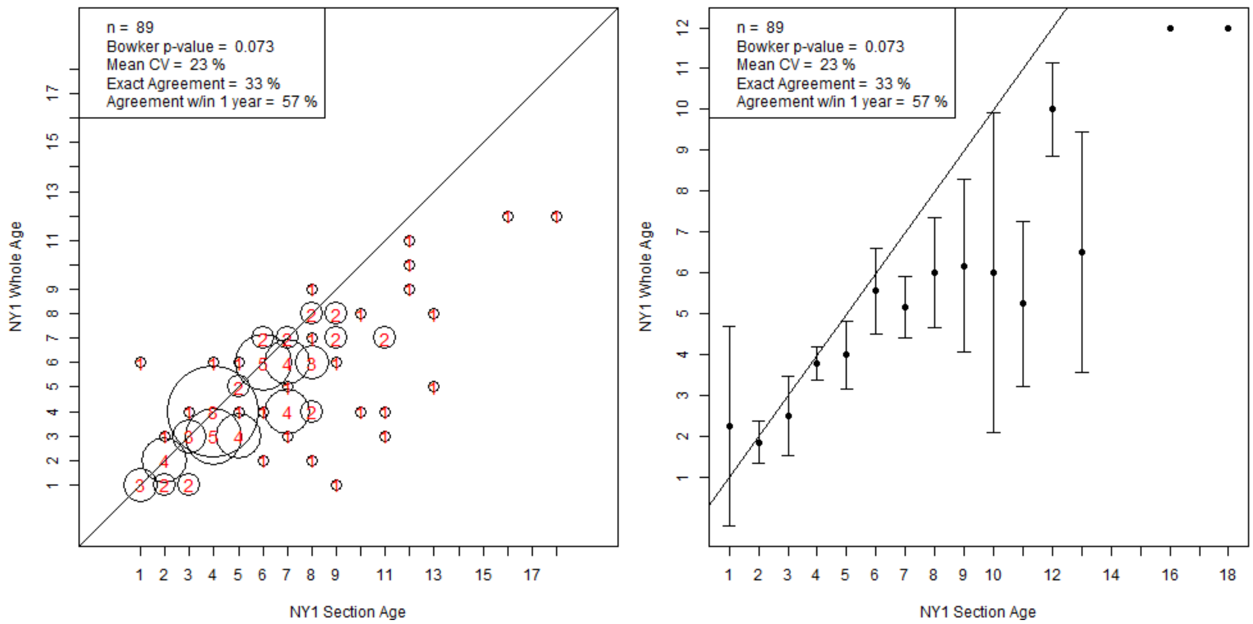



**Figure 218. Age frequency (left) and age bias (right) plot for NY reader 1 paired American eel sectioned and whole otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

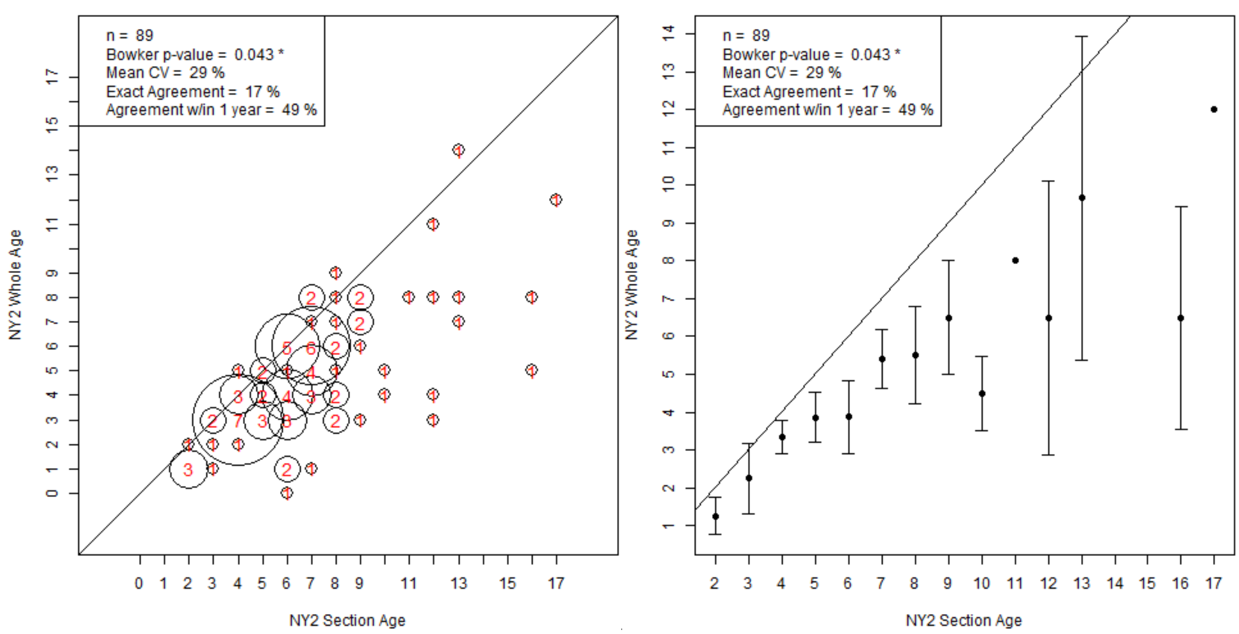



**Figure 219. Age frequency (left) and age bias (right) plot for NY reader 2 paired American eel sectioned and whole otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

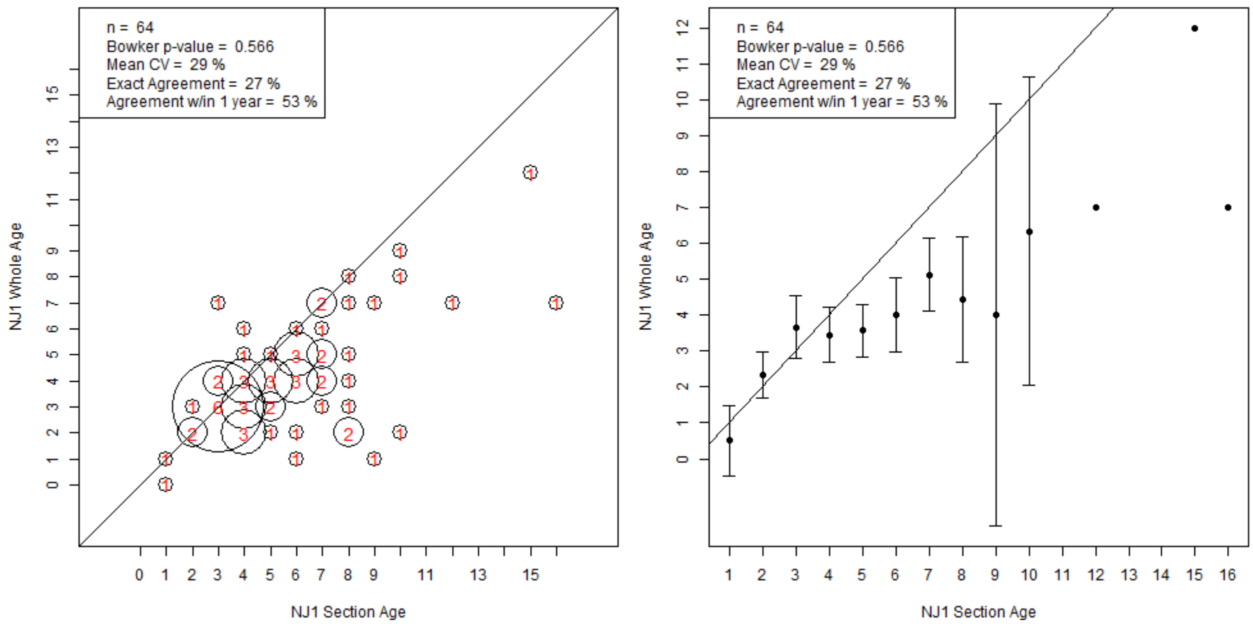



Figure 220. Age frequency (left) and age bias (right) plot for NJ reader 1 paired American eel sectioned and whole otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.

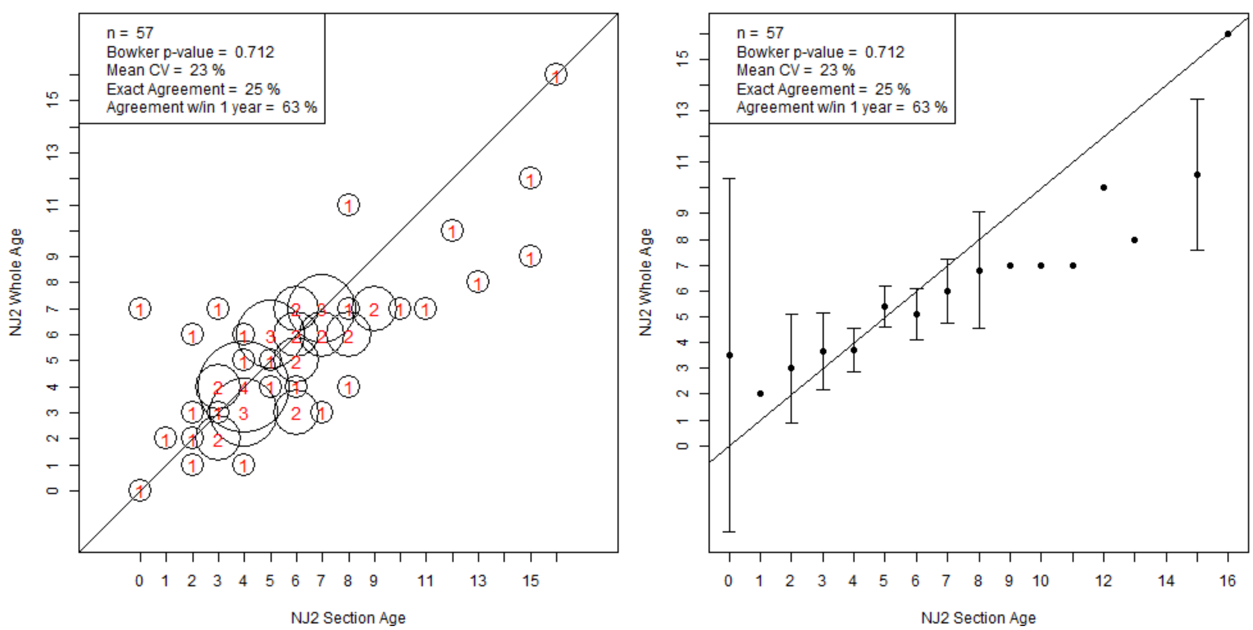



Figure 221. Age frequency (left) and age bias (right) plot for NJ reader 2 paired American eel sectioned and whole otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.

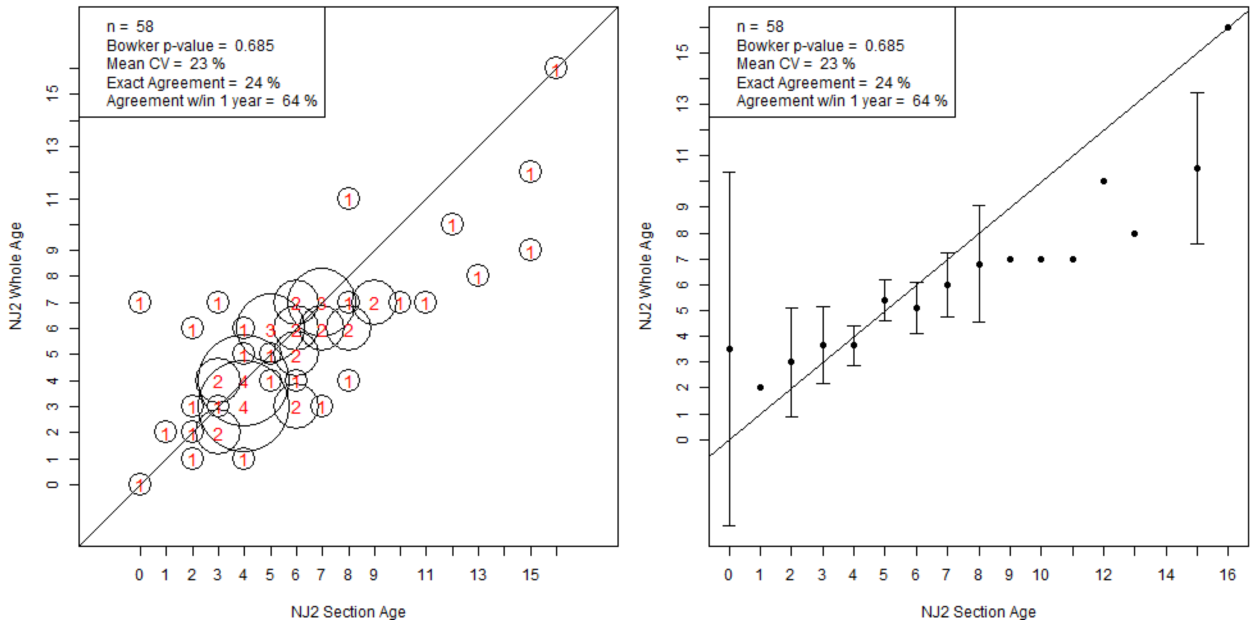



**Figure 222. Age frequency (left) and age bias (right) plot for NJ reader 3 paired American eel sectioned and whole otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

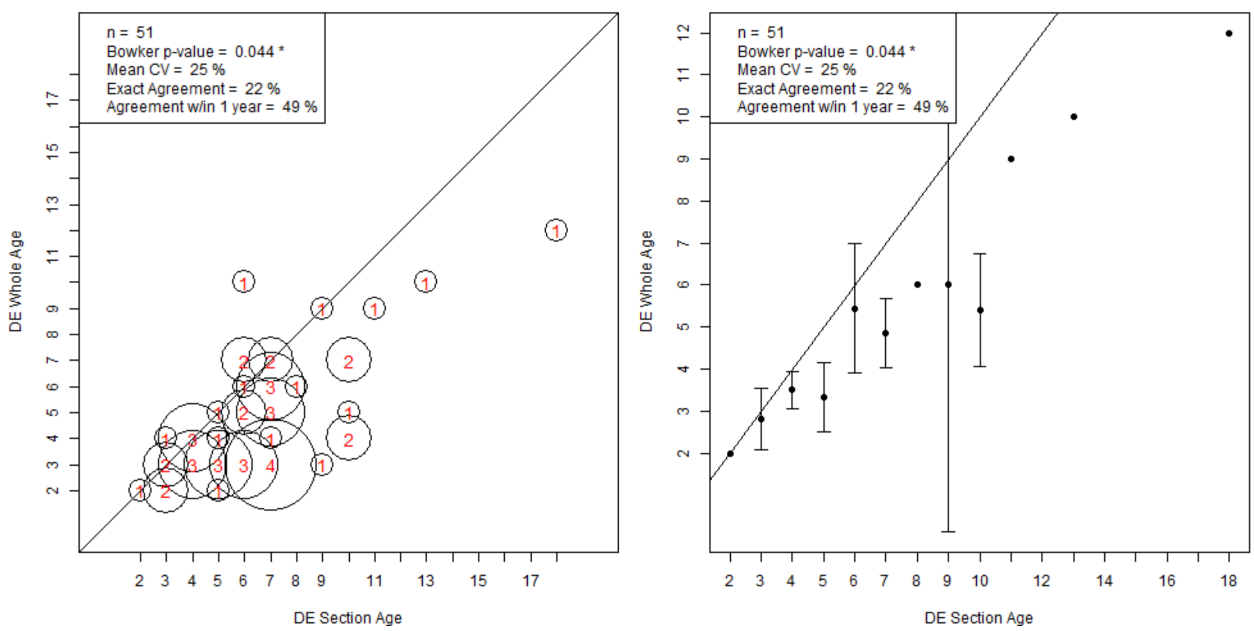



**Figure 223. Age frequency (left) and age bias (right) plot for DE reader paired American eel sectioned and whole otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

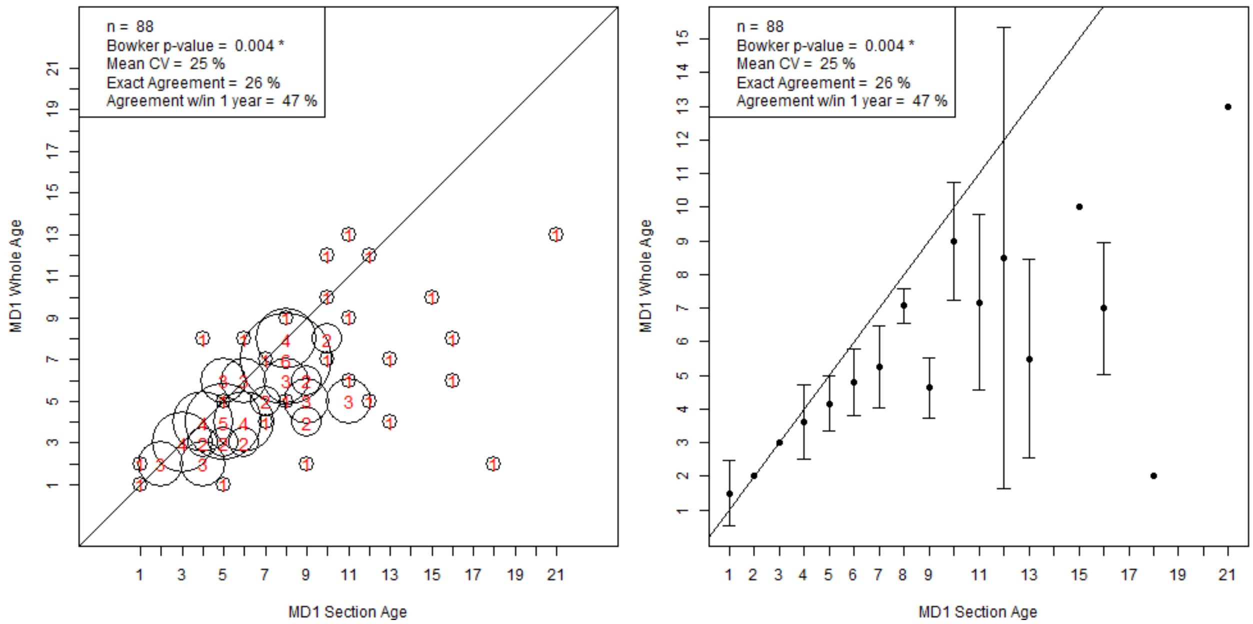



**Figure 224. Age frequency (left) and age bias (right) plot for MD reader 1 paired American eel sectioned and whole otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

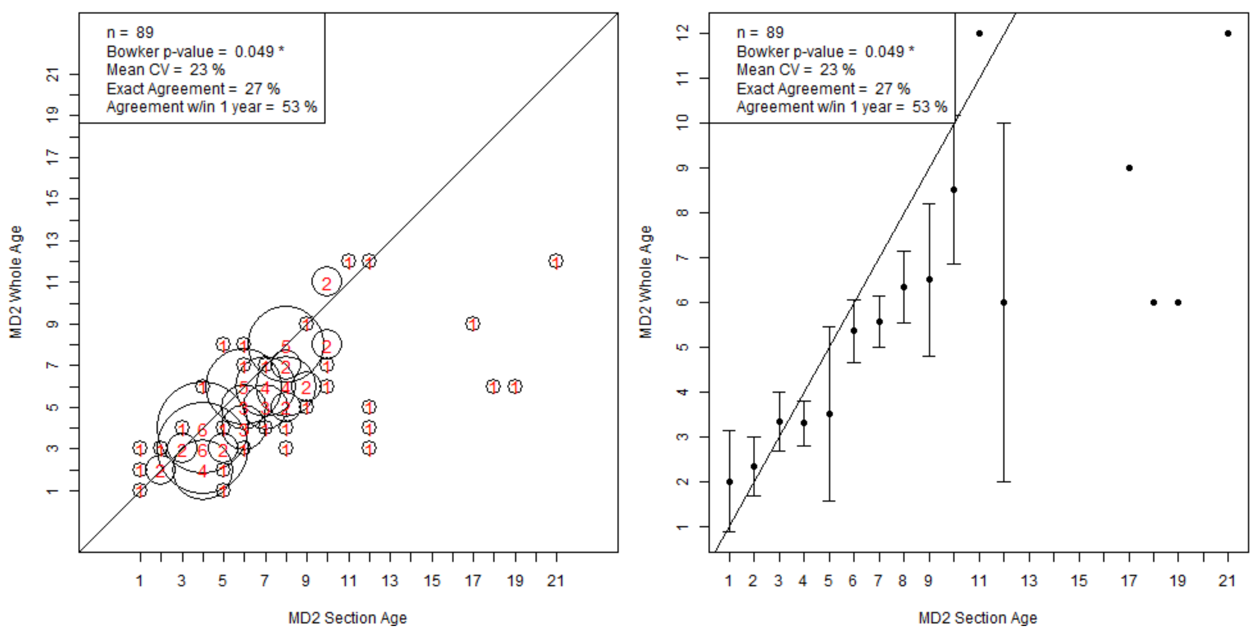



**Figure 225. Age frequency (left) and age bias (right) plot for MD reader 2 paired American eel sectioned and whole otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

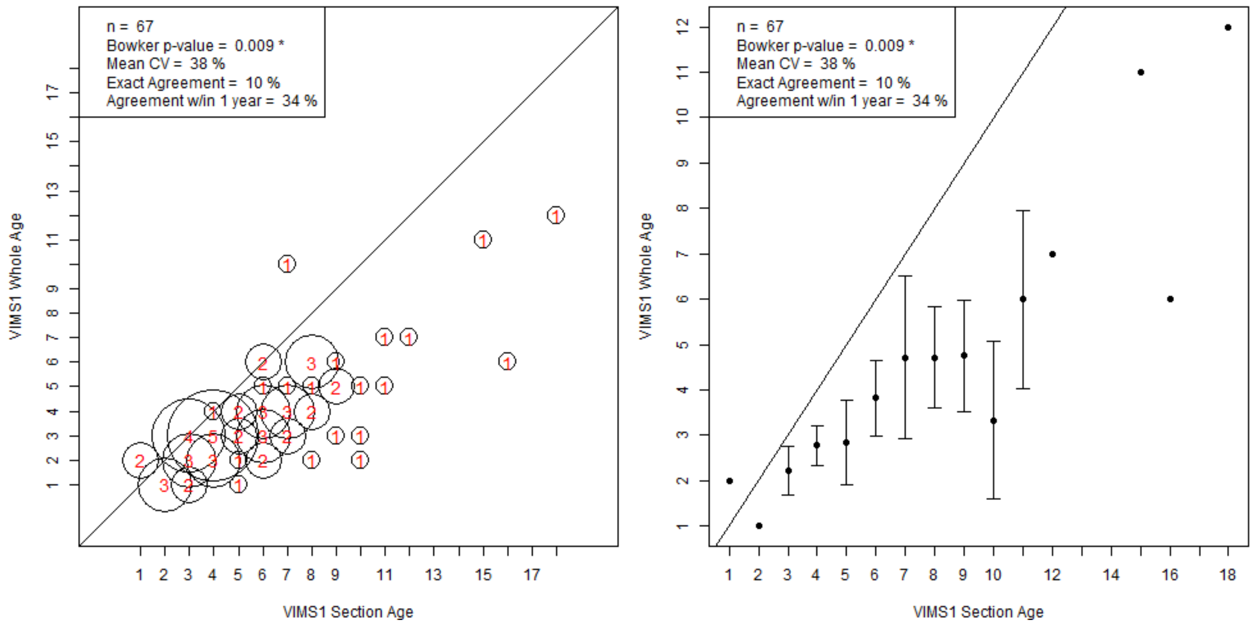



Figure 226. Age frequency (left) and age bias (right) plot for VIMS reader 1 paired American eel sectioned and whole otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.

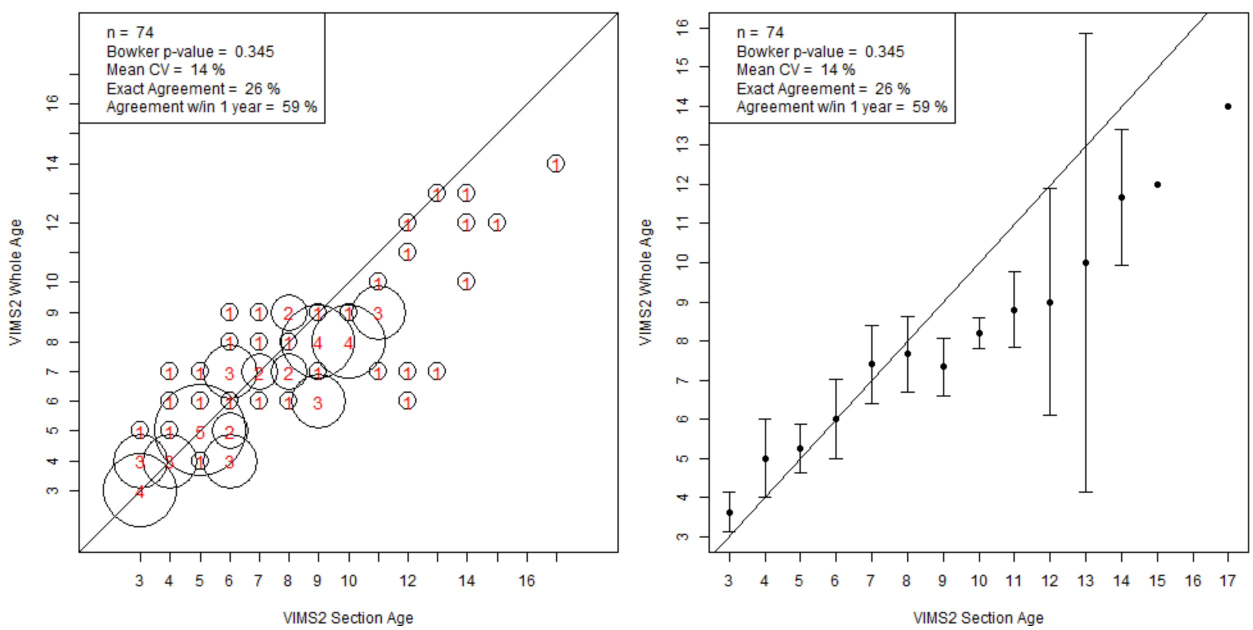



Figure 227. Age frequency (left) and age bias (right) plot for VIMS reader 2 paired American eel sectioned and whole otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.

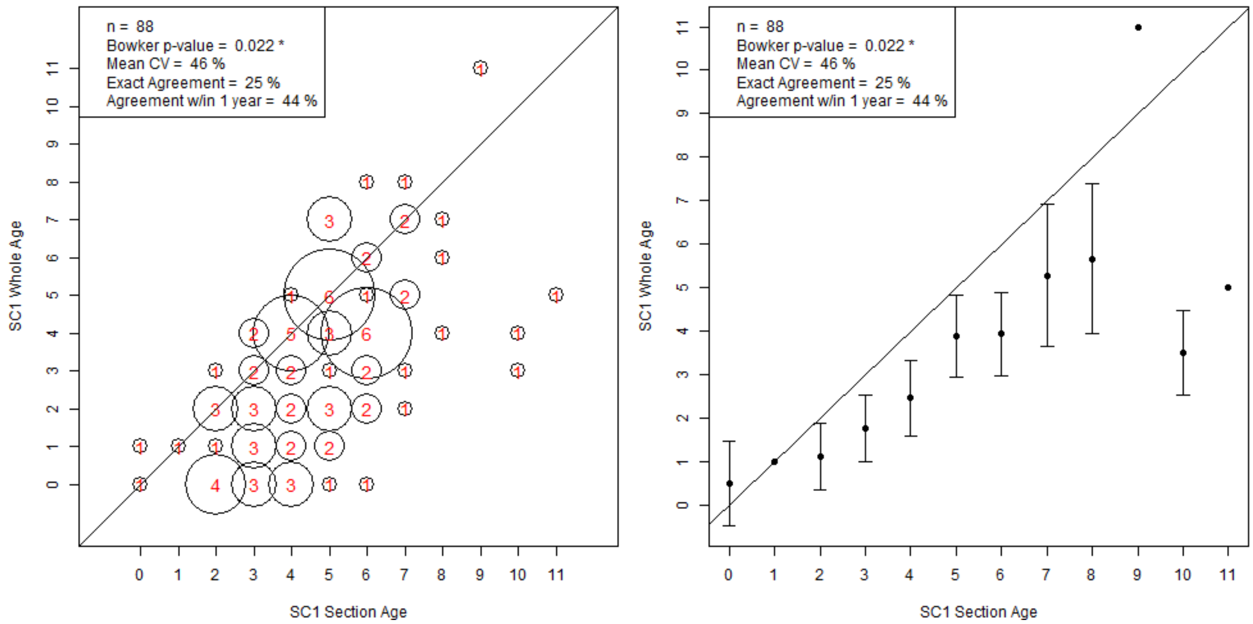



**Figure 228. Age frequency (left) and age bias (right) plot for SC reader 1 paired American eel sectioned and whole otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

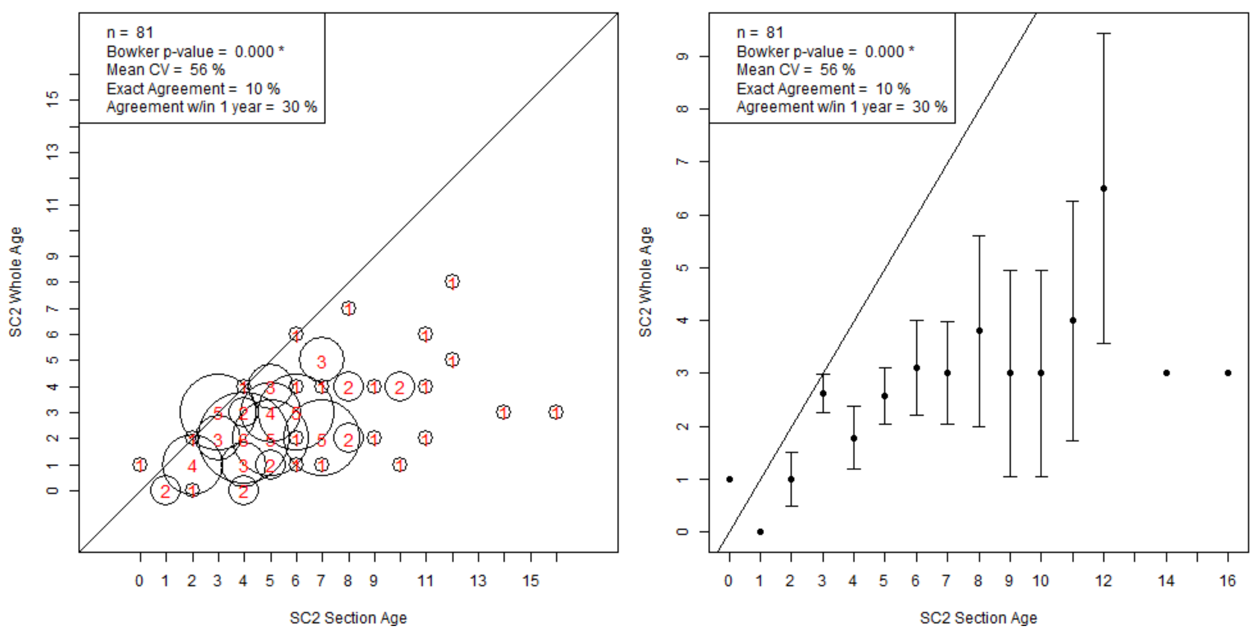



**Figure 229. Age frequency (left) and age bias (right) plot for SC reader 2 paired American eel sectioned and whole otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

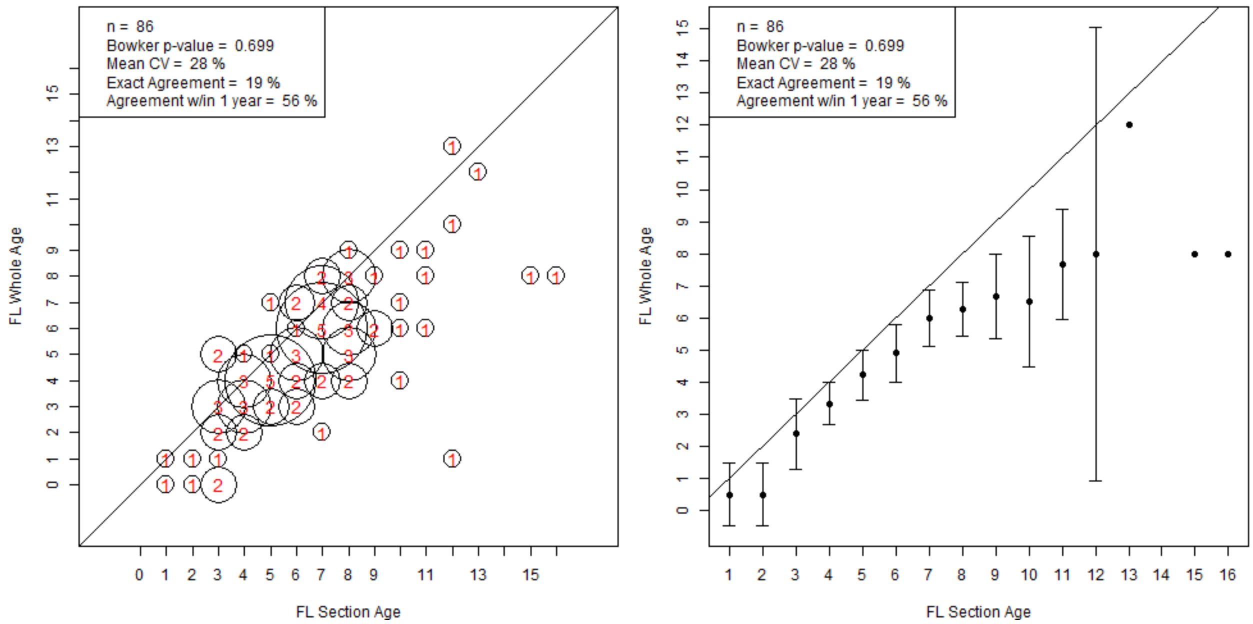



**Figure 230. Age frequency (left) and age bias (right) plot for FL reader paired American eel sectioned and whole otolith age determinations. Error bars in the age bias plots are 95% confidence intervals.**

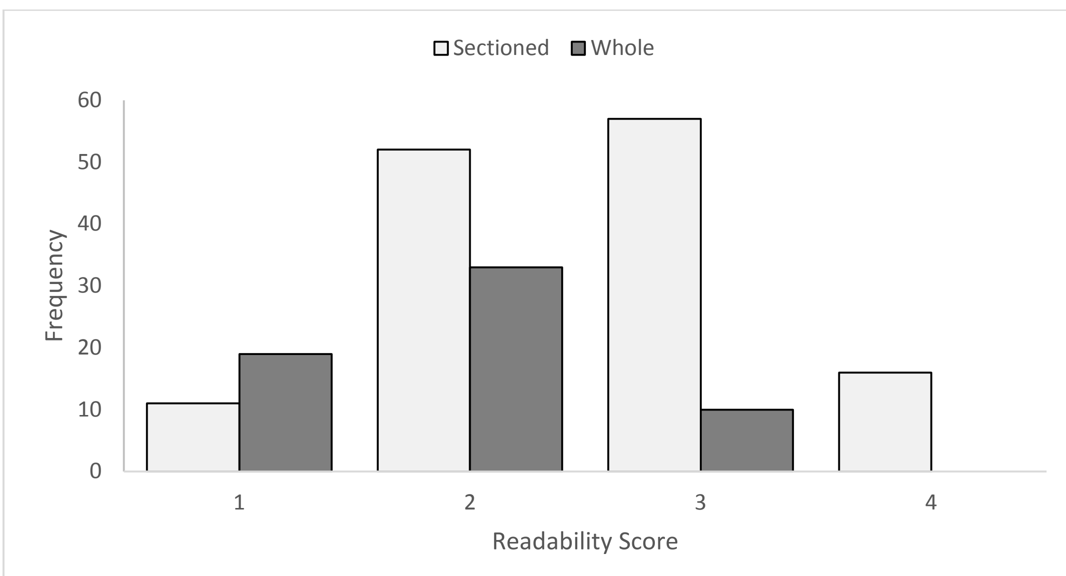



**Figure 231. Frequency of readability score for reader in Maine for sectioned (n=136) and whole (n=62) otoliths. Readability score is from one (poor readability) to four (best readability).**

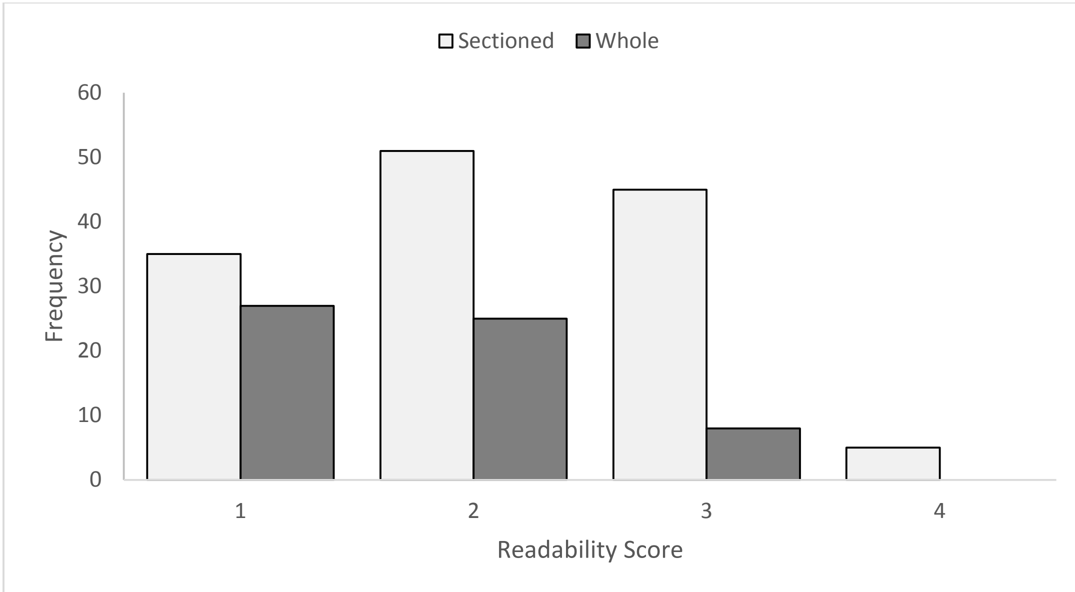



**Figure 232. Frequency of readability score for reader in Connecticut for sectioned (n=136) and whole (n=60) otoliths. Readability score is from one (poor readability) to four (best readability).**

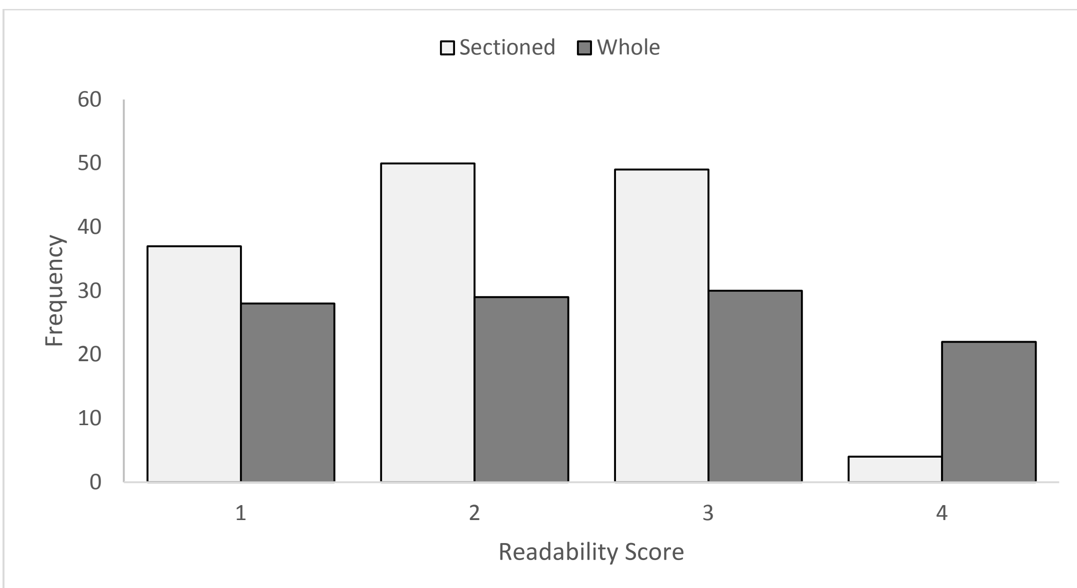



**Figure 233. Frequency of readability score for reader 1 in New York for sectioned (n=140) and whole (n=109) otoliths. Readability score is from one (poor readability) to four (best readability).**

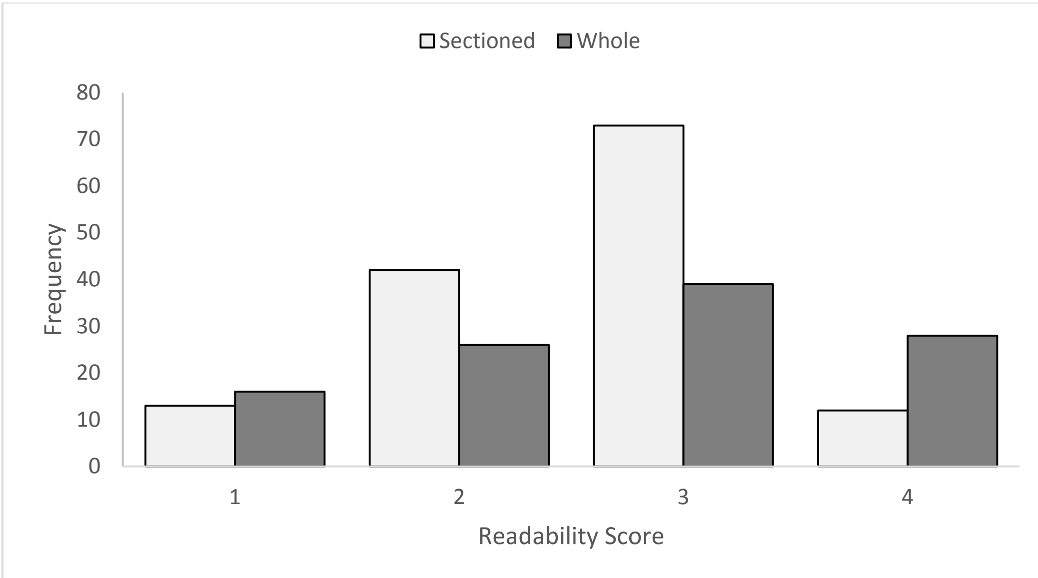



**Figure 234. Frequency of readability score for reader 2 in New York for sectioned (n=140) and whole (n=109) otoliths. Readability score is from one (poor readability) to four (best readability).**

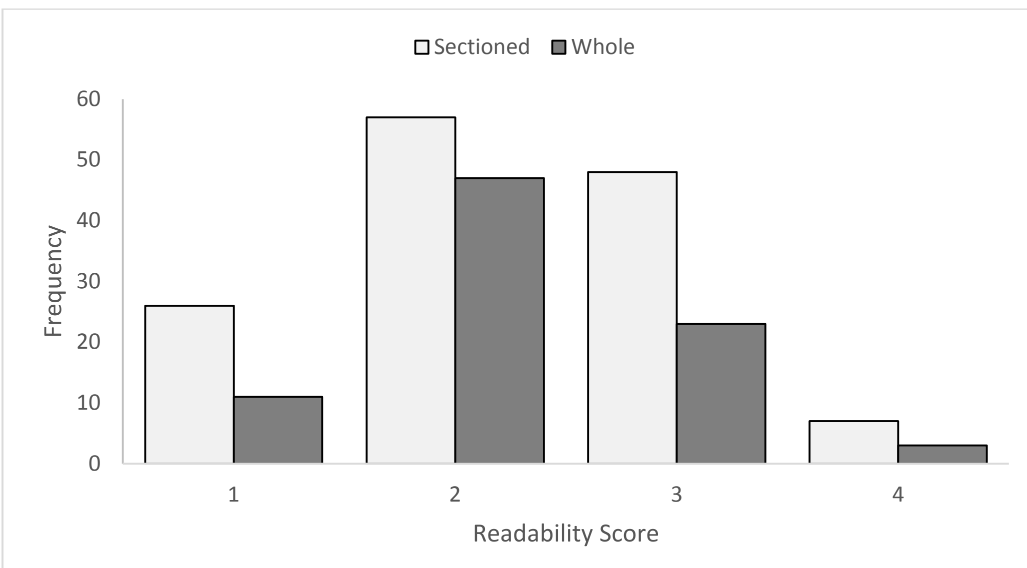



**Figure 235. Frequency of readability score for reader 1 in New Jersey for sectioned (n=138) and whole (n=84) otoliths. Readability score is from one (poor readability) to four (best readability).**

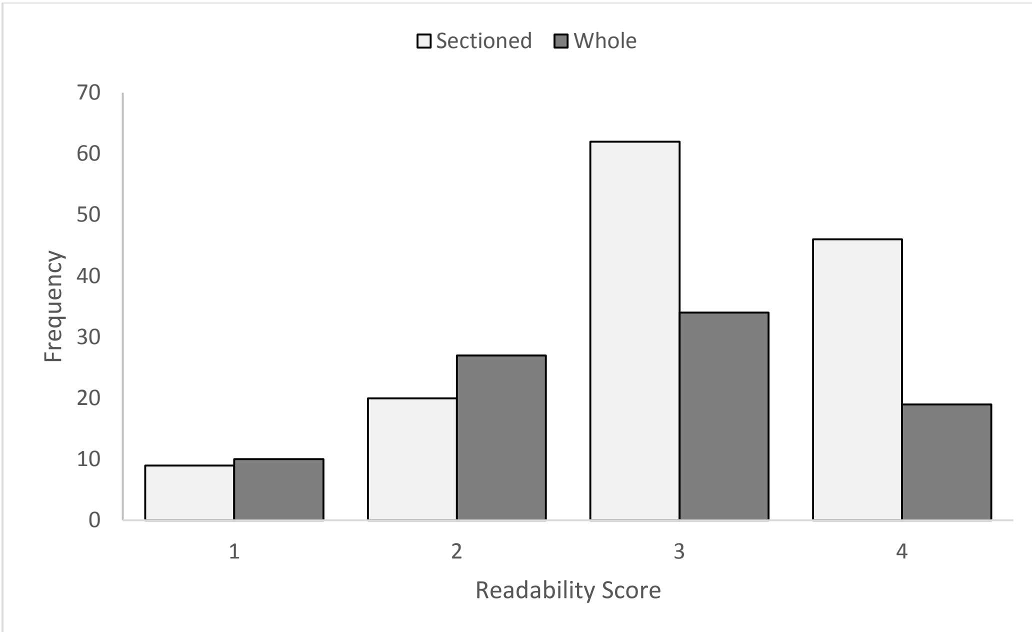



**Figure 236. Frequency of readability score for reader 2 in New Jersey for sectioned (n=137) and whole (n=90) otoliths. Readability score is from one (poor readability) to four (best readability).**

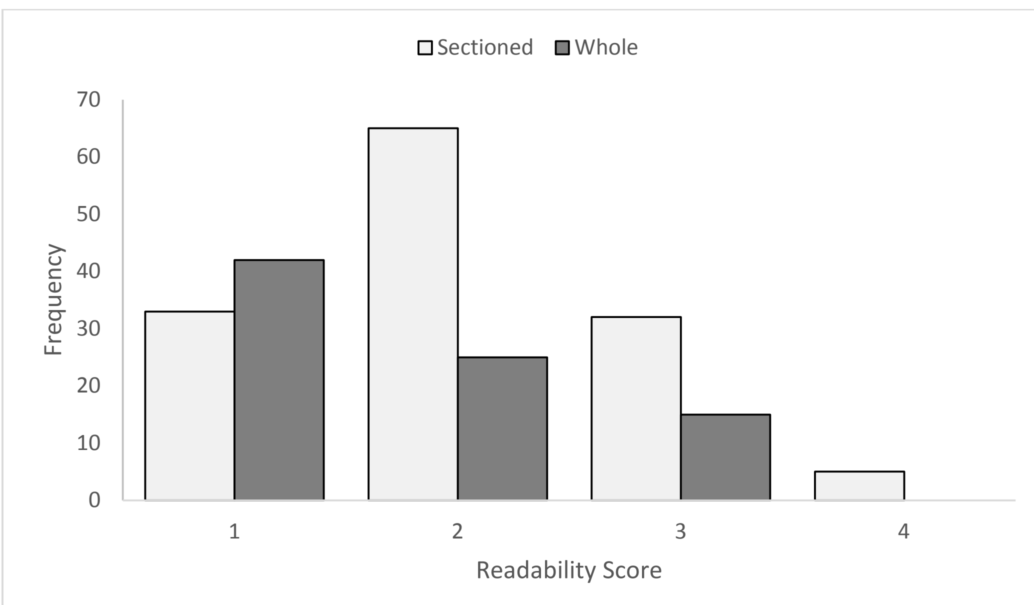



**Figure 237. Frequency of readability score for reader 3 in New Jersey for sectioned (n=135) and whole (n=82) otoliths. Readability score is from one (poor readability) to four (best readability).**

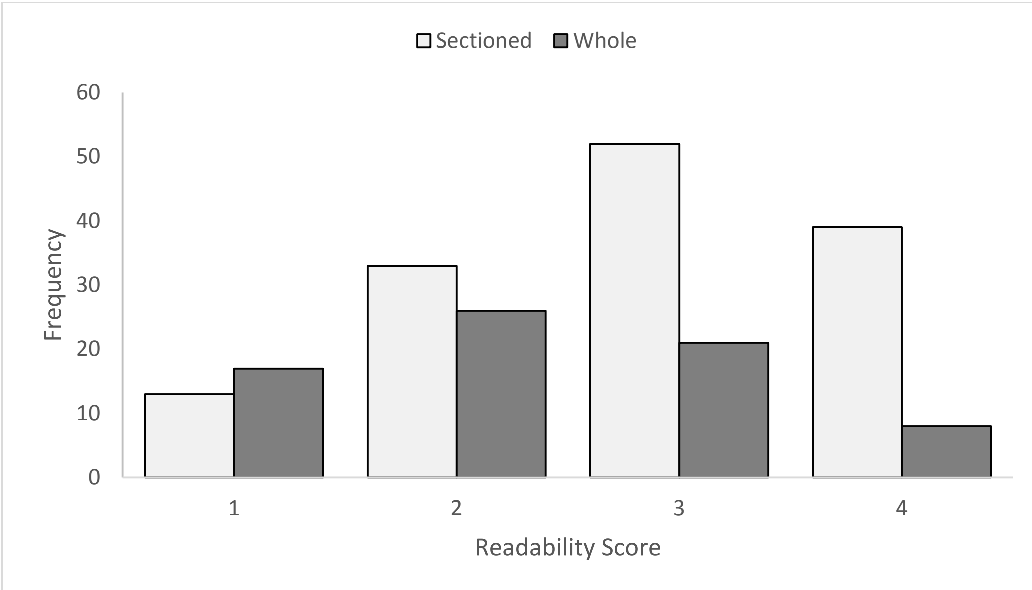



**Figure 238. Frequency of readability score for reader in Delaware for sectioned (n=137) and whole (n=72) otoliths. Readability score is from one (poor readability) to four (best readability).**

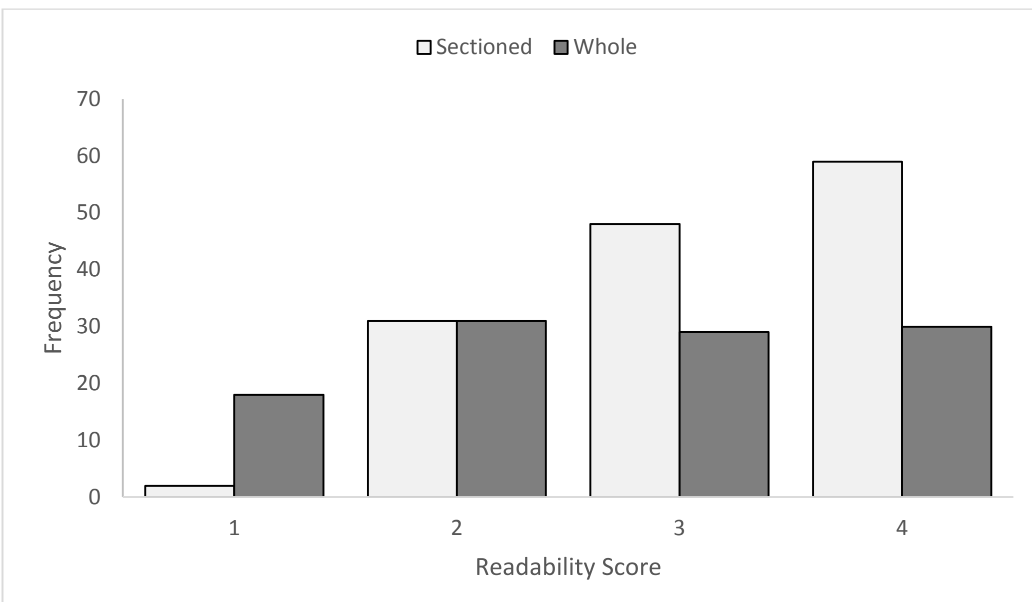



**Figure 239. Frequency of readability score for reader 1 in Maryland for sectioned (n=140) and whole (n=108) otoliths. Readability score is from one (poor readability) to four (best readability).**

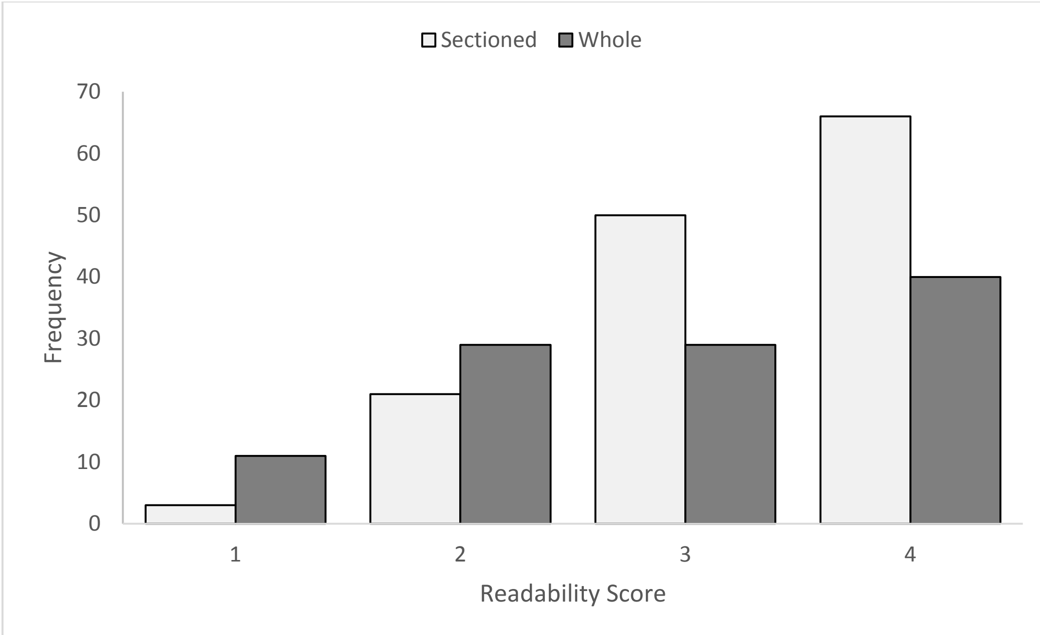



**Figure 240. Frequency of readability score for reader 2 in Maryland for sectioned (n=140) and whole (n=109) otoliths. Readability score is from one (poor readability) to four (best readability).**

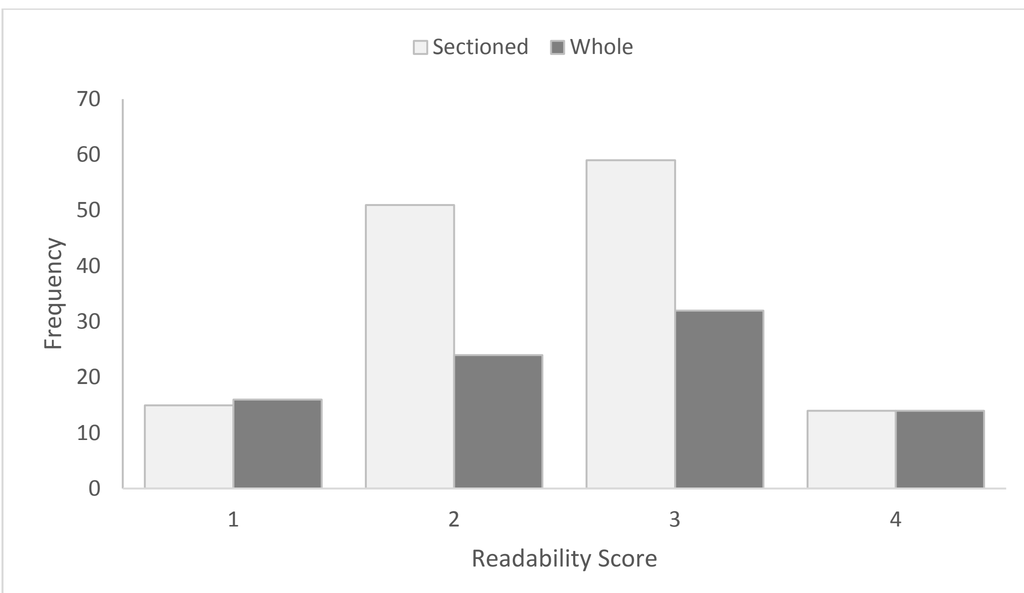



**Figure 241. Frequency of readability score for reader 1 in VIMS for sectioned (n=139) and whole (n=86) otoliths. Readability score is from one (poor readability) to four (best readability).**

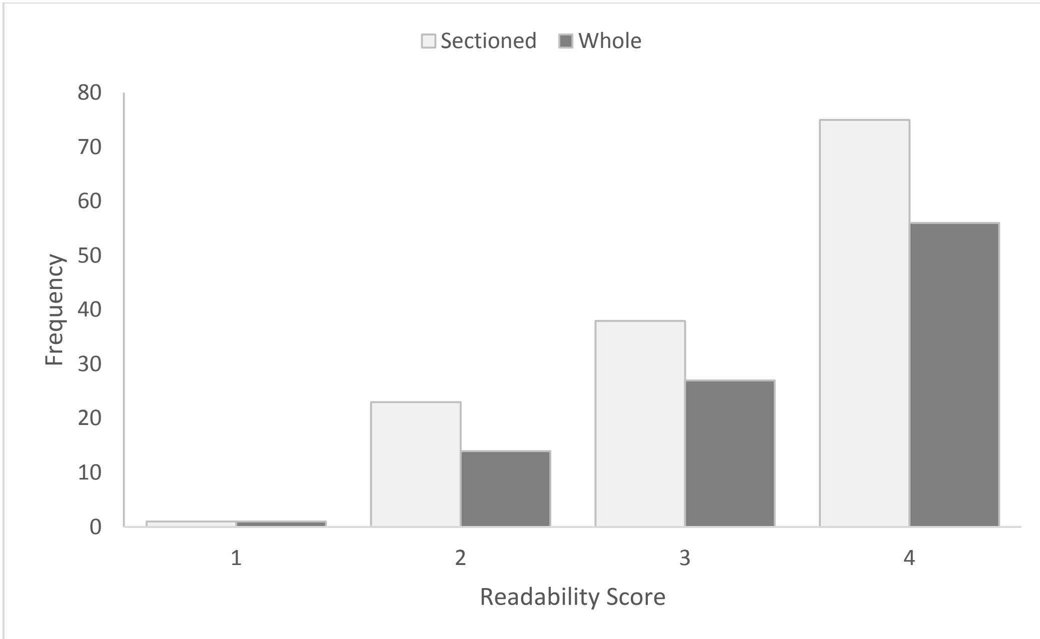



**Figure 242. Frequency of readability score for reader 2 in VIMS for sectioned (n=137) and whole (n=98) otoliths. Readability score is from one (poor readability) to four (best readability).**

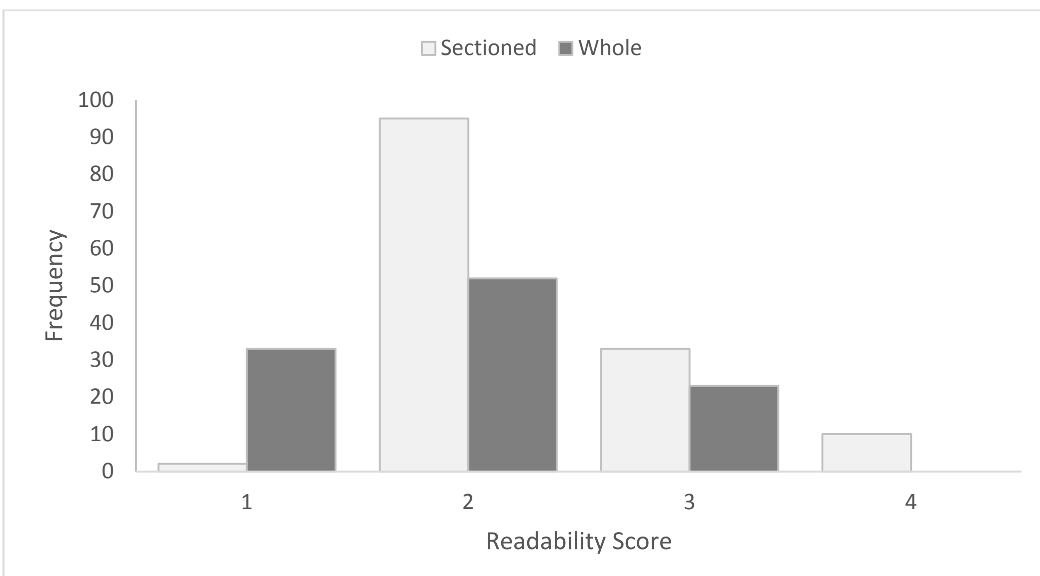



**Figure 243. Frequency of readability score for reader 1 in South Carolina for sectioned (n=140) and whole (n=108) otoliths. Readability score is from one (poor readability) to four (best readability).**

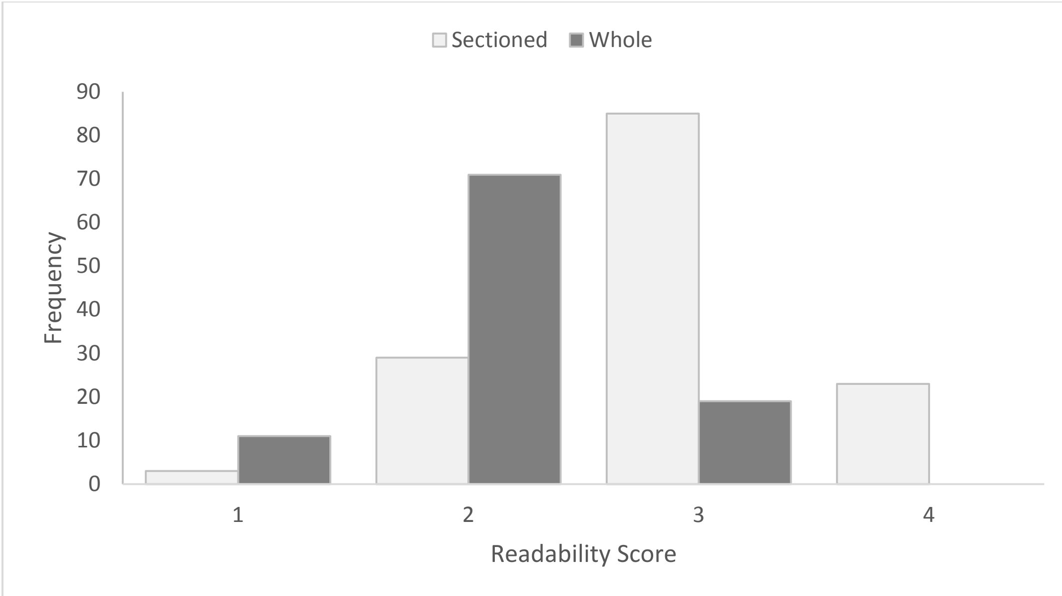



**Figure 244. Frequency of readability score for reader 2 in South Carolina for sectioned (n=140) and whole (n=101) otoliths. Readability score is from one (poor readability) to four (best readability).**

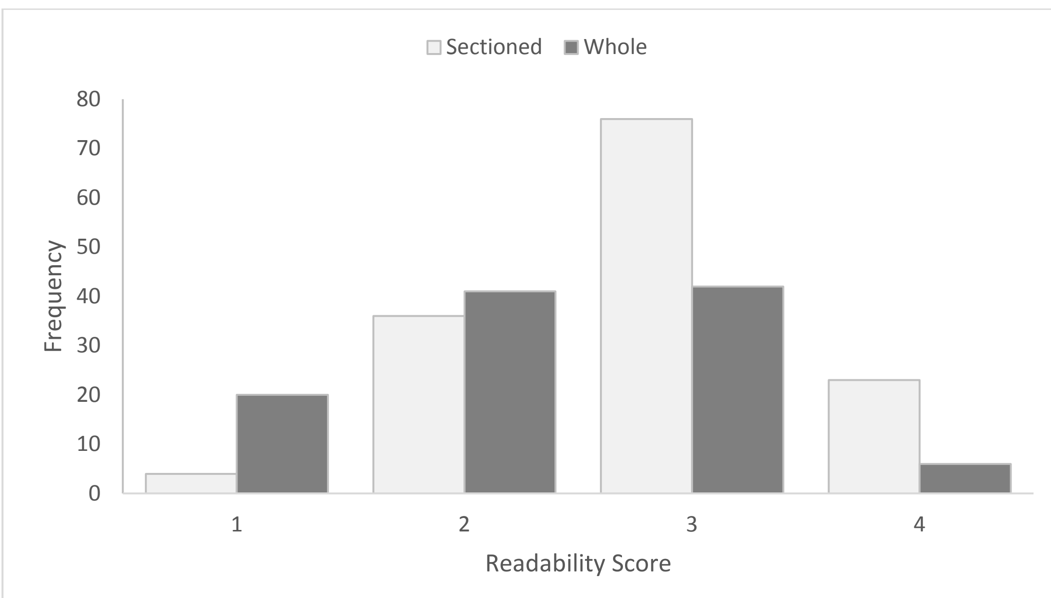



**Figure 245. Frequency of readability score for reader in Florida for sectioned (n=139) and whole (n=109) otoliths. Readability score is from one (poor readability) to four (best readability).**

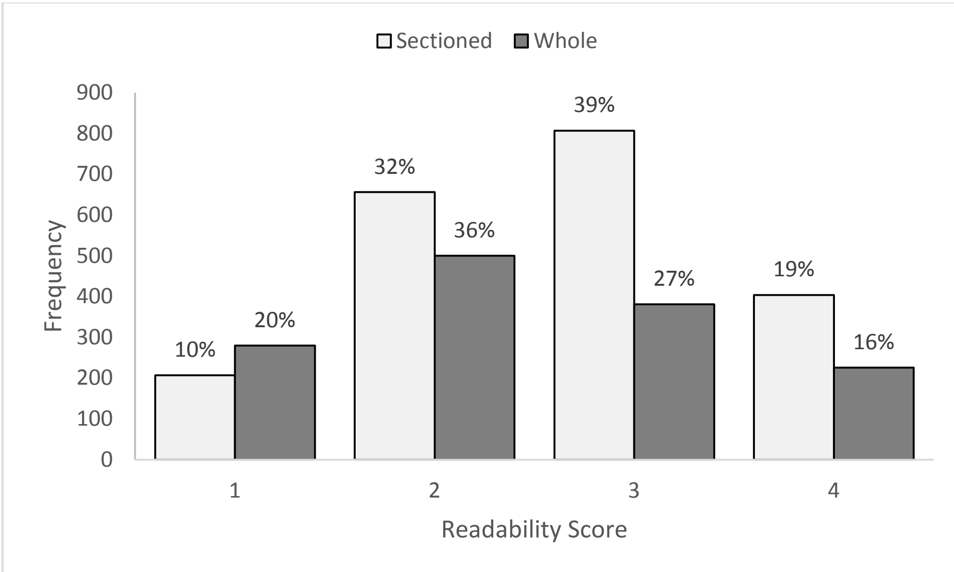



**Figure 246. Frequency of readability score from all readers for sectioned (N=2,074) and whole (N=1,387) otoliths. Readability score is from one (poor readability) to four (best readability). Percent values refer to the amount of samples at that readability score for each ageing structure separately.**

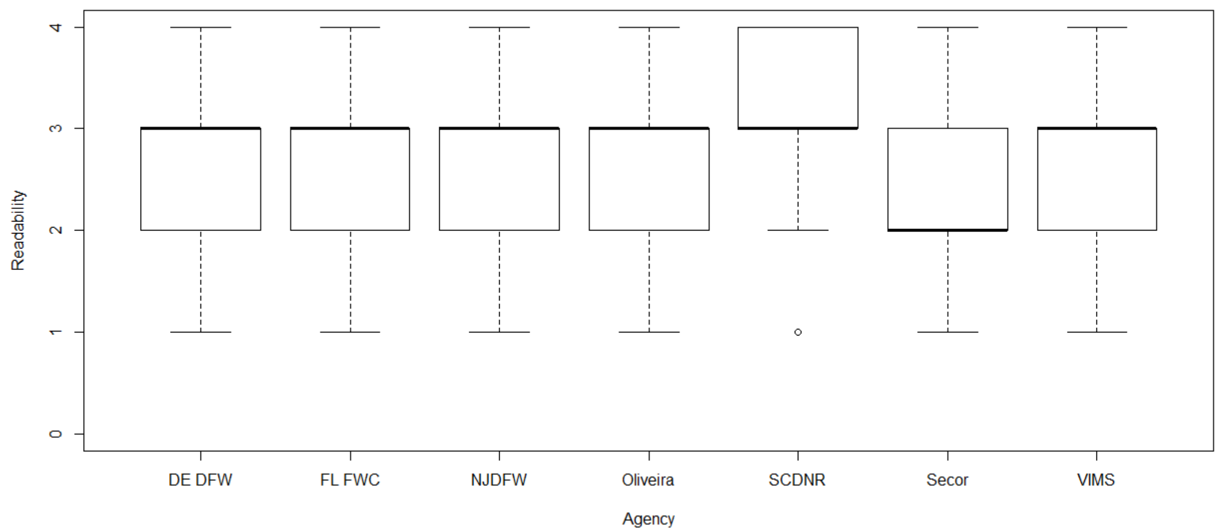



**Figure 247. Boxplot of readability scores of sectioned otoliths from each of the labs providing samples.**

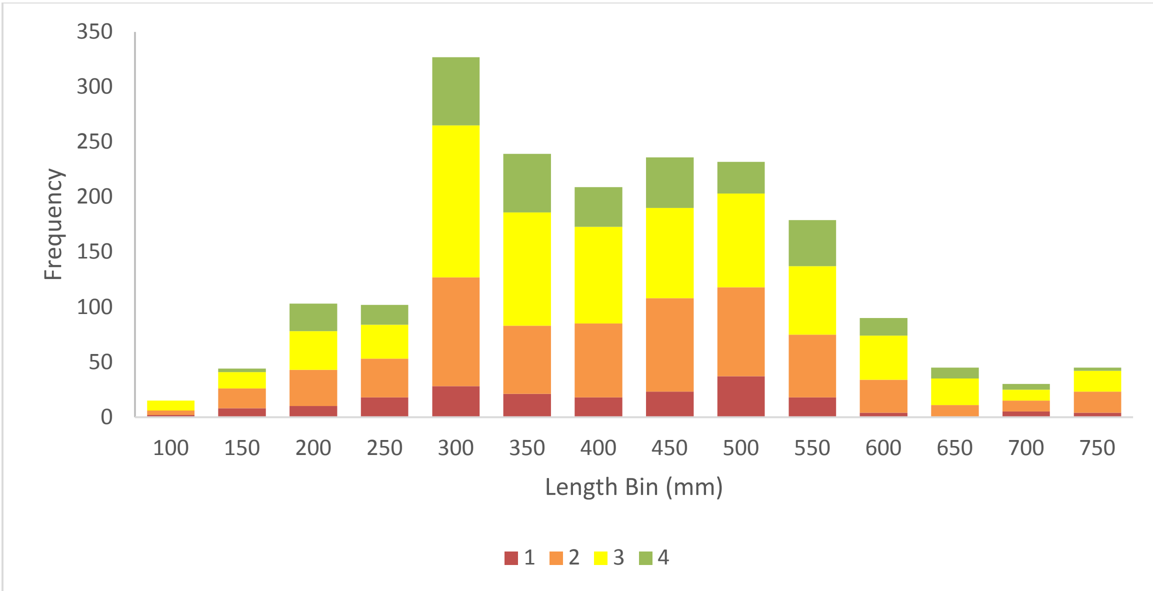



**Figure 248. Frequency of readability score by length bin (mm) for sectioned otolith samples. Readability score is from one (poor readability) to four (best readability). N=1,896.**

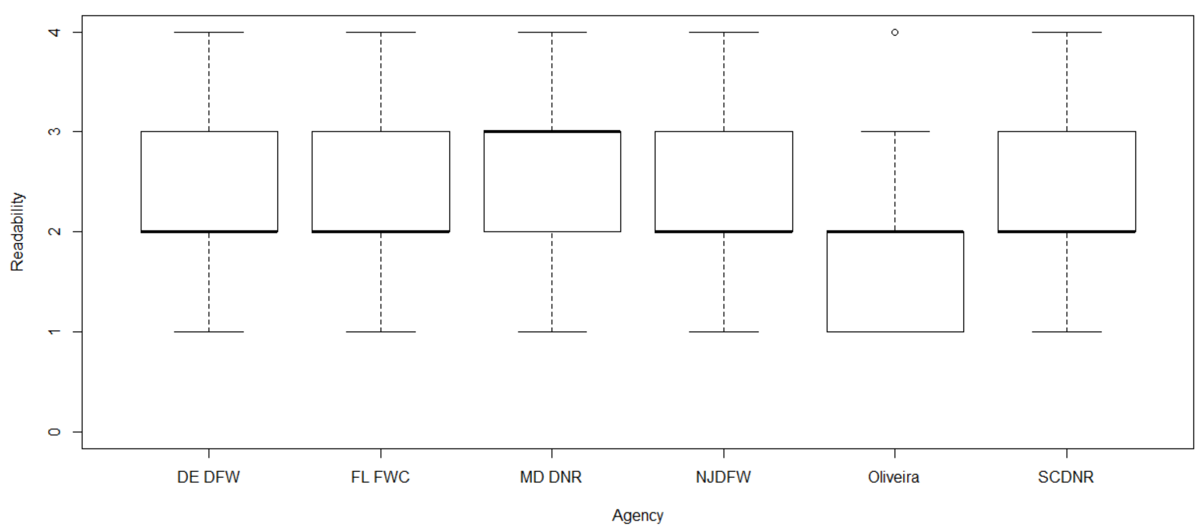



**Figure 249. Boxplot of readability scores of whole otoliths from each of the labs providing samples.**

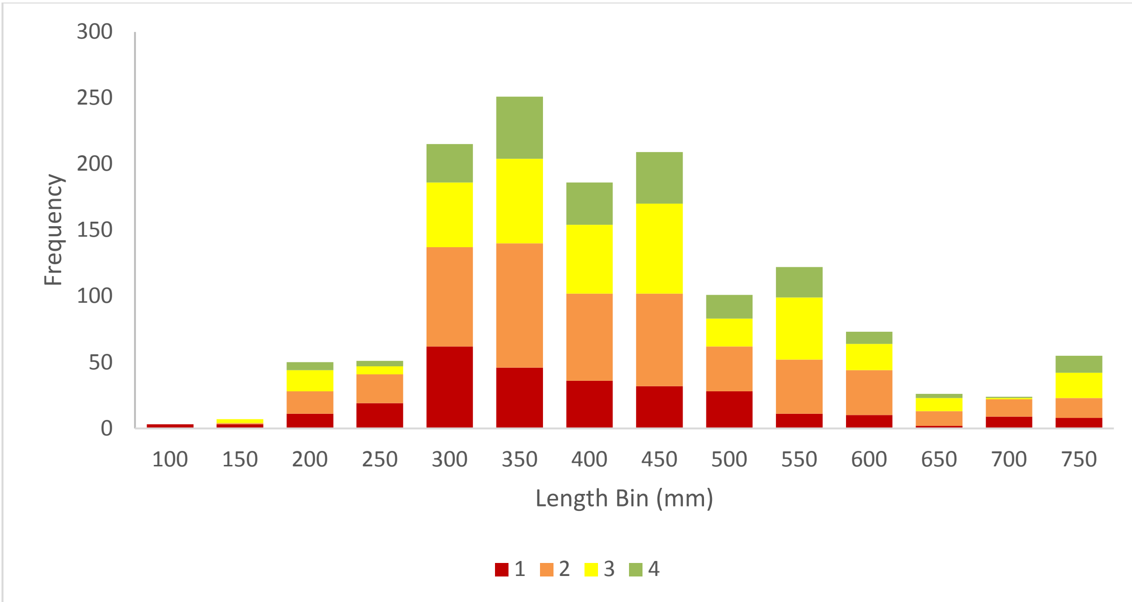



**Figure 250. Frequency of readability score by length bin (mm) for whole otolith samples. Readability score is from one (poor readability) to four (best readability). N=1,373.**

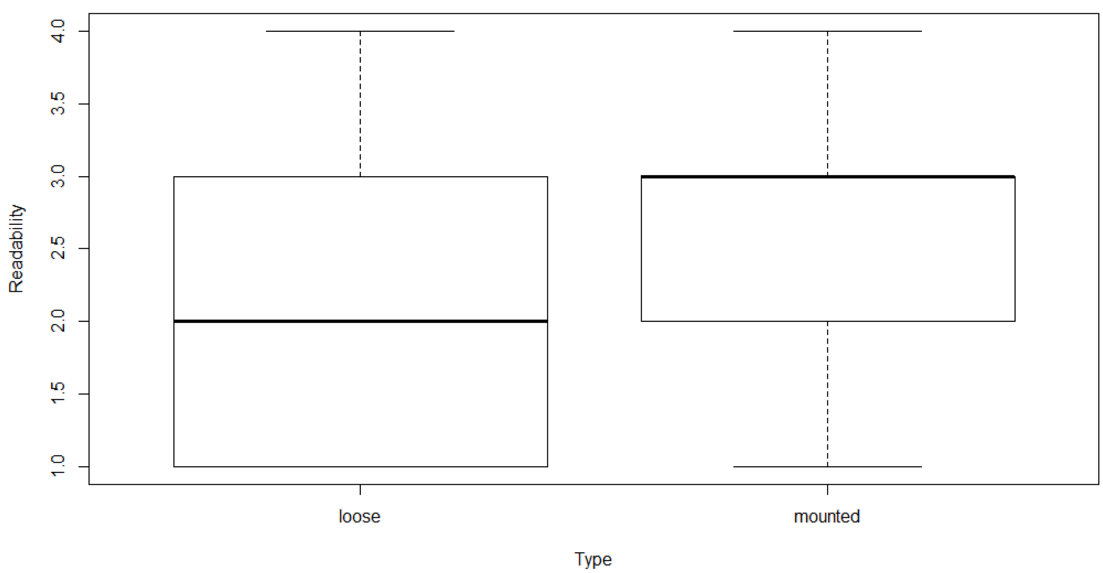



**Figure 251. Boxplot of readability scores of whole mounted otoliths and whole loose otoliths. Readability score is from one (poor readability) to four (best readability).**

## Appendix A: American Eel Exchange Guidelines

Instructions for the 2016 ASMFC American Eel Age Sample Exchange

<u>Providing samples for the exchange:</u>

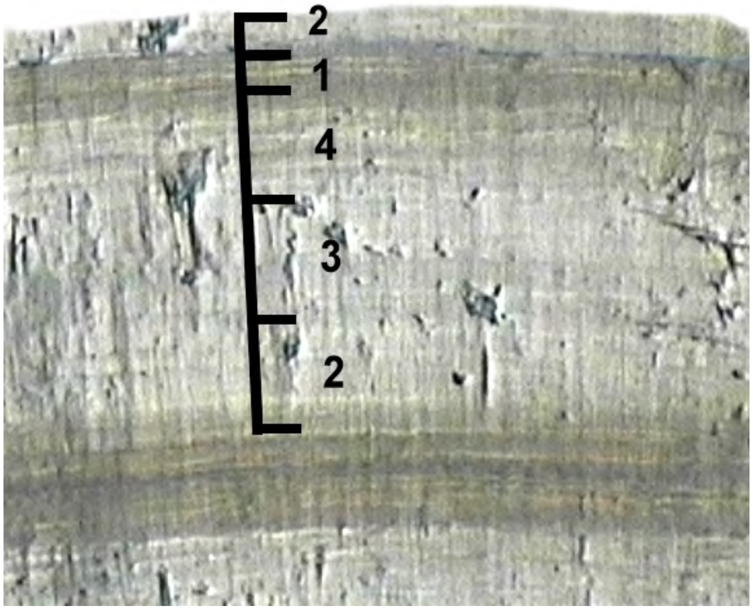
Please provide 20 American eel otoliths prepared however your lab routinely prepares them. If you section your otoliths, or have the equipment to do so, please provide the sectioned otoliths with their paired whole otolith (if available) for comparison between the techniques. If you provide 10 sections with 10 paired whole otoliths then that can constitute your 20 samples for the exchange but if you can provide 20 sections with 20 paired whole otoliths that would be welcomed.

Samples should represent the range of ages, sizes, or collection locations (freshwater, estuarine, different rivers, etc.) that your state samples from. Please examine the prepared otolith to make sure it is representative and is a sample you would typically have aged and not discarded. Provide the sample's ID number, sampling program name, date of capture, state, river or water body, habitat (FW, estuarine, etc.), salinity (value or descriptive), age, total length (mm), sex (if available), sample type (sectioned or whole) in the attached Excel spreadsheet "Data sheet for American Eel Age Samples." Please make sure your samples are identifiable by their ID number and this number appears clearly on the glass slide or vial the sample is sent in.

<u>Reading the exchange samples:</u>

Each sample should be aged with your lab's typical procedure for ageing American eel. Please have each person (if multiple agers) record their age on the data sheet (attached Excel spreadsheet "Workbook for American Eel Exchange"). If your lab usually comes to a consensus age, please record the consensus age information as well (located in a separate spreadsheet tab). If your lab has not aged otoliths, please note this on the spreadsheet. Please record margin codes and readability scores as follows:

> **Margin code**: If your lab uses margin codes, include your protocol in your state-specific write-ups. If you do not have a margin code protocol, assign a margin code from 1-4. A code 1 represented a structure with an annulus just forming or having just finished forming at the edge of the structure. Code 2 was assigned when the growth outside the last visible annulus was less than 1/3 the growth between the two previous annuli. Code 3 represented 1/3 to 2/3 growth and code 4 was for more than 2/3 growth. (GSMFC 2009)



Code 1. opaque zone present on edge
Code 2. translucent zone forming to 1/3 complete on edge
Code 3. translucent zone 1/3 to 2/3 complete on edge
Code 4. translucent zone 2/3 to fully complete on edge

**Readability score**: Assign each sample a readability ranking of 1-4 where 1 is for poor readability and 4 is for the best readability. In the Notes column, record any notes pertaining to the readability/quality of the sample (e.g., cleanliness, false annuli, regenerated, unable to define freshwater zone, unclear outer edge, equipment limitations, etc.).

Gulf States Marine Fisheries Commission (GSMFC). 2009. A Practical Handbook for Determining the Ages of Gulf of Mexico Fishes, Second Edition. Publication Number 167. Ocean Springs Mississippi. 157 p.

## Appendix B: Photos of Samples

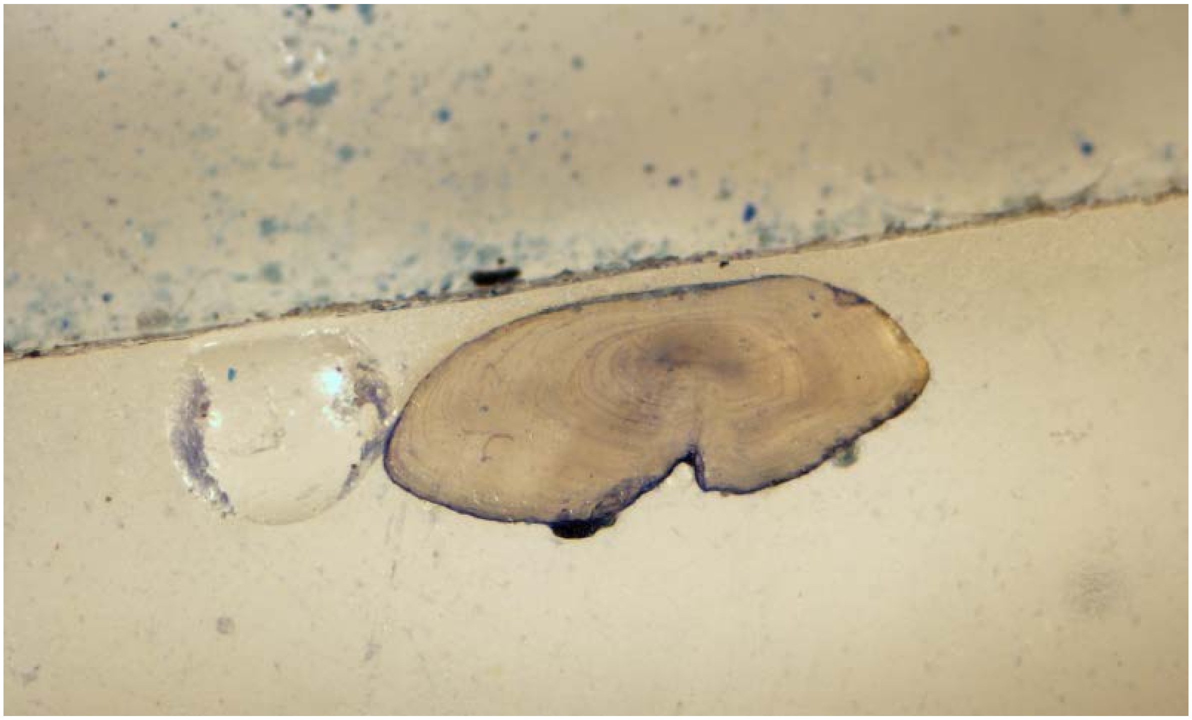


**Figure 1. Sectioned otolith sample #1. Sample was from a male American eel that was 385 mm TL, 108 g, and captured 9/1997 from Maine. Ages from the sample exchange ranged from 7-16 years, mode was 8 years. This was a paired sample with W74.**

**Figure 2. Sectioned otolith sample #2. Sample was from an American eel that was 577 mm TL, 426 g, and captured 3/5/2015 from a freshwater habitat in Florida. Ages from the sample exchange ranged from 5-18 years, mode was 7 years. This was a paired sample with W32.**

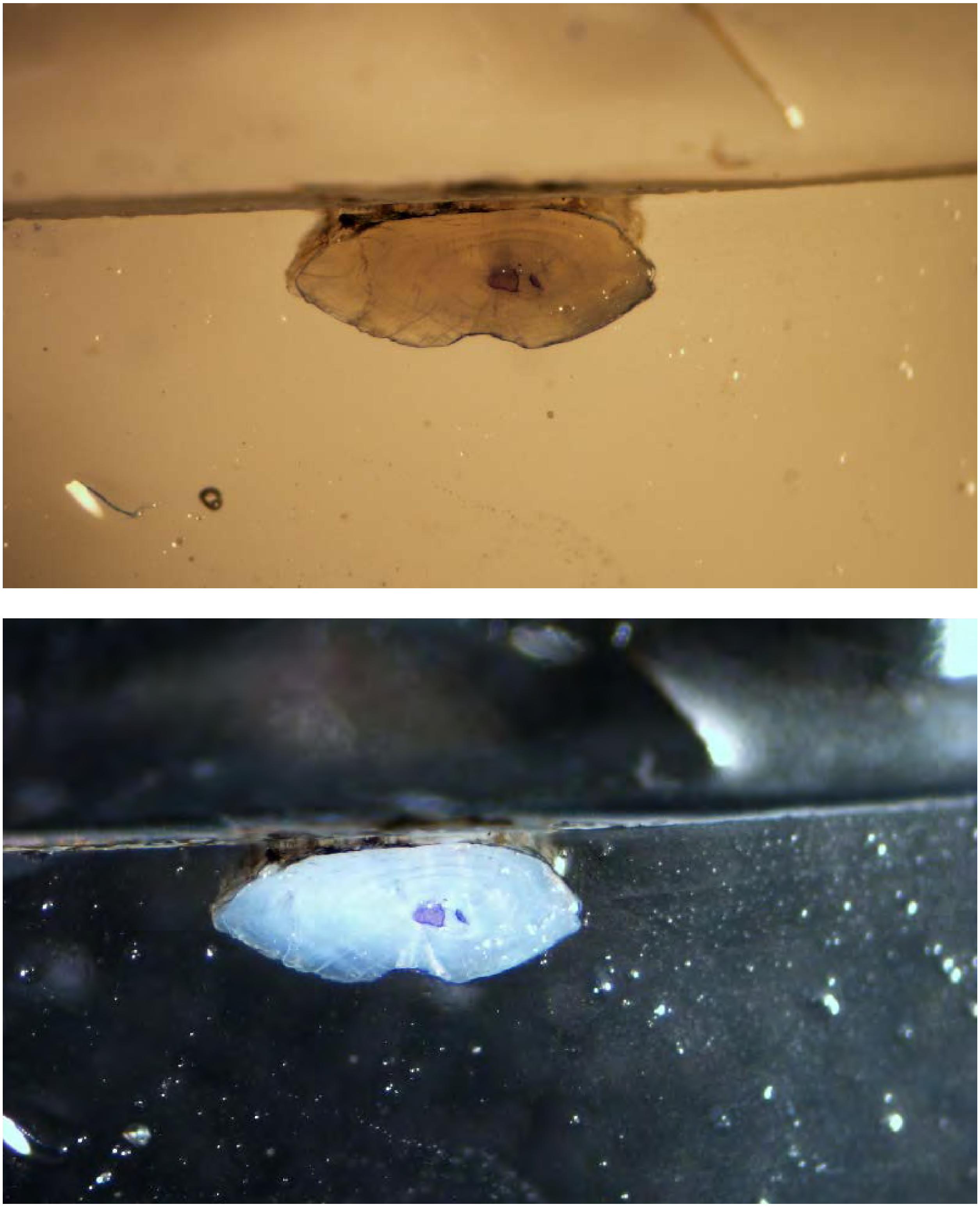


**Figure 3. Sectioned otolith sample #3. Sample was from an American eel that was 286 mm TL and captured 10/2/2012 from an estuarine habitat in Delaware. Ages from the sample exchange ranged from 2-6 years, mode was 4 years. This was a paired sample with W39.**

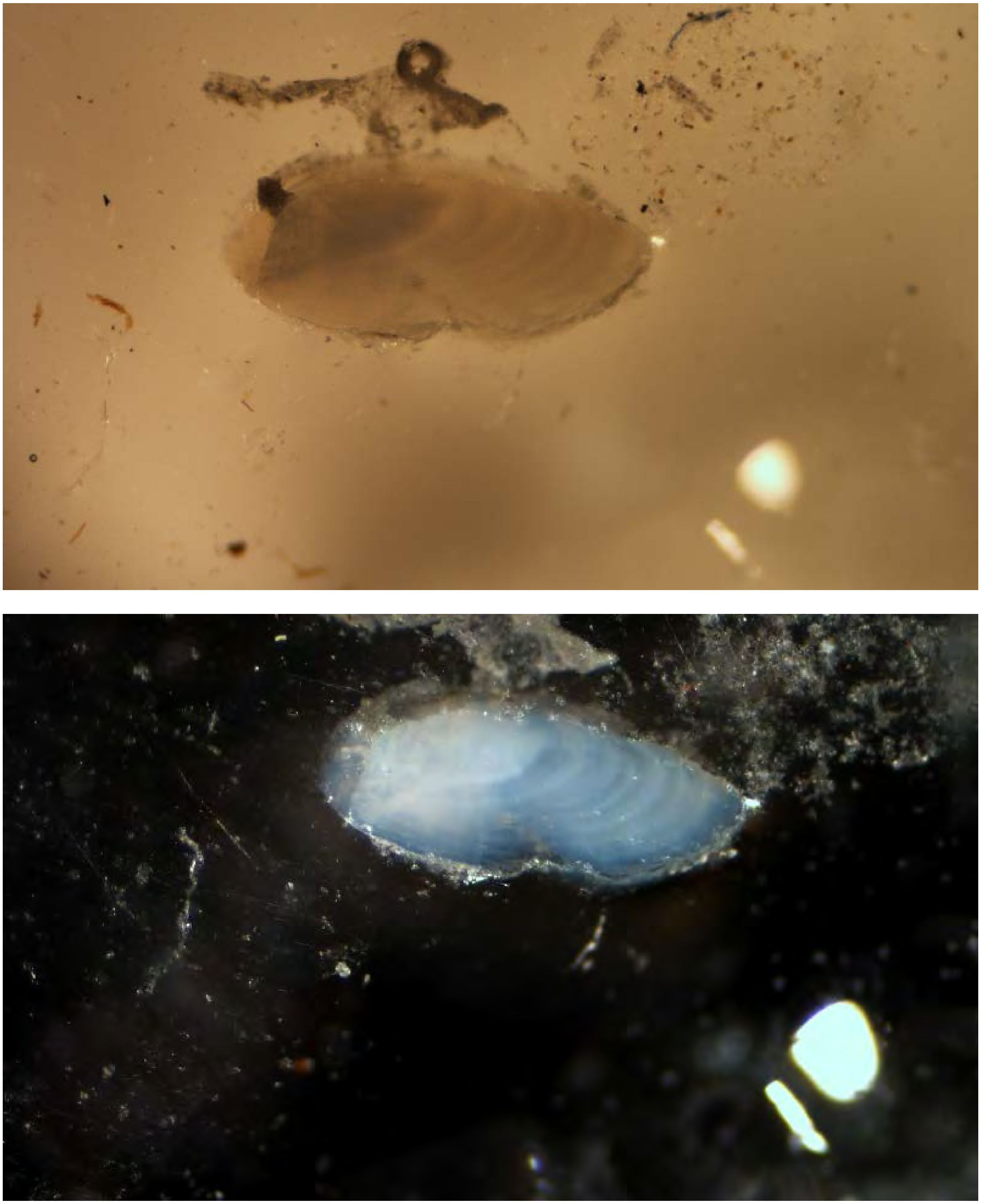


**Figure 4. Sectioned otolith sample #4. Sample was from an American eel that was 280 mm TL, 46 g, and captured 10/7/2014 from a freshwater habitat in Virginia. The sample provided by VIMS was aged as 6 years old. Ages from the sample exchange ranged from 5-7 years, mode was 6 years.**

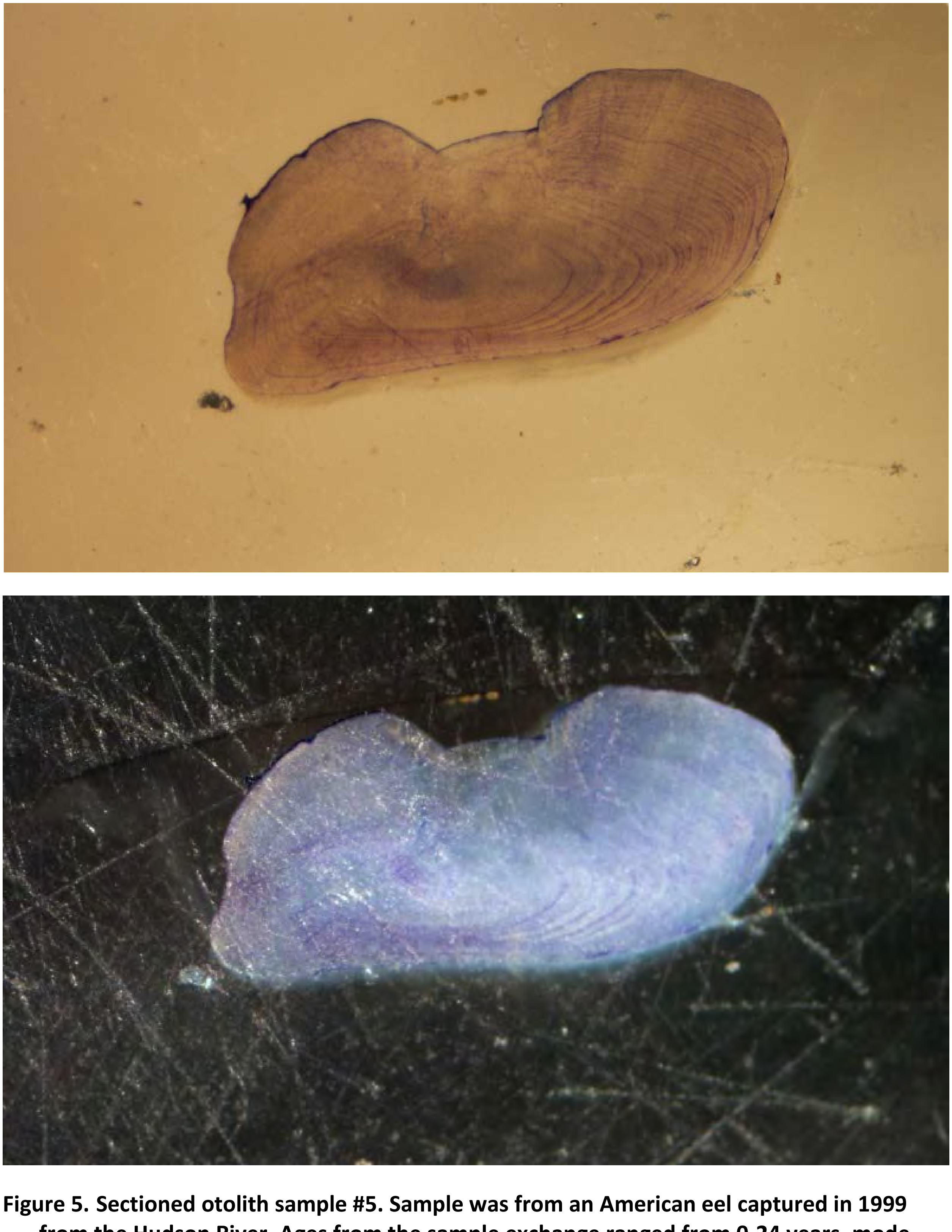


**Figure 5. Sectioned otolith sample #5. Sample was from an American eel captured in 1999 from the Hudson River. Ages from the sample exchange ranged from 0-24 years, mode was 11 years.**

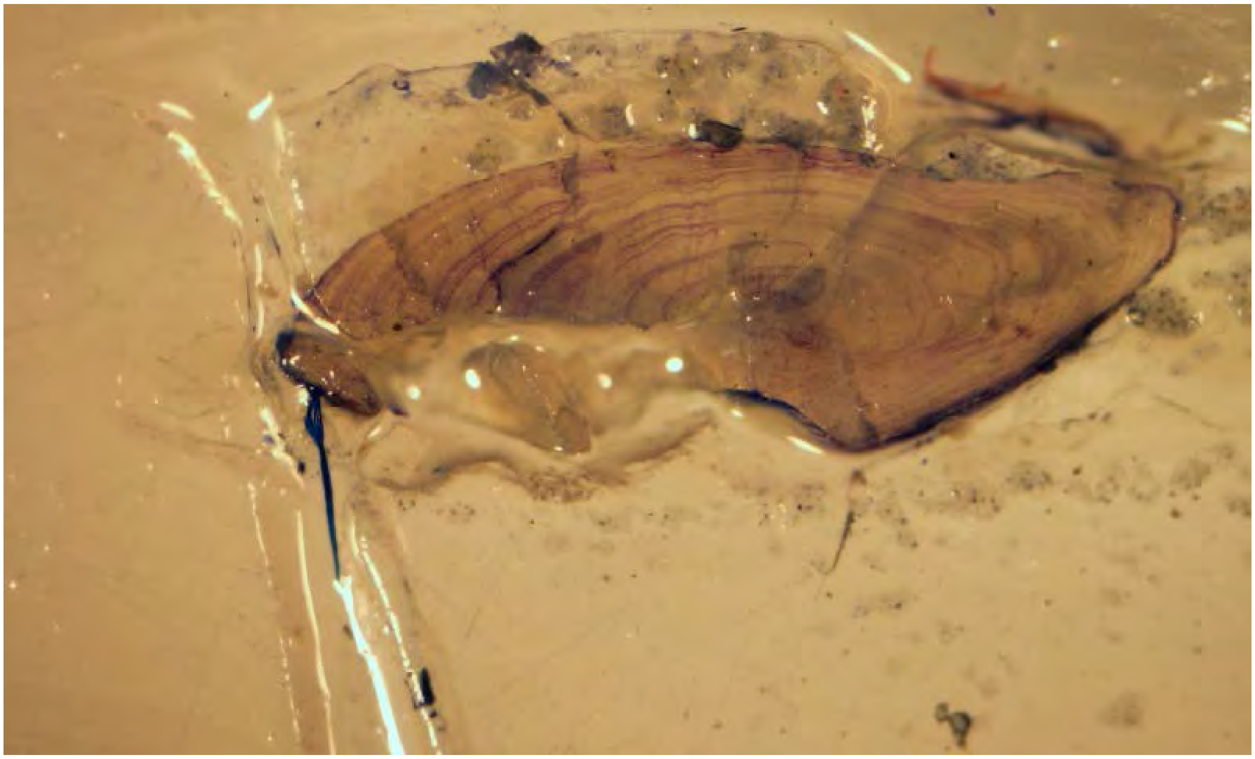


**Figure 6. Sectioned otolith sample #6. Sample was from an American eel captured in 1999 from the Hudson River. Ages from the sample exchange ranged from 6-12 years, mode was 9 years.**

**Figure 7. Sectioned otolith sample #7. Sample was from an American eel that was 252 mm TL, 30 g, and captured 4/25/2013 from an estuarine habitat in New Jersey. The sample provided by NJDFW was aged as 0 years old. Ages from the sample exchange ranged from 0-4 years, mode was 1 year. This was a paired sample with W83.**

**Figure 8. Sectioned otolith sample #8. Sample was from an American eel that was 435 mm TL, 172 g, and captured 7/26/2012 from an ocean habitat in Delaware. Ages from the sample exchange ranged from 2-7 years, mode was 5 year. This was a paired sample with W103.**

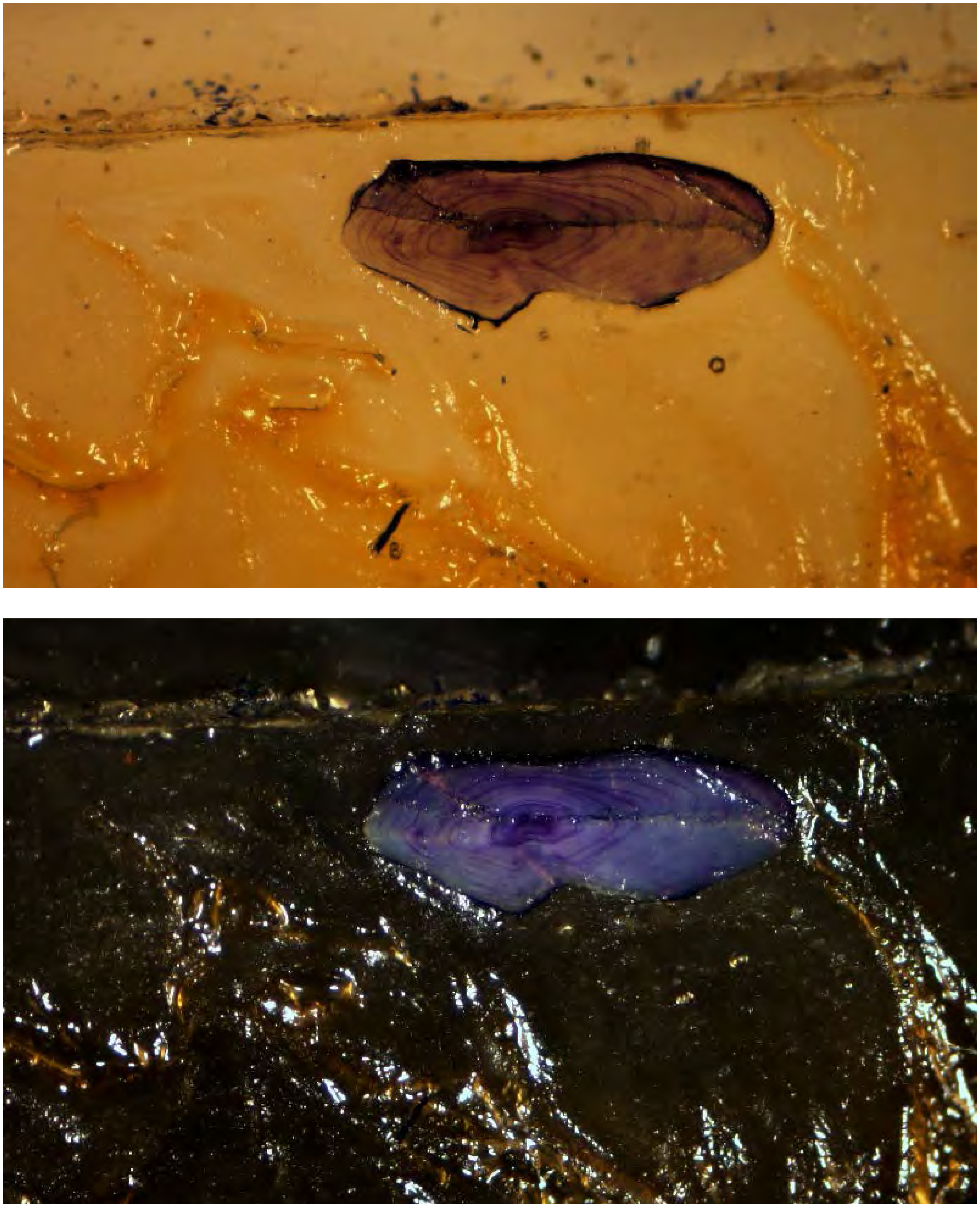


**Figure 9. Sectioned otolith sample #9. Sample was from a male American eel that was captured 10/2005 from Massachusetts. Ages from the sample exchange ranged from 3-10 years, mode was 8 years.**

Figure 10. Sectioned otolith sample #10. Sample was from a male American eel that was 238 mm TL, 21 g, and captured 7/1997 from Maine. Ages from the sample exchange ranged from 3-7 years, mode was 5 years. This is a paired sample with W67.

**Figure 11. Sectioned otolith sample #11. Sample was from an American eel that was 588 mm TL, 350 g, and captured 9/29/2008 from an estuarine habitat in New Jersey. The sample provided by NJDFW was aged as 11 years old. Ages from the sample exchange ranged from 5-13 years, mode was 9 years. This is a paired sample with W10.**

**Figure 12. Sectioned otolith sample #12. Sample was from an American eel that was 616 mm TL, 632 g, and captured 7/23/2015 from an estuarine habitat in Florida. The sample provided by FL FWC was aged as 10 years old. Ages from the sample exchange ranged from 7-12 years, mode was 10 years. This is a paired sample with W88.**

**Figure 13. Sectioned otolith sample #13. Sample was from a male American eel captured 10/2005 from Massachusetts. Ages from the sample exchange ranged from 6-8 years, mode was 6 years.**

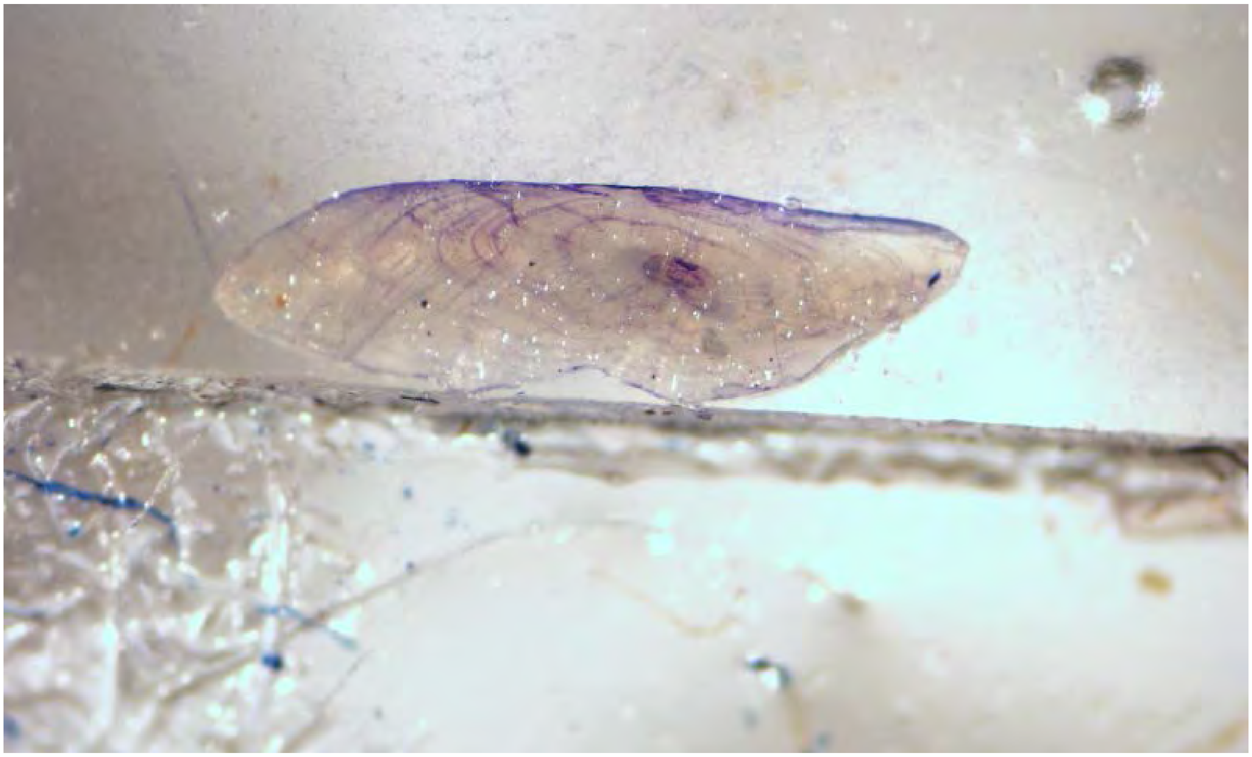


**Figure 14. Sectioned otolith sample #14. Sample was from an American eel that was 645 mm TL, 450 g, and captured 5/19/2017 from an estuarine habitat in New Jersey. The sample provided by NJDFW was aged as 5 years old. Ages from the sample exchange ranged from 5-8 years, mode was 6 years. This is a paired sample with W63.**

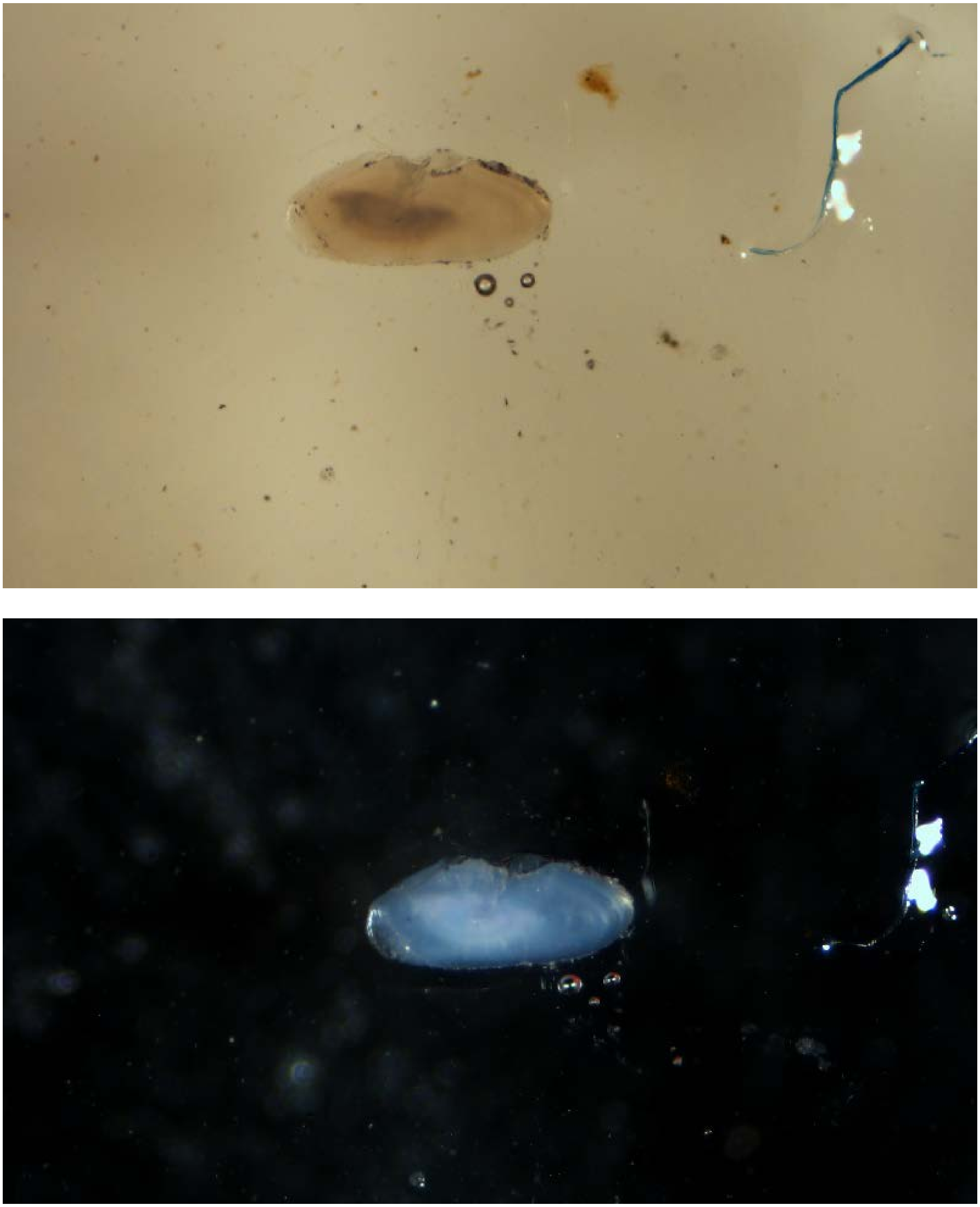


**Figure 15. Sectioned otolith sample #15. Sample was from an American eel that was 130 mm TL, 3 g, and captured 9/4/2014 from a freshwater habitat in Virginia. The sample provided by VIMS was aged as 2 years old. Ages from the sample exchange ranged from 1-3 years, mode was 2 years.**

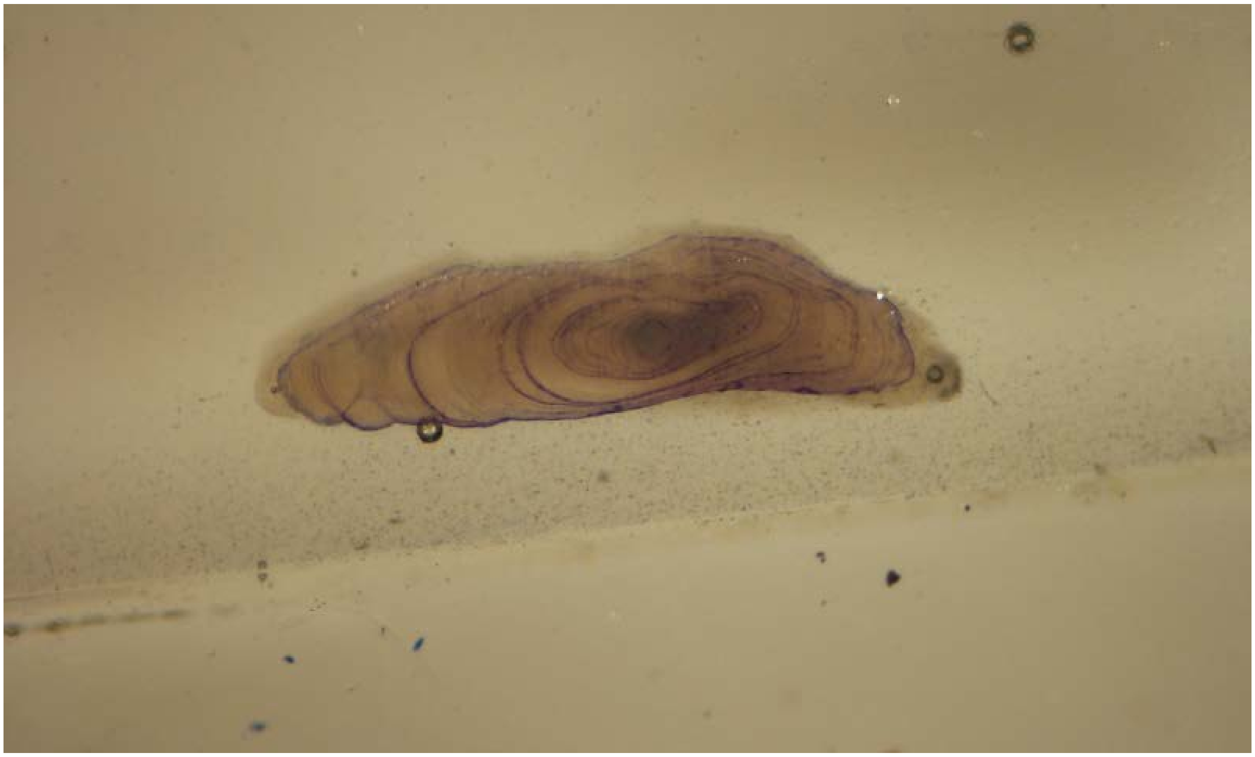


**Figure 16. Sectioned otolith sample #16. Sample was from an American eel that was 422 mm TL, 132 g, and captured 7/12/2012 from an estuarine habitat in Delaware. Ages from the sample exchange ranged from 3-7 years, mode was 6 years. This is a paired sample with W98.**

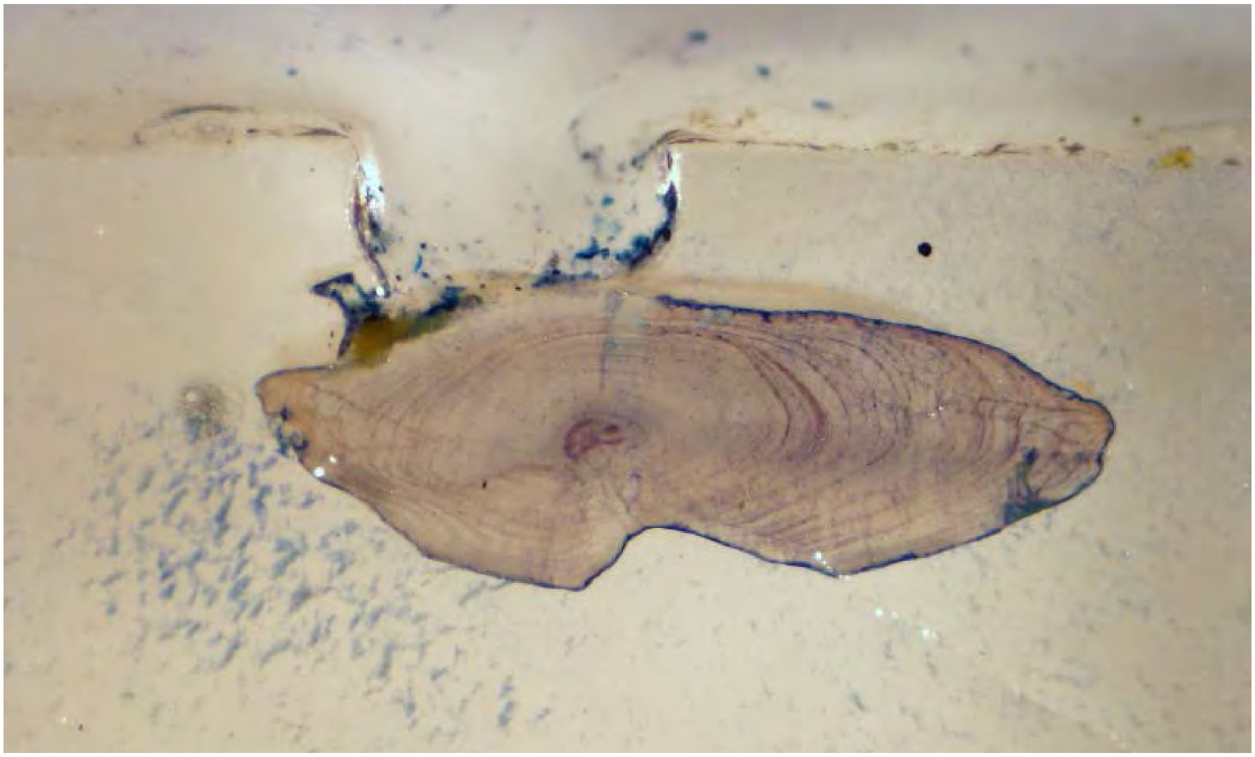


**Figure 17. Sectioned otolith sample #17. Sample was from an American eel that was 564 mm TL, 440 g, and captured 9/29/2008 from an estuarine habitat in New Jersey. The sample provided by NJDFW was aged as 12 years old. Ages from the sample exchange ranged from 7-13 years, mode was 10 years. This was a paired sample with W105.**

**Figure 18. Sectioned otolith sample #18. Sample was from an American eel that was 207 mm TL, 17 g, and captured 10/1/2014 from a freshwater habitat in Florida. The sample provided by FL FWC was aged as 1 year old. Ages from the sample exchange ranged from 1-4 years, mode was 1 year. This was a paired sample with W107.**

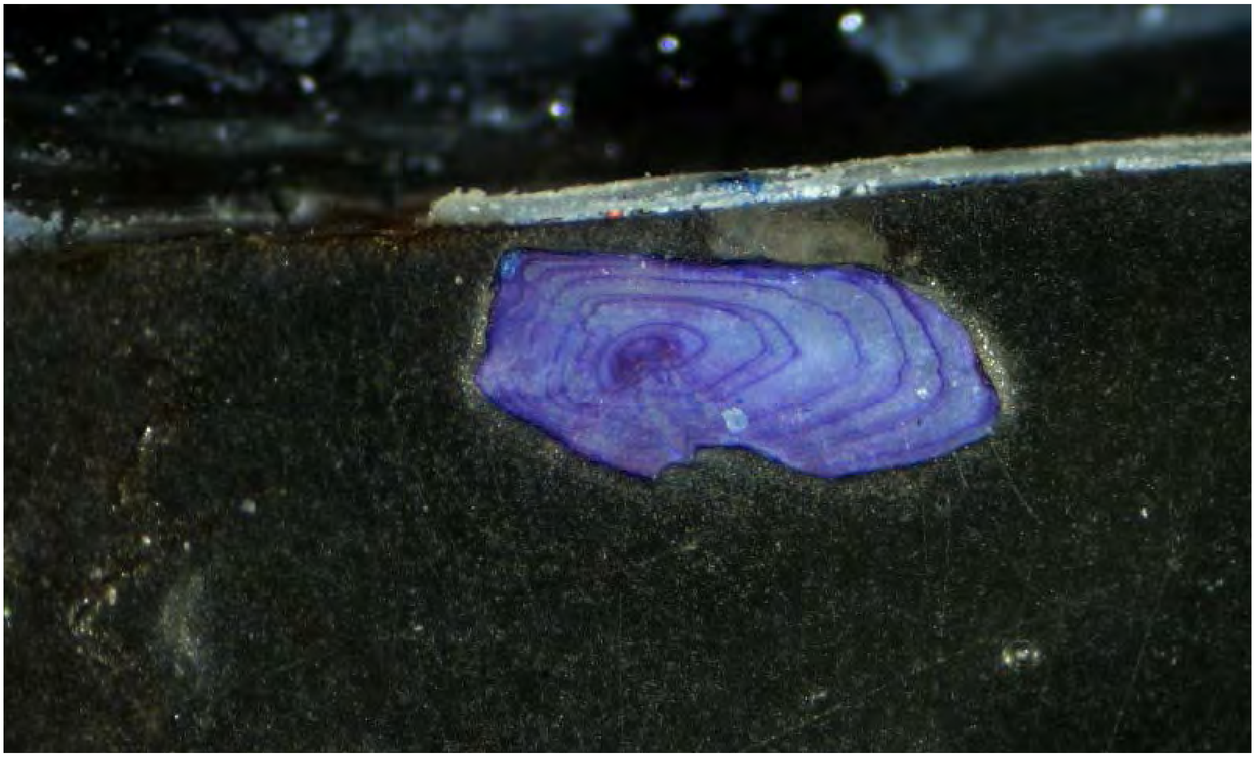


**Figure 19. Sectioned otolith sample #19. Sample was from a male American captured 10/2005 from Massachusetts. Ages from the sample exchange ranged from 4-7 years, mode was 6 years.**

**Figure 20. Sectioned otolith sample #20. Sample was from a female American eel that was 537 mm TL, 375 g, and captured 10/2/2013 from an estuarine habitat in South Carolina. The sample provided by SCDNR was aged as 8 years old. Ages from the sample exchange ranged from 7-9 years, mode was 8 years. This was a paired sample with W56.**

**Figure 21. Sectioned otolith sample #21. Sample was from an American eel that was 334 mm TL, 82 g, and captured 10/7/2014 from a freshwater habitat in Virginia. The sample provided by VIMS was aged as 9 years old. Ages from the sample exchange ranged from 6-10 years, mode was 8 years.**

**Figure 22. Sectioned otolith sample #22. Sample was from an American eel that was 312 mm TL, 51 g, and captured 5/3/2012 from an estuarine habitat in Delaware. Ages from the sample exchange ranged from 3-10 years, mode was 8 years. This was a paired sample with W37.**

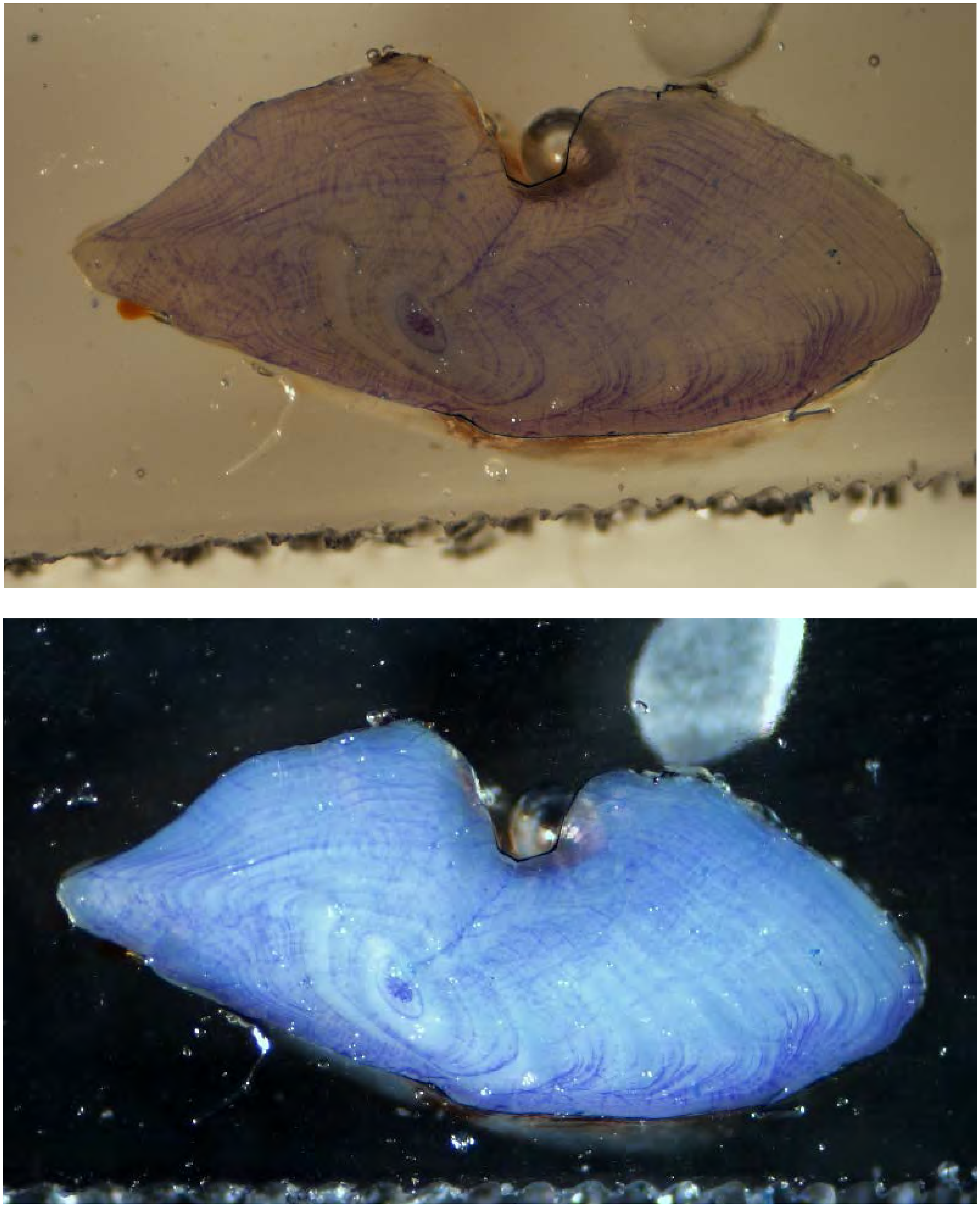


**Figure 23. Sectioned otolith sample #23. Sample was from an American eel that was 770 mm TL, 805 g, and captured 9/24/2012 from a freshwater habitat in Delaware. Ages from the sample exchange ranged from 4-21 years, mode was 18 years. This was a paired sample with W94.**

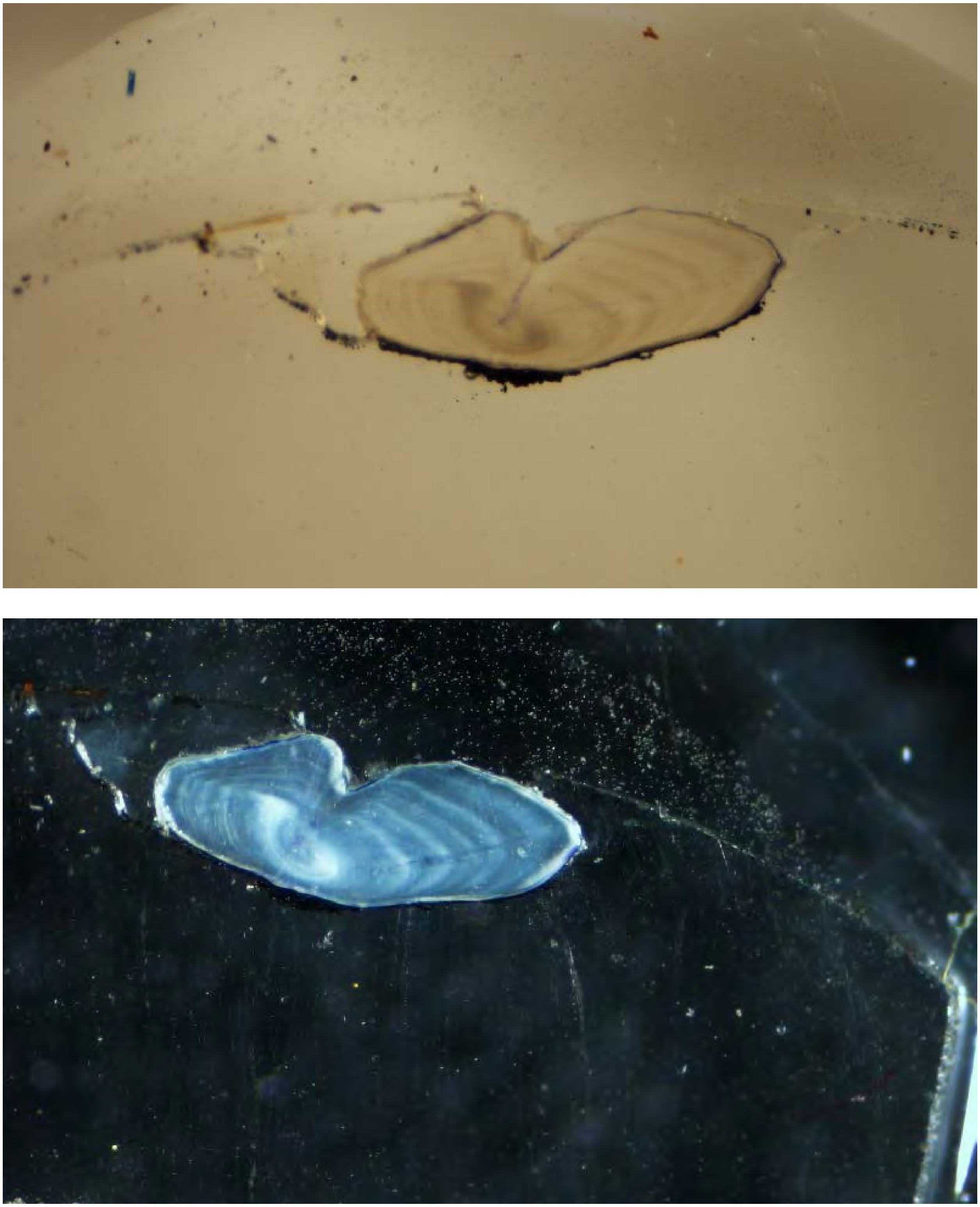


**Figure 24. Sectioned otolith sample #24. Sample was from a female American eel that was 271 mm TL, 36 g, and captured 10/12/2012 from an estuarine habitat in South Carolina. The sample provided by SCDNR was aged as 5 years old. Ages from the sample exchange ranged from 5-7 years, mode was 5 years. This was a paired sample with W99.**

**Figure 25. Sectioned otolith sample #25. Sample was from an American eel that was 403 mm TL, 122 g, and captured 9/16/2013 from an estuarine habitat in South Carolina. The sample provided by SCDNR was aged as 7 years old. Ages from the sample exchange ranged from 6-7 years, mode was 7 years. This was a paired sample with W84.**

**Figure 26. Sectioned otolith sample #26. Sample was from an American eel that was 618 mm TL, 330 g, and captured 11/12/2008 from an estuarine habitat in New Jersey. The sample provided by NJDFW was aged as 12 years old. Ages from the sample exchange ranged from 3-15 years, mode was 12 years. This was a paired sample with W42.**

**Figure 27. Sectioned otolith sample #27. Sample was from an American eel that was 725 mm TL, 770 g, and captured 10/22/2008 from an estuarine habitat in New Jersey. The sample provided by NJDFW was aged as 13 years old. Ages from the sample exchange ranged from 9-15 years, mode was 13 years. This was a paired sample with W21.**

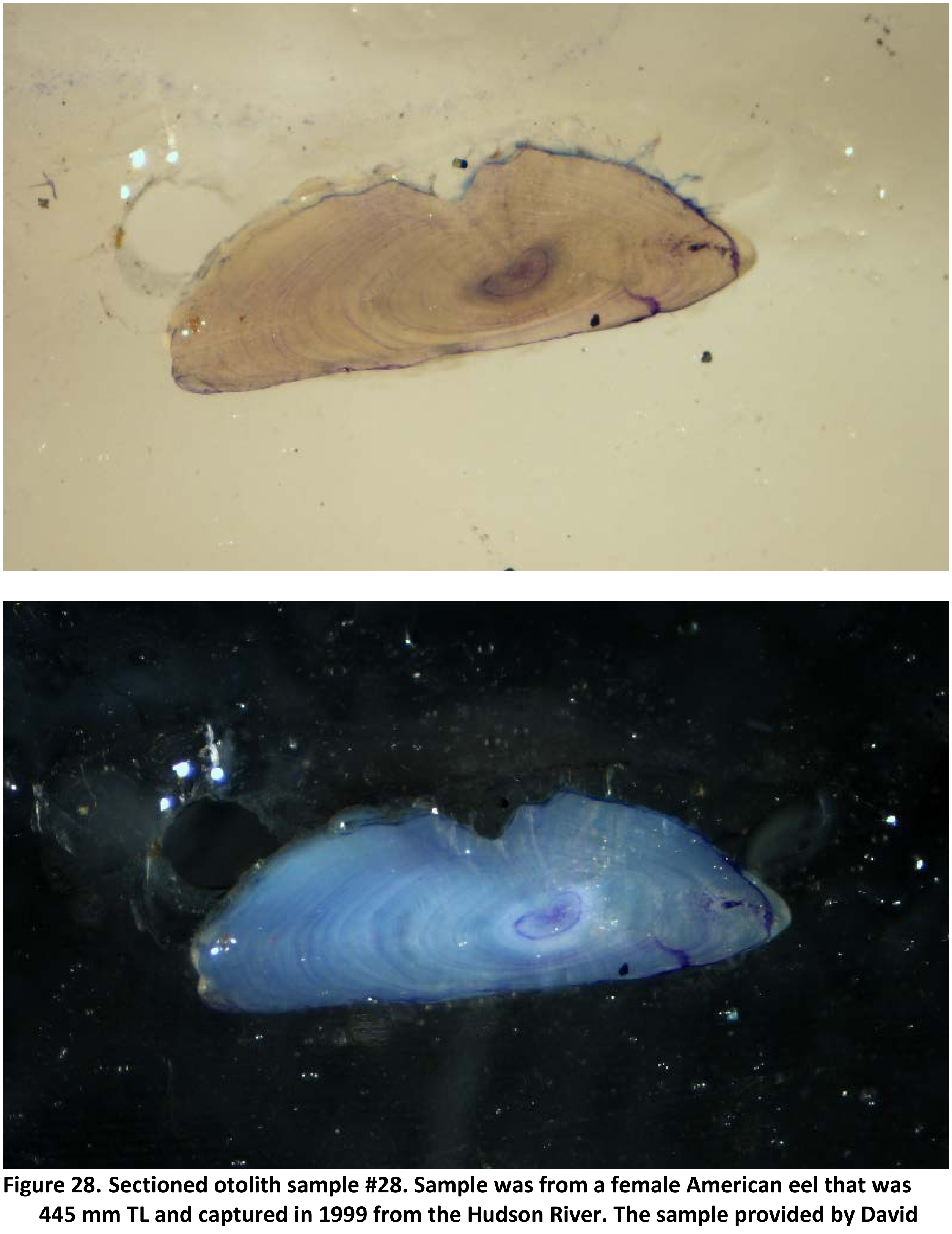


**Figure 28. Sectioned otolith sample #28. Sample was from a female American eel that was 445 mm TL and captured in 1999 from the Hudson River. The sample provided by David Secor and Wendy Morrison and was aged as 14 years old. Ages from the sample exchange ranged from 5-17 years, mode was 9 years.**

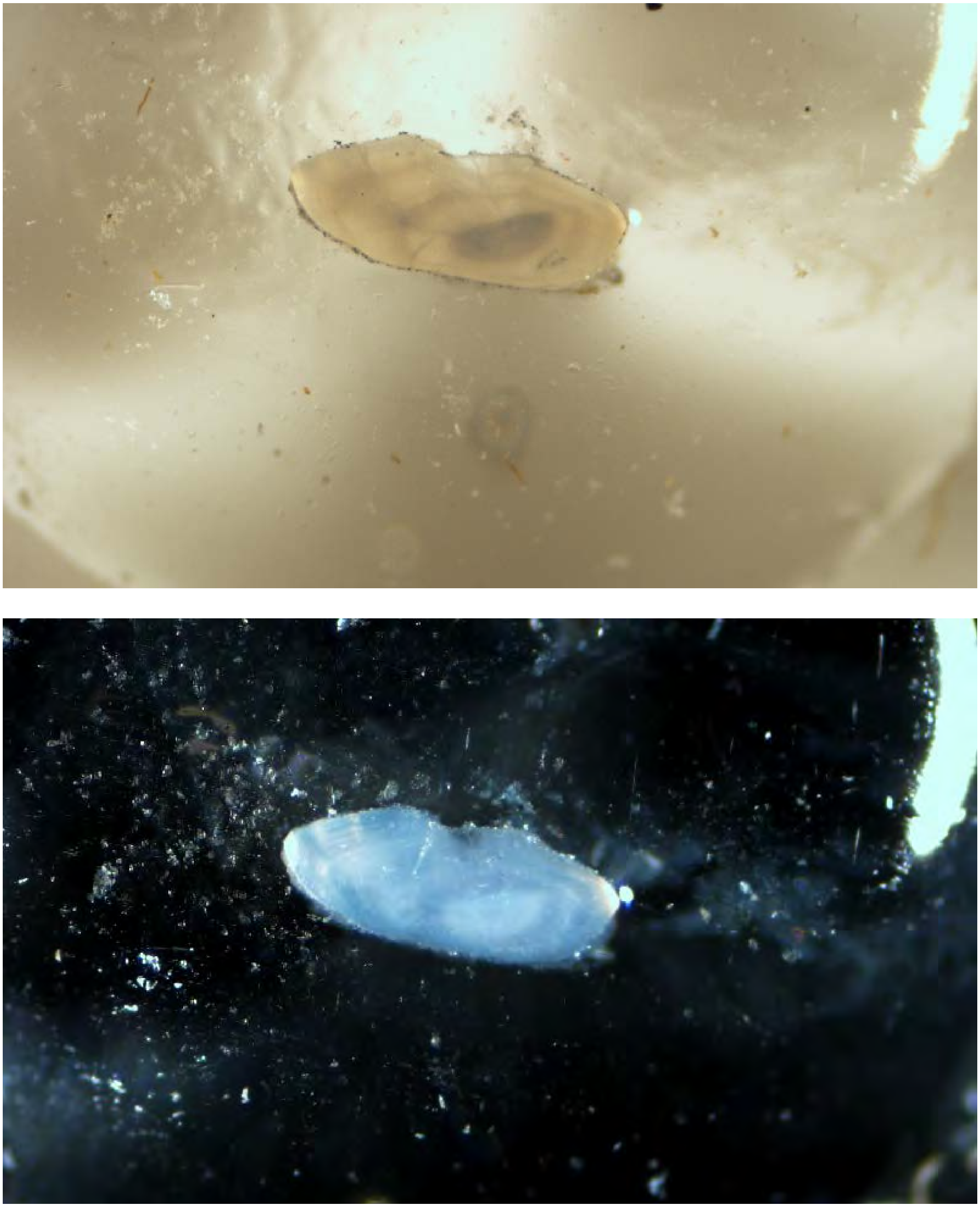


**Figure 29. Sectioned otolith sample #29. Sample was from an American eel that was 299 mm TL, 44 g, and captured 10/16/2014 from a freshwater habitat in Virginia. The sample provided by VIMS was aged as 2 years old. Ages from the sample exchange ranged from 1-6 years, mode was 2 years.**

**Figure 30. Sectioned otolith sample #30. Sample was from a female American eel that was 440 mm TL, 189 g, and captured 5/23/2013 from an estuarine habitat in South Carolina. The sample provided by SCDNR was aged as 6 years old. Ages from the sample exchange ranged from 6-10 years, mode was 6 years. This was a paired sample with W59.**

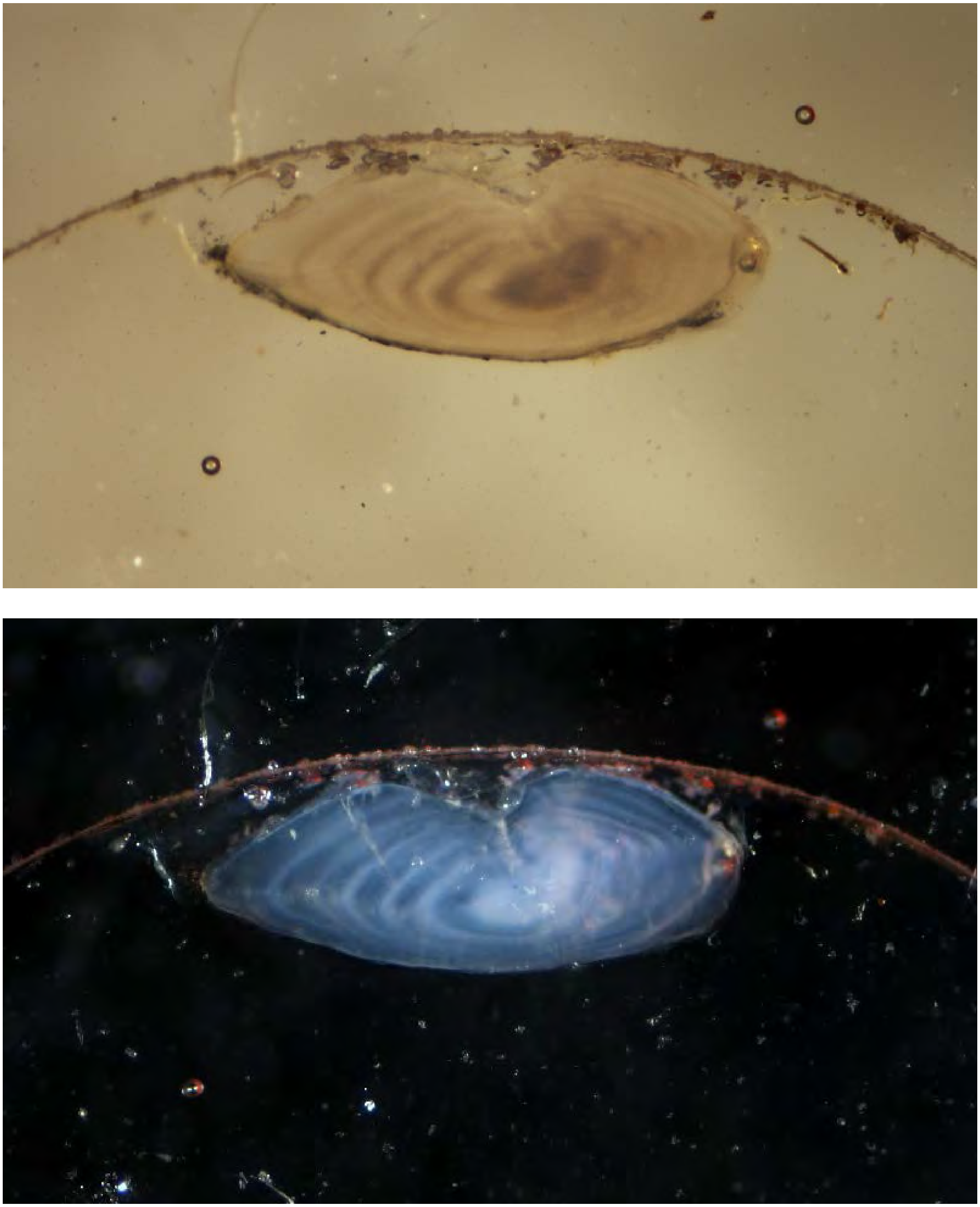


Figure 31. Sectioned otolith sample #31. Sample was from an American eel that was 379 mm TL, 112 g, and captured 12/12/2012 from an estuarine habitat in South Carolina. The sample provided by SCDNR was aged as 5 years old. Ages from the sample exchange ranged from 5-7 years, mode was 6 years. This was a paired sample with W1.

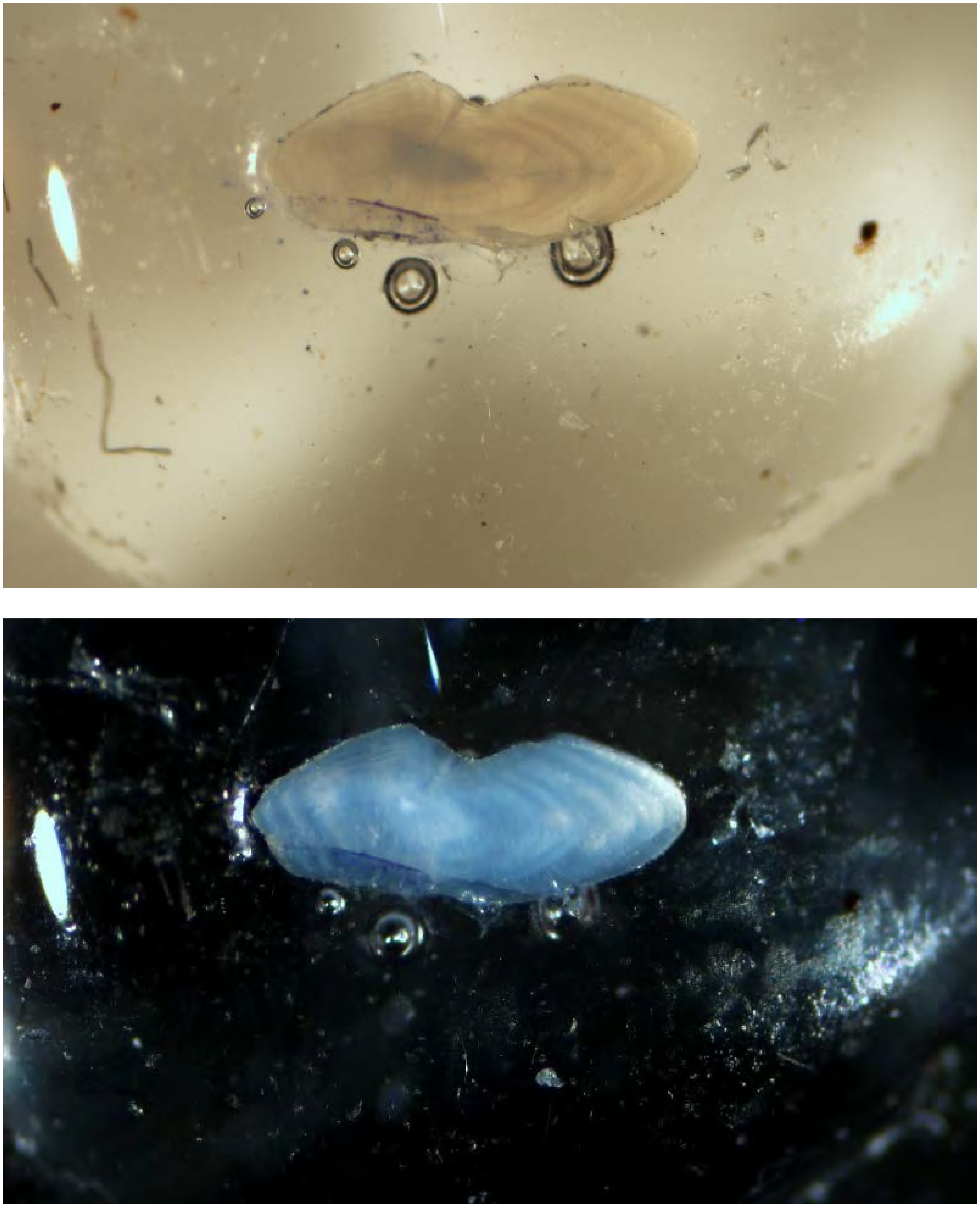


**Figure 32. Sectioned otolith sample #32. Sample was from an American eel that was 282 mm TL, 39 g, and captured 9/24/2014 from an estuarine habitat in Viriginia. The sample provided by VIMS was aged as 5 years old. Ages from the sample exchange ranged from 4-6 years, mode was 5 years.**

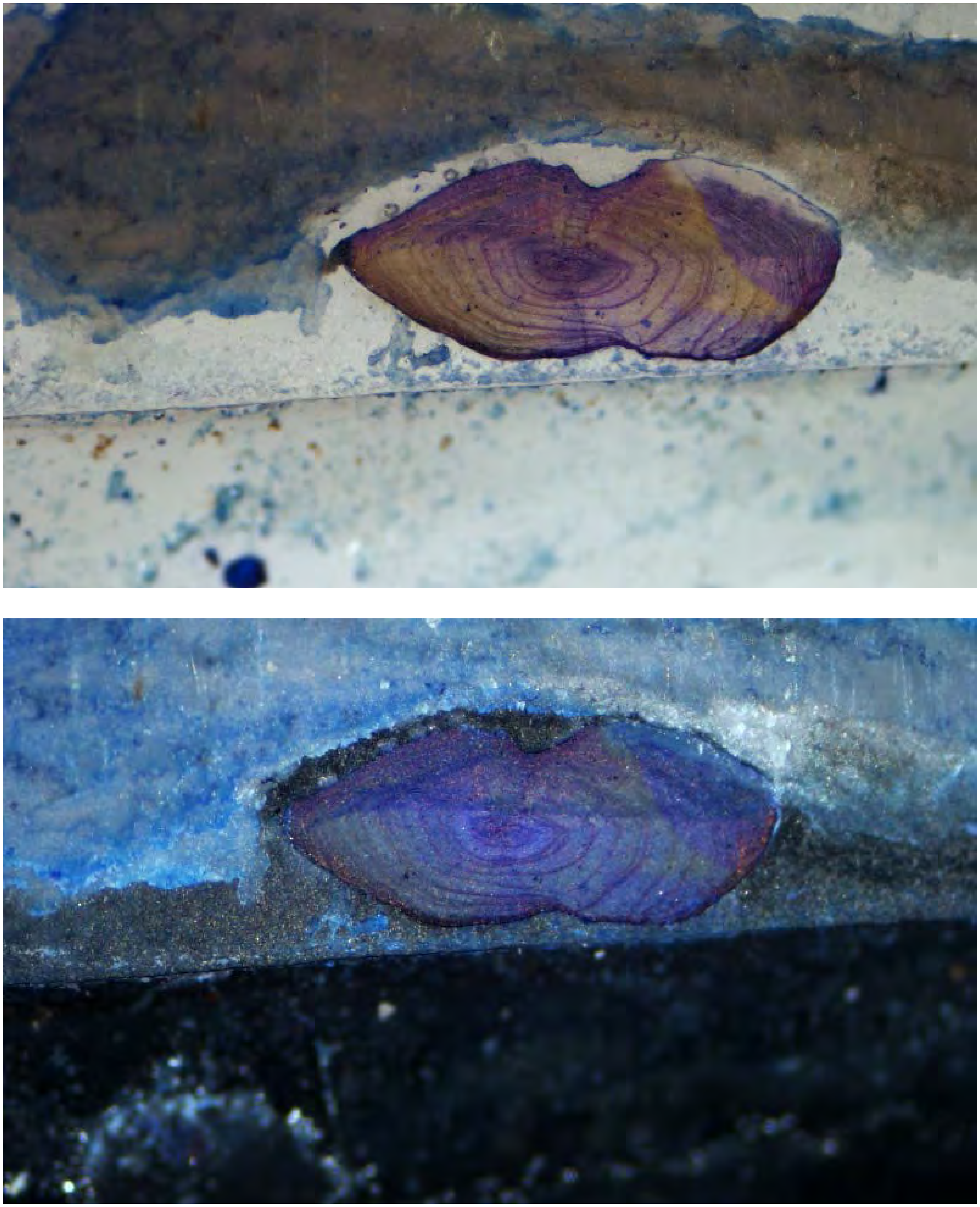


**Figure 33. Sectioned otolith sample #33. Sample was from a male American eel that was 368 mm TL, 81 g, and captured 10/1997 in Maine. Ages from the sample exchange ranged from 6-13 years, mode was 10 years. This was a paired sample with W78.**

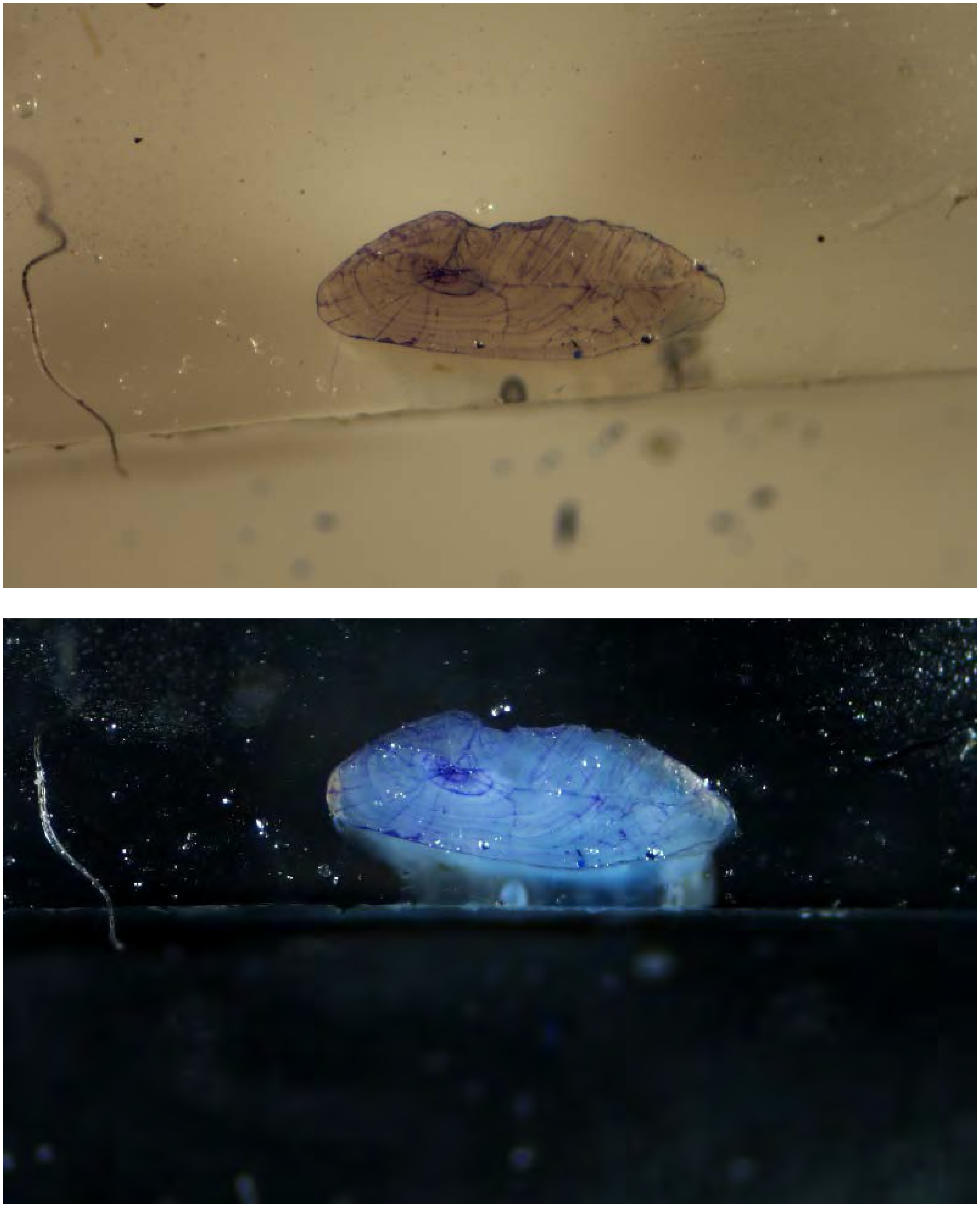


**Figure 34. Sectioned otolith sample #34. Sample was from an American eel that was 330 mm TL, 57 g, and captured 10/2/2012 from an estuarine habitat in Delaware. Ages from the sample exchange ranged from 3-7 years, mode was 4 years. This was a paired sample with W68.**

**Figure 35. Sectioned otolith sample #35. Sample was from an American eel that was 284 mm TL, 40 g, and captured 5/15/2014 from an estuarine habitat in New Jersey. The sample provided by NJDFW was aged as 2 years old. Ages from the sample exchange ranged from 2-6 years, mode was 4 years. This was a paired sample with W60.**

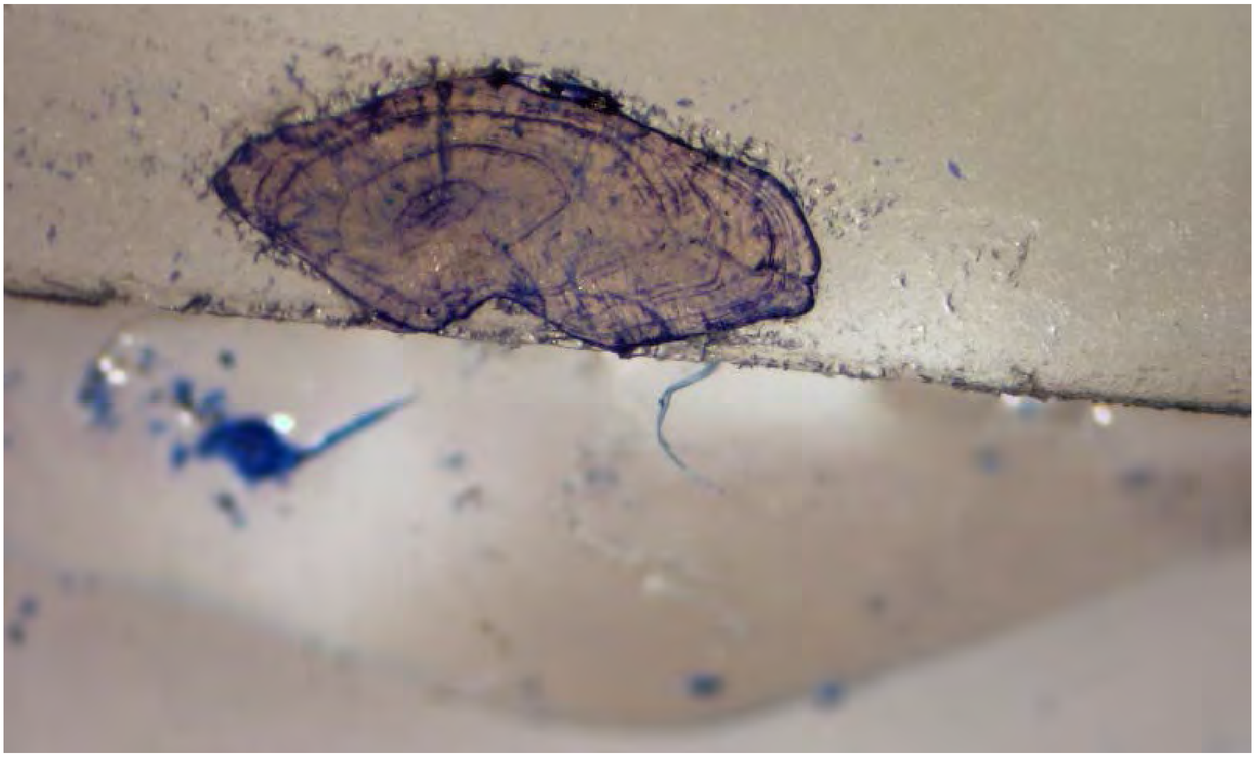


**Figure 36. Sectioned otolith sample #36. Sample was from an American eel that was 400 mm TL, 90 g, and captured 5/29/2014 from an estuarine habitat in New Jersey. The sample provided by NJDFW was aged as 5 years old. Ages from the sample exchange ranged from 3-5 years, mode was 4 years. This was a paired sample with W81.**

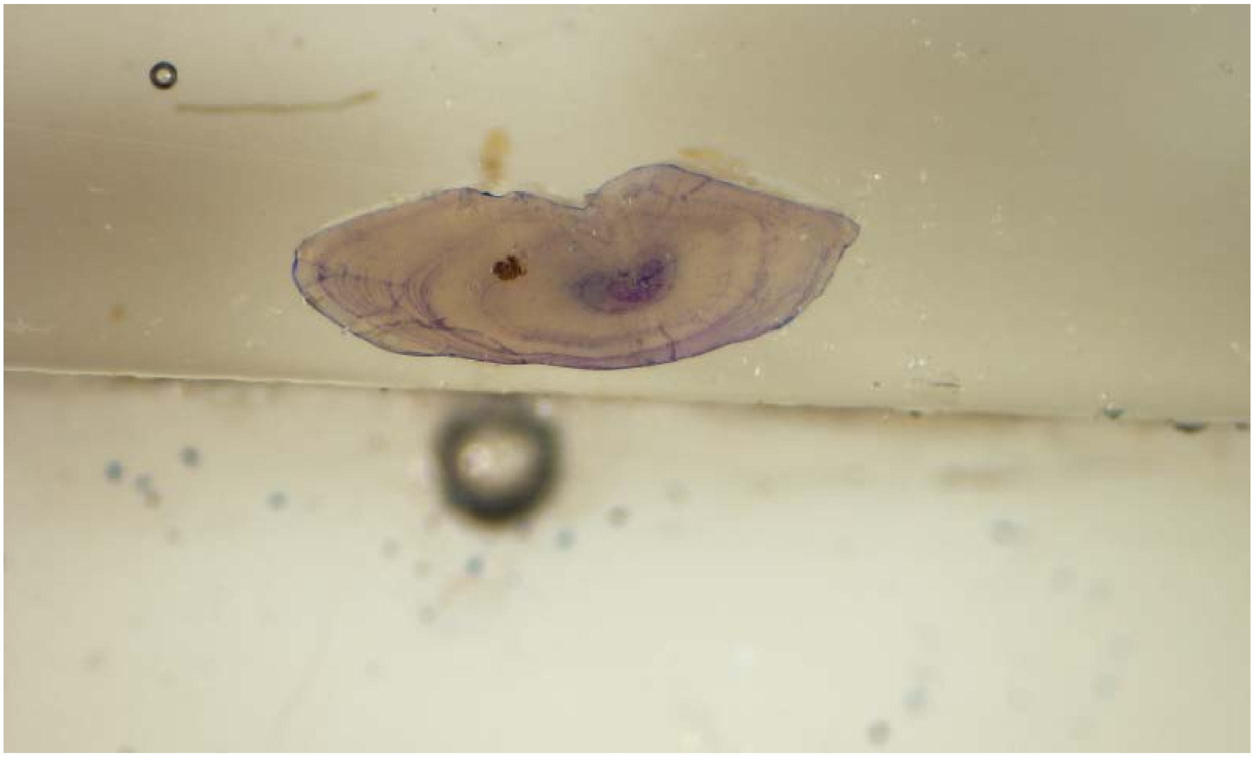


**Figure 37. Sectioned otoliths sample #37. Sample was from an American eel that was 375 mm TL, 115 g, and captured 6/28/2012 from an estuarine habitat in Delaware. Ages from the sample exchange ranged from 3-8 years, mode was 3 years. This was a paired sample with W17.**

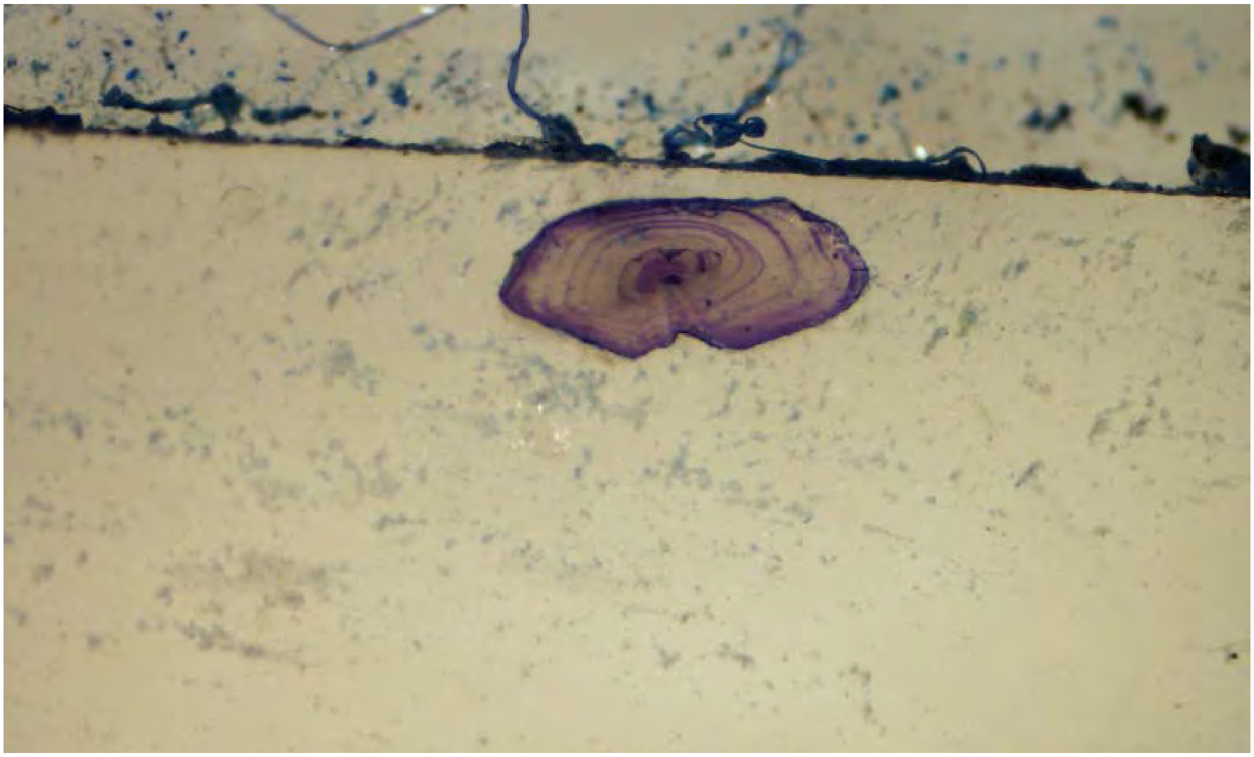


**Figure 38. Sectioned otolith sample #38. Sample was from an American eel that was 203 mm TL, captured 7/1997 in Maine. Ages from the sample exchange ranged from 3-6 years, mode was 4 years. This was a paired sample with W79.**

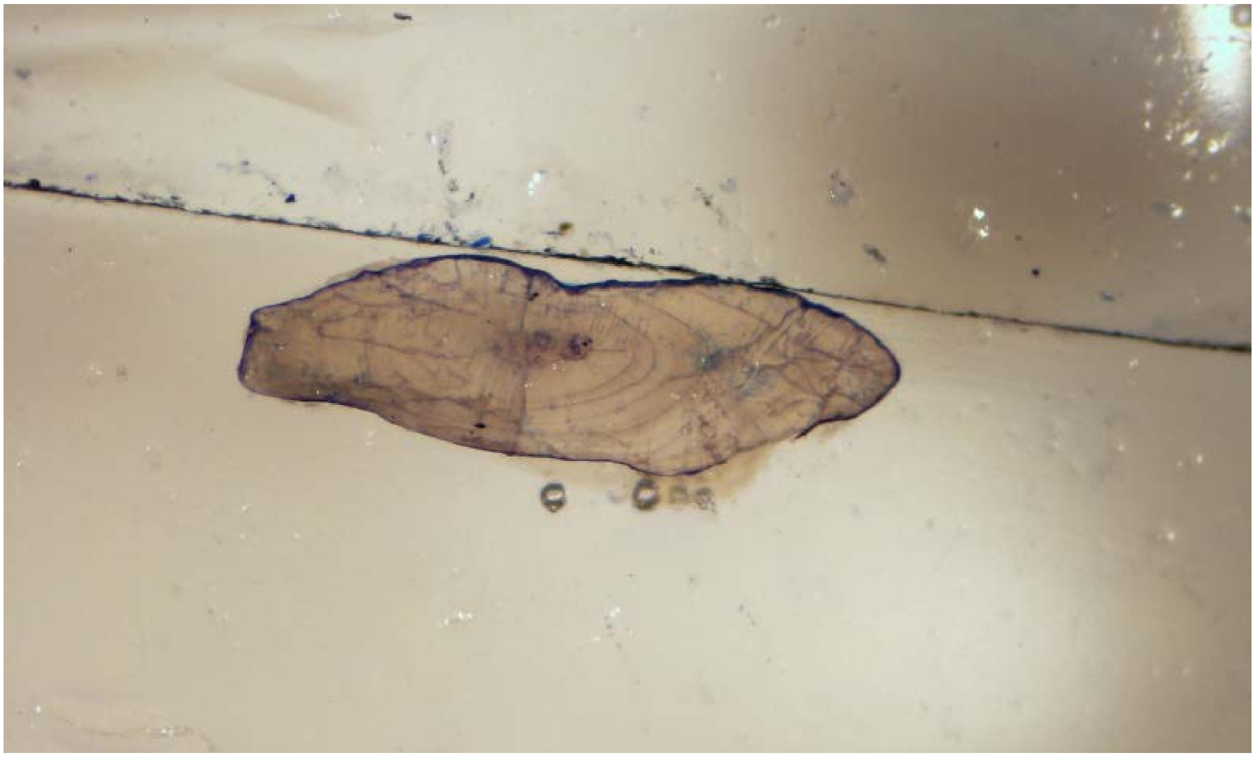


**Figure 39. Sectioned otolith sample #39. Sample was from an American eel that was 489 mm TL, 230 g, and captured 4/25/2013 from an estuarine habitat in New Jersey. The sample provided by NJDFW was aged as 5 years old. Ages from the sample exchange ranged from 2-8 years, mode was 3 years. This was a paired sample with W64.**

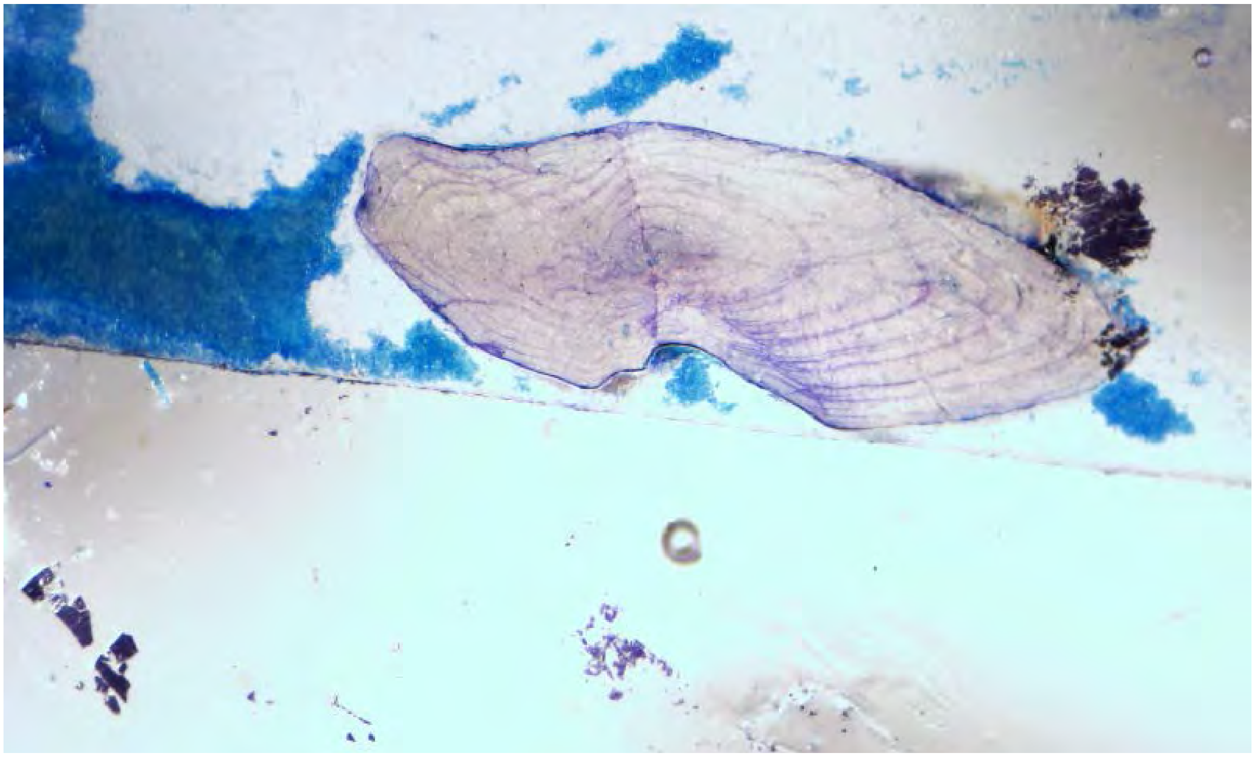


**Figure 40. Sectioned otolith sample #40. Sample was from an American eel that was 590 mm TL, 370 g, and captured 5/19/2014 from an estuarine habitat in New Jersey. The sample provided by NJDFW was aged as 8 years old. Ages from the sample exchange ranged from 5-11 years, mode was 8 years. This was a paired sample with W70.**

**Figure 41. Sectioned otolith sample #41. Sample was from an American eel that was 656 mm TL, 510 g, and captured 5/29/2014 from an estuarine habitat in New Jersey. The sample provided by NJDFW was aged as 9 years old. Ages from the sample exchange ranged from 7-13 years, mode was 10 years. This was a paired sample with W11.**

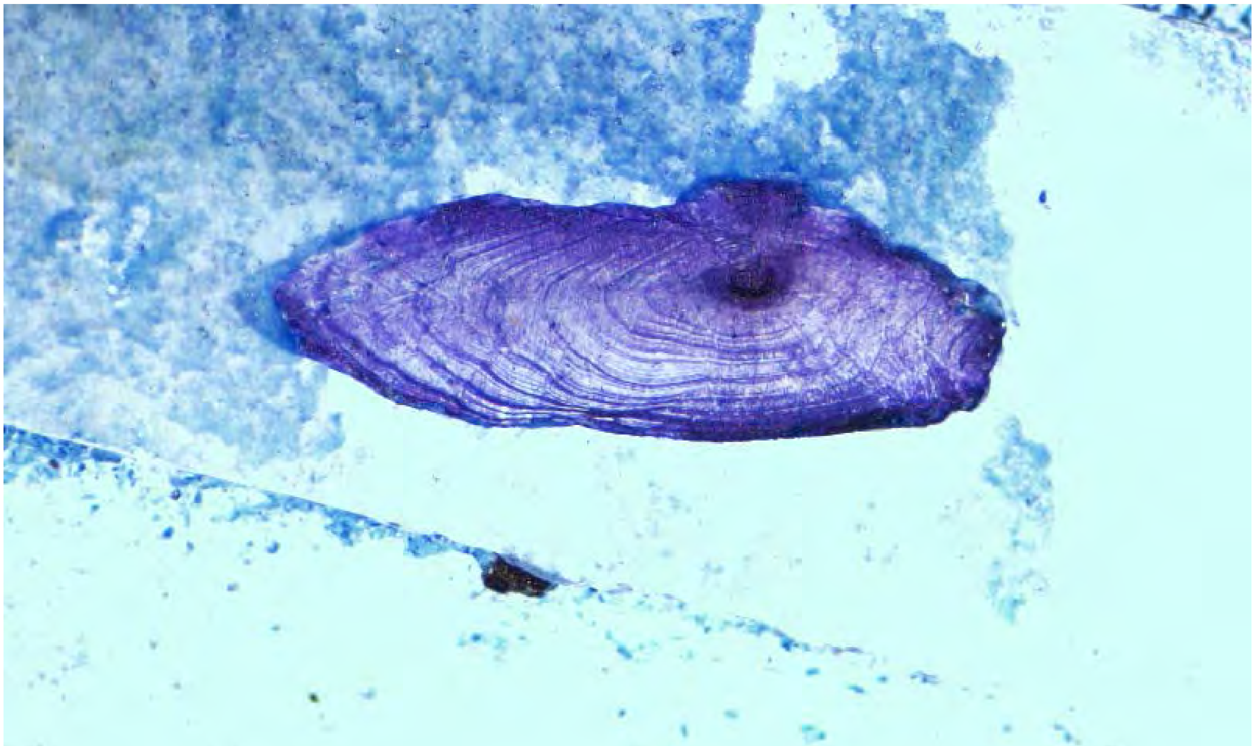


**Figure 42. Sectioned otolith sample #42. Sample was from a female American eel that was 632 mm TL, 444 g, and captured 8/1997 in Maine. Ages from the sample exchange ranged from 5-8 years, mode was 7 years. This was a paired sample with W71.**

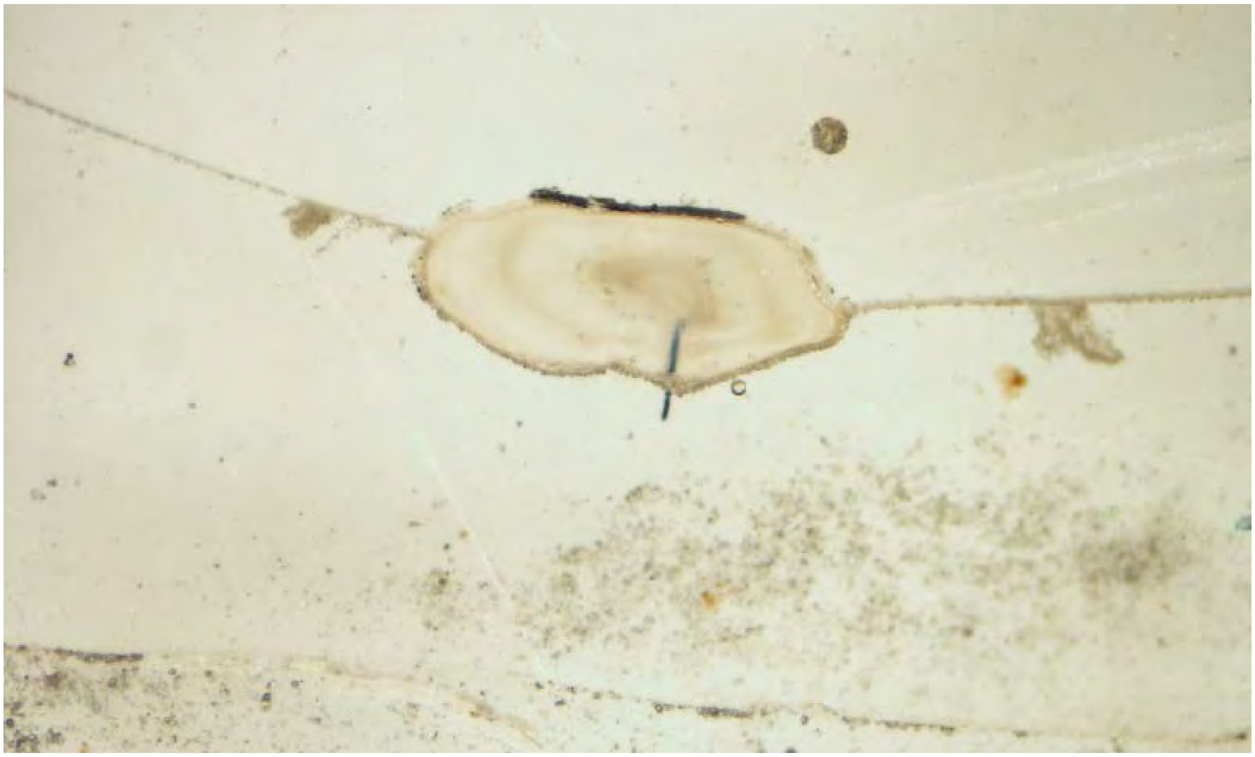


**Figure 43. Sectioned otolith sample #43. Sample was from an American eel that was 202 mm TL, 13 g, and captured 7/5/2013 from an estuarine habitat in South Carolina. The sample provided by SCDNR was aged as 1 year old. Ages from the sample exchange ranged from 2-3 years, mode was 2 years. This was a paired sample with W13.**

**Figure 44. Sectioned otolith sample #44. Sample was from a female American eel that was 470 mm TL, and captured in 1999 in the Hudson River. The sample provided by David Secor and Wendy Morrison was aged as 23 years old. Ages from the sample exchange ranged from 4-28 years, mode was 21 years.**

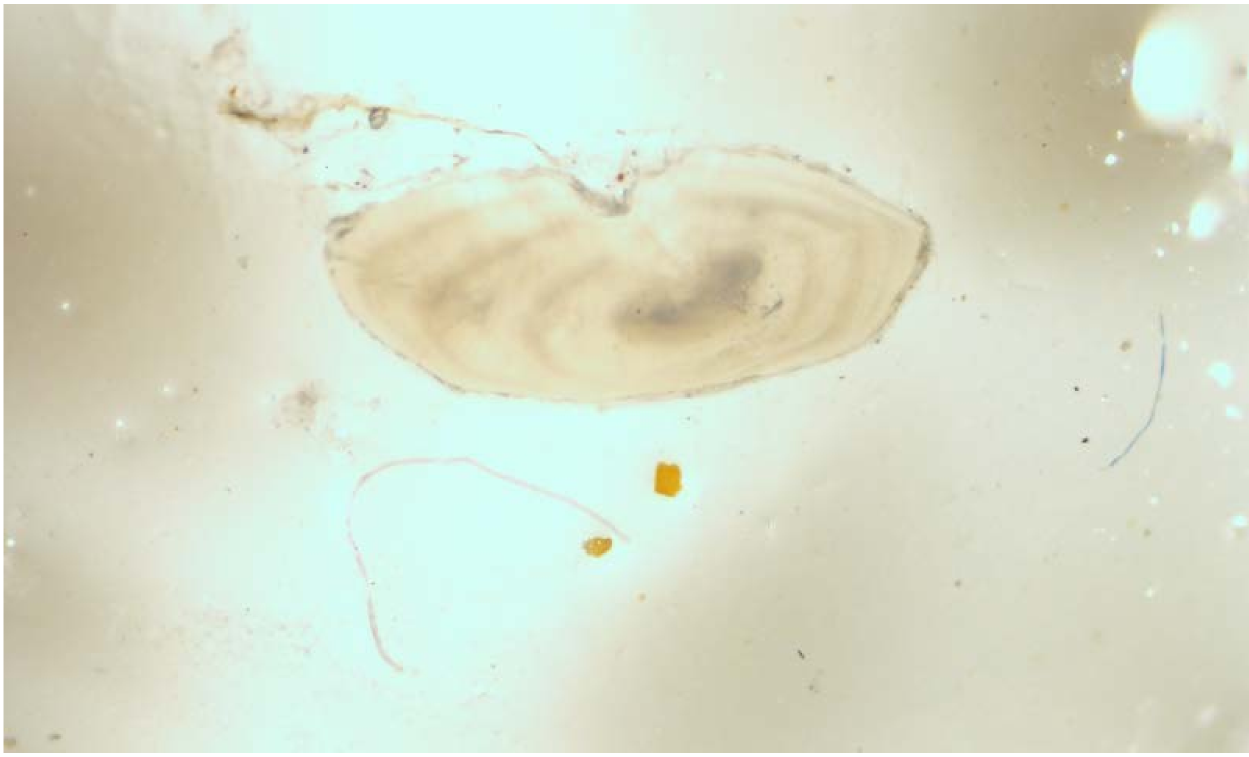


**Figure 45. Sectioned otolith sample #45. Sample was from an American eel that was 367 mm TL, 101 g, and captured 5/20/2014 from a freshwater habitat in Virginia. The sample provided by VIMS was aged as 3 years old. Ages from the sample exchange ranged from 2-4 years, mode was 3 years.**

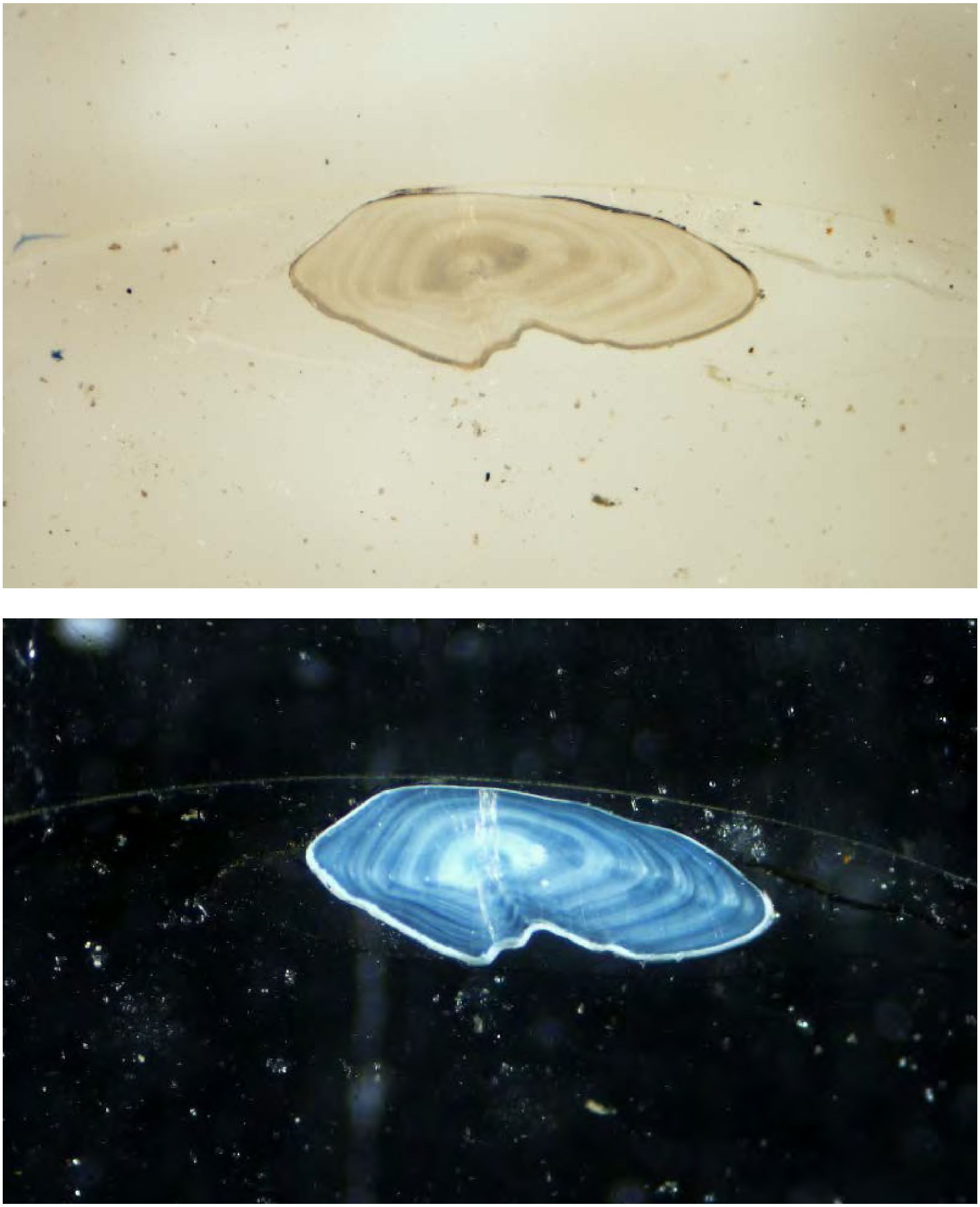


**Figure 46. Sectioned otolith sample #46. Sample was from a male American eel that was 336 mm TL, 90 g, and captured 9/27/2013 from an estuarine habitat in South Carolina. The sample provided by SCDNR was aged as 4 years old. Ages from the sample exchange ranged from 4-5 years, mode was 4 years. This was a paired sample with W7.**

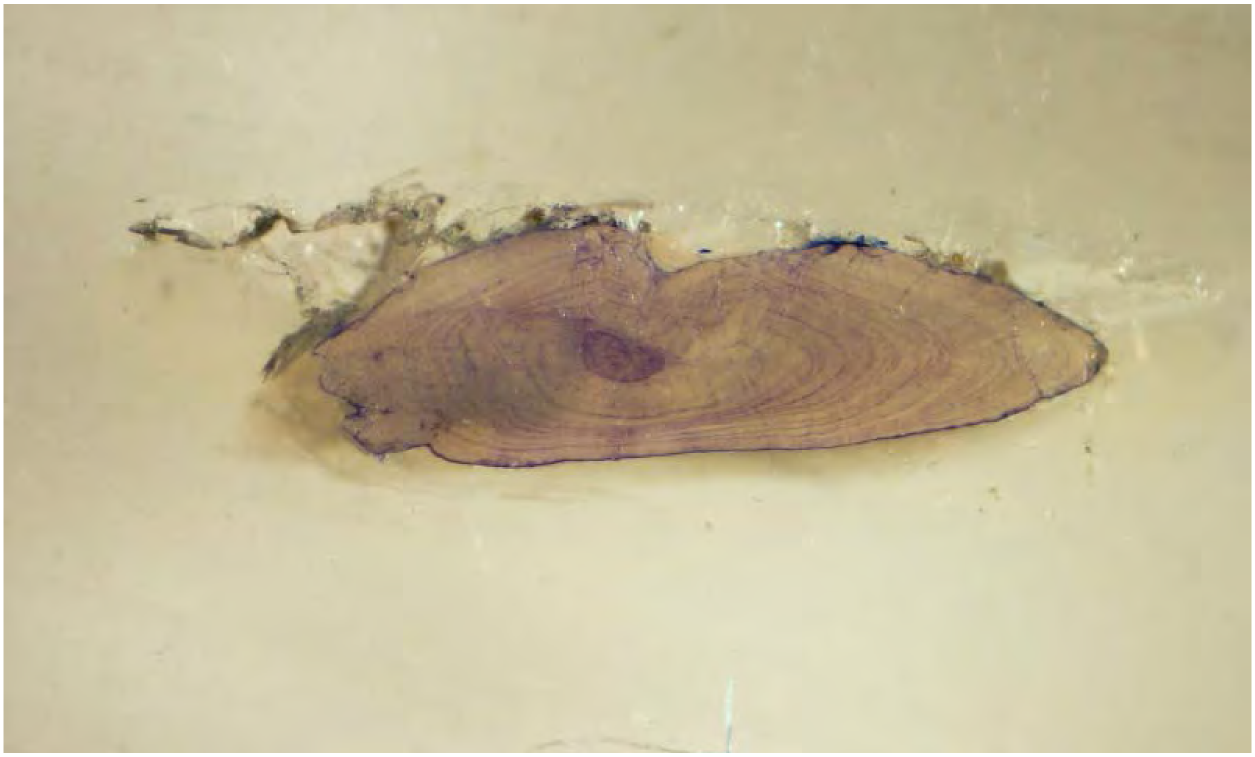
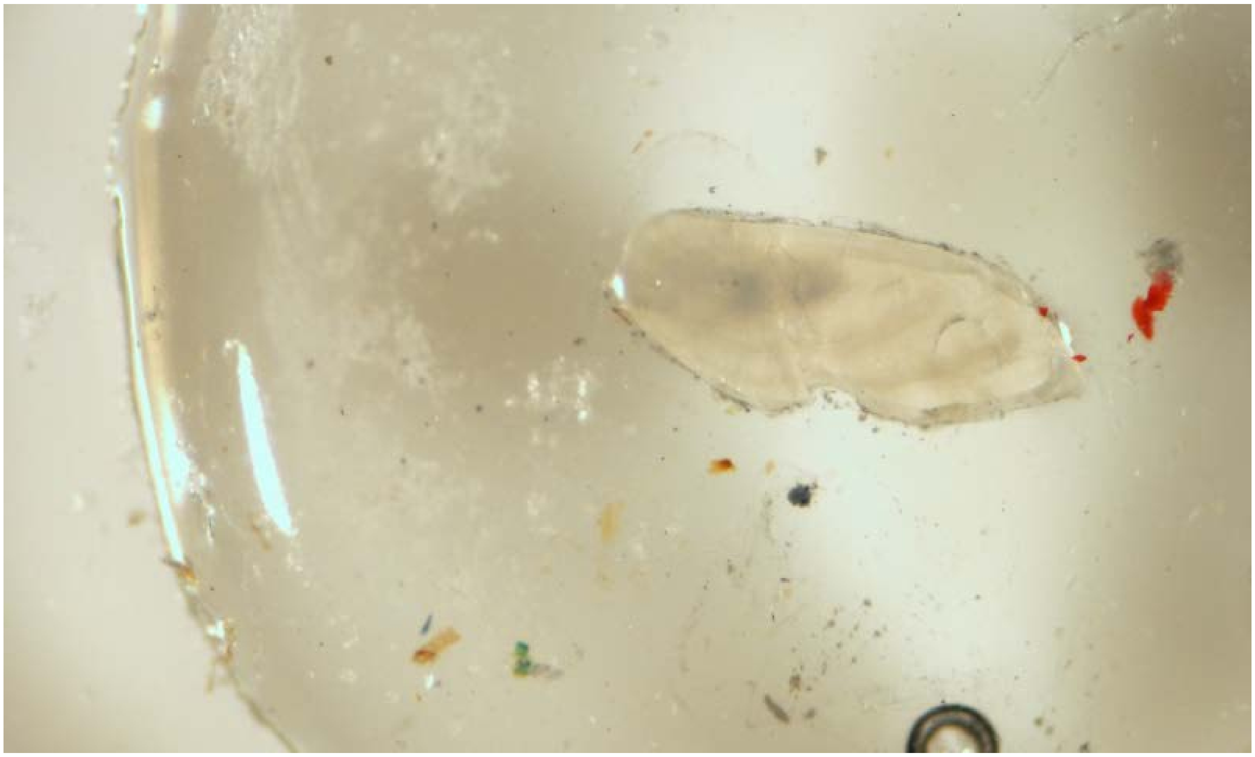


**Figure 47. Sectioned otolith sample #47. Sample was from a female American eel that was 465 mm TL, captured in 1999 in the Hudson River. The sample provided by David Secor and Wendy Morrison was aged as 11 years old. Ages from the sample exchange ranged from 3-17 years, mode was 10 years.**



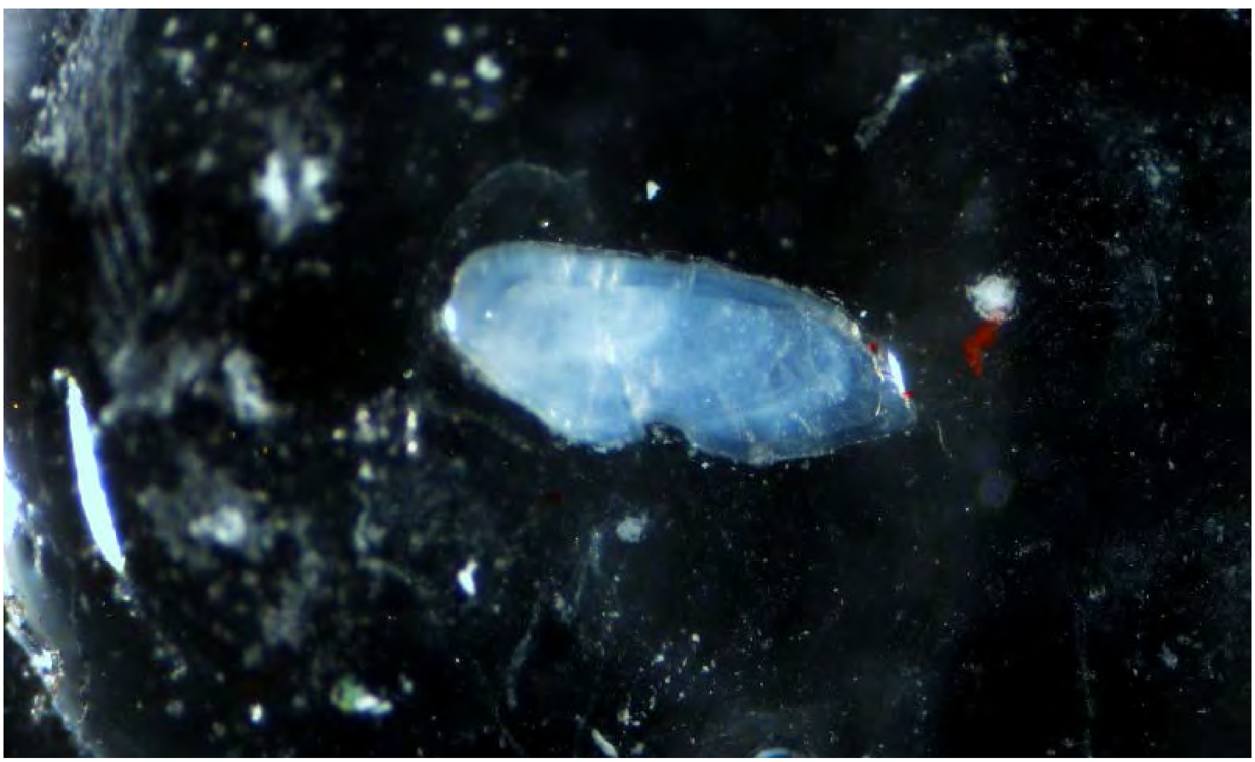


**Figure 48. Sectioned otolith sample #48. Sample was from an American eel that was 290 mm TL, 52 g, and captured 5/20/2014 from a freshwater habitat in Virginia. The sample provided by VIMS was aged as 2 years old. Ages from the sample exchange ranged from 2-4 years, mode was 3 years.**

**Figure 49. Sectioned otolith sample #49. Sample was from an American eel that was 160 mm TL, 61 g, and captured 5/20/2014 from a freshwater habitat in Virginia. The sample provided by VIMS was aged as 2 years old. Ages from the sample exchange ranged from 1-4 years, mode was 2 years.**

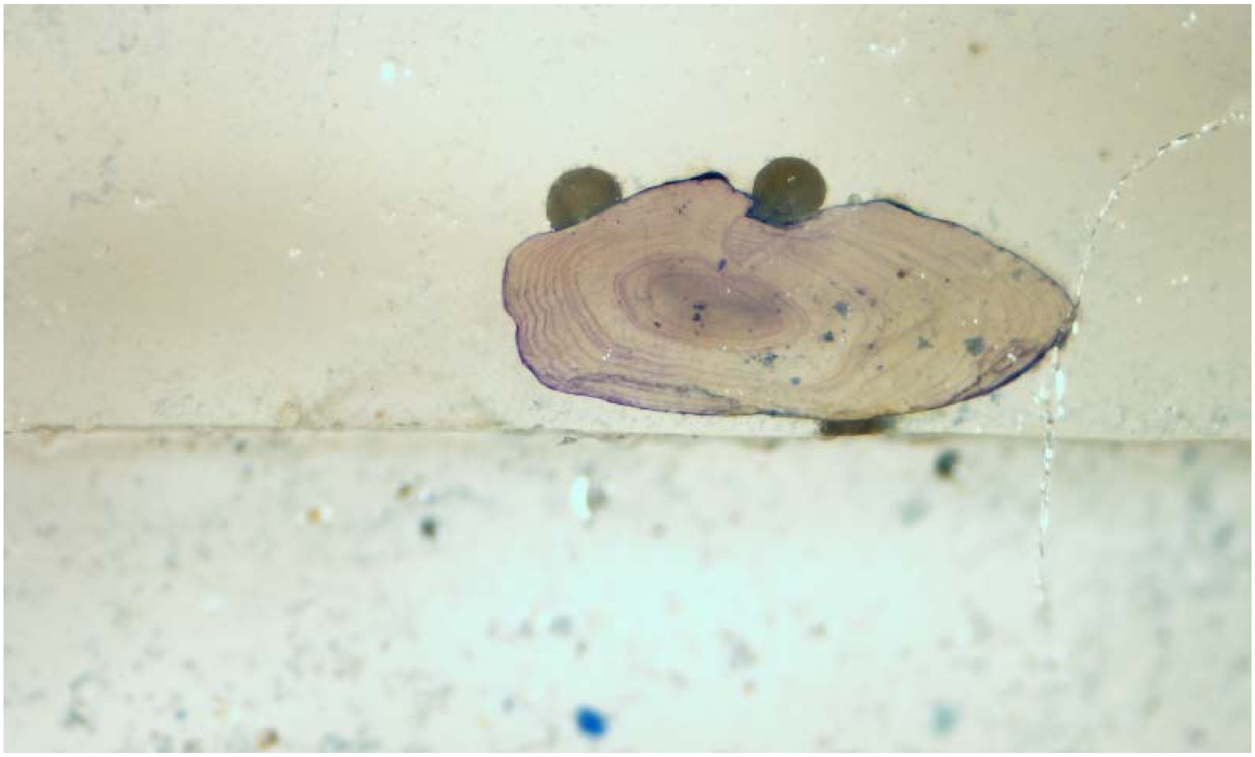


**Figure 50. Sectioned otolith sample #50. Sample was from a male American eel that was 346 mm TL, 74 g, and captured 9/1997 in Maine. Ages from the sample exchange ranged from 5-11 years, mode was 7 years. This was a paired sample with W85.**

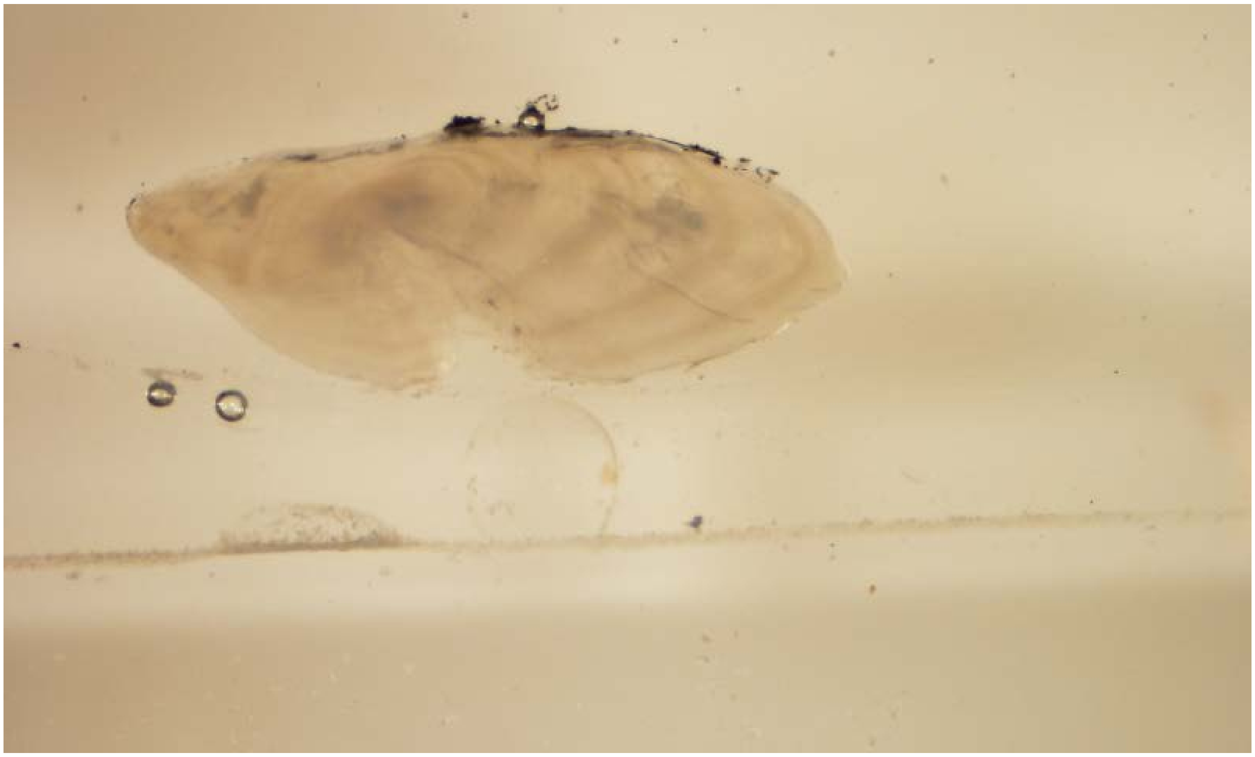


**Figure 51. Sectioned otolith sample #51. Sample was from an American eel that was 469 mm TL, 238 g, and captured 10/21/2014 from a freshwater habitat in Florida. The sample provided by FL FWC was aged as 4 years old. Ages from the sample exchange ranged from 3-5 years, mode was 4 years. This was a paired sample with W108.**

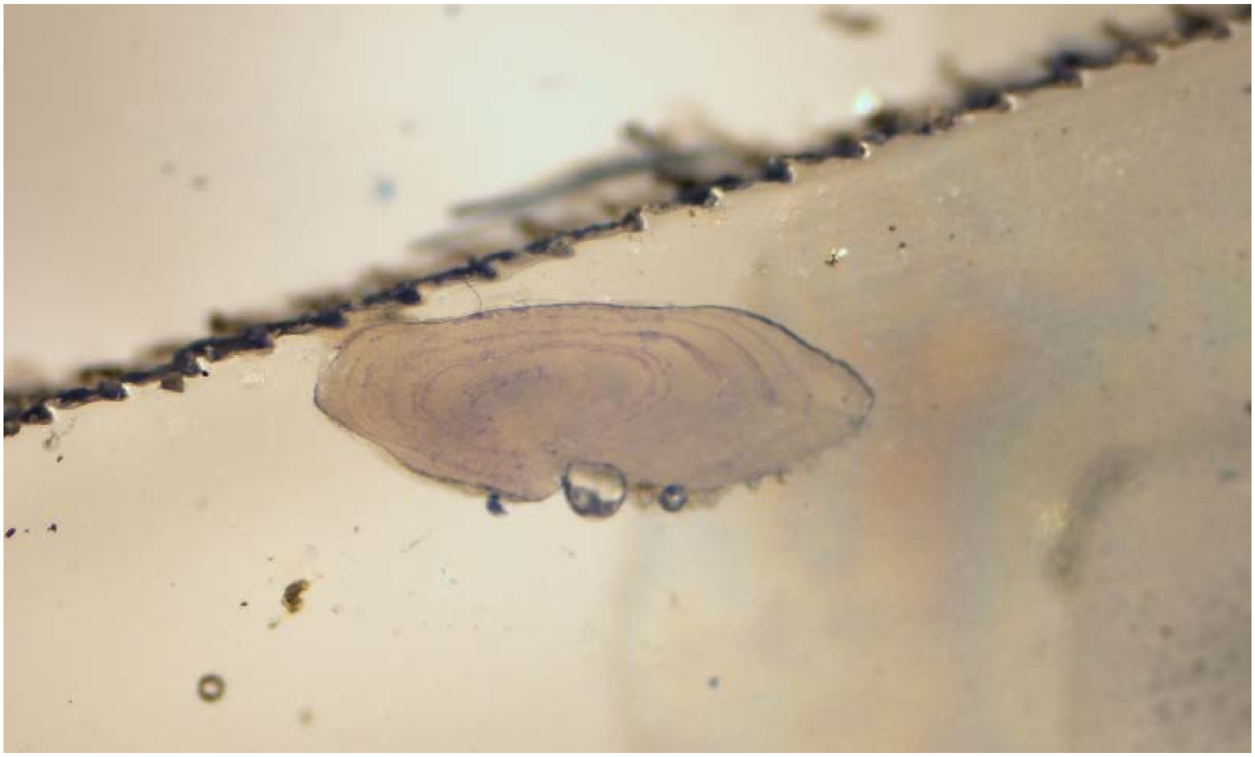


**Figure 52. Sectioned otoliths sample #52. Sample was from an American eel that was 371 mm TL, 103 g, and captured 9/11/2012 from an estuarine habitat in Delaware. Ages from the sample exchange ranged from 4-6 years, mode was 5 years. This was a paired sample with W95.**

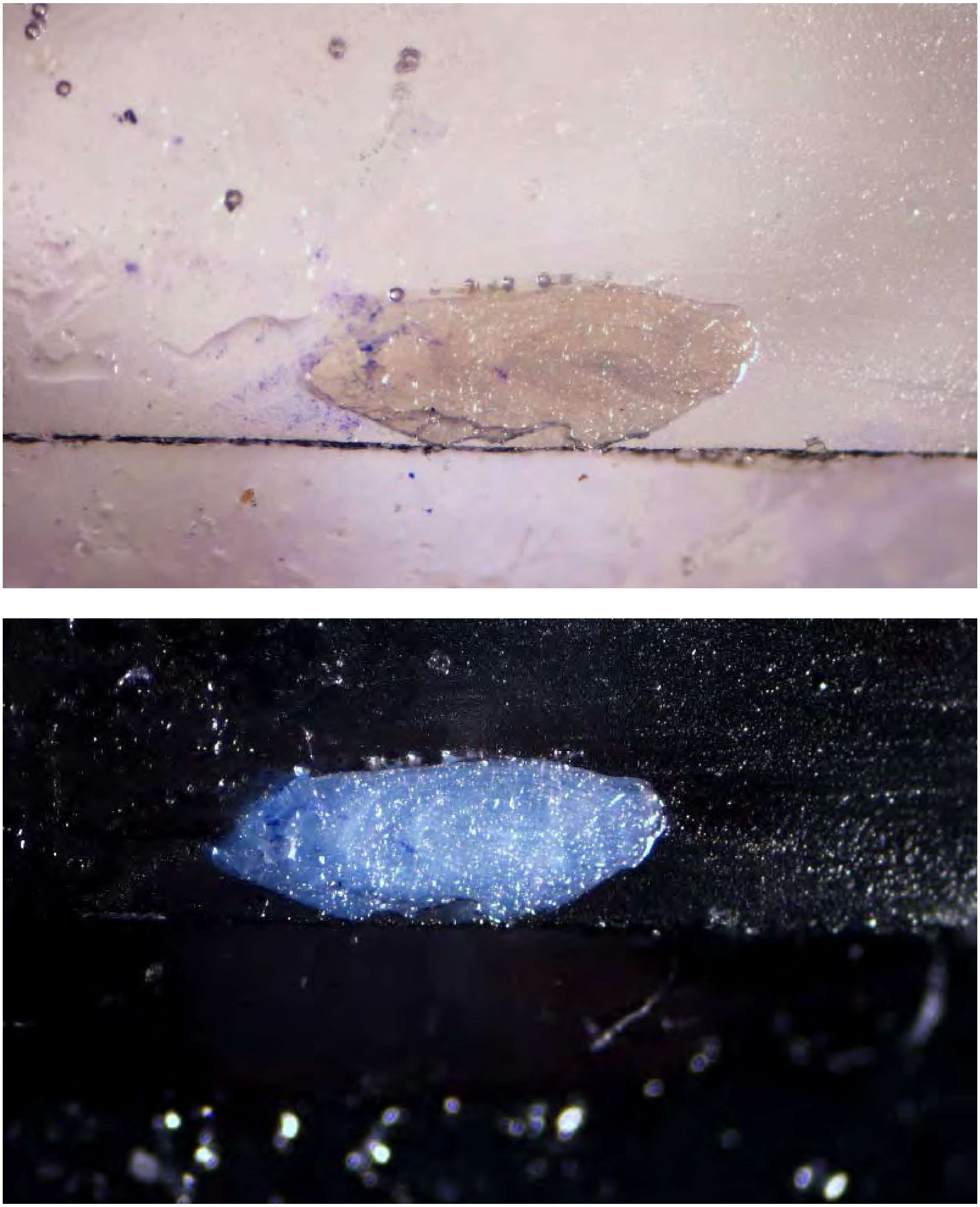


**Figure 53. Sectioned otolith sample #53. Sample was from an American eel that was 428 mm TL, 120 g, and captured 10/23/2013 from an estuarine habitat in New Jersey. The sample provided by NJDFW was aged as 4 years old. Ages from the sample exchange ranged from 3-6 years, mode was 4 years. This was a paired sample with W29.**

**Figure 54. Sectioned otolith sample #54. Sample was from a female American eel that was 555 mm TL, captured in 1999 in the Hudson River. The sample provided by David Secor and Wendy Morrison was aged as 17 years old. Ages from the sample exchange ranged from 10-21 years, mode was 16 years.**

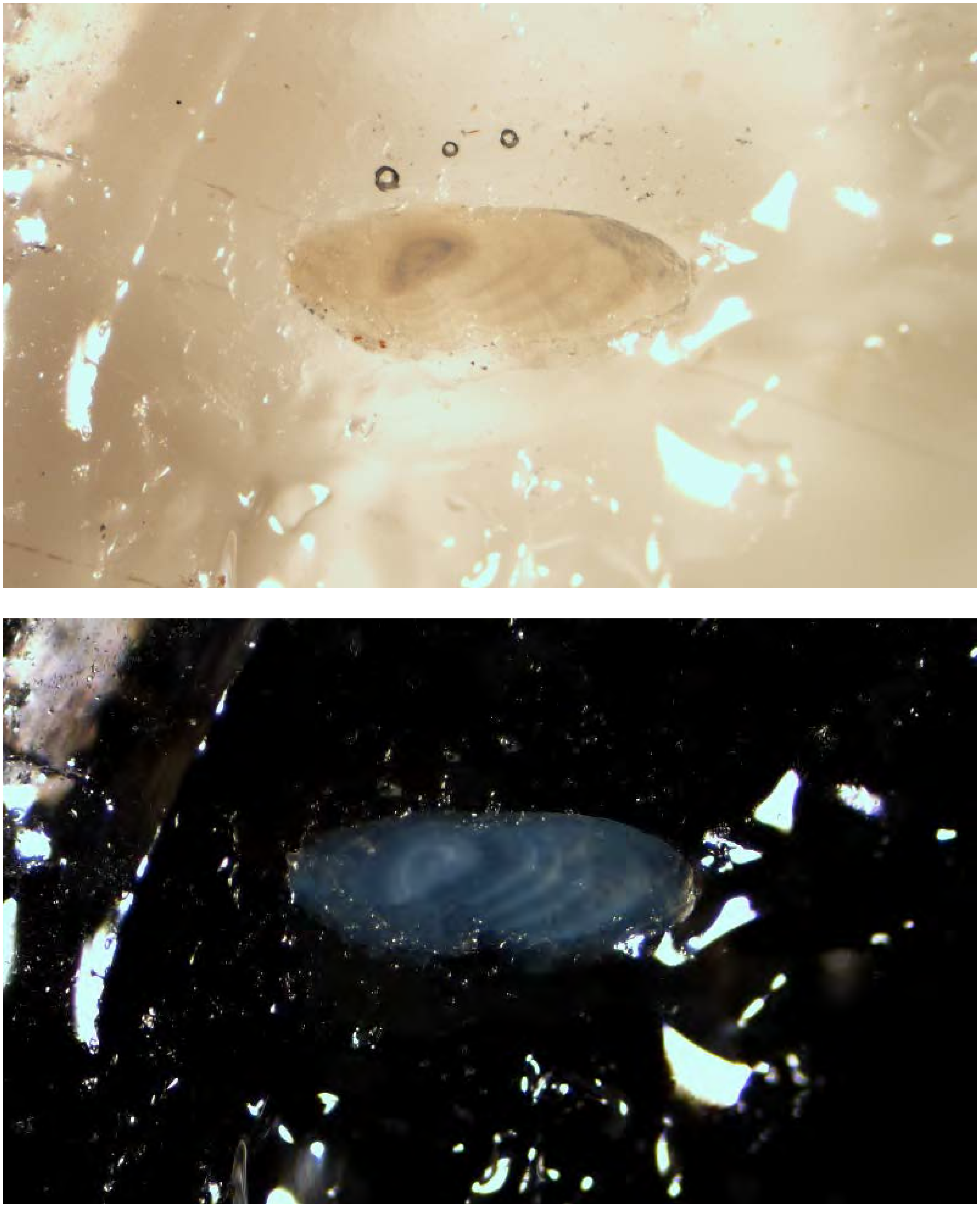


**Figure 55. Sectioned otoliths sample #55. Sample was from an American eel that was 311 mm TL, 65 g, and captured 9/22/2014 from a freshwater habitat in Virginia. The sample provided by VIMS was aged as 4 years old. Ages from the sample exchange ranged from 3-6 years, mode was 4 years.**

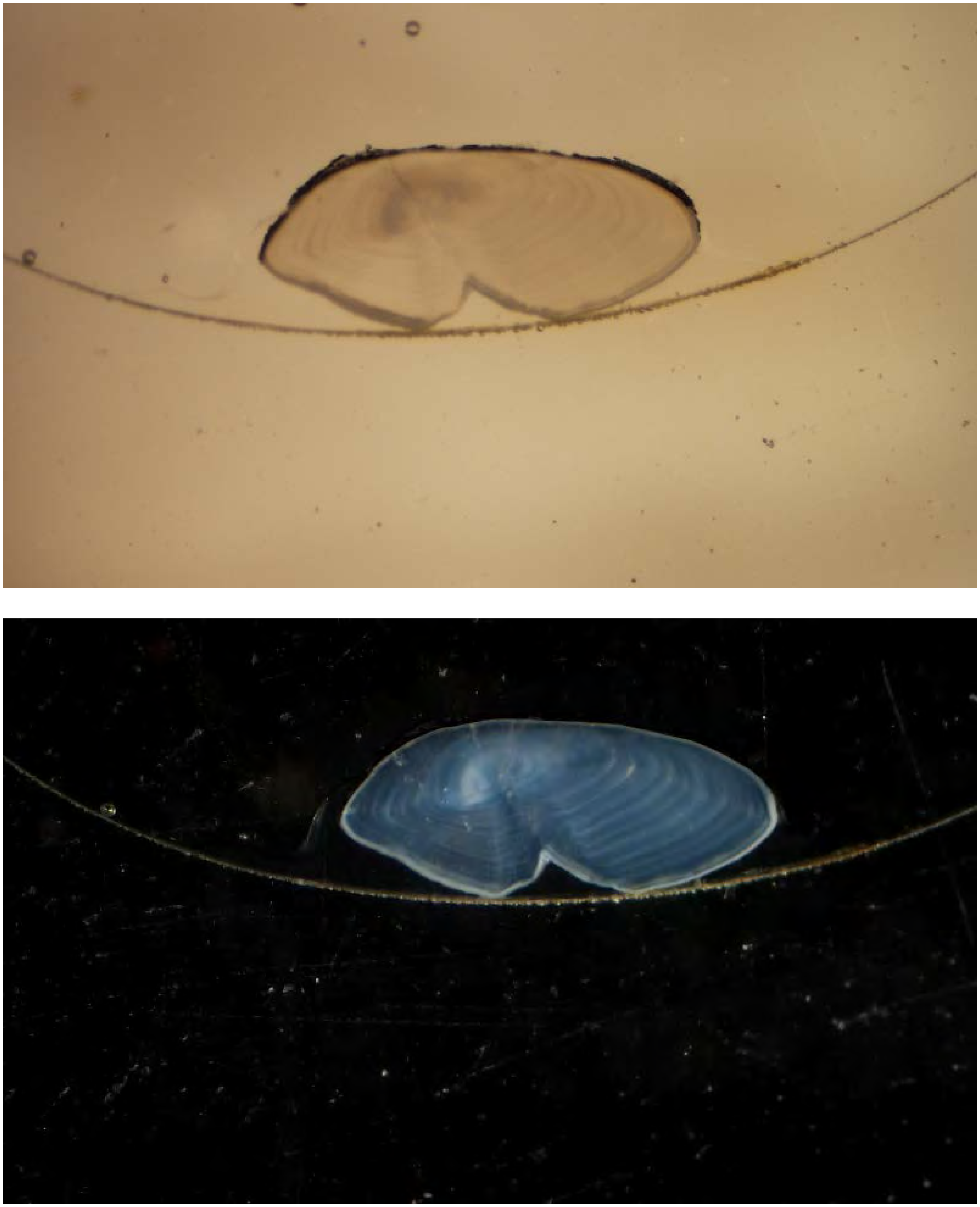


**Figure 56. Sectioned otolith sample #56. Sample was from a male American eel that was 296 mm TL, 52 g, and captured 9/27/2013 from an estuarine habitat in South Carolina. The sample provided by SCDNR was aged as 10 years old. Ages from the sample exchange ranged from 8-14 years, mode was 10 years. This was a paired sample with W5.**

**Figure 57. Sectioned otolith sample #57. Sample was from a female American eel that was 490 mm TL, captured in 1999 in the Hudson River. The sample provided by David Secor and Wendy Morrison was aged as 19.5 years old. Ages from the sample exchange ranged from 4-21 years, mode was 16 years.**

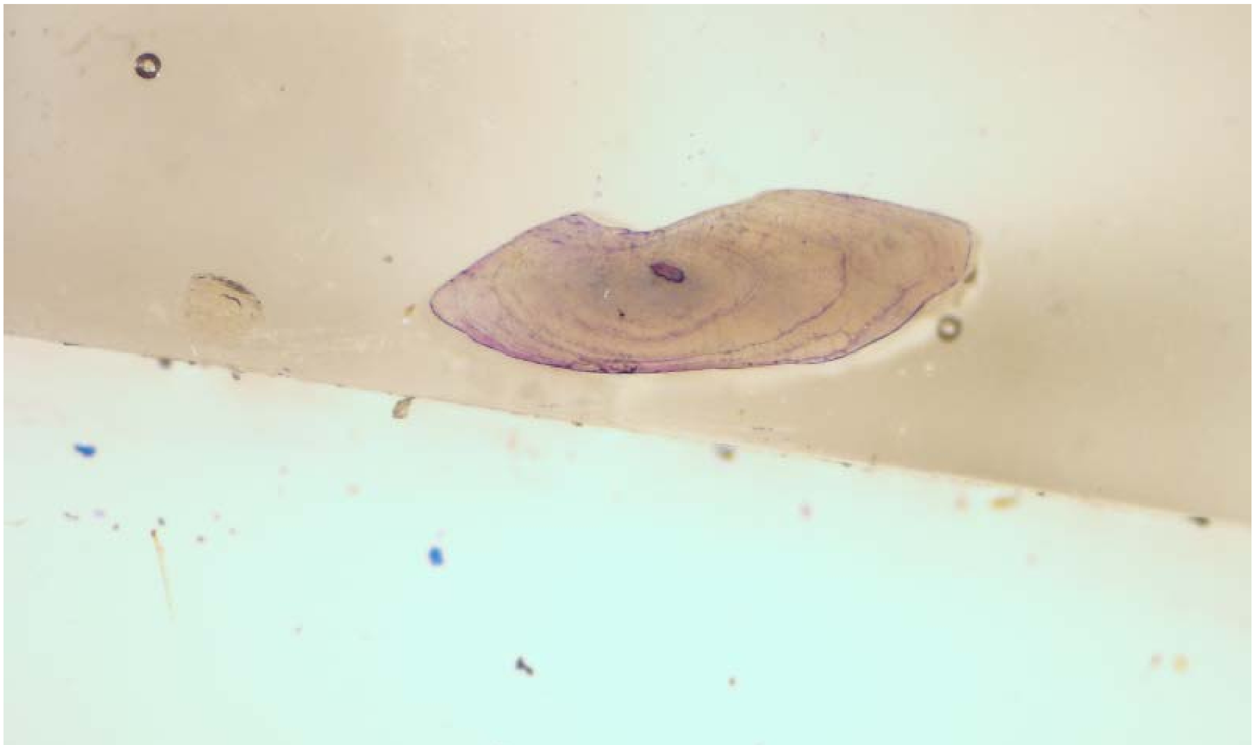


**Figure 58. Sectioned otolith sample #58. Sample was from an American eel that was 430 mm TL, 171 g, and captured 6/28/2012 from an estuarine habitat in Delaware. Ages from the sample exchange ranged from 2-5 years, mode was 3 years. This was a paired sample with W58.**

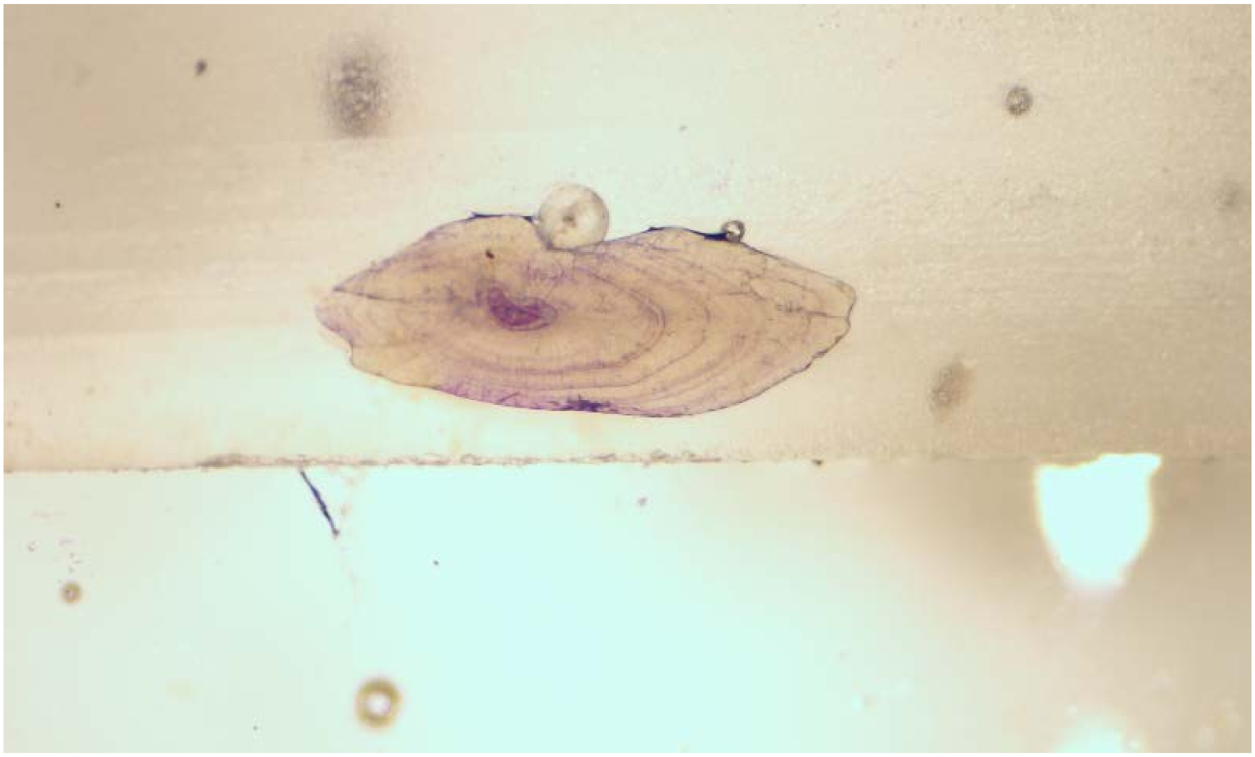


**Figure 59. Sectioned otolith sample #59. Sample was from a female American eel that was 356 mm TL, 80 g, and captured 6/28/2012 from an estuarine habitat in Delaware. Ages from the sample exchange ranged from 4-7 years, mode was 4 years. This was a paired sample with W109.**

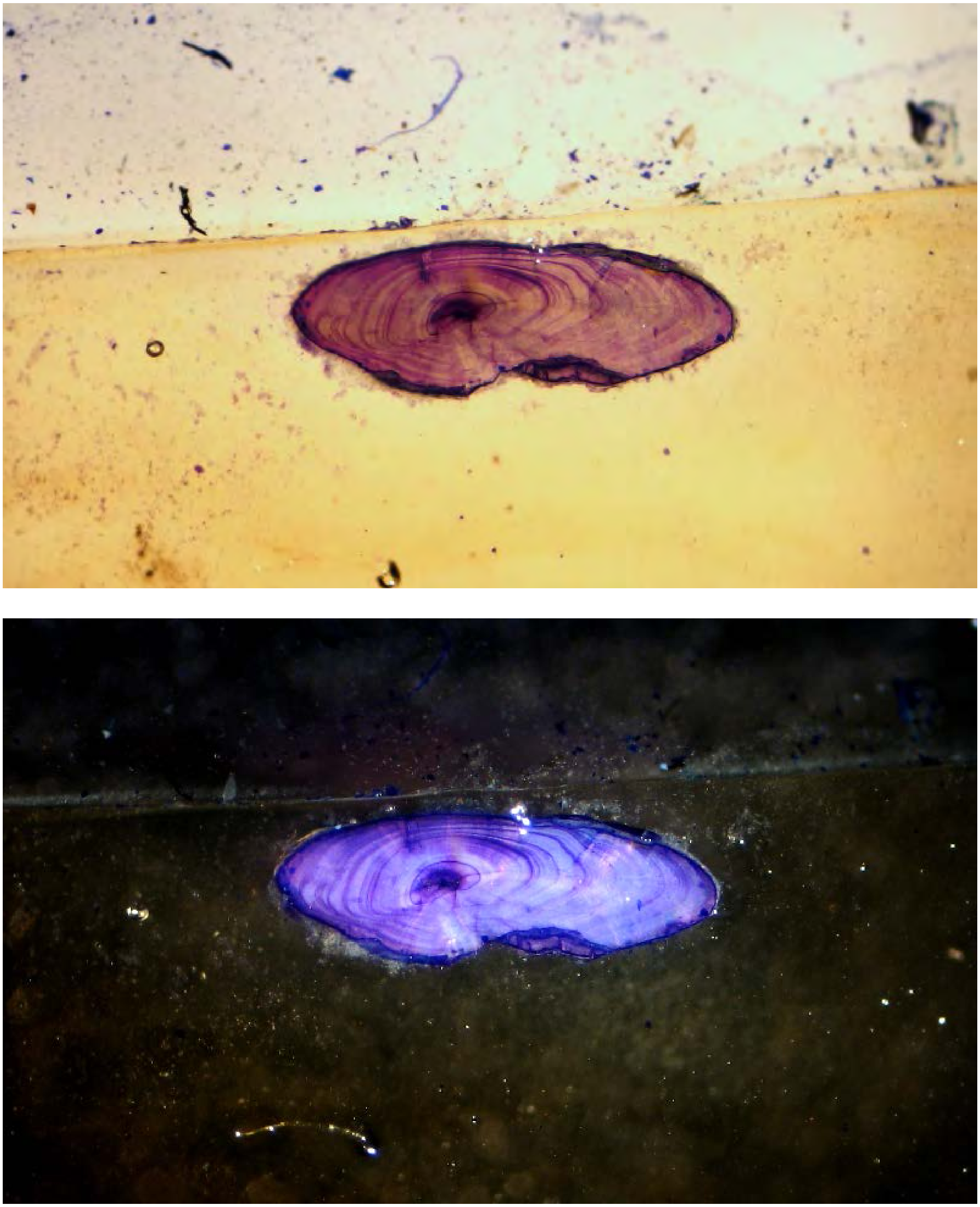


**Figure 60. Sectioned otolith sample #60. Sample was from a male American eel that was captured 10/2005 in Massachusetts. Ages from the sample exchange ranged from 5-9 years, mode was 8 years.**

**Figure 61. Sectioned otoliths sample #61. Sample was from an American eel that was 190 mm TL, 9 g, and captured 4/24/2014 from a freshwater habitat in Virginia. The sample provided by VIMS was aged as 3 years old. Ages from the sample exchange ranged from 3-4 years, mode was 3 years.**

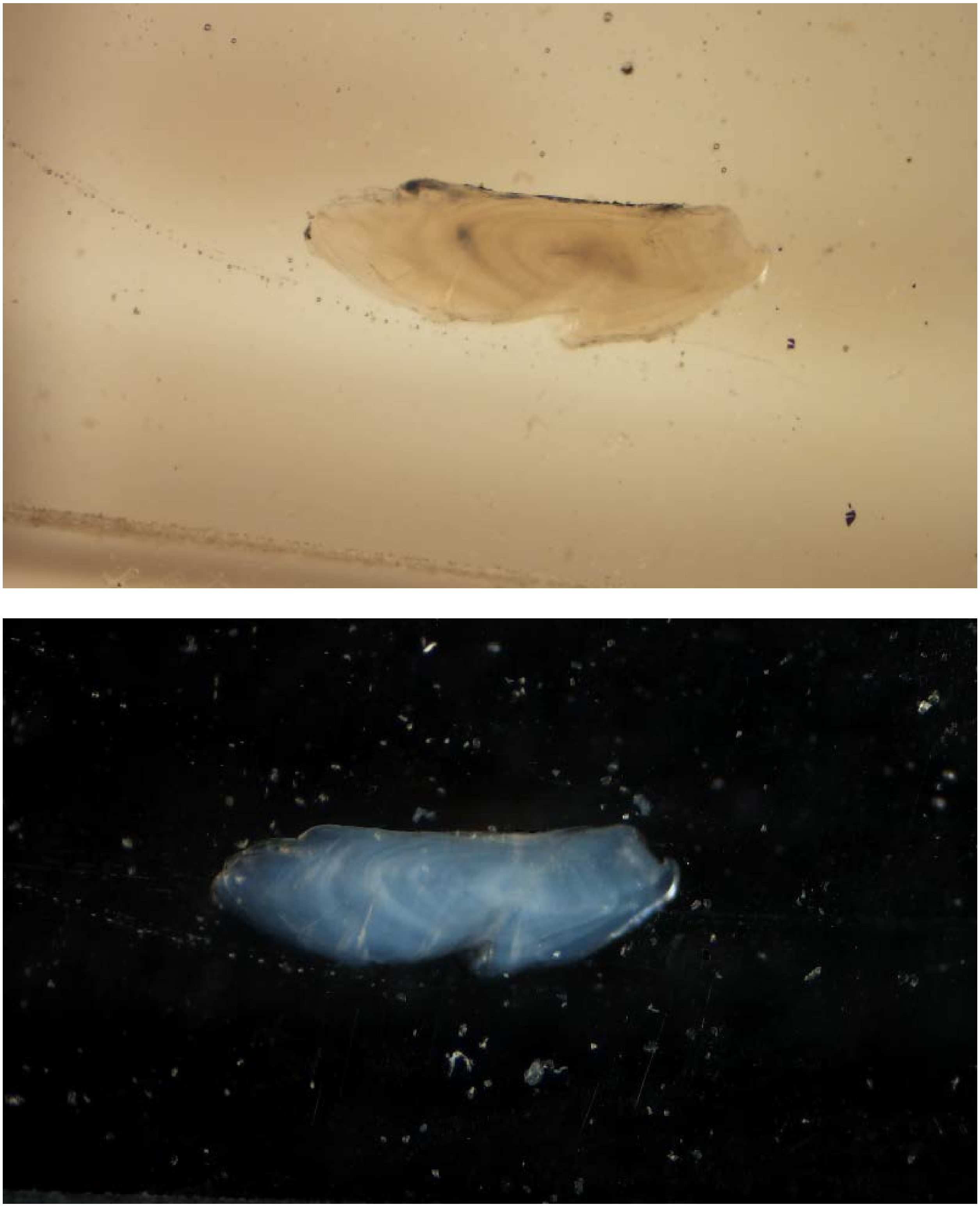


**Figure 62. Sectioned otolith sample #62. Sample was from an American eel that was 398 mm TL, 123 g, and captured 11/13/2014 from a freshwater habitat in Florida. The sample provided by FL FWC was aged as 2 years old. Ages from the sample exchange ranged from 3-11 years, mode was 4 years. This was a paired sample with W8.**

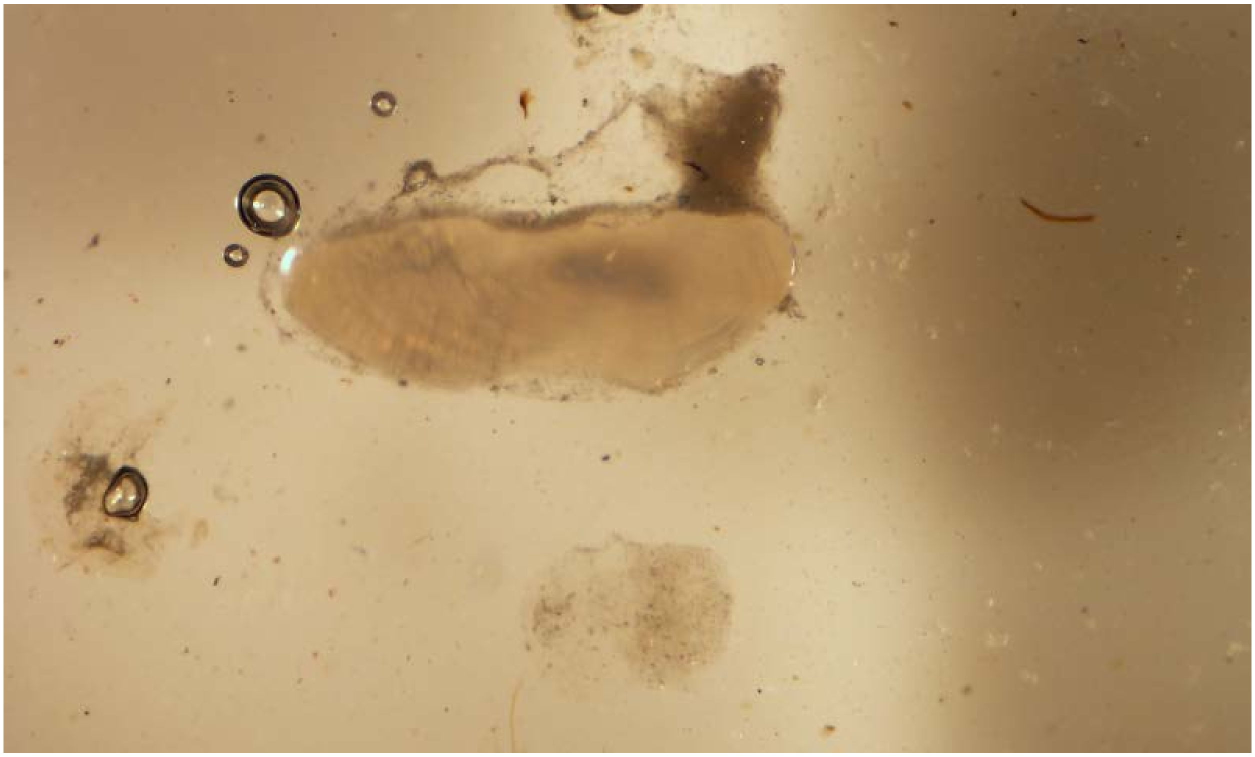


**Figure 63. Sectioned otolith sample #63. Sample was from an American eel that was 295 mm TL, 50 g, and captured 10/7/2014 from a freshwater habitat in Virginia. The sample provided by VIMS was aged as 8 years old. Ages from the sample exchange ranged from 5-8 years, mode was 6 years.**

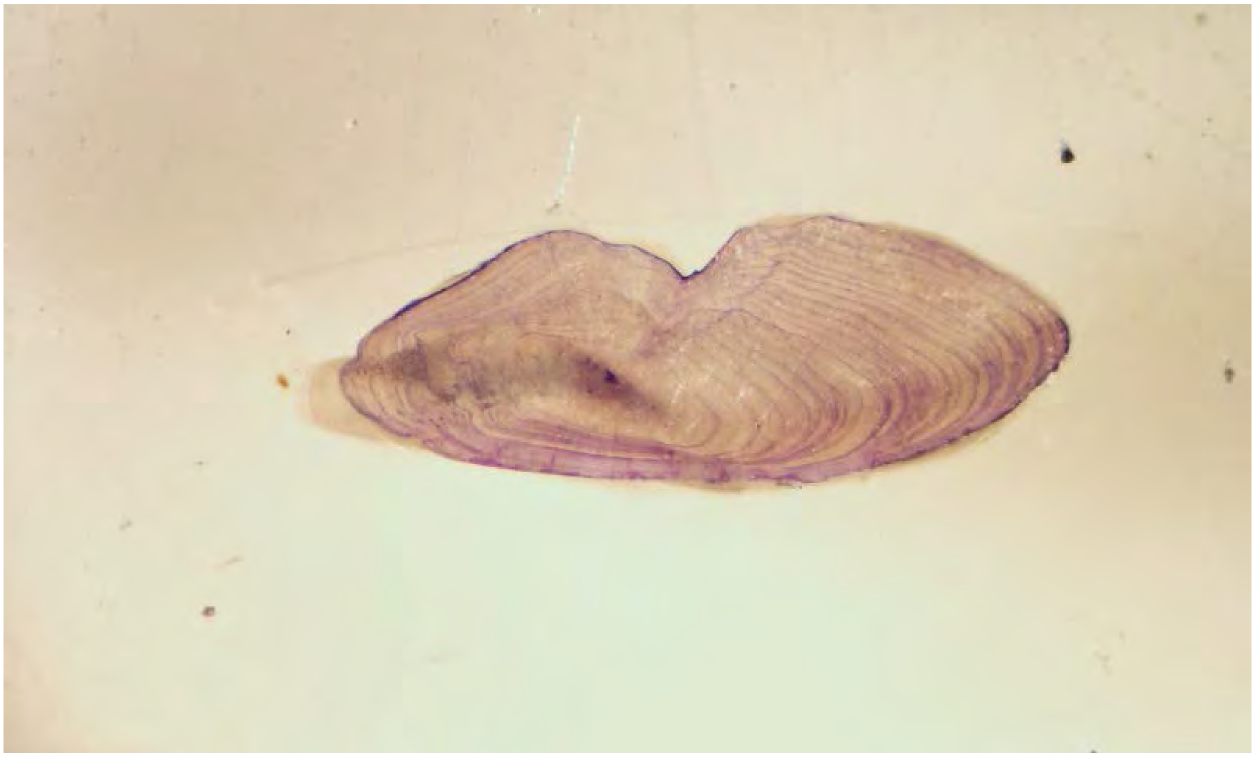


**Figure 64. Sectioned otolith sample #64. Sample was from a female American eel that was 480 mm TL, captured in 1999 from the Hudson River. The sample provided by David Secor and Wendy Morrison was aged as 19.5 years old. Ages from the sample exchange ranged from 12-22 years, mode was 18 years.**

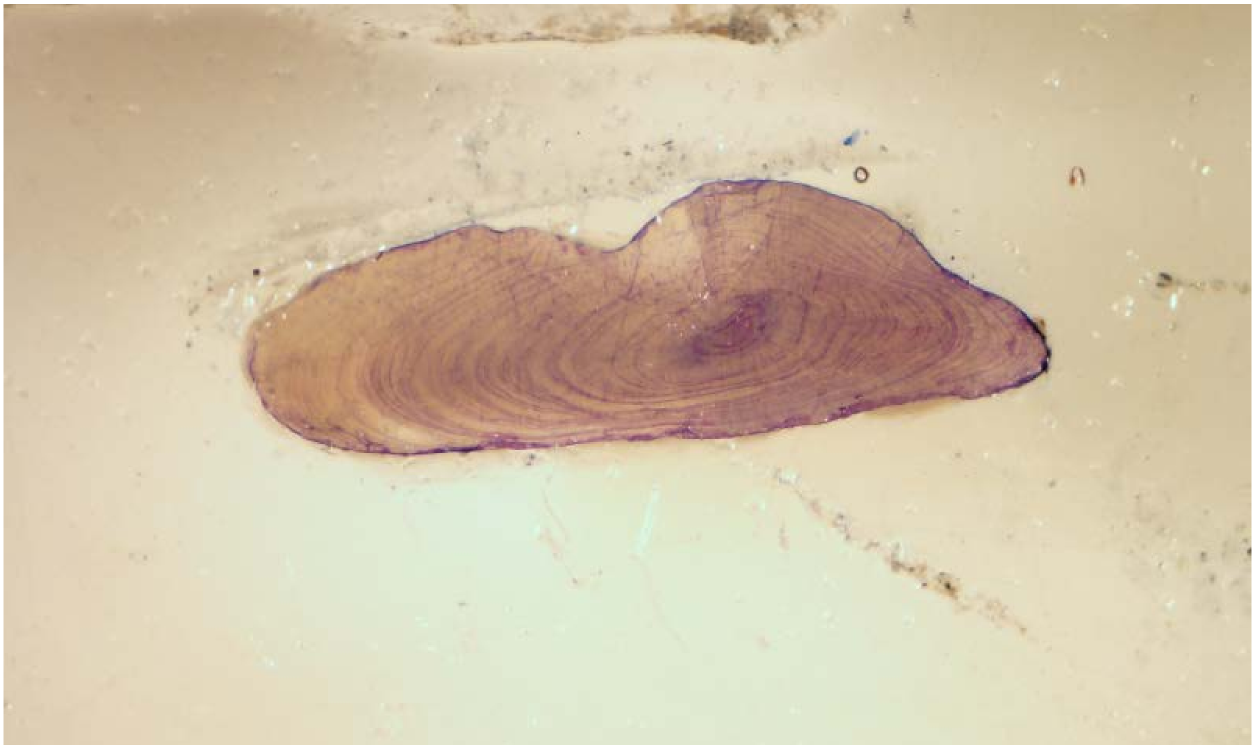


**Figure 65. Sectioned otolith sample #65. Sample was from a female American eel that was 525 mm TL, captured in 1999 in the Hudson River. The sample provided by David Secor and Wendy Morrison was aged as 17.5 years old. Ages from the sample exchange ranged from 6-18 years, mode was 17 years.**

Figure 66. Sectioned otolith sample #66. Sample was from an American eel that was 473 mm TL, 217 g, and captured 3/6/2013 from an estuarine habitat in South Carolina. The sample provided by SCDNR was aged as 6 years old. Ages from the sample exchange ranged from 6-8 years, mode was 6 years. This was a paired sample with W80.

**Figure 67. Sectioned otolith sample #67. Sample was from a female American eel that was 269 mm TL, 60 g, and captured 6/18/2013 from an estuarine habitat in South Carolina. The sample provided by SCDNR was aged as 5 years old. Ages from the sample exchange ranged from 5-8 years, mode was 5 years. This was a paired sample with W14.**

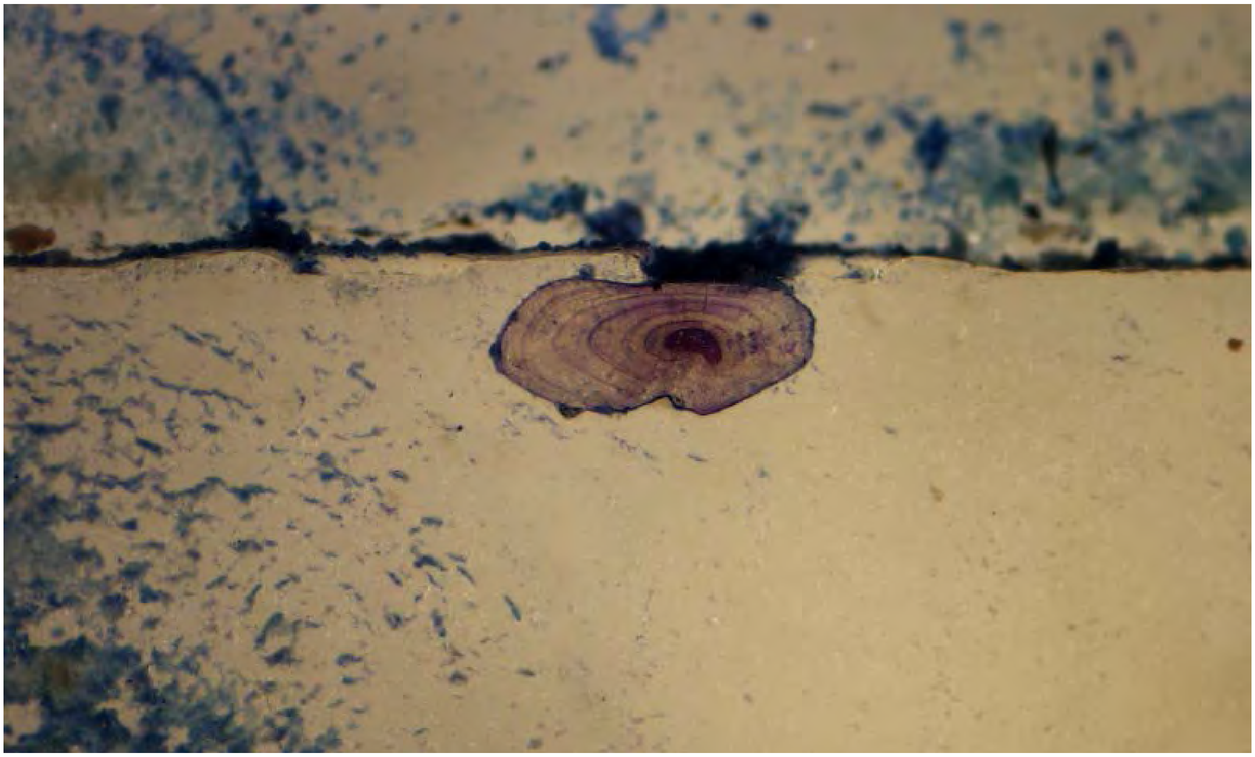


**Figure 68. Sectioned otolith sample #68. Sample was from an American eel that was 180 mm TL, 9 g, and captured 7/1997 in Maine. Ages from the sample exchange ranged from 3-7 years, mode was 3 years. This was a paired sample with W86.**

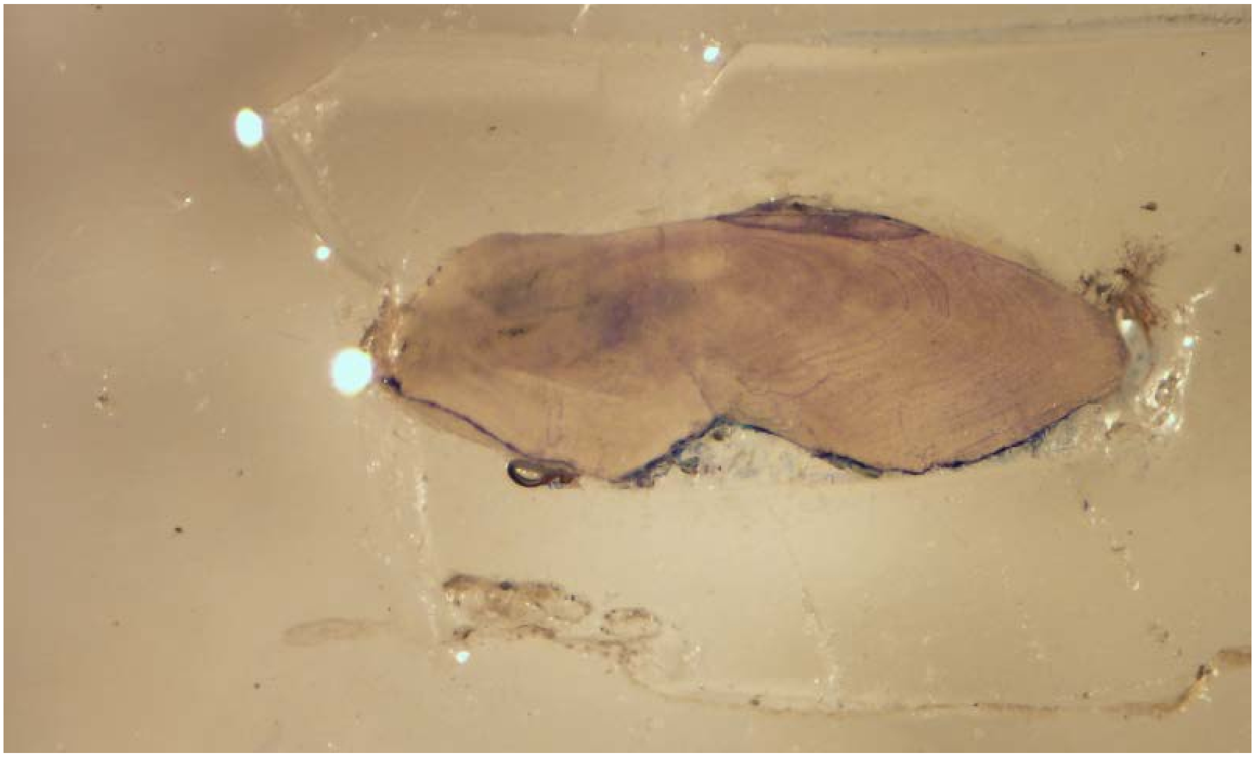


**Figure 69. Sectioned otolith sample #69. Sample was from a female American eel that was 500 mm TL, captured in 1999 from the Hudson River. The sample provided by David Secor and Wendy Morrison was aged as 19.5 years old. Ages from the sample exchange ranged from 4-24 years, mode was 11 years.**

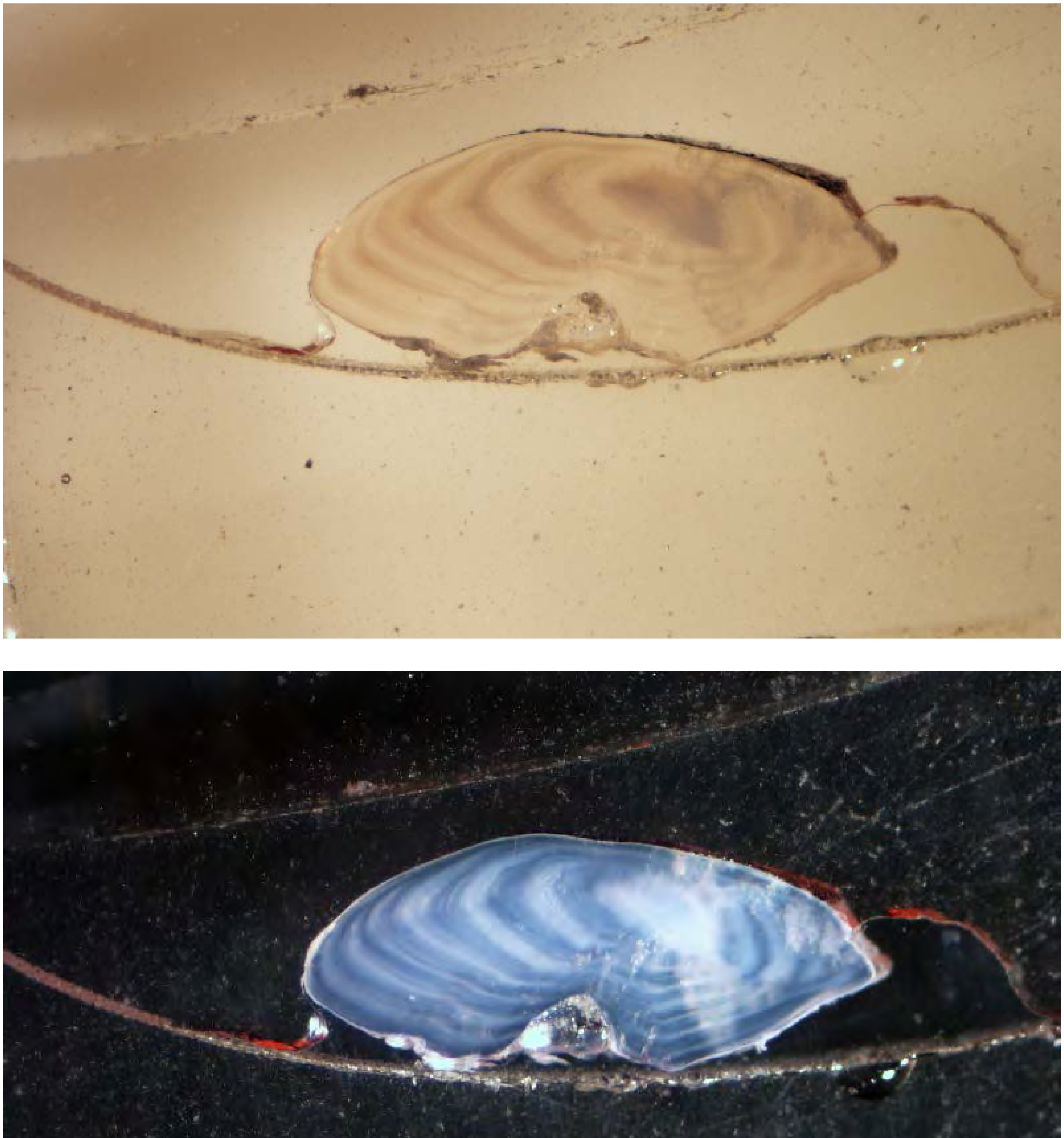


**Figure 70. Sectioned otolith sample #70. Sample was from a female American eel that was 561 mm TL, 357 g, and captured 1/9/2013 from an estuarine habitat in South Carolina. The sample provided by SCDNR was aged as 6 years old. Ages from the sample exchange ranged from 6-16 years, mode was 6 years. This was a paired sample with W89.**

**Figure 71. Sectioned otolith sample #71. Sample was from an American eel that was 698 mm TL, 550 g, and captured 11/12/2008 from an estuarine habitat in New Jersey. The sample provided by NJDFW was aged as 13 years old. Ages from the sample exchange ranged from 10-18 years, mode was 12 years. This was a paired sample with W65.**

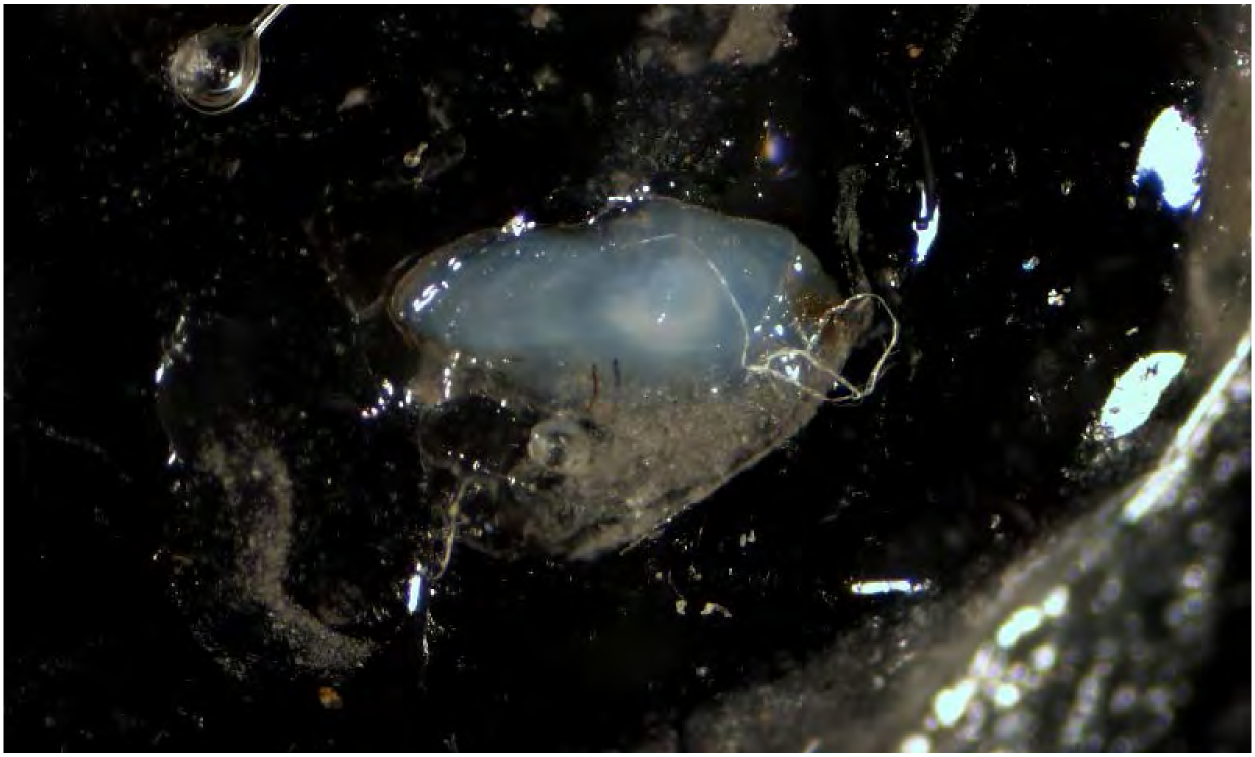
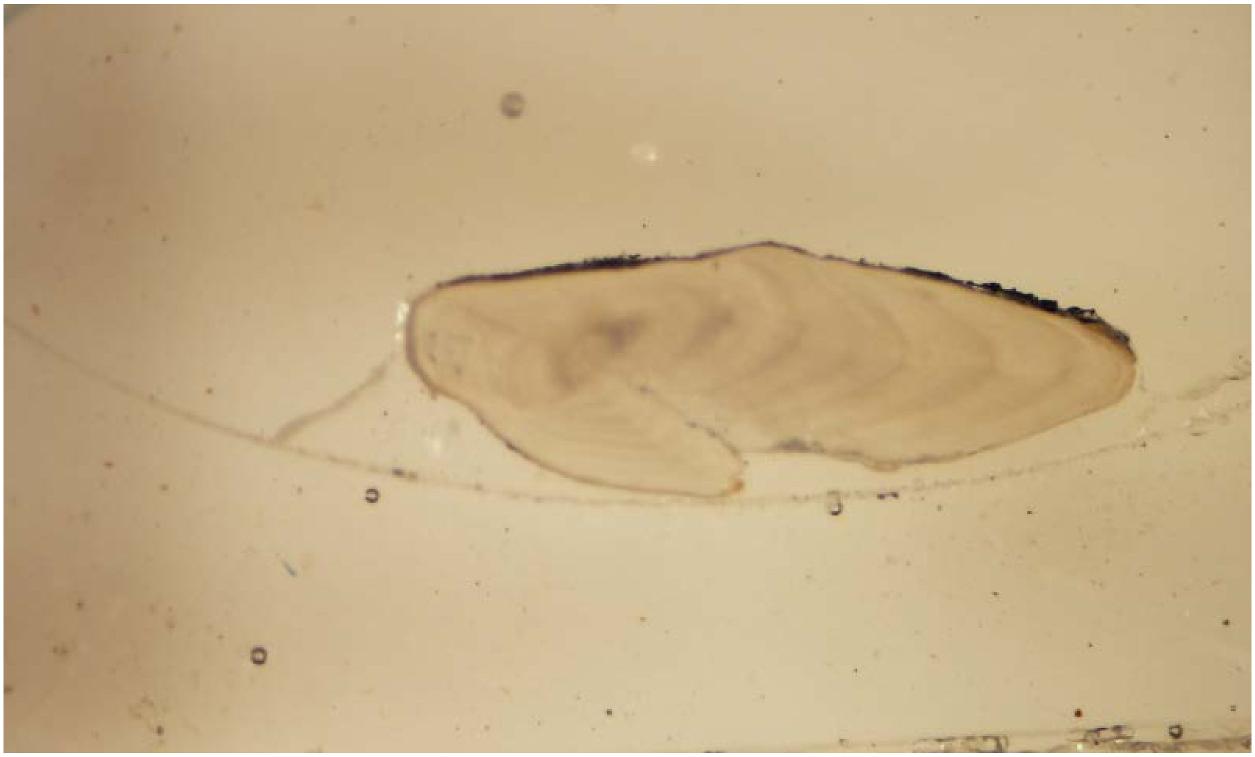


**Figure 72. Sectioned otolith sample #72. Sample was from an American eel that was 233 mm TL, 21 g, and captured 4/13/2015 from an estuarine habitat in Virginia. The sample provided by VIMS was aged as 4 years old. Ages from the sample exchange ranged from 0-4 years, mode was 3 years.**



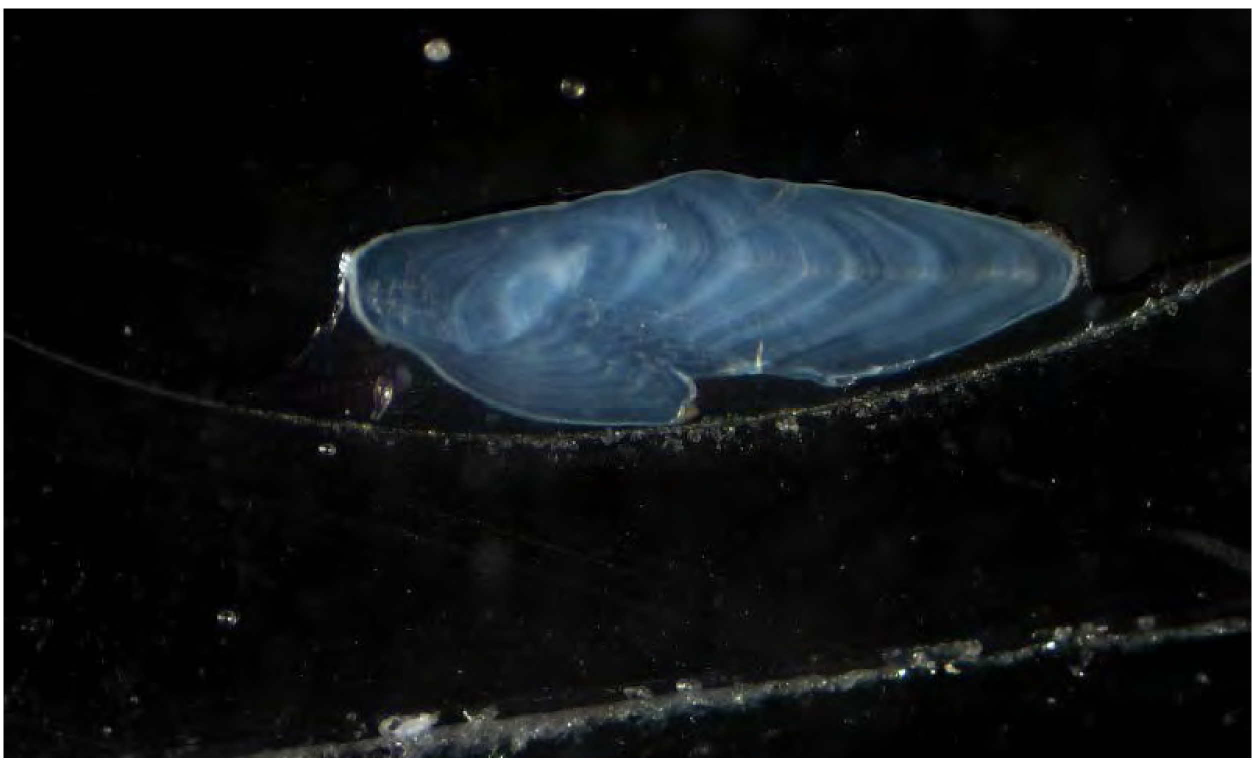


**Figure 73. Sectioned otolith sample #73. Sample was from a female American eel that was 534 mm TL, 300 g, and captured 9/16/2013 from an estuarine habitat in South Carolina. The sample provided by SCDNR was aged as 6 years old. Ages from the sample exchange ranged from 6-15 years, mode was 7 years. This was a paired sample with W54.**

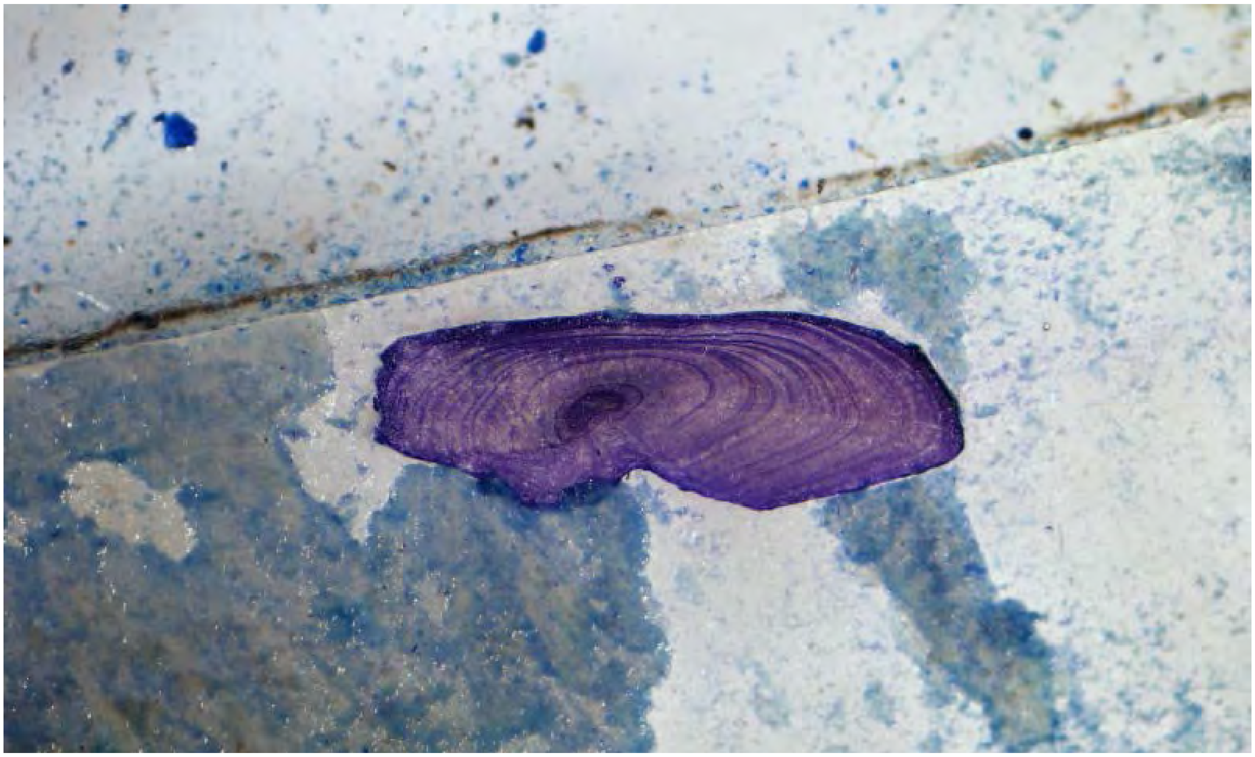


**Figure 74. Sectioned otolith sample #74. Sample was from a female American eel that was 495 mm TL, 182 g, and captured 8/1997 in Maine. Ages from the sample exchange ranged from 5-11 years, mode was 10 years. This was a paired sample with W75.**

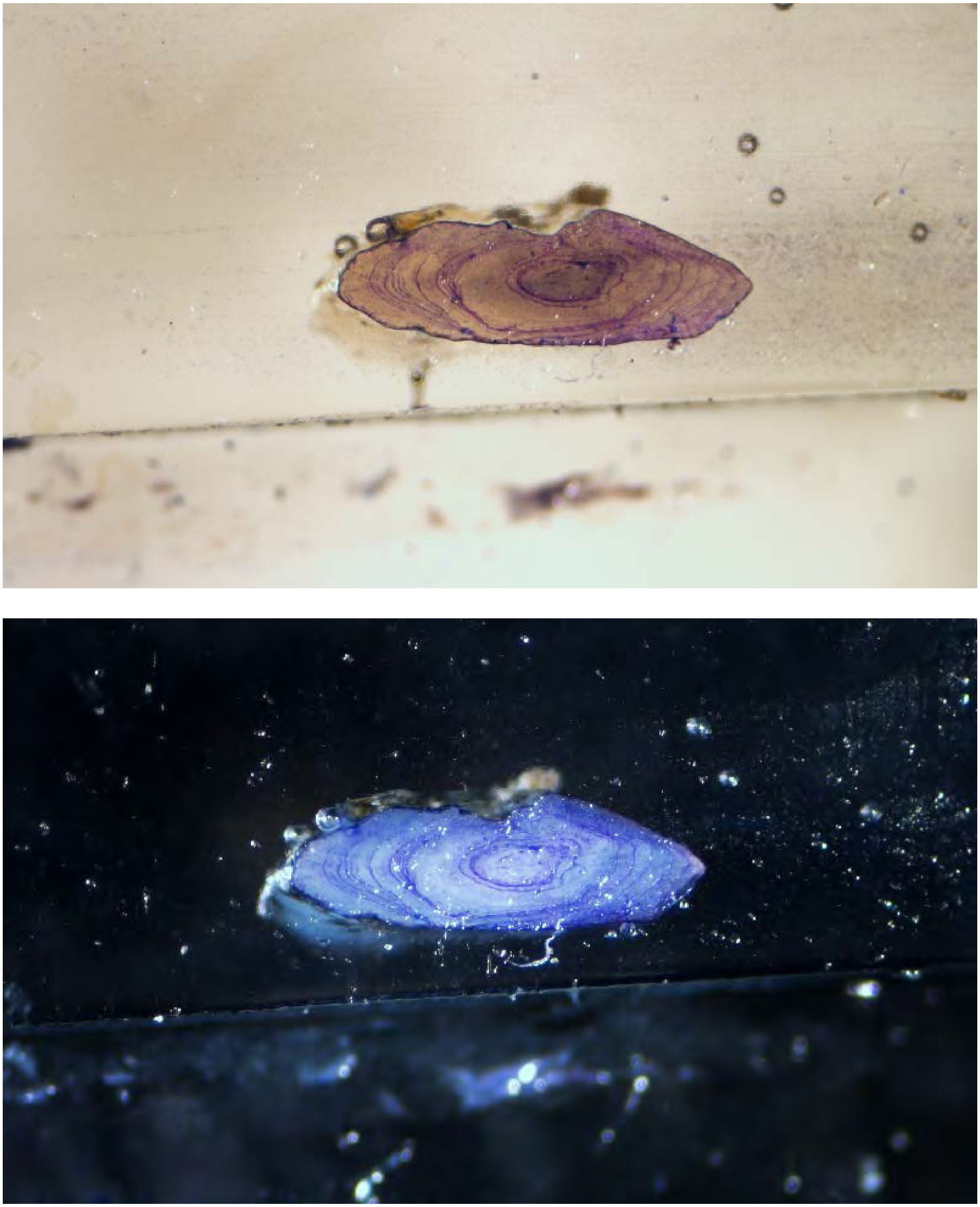


**Figure 75. Sectioned otolith sample #75. Sample was from an American eel that was 409 mm TL, 128 g, and captured 6/26/2012 from an estuarine habitat in Delaware. Ages from the sample exchange ranged from 2-5 years, mode was 4 years. This was a paired sample with W12.**

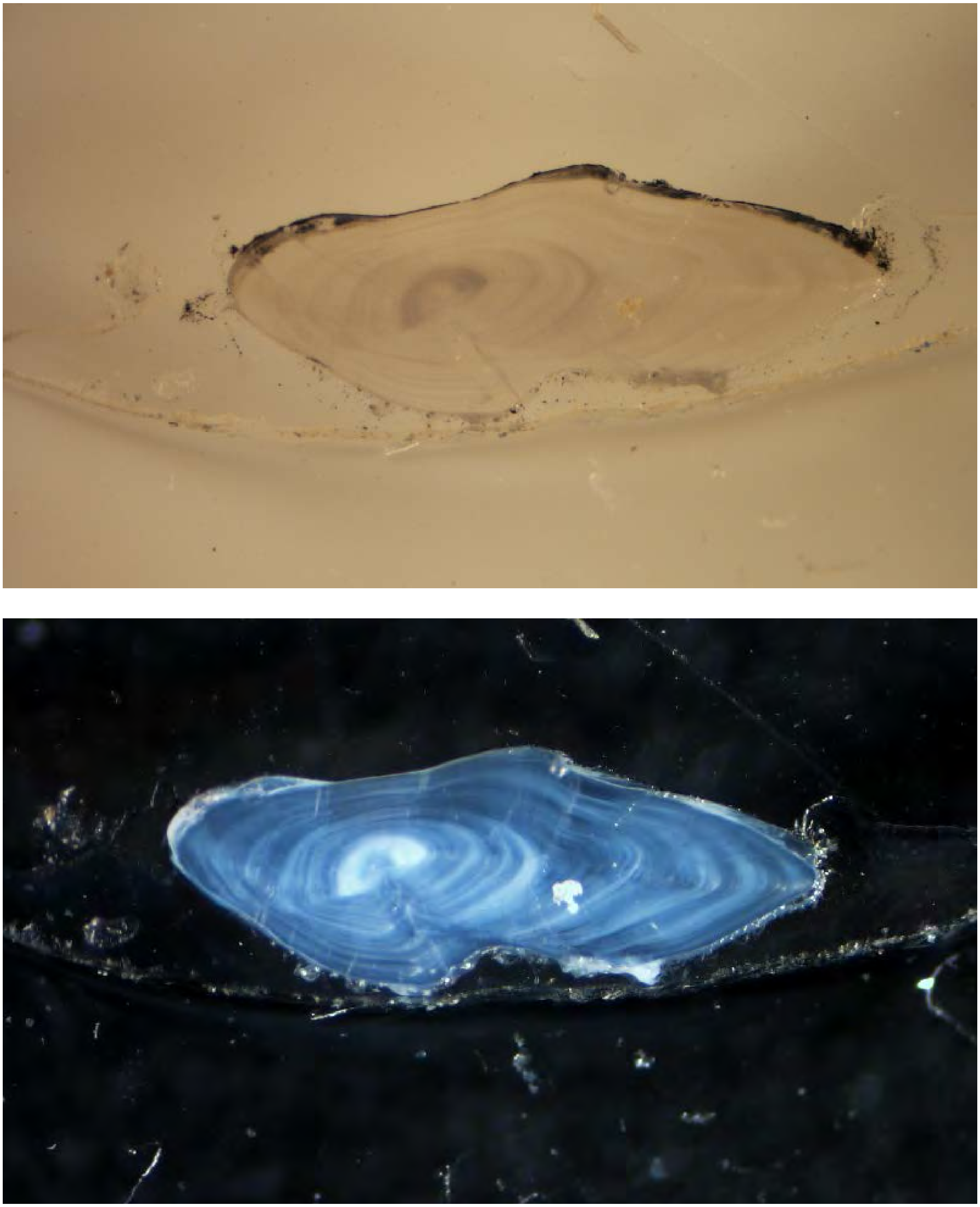


Figure 76. Sectioned otolith sample #76. Sample was from a female American eel that was 751 mm TL, 1025 g, and captured 9/13/2013 from an estuarine habitat in South Carolina. The sample provided by SCDNR was aged as 5 years old. Ages from the sample exchange ranged from 4-9 years, mode was 6 years. This was a paired sample with W104.

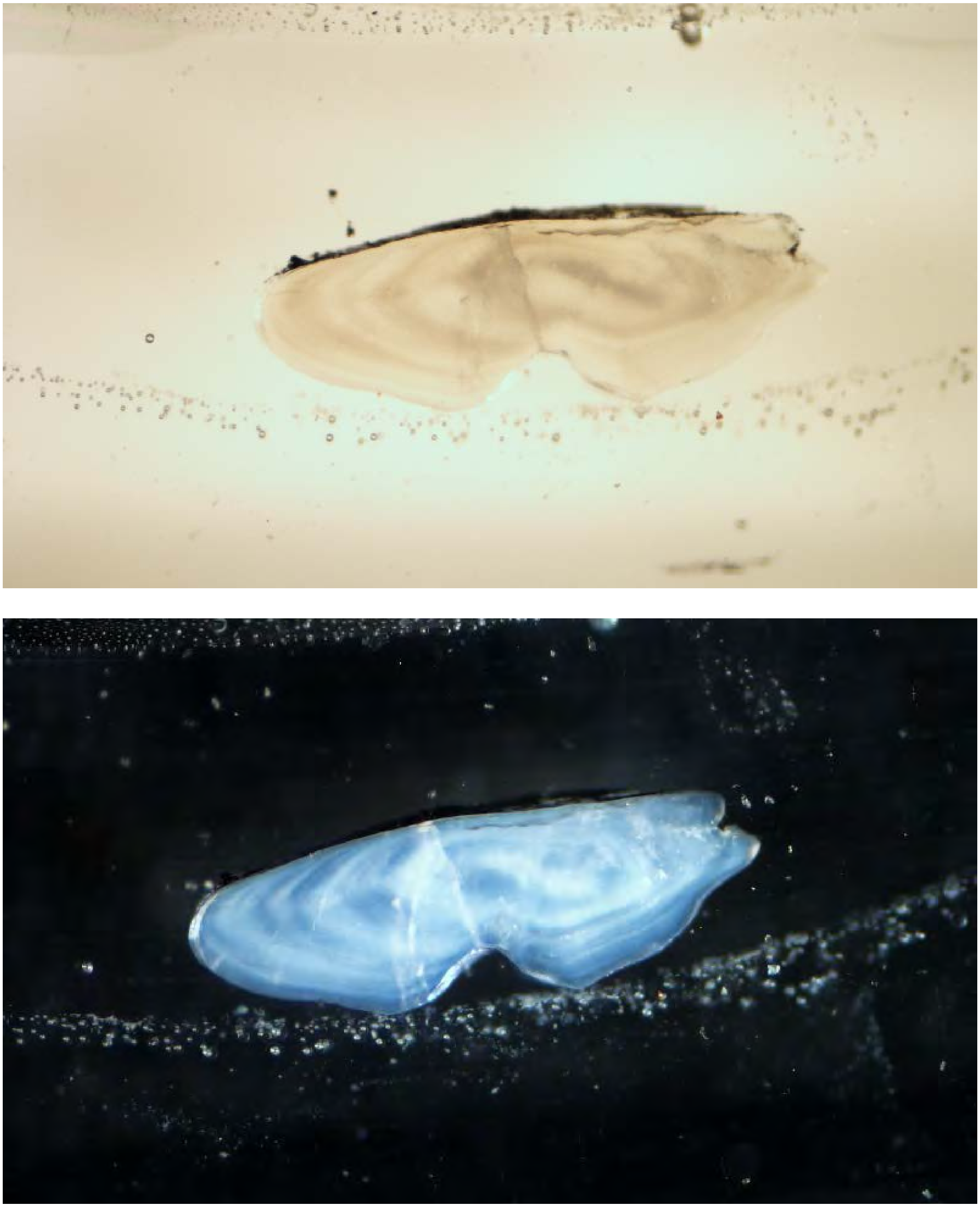


**Figure 77. Sectioned otolith sample #77. Sample was from an American eel that was 435 mm TL, 191 g, and captured 4/18/2015 from a freshwater habitat in Florida. The sample provided by FL FWC was aged as 5 years old. Ages from the sample exchange ranged from 2-6 years, mode was 4 years. This was a paired sample with W36.**

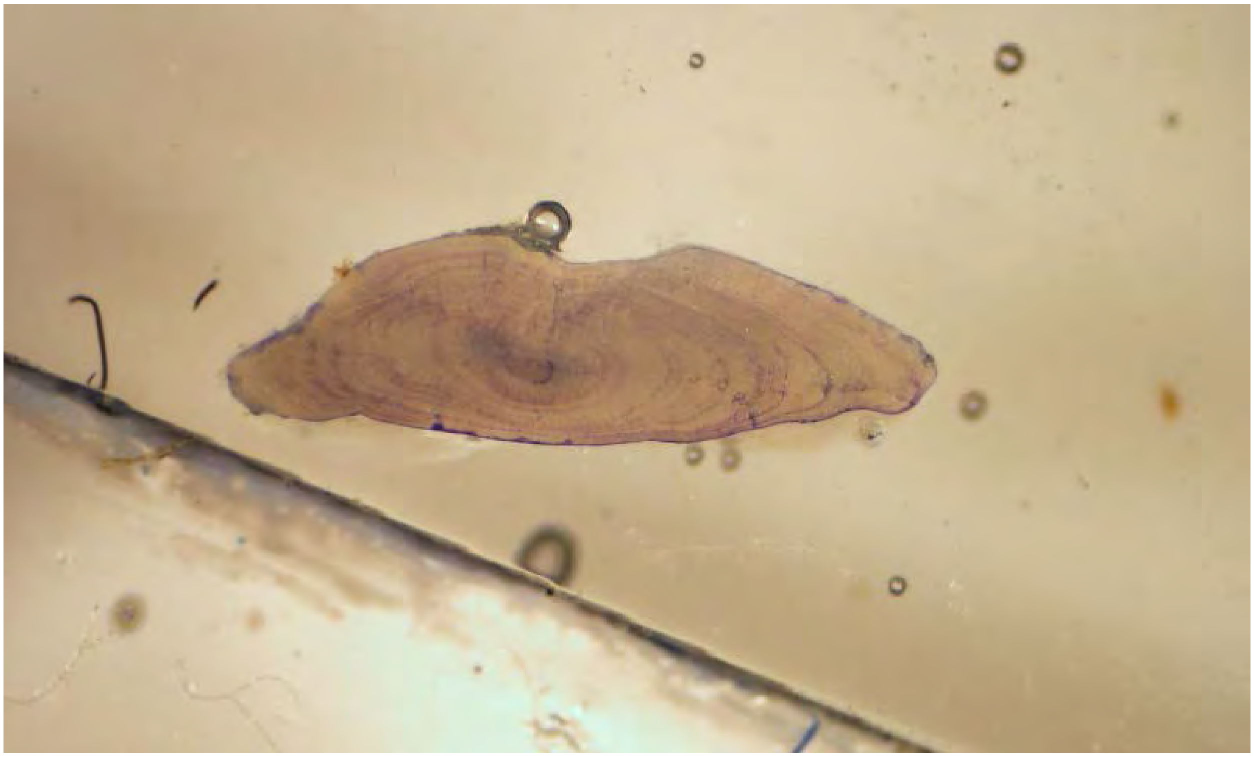


**Figure 78. Sectioned otolith sample #78. Sample was from an American eel that was 493 mm TL, 335 g, and captured 8/1/2012 from an estuarine habitat in Delaware. Ages from the sample exchange ranged from 5-8 years, mode was 6 years. This was a paired sample with W30.**

**Figure 79. Sectioned otolith sample #79. Sample was from an American eel that was 621 mm TL, 370 g, and captured 5/29/2014 from an estuarine habitat in New Jersey. The sample provided by NJDFW was aged as 7 years old. Ages from the sample exchange ranged from 4-9 years, mode was 7 years. This was a paired sample with W52.**

**Figure 80. Sectioned otolith sample #80. Sample was from an American eel that was 340 mm TL, 73 g, and captured 10/7/2014 from a freshwater habitat in Virginia. The sample provided by VIMS was aged as 8 years old. Ages from the sample exchange ranged from 6-9 years, mode was 8 years.**

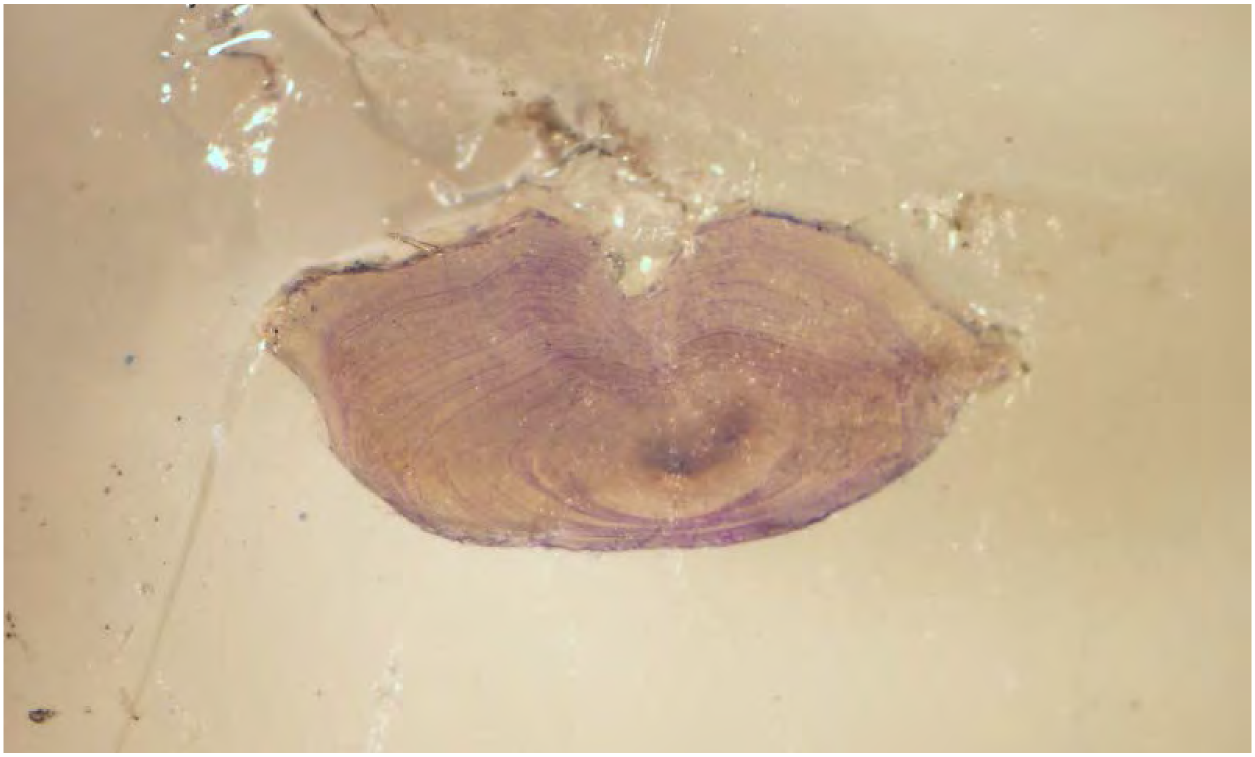


**Figure 81. Sectioned otolith sample #81. Sample was from a female American eel that was 500 mm TL, captured in 1999 in the Hudson River. The sample provided by David Secor and Wendy Morrison was aged as 25 years old. Ages from the sample exchange ranged from 8-23 years, mode was 11 years.**

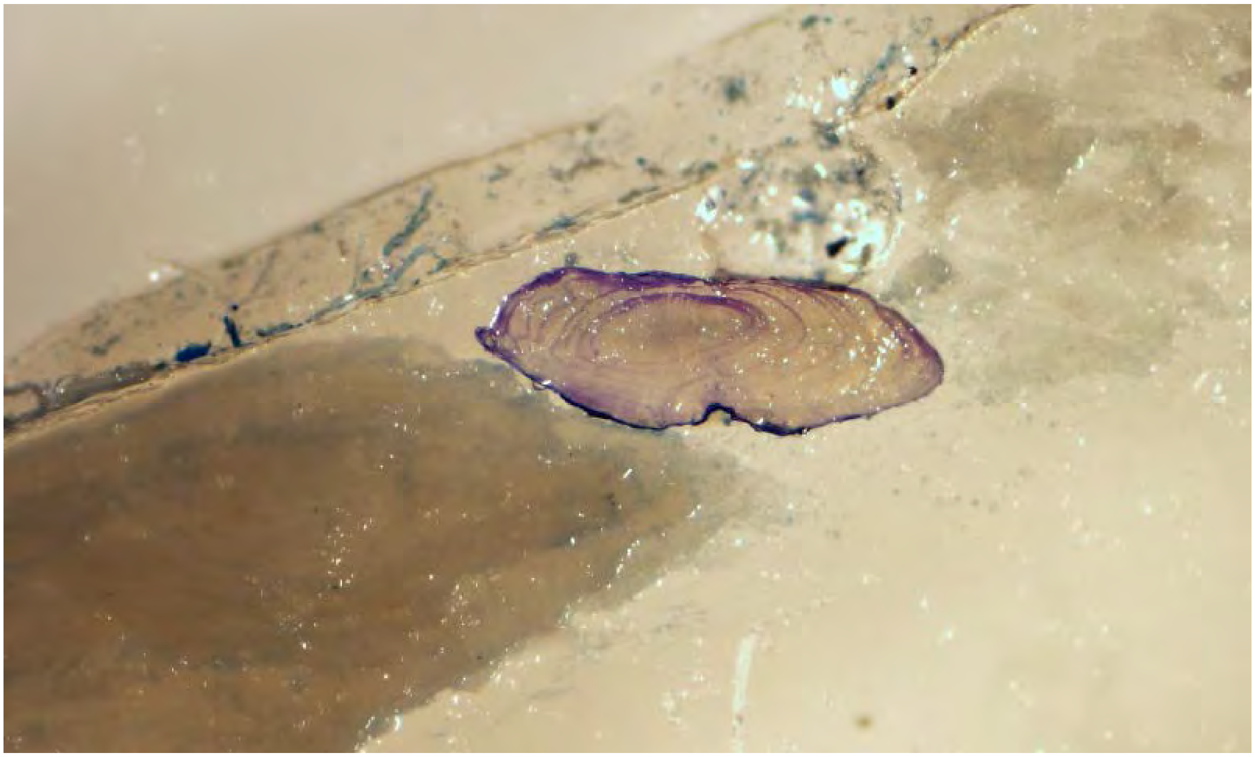


**Figure 82. Sectioned otolith sample #82. Sample was from a male American eel that was 293 mm TL, 47 g, and captured 7/1997 from Maine. Ages from the sample exchange ranged from 5-9 years, mode was 6 years. This was a paired sample with W57.**

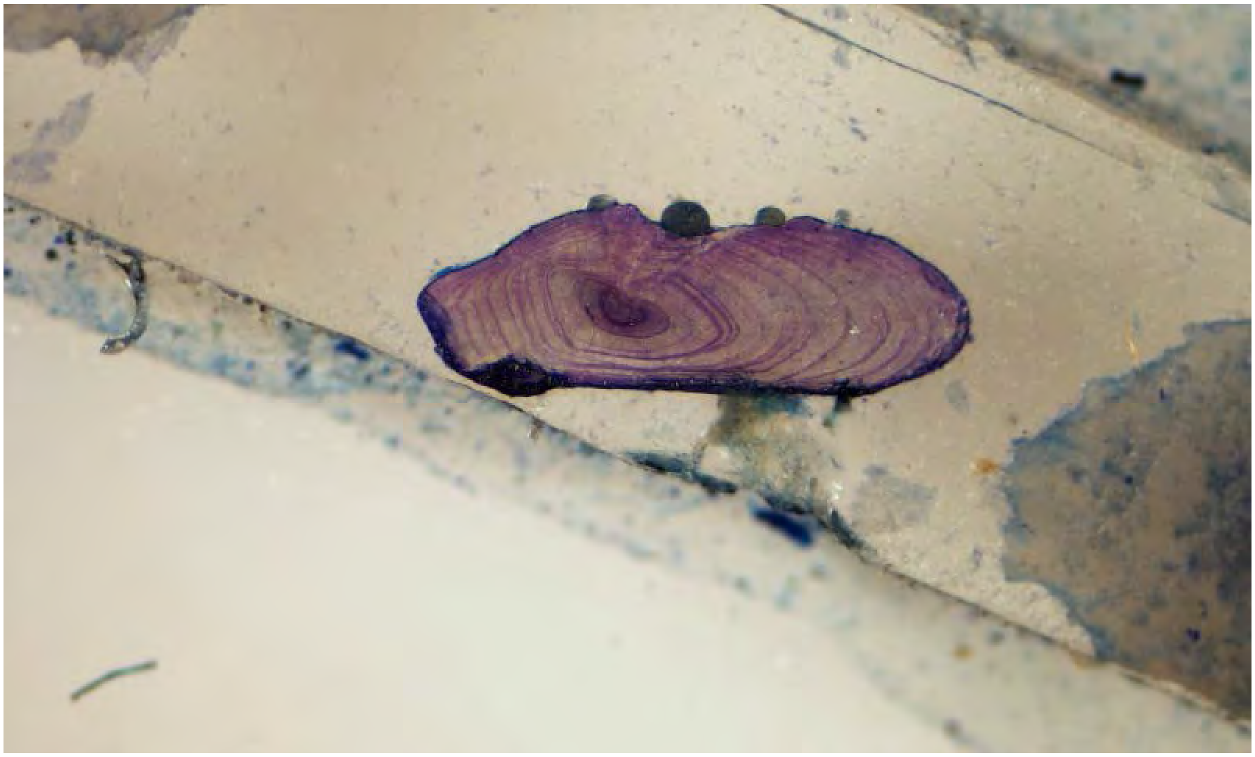


**Figure 83. Sectioned otolith sample #83. Sample was from a male American eel that was 380 mm TL, 91 g, and captured 9/1997 in Maine. Ages from the sample exchange ranged from 7-12 years, mode was 8 years. This was a paired sample with W66.**

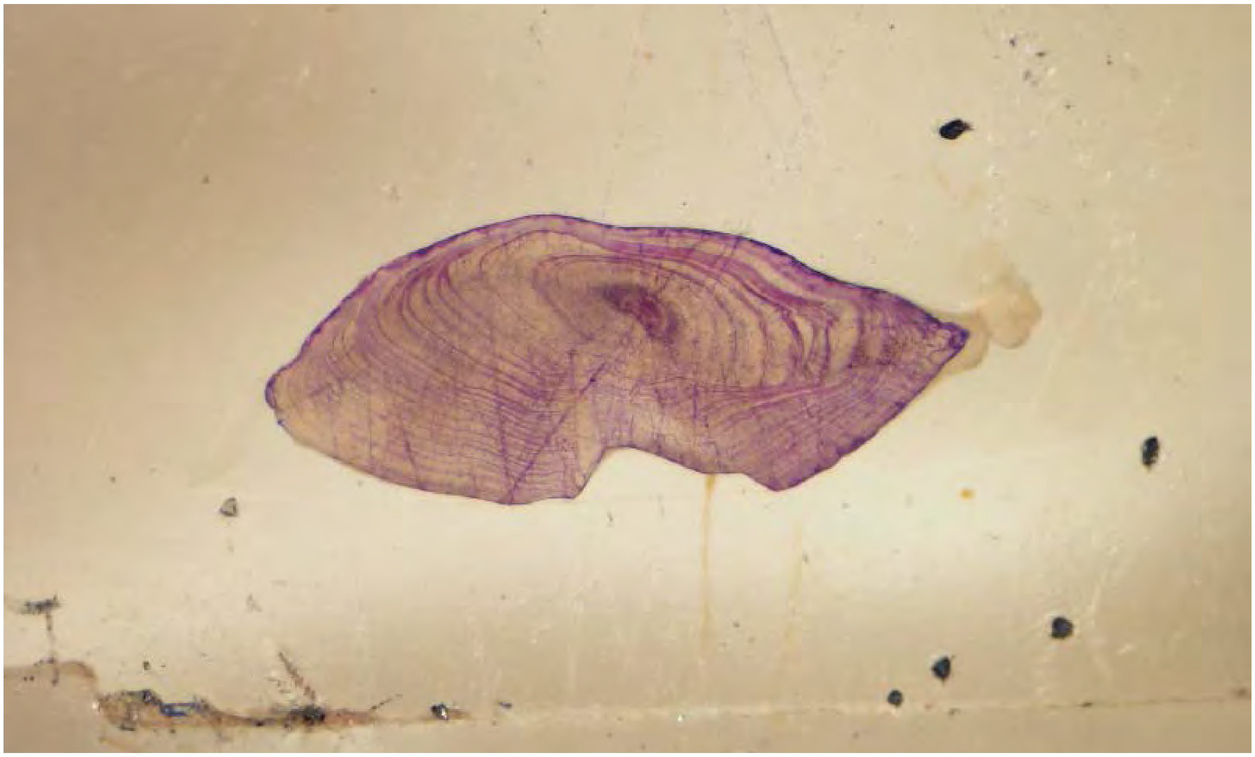


**Figure 84. Sectioned otolith sample #84. Sample was from a female American eel that was 485 mm TL, captured in 1999 from the Hudson River. The sample provided by David Secor and Wendy Morrison was aged as 22 years old. Ages from the sample exchange ranged from 7-25 years, mode was 17 years.**

**Figure 85. Sectioned otolith sample #85. Sample was from an American eel that was 426 mm TL, 140 g, and captured 11/6/2014 from an estuarine habitat in Florida. The sample provided by FL FWC was aged as 2 years old. Ages from the sample exchange ranged from 1-6 years, mode was 6 years. This was a paired sample with W49.**

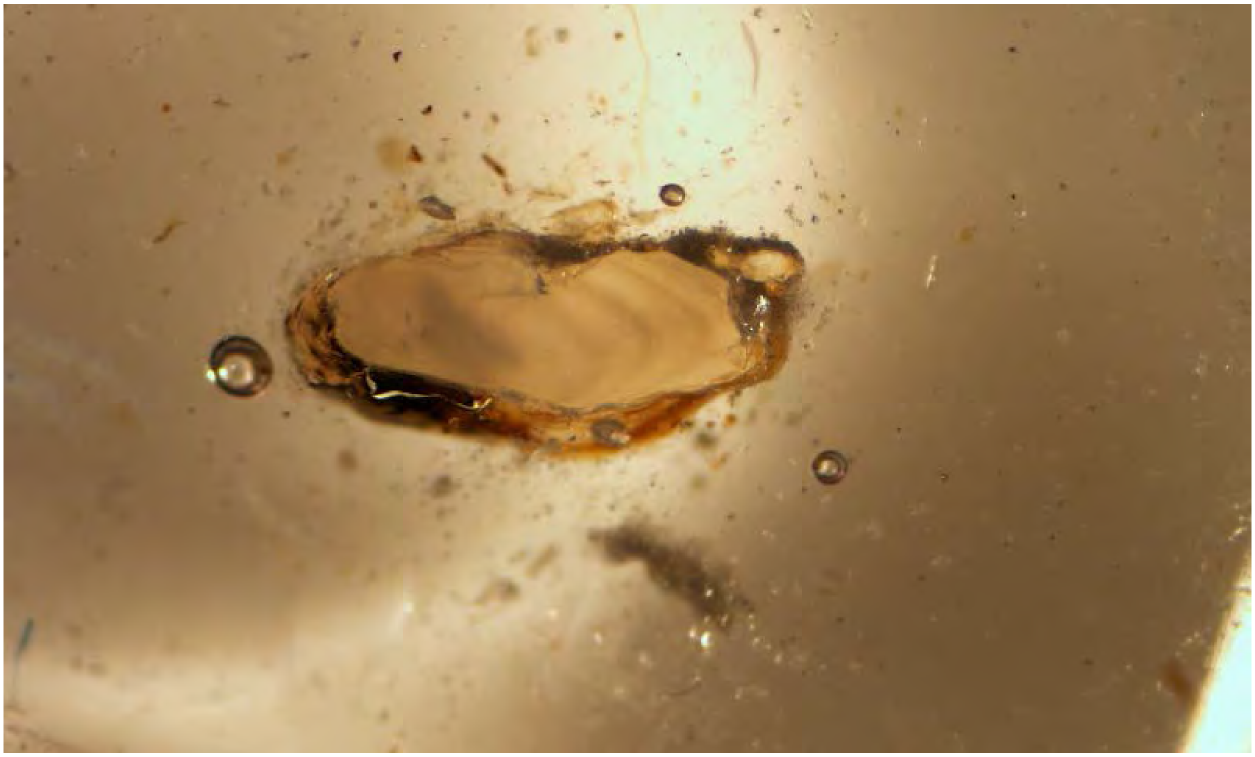


**Figure 86. Sectioned otolith sample #86. Sample was from an American eel that was 269 mm TL, 45 g, and captured 4/13/2015 from an estuarine habitat in Virginia. The sample provided by VIMS was aged as 3 years old. Ages from the sample exchange ranged from 3-5 years, mode was 4 years.**

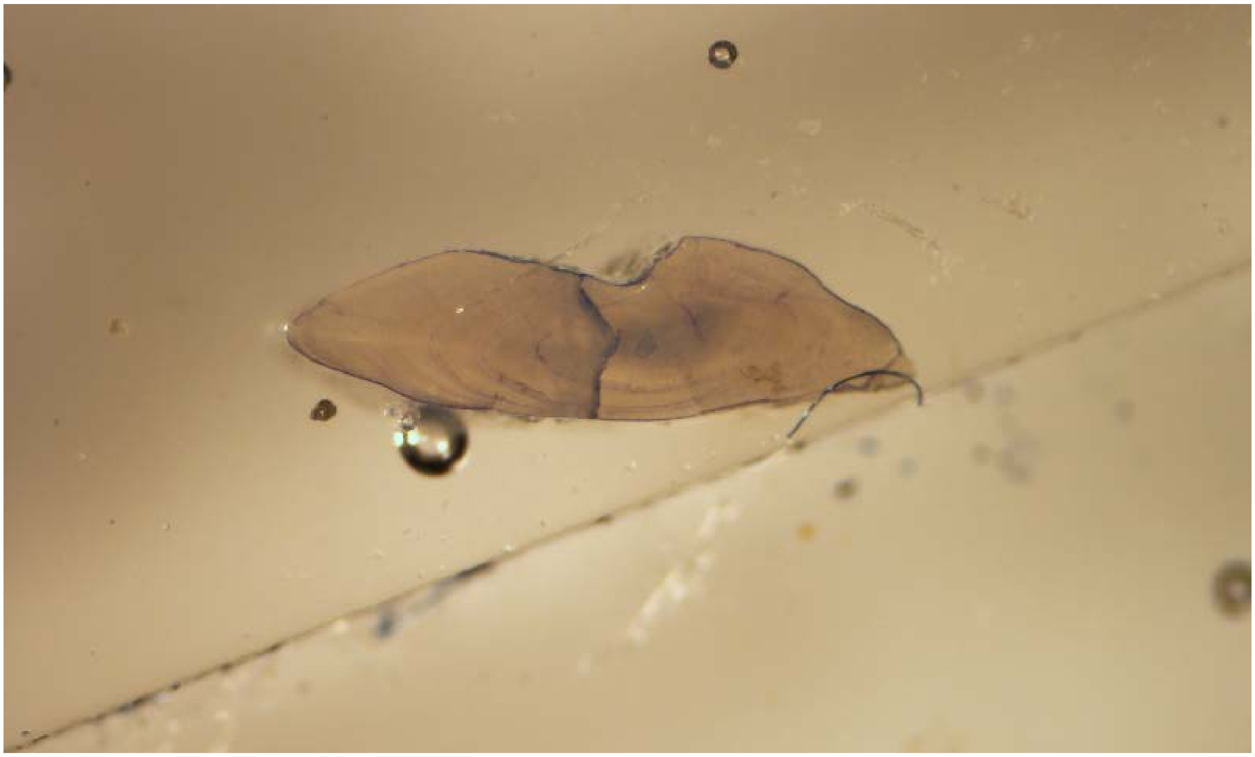


**Figure 87. Sectioned otolith sample #87. Sample was from an American eel that was 488 mm TL, 261 g, and captured 6/28/2012 from an estuarine habitat in Delaware. Ages from the sample exchange ranged from 3-7 years, mode was 6 years. This was a paired sample with W4.**

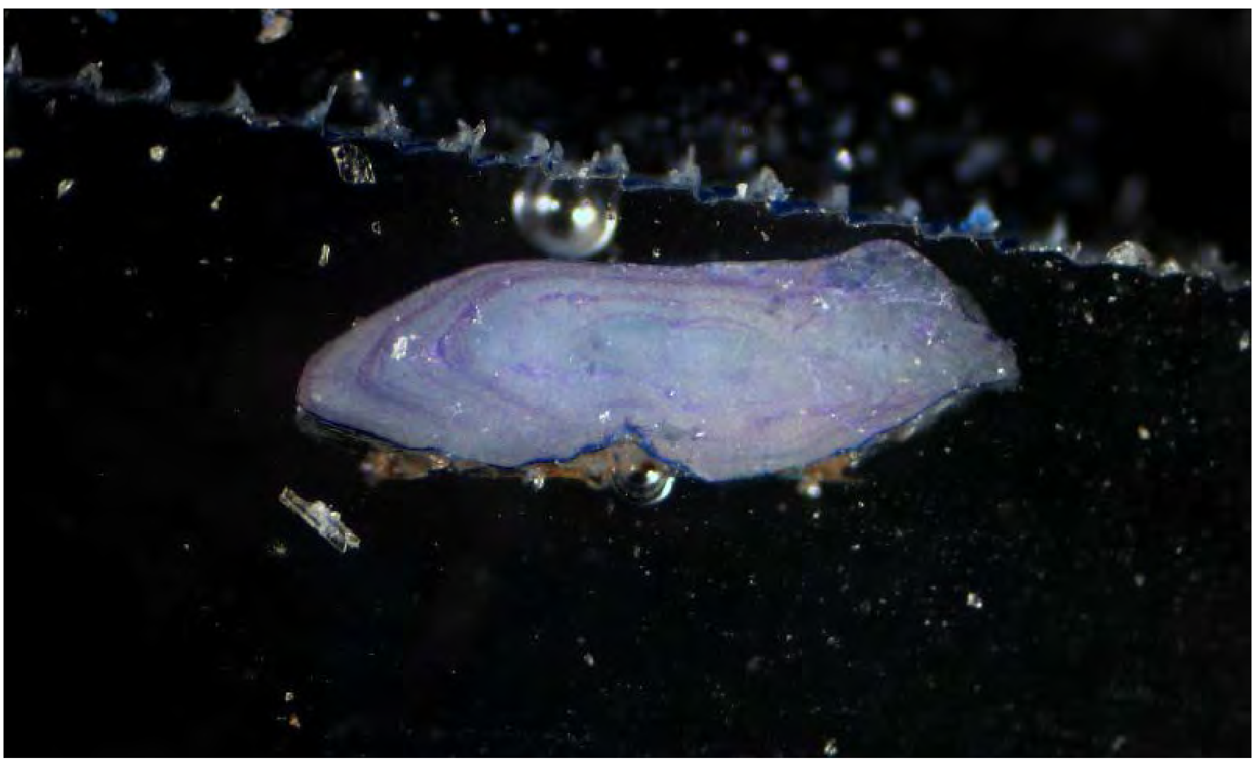


**Figure 88. Sectioned otolith sample #88. Sample was from an American eel that was 557 mm TL, 347 g, and captured 8/9/2012 from an estuarine habitat in Delaware. Ages from the sample exchange ranged from 4-6 years, mode was 4 years. This was a paired sample with W72.**

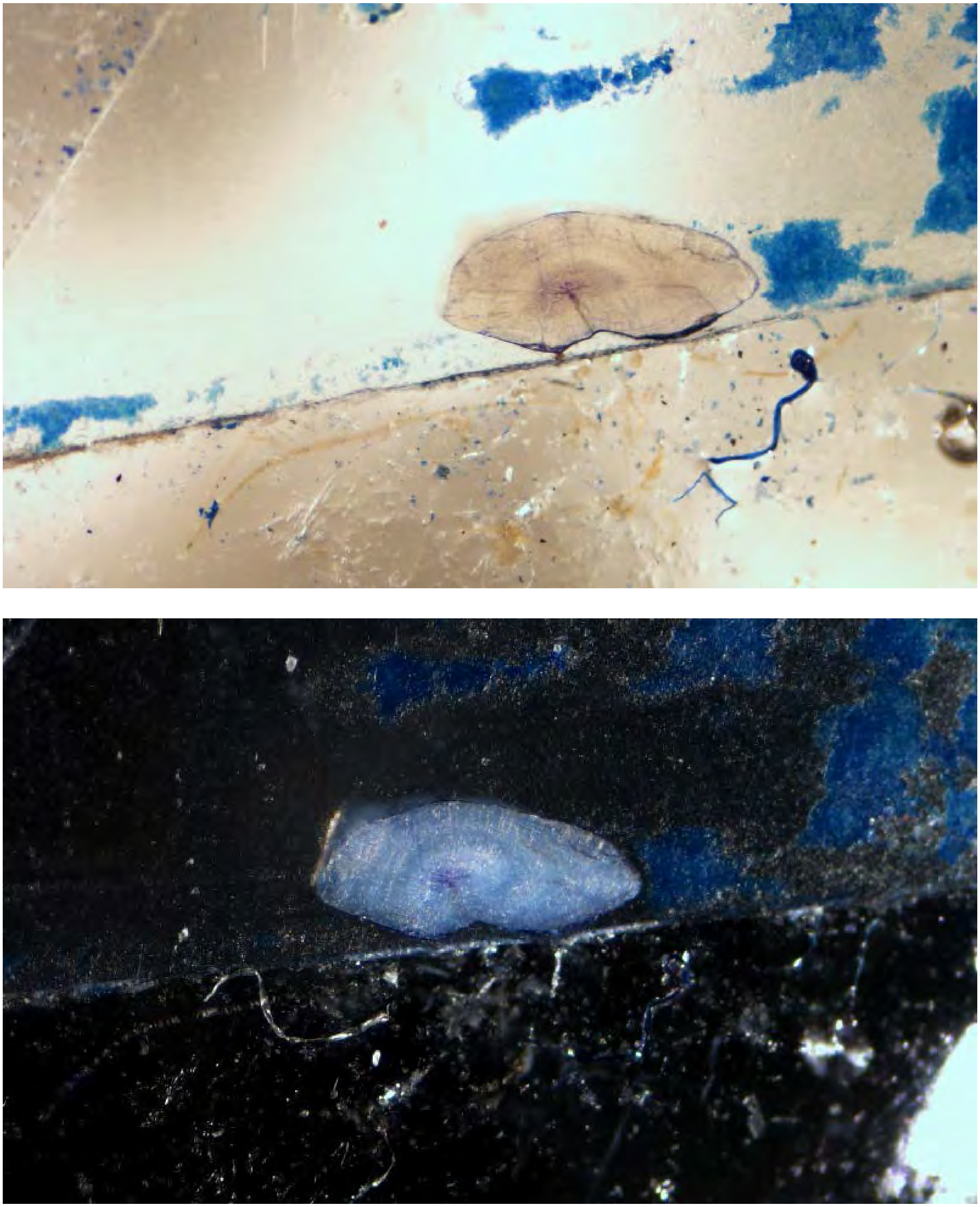


**Figure 89. Sectioned otolith sample #89. Sample was from an American eel that was 290 mm TL, 50 g, and captured 5/15/2014 from an estuarine habitat in New Jersey. The sample provided by NJDFW was aged as 1 year old. Ages from the sample exchange ranged from 2-7 years, mode was 3 years. This was a paired sample with W43.**

**Figure 90. Sectioned otolith sample #90. Sample was from a male American eel that was 340 mm TL, 71 g, and captured 9/27/2013 from an estuarine habitat in South Carolina. The sample provided by SC DNR was aged as 7 years old. Ages from the sample exchange ranged from 6-8 years, mode was 7 years. This was a paired sample with W15.**

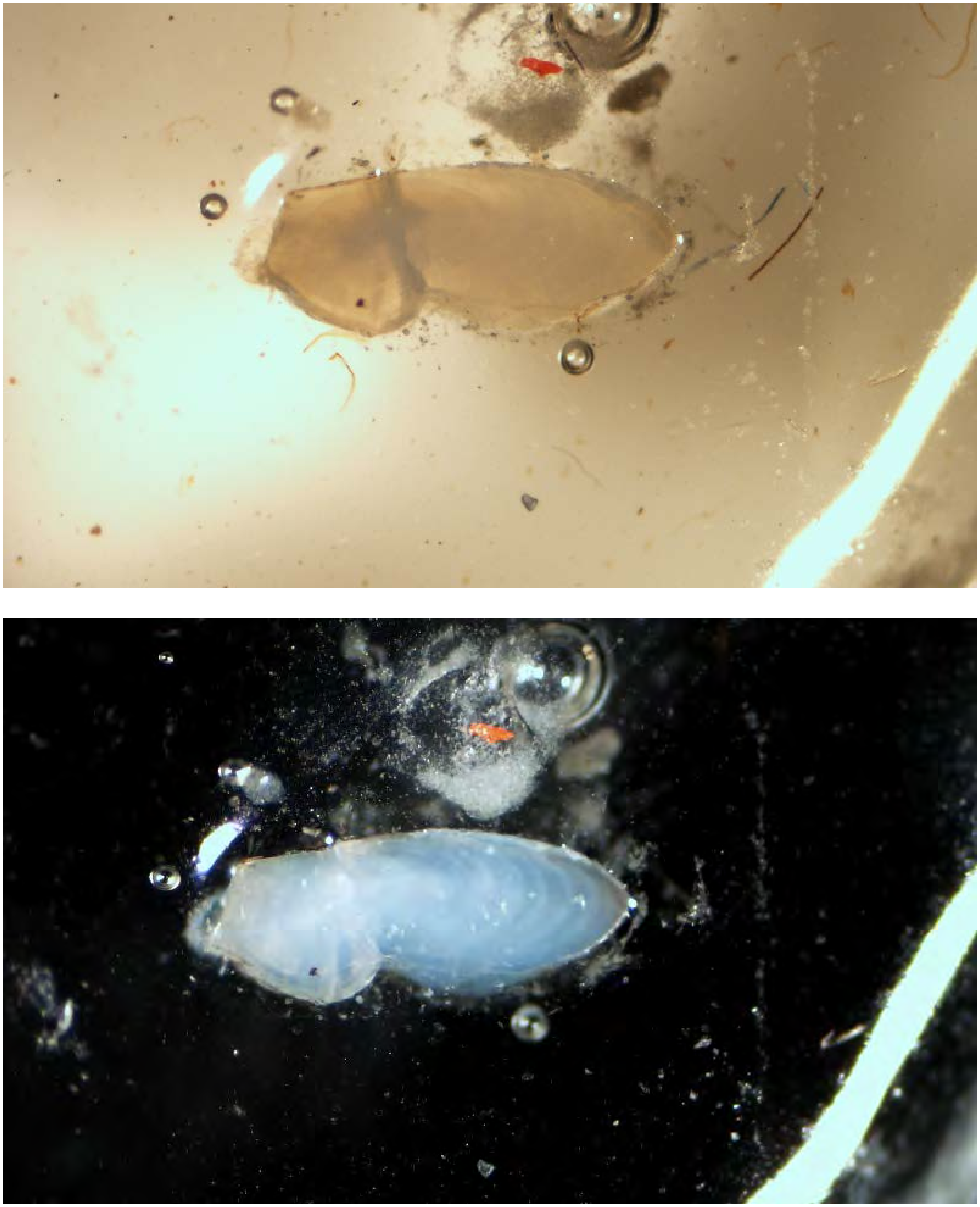


**Figure 91. Sectioned otolith sample #91. Sample was from an American eel that was 350 mm TL, 78 g, and captured 10/7/2014 from a freshwater habitat in Virginia. The sample provided by VIMS was aged as 7 years old. Ages from the sample exchange ranged from 2-11 years, mode was 7 years.**

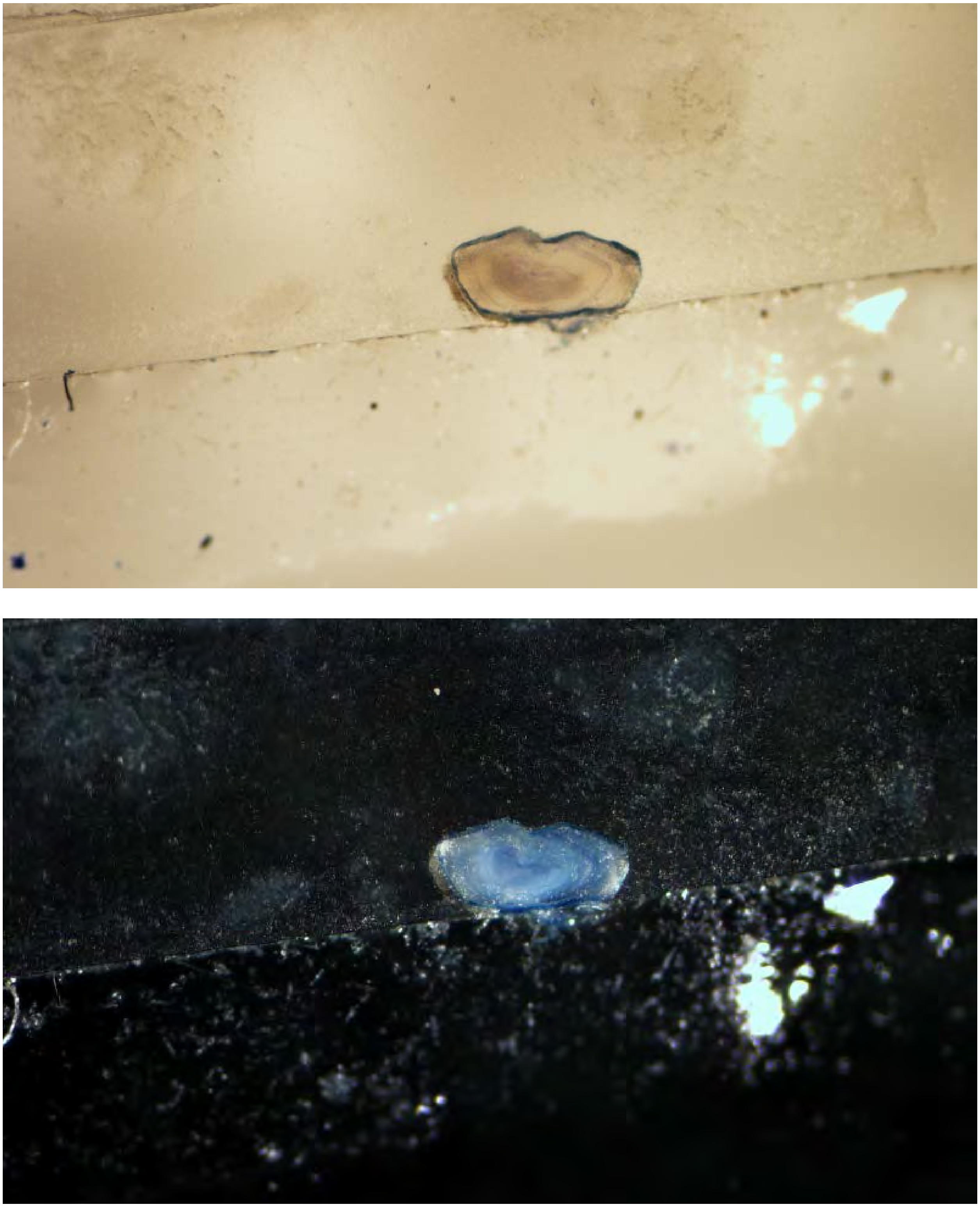


**Figure 92. Sectioned otolith sample #92. Sample was from an American eel that was 120 mm TL, 3 g, and captured 7/1997 from Maine. Ages from the sample exchange ranged from 0-6 years, mode was 1 years. This was a paired sample with W61.**

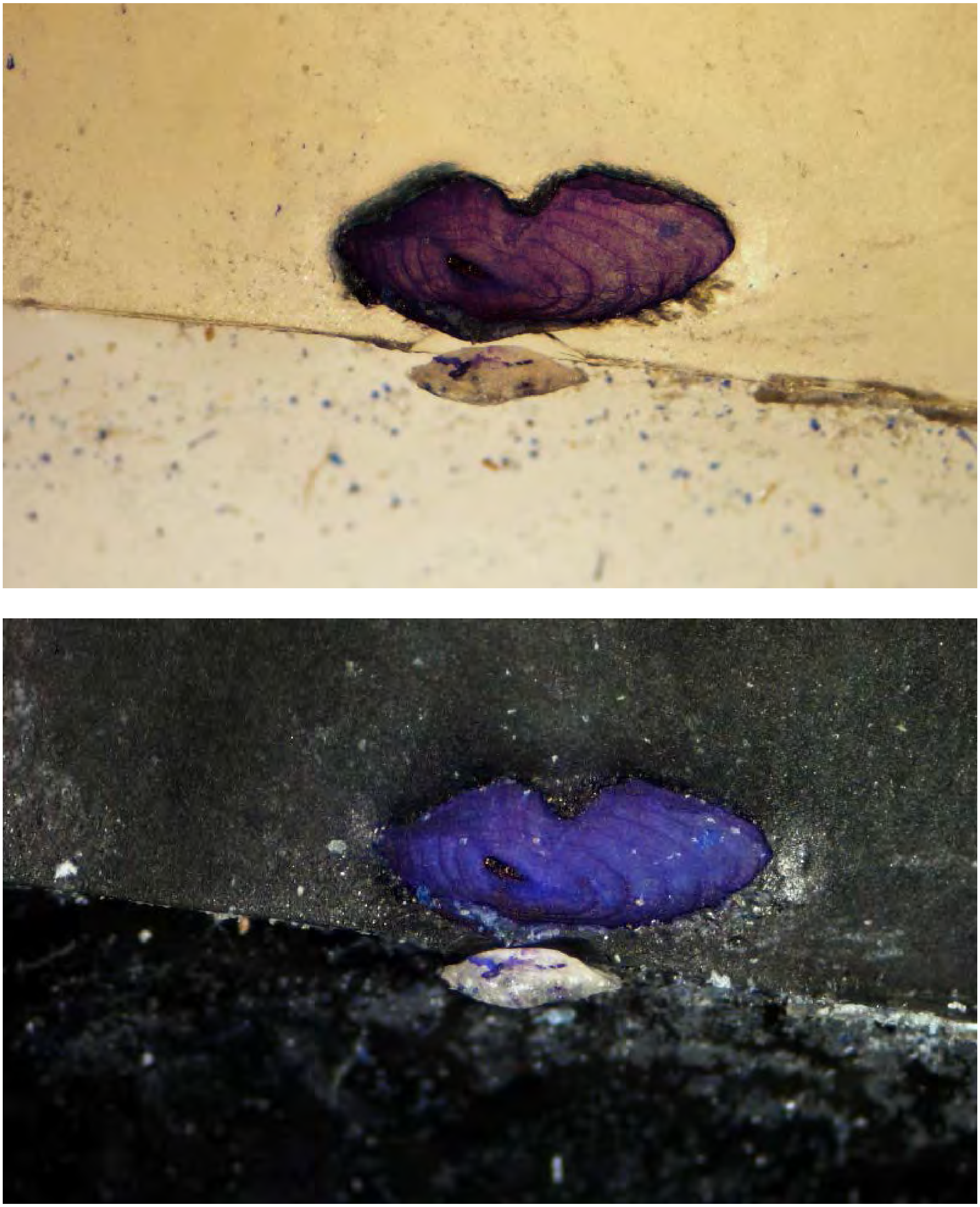


**Figure 93. Sectioned otolith sample #93. Sample was from a male American eel captured 10/2005 from Massachusetts. Ages from the sample exchange ranged from 5-7 years, mode was 6 years.**

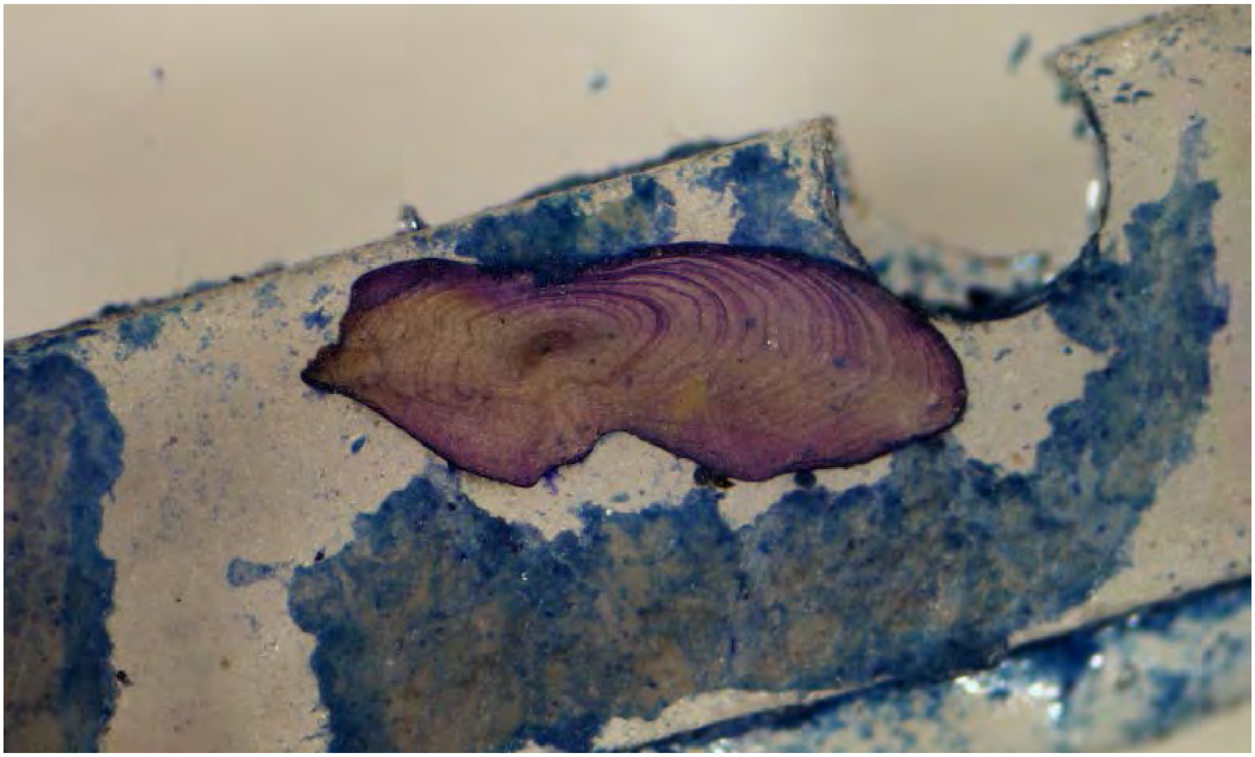


**Figure 94. Sectioned otolith sample #94. Sample was from a female American eel that was 483 mm TL, 216 g, and captured 9/1997 in Maine. Ages from the sample exchange ranged from 4-19 years, mode was 15 years. This was a paired sample with W101.**

**Figure 95. Sectioned otolith sample #95. Sample was from a male American eel that was 313 mm TL, 55 g, and captured 9/27/2013 from an estuarine habitat in South Carolina. The sample provided by SCDNR was aged as 8 years old. Ages from the sample exchange ranged from 0-13 years, mode was 8 years. This was a paired sample with W40.**

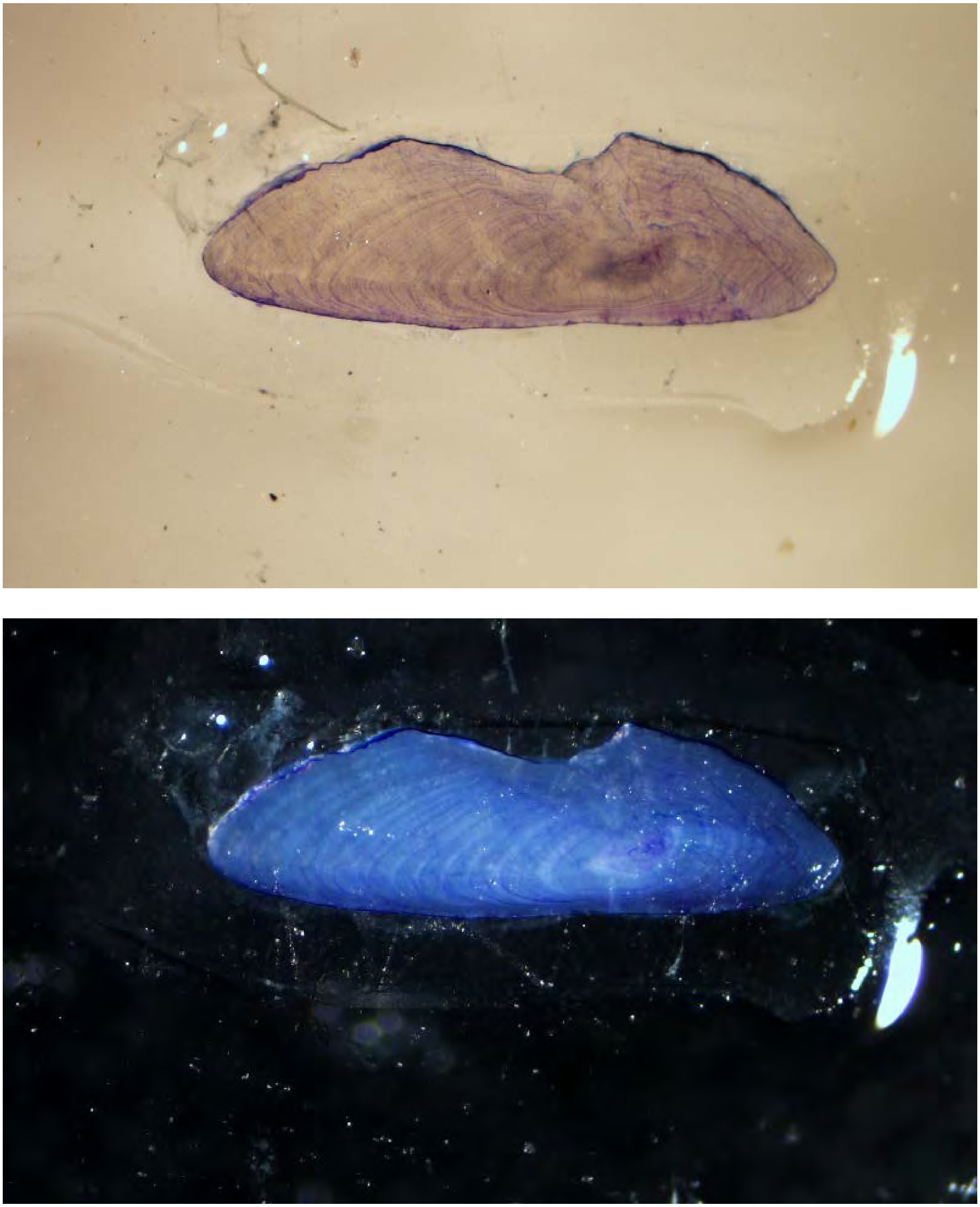


**Figure 96. Sectioned otolith sample #96. Sample was from a female American eel that was 535 mm TL, captured in 1999 in the Hudson River. The sample provided by David Secor and Wendy Morrison was aged as 16 years old. Ages from the sample exchange ranged from 9-18 years, mode was 15 years.**

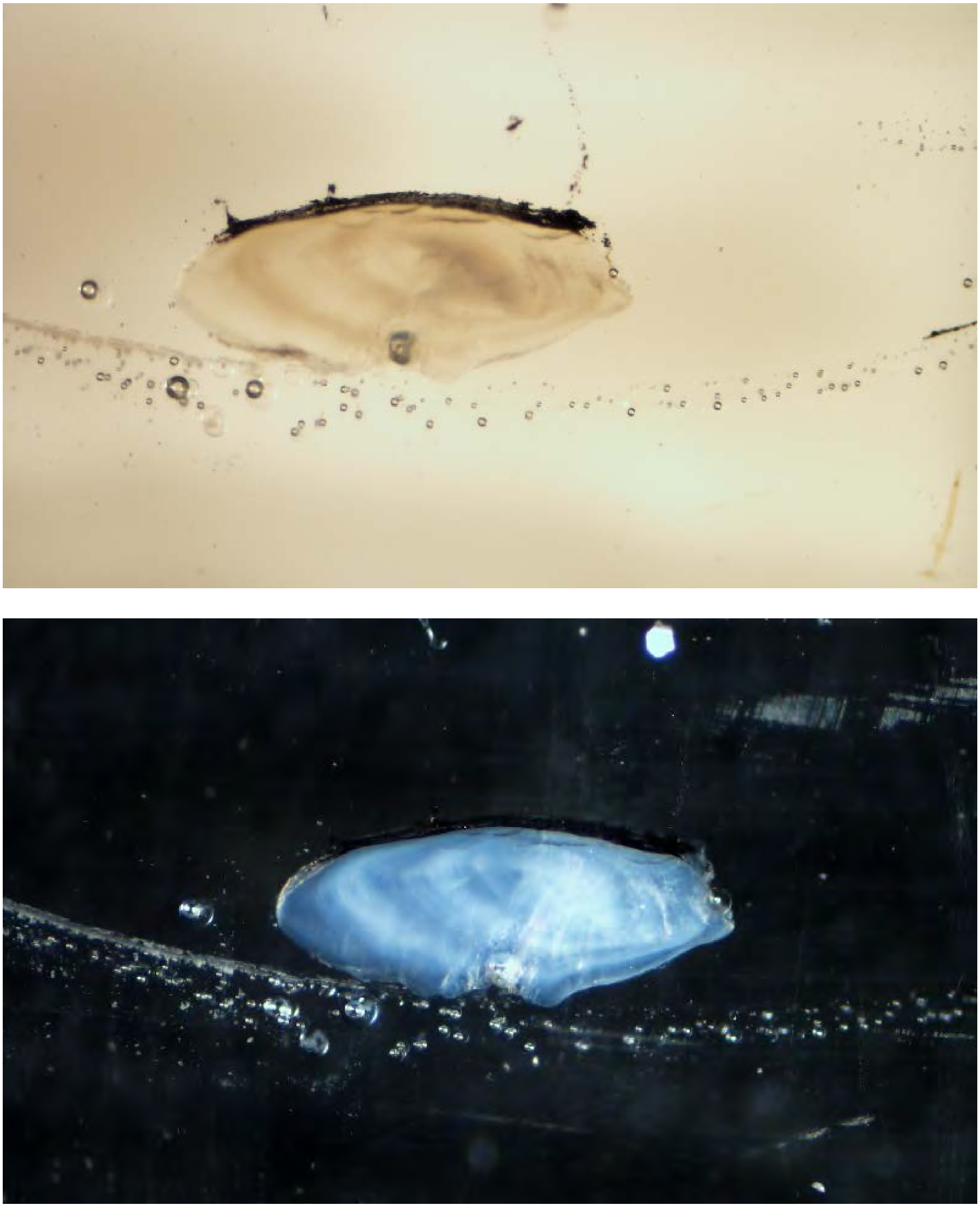


**Figure 97. Sectioned otolith sample #97. Sample was from an American eel that was 351 mm TL, 80 g, and captured 2/25/2014 from a freshwater habitat in Florida. The sample provided by FL FWC was aged as 3 years old. Ages from the sample exchange ranged from 1-6 years, mode was 2 years. This was a paired sample with W16.**

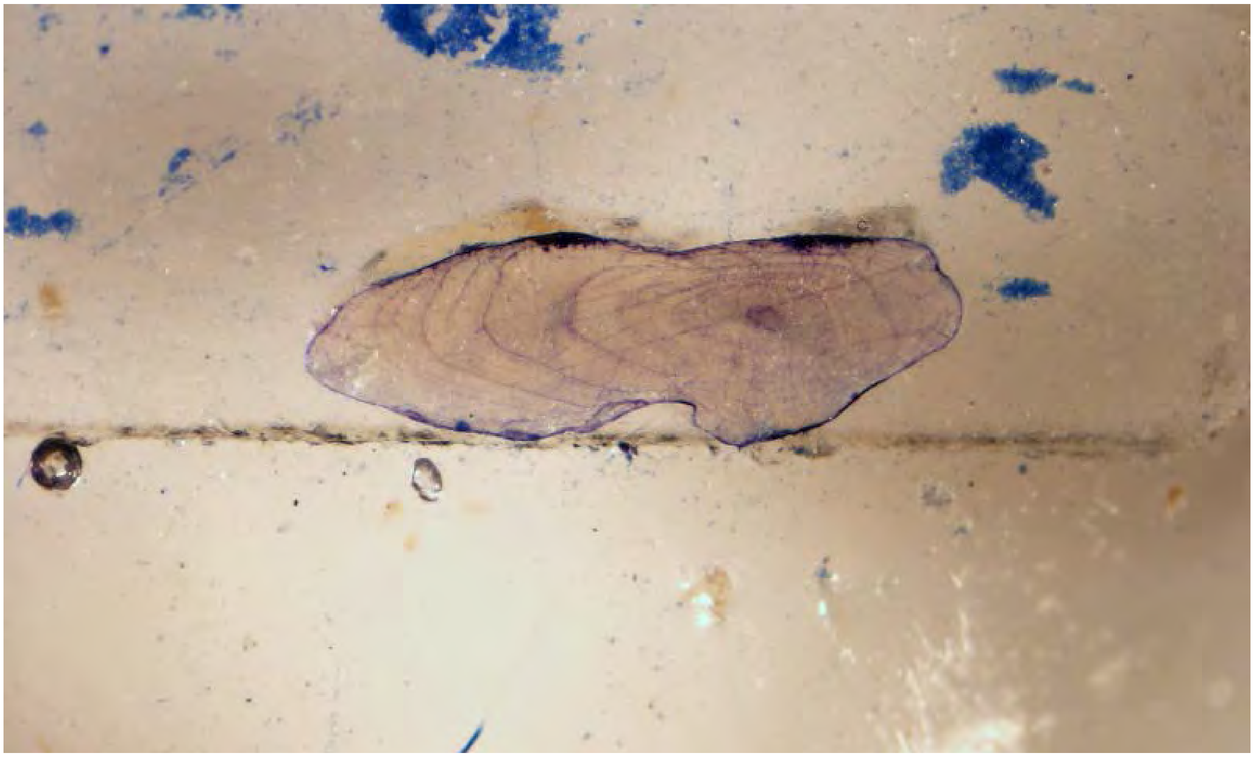


**Figure 98. Sectioned otolith sample #98. Sample was from an American eel that was 426 mm TL, 210 g, and captured 5/29/2014 from an estuarine habitat in New Jersey. The sample provided by NJDWF was aged as 7 years old. Ages from the sample exchange ranged from 5-10 years, mode was 7 years. This was a paired sample with W76.**

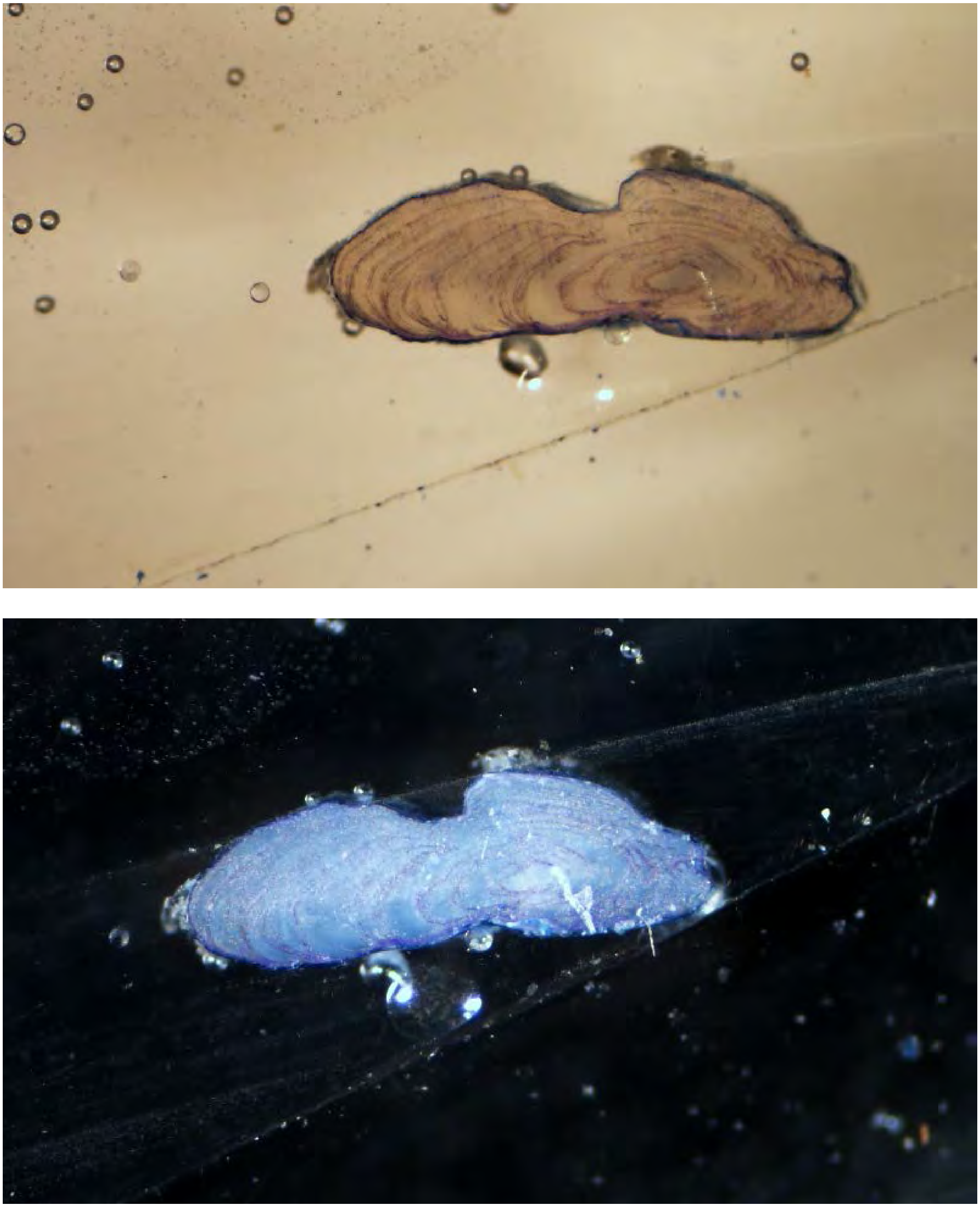


**Figure 99. Sectioned otolith sample #99. Sample was from an American eel that was 559 mm TL, 366 g, and captured 10/2/2012 from an estuarine habitat in Delaware. Ages from the sample exchange ranged from 6-11 years, mode was 10 years. This was a paired sample with W50.**

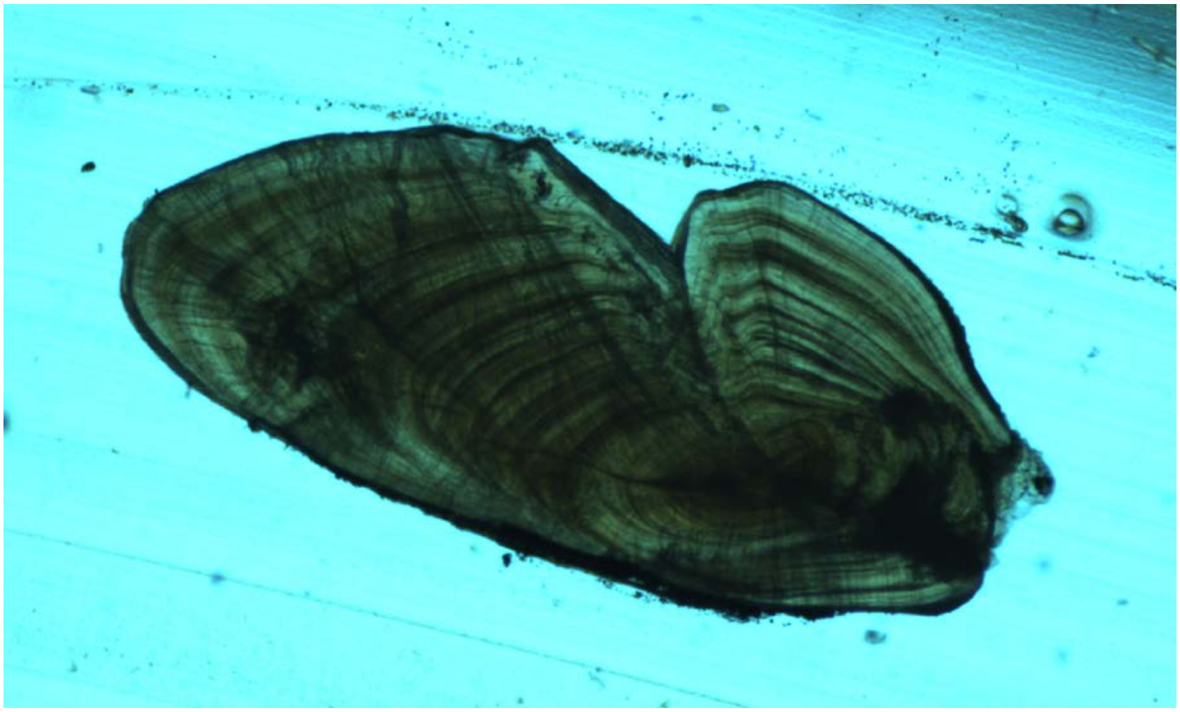


**Figure 100. Sectioned otolith sample #100. Sample was from an American eel that was 457 mm TL, 227 g, and captured 4/1/2014 from an estuarine habitat in Florida. The sample provided by FL FWC was aged as 8 years old. Ages from the sample exchange ranged from 7-12 years, mode was 8 years. This was a paired sample with W44.**

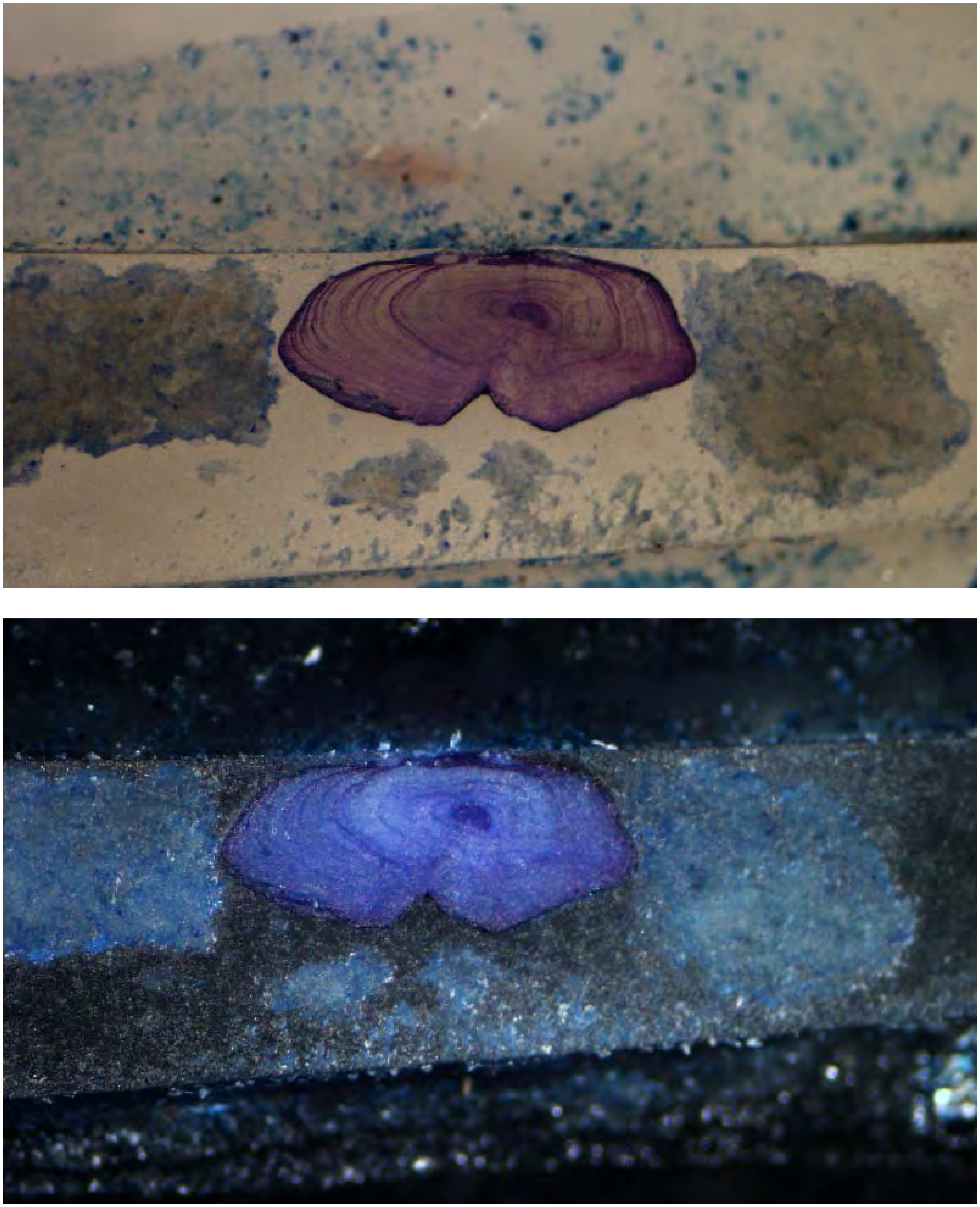


**Figure 101. Sectioned otolith sample #101. Sample was from a male American eel that was 358 mm TL, 66 g, and captured 10/1997 in Maine. Ages from the sample exchange ranged from 3-14 years, mode was 12 years. This was a paired sample with W51.**

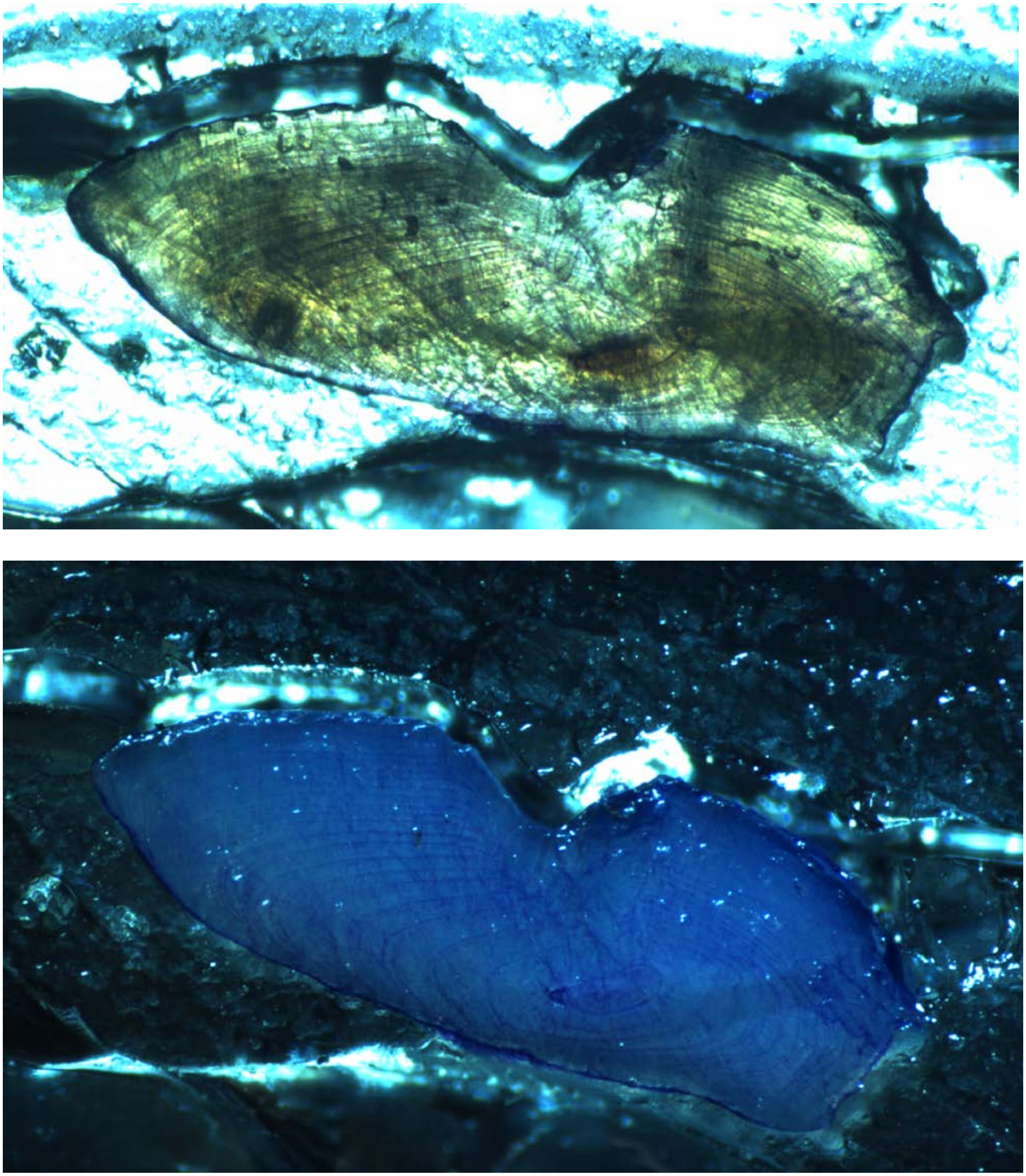


**Figure 102. Sectioned otolith sample #102. Sample was from a female American eel that was 490 mm TL, captured in 1999 from Hudson River. The sample provided by David Secor and Wendy Morrison was aged as 21 years old. Ages from the sample exchange ranged from 2-25 years, mode was 21 years.**

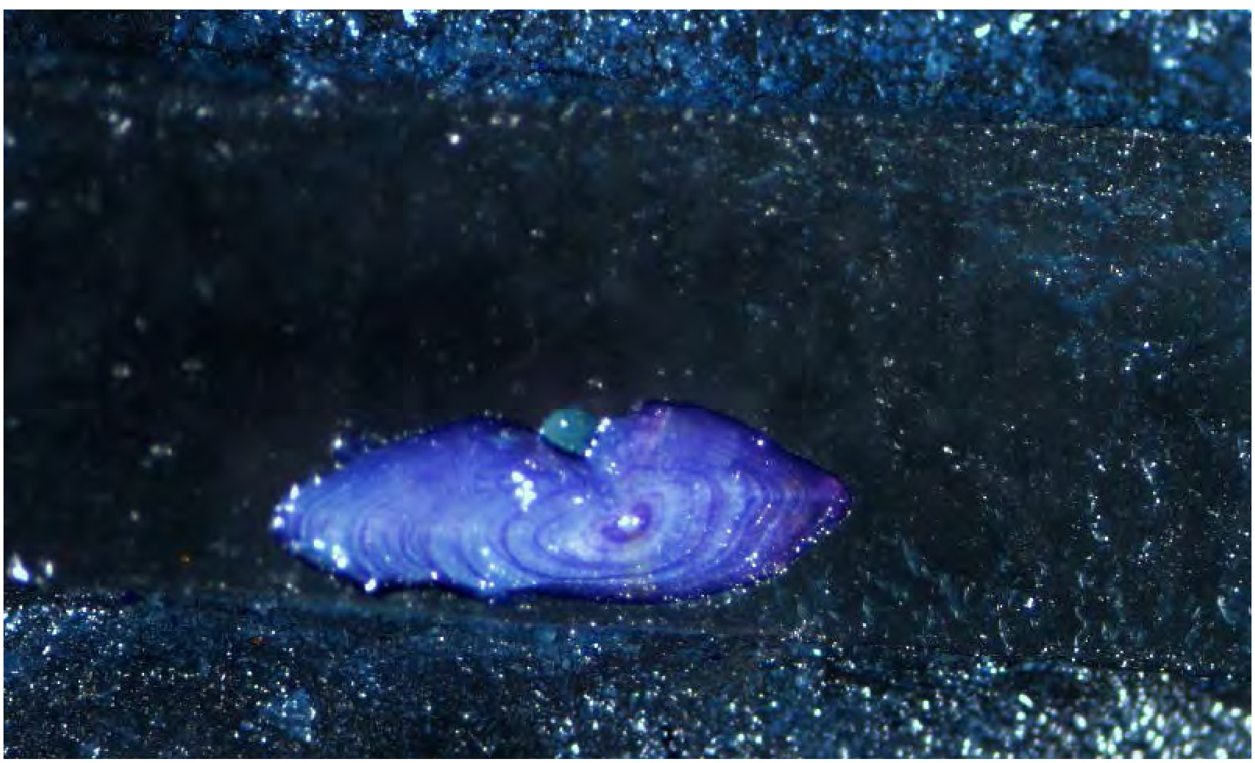


**Figure 103. Sectioned otoliths sample #103. Sample was from a male American eel that was 342 mm TL, 73 g, and captured 9/1997 in Maine. Ages from the sample exchange ranged from 6-15 years, mode was 6 years. This was a paired sample with W33.**

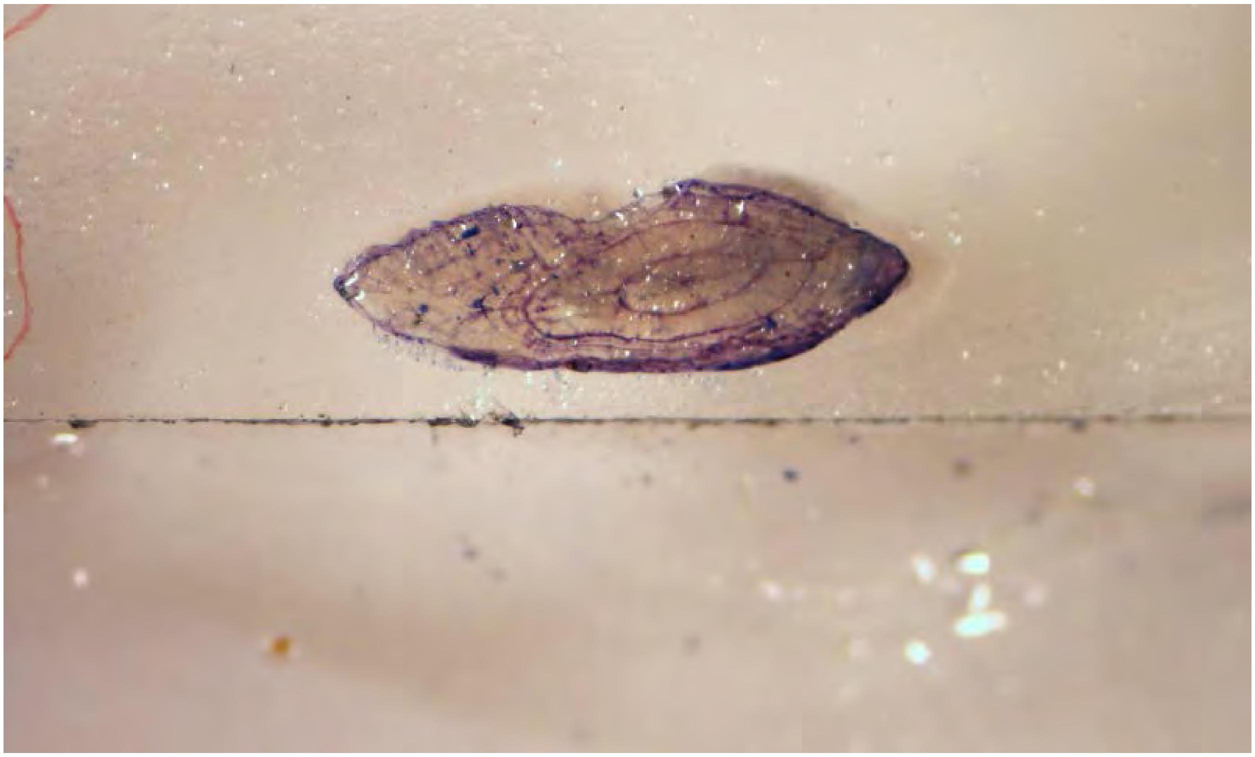


**Figure 104. Sectioned otolith sample #104. Sample was from an American eel that was 397 mm TL, 100 g, and captured 5/21/2014 from an estuarine habitat in New Jersey. The sample provided by NJDFW was aged as 4 years old. Ages from the sample exchange ranged from 3-7 years, mode was 4 years. This was a paired sample with W110.**

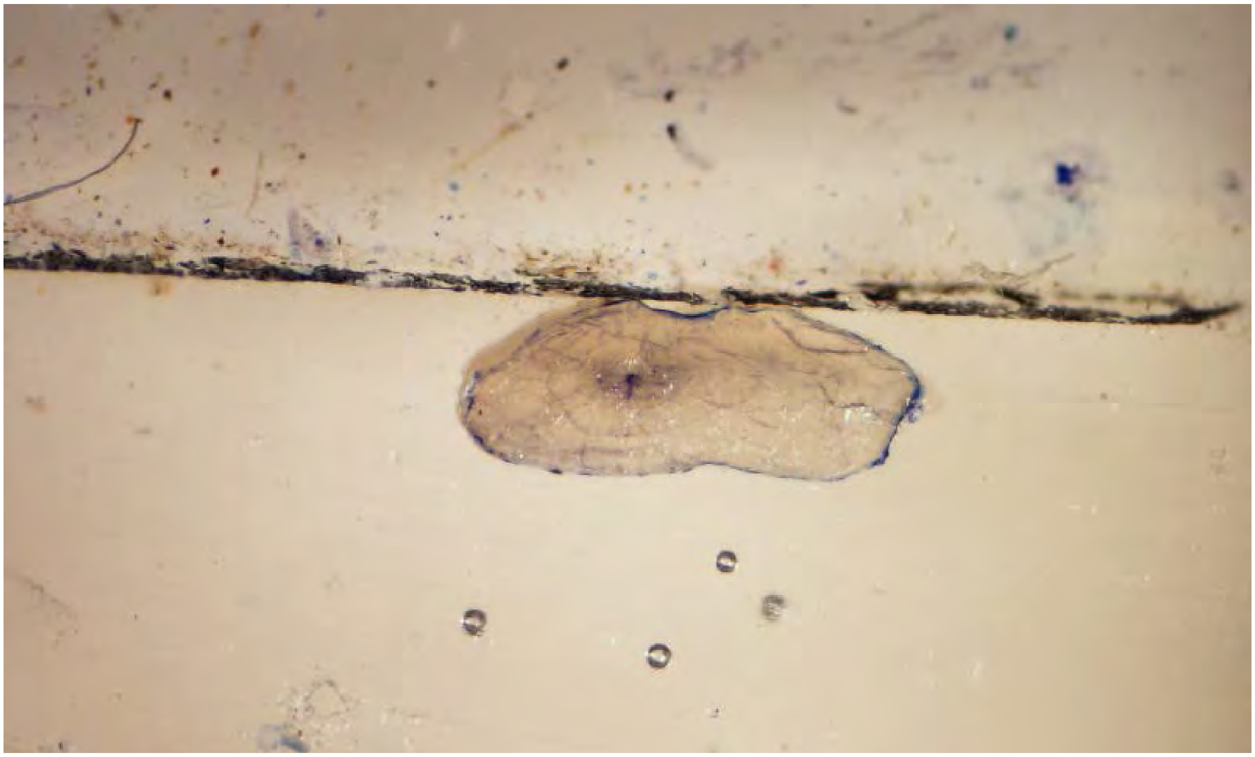


**Figure 105. Sectioned otolith sample #105. Sample was from an American eel that was 319 mm TL, 50 g, and captured 4/25/2013 from an estuarine habitat in New Jersey. The sample provided by NJDFW was aged as 3 years old. Ages from the sample exchange ranged from 1-4 years, mode was 3 years. This was a paired sample with W6.**

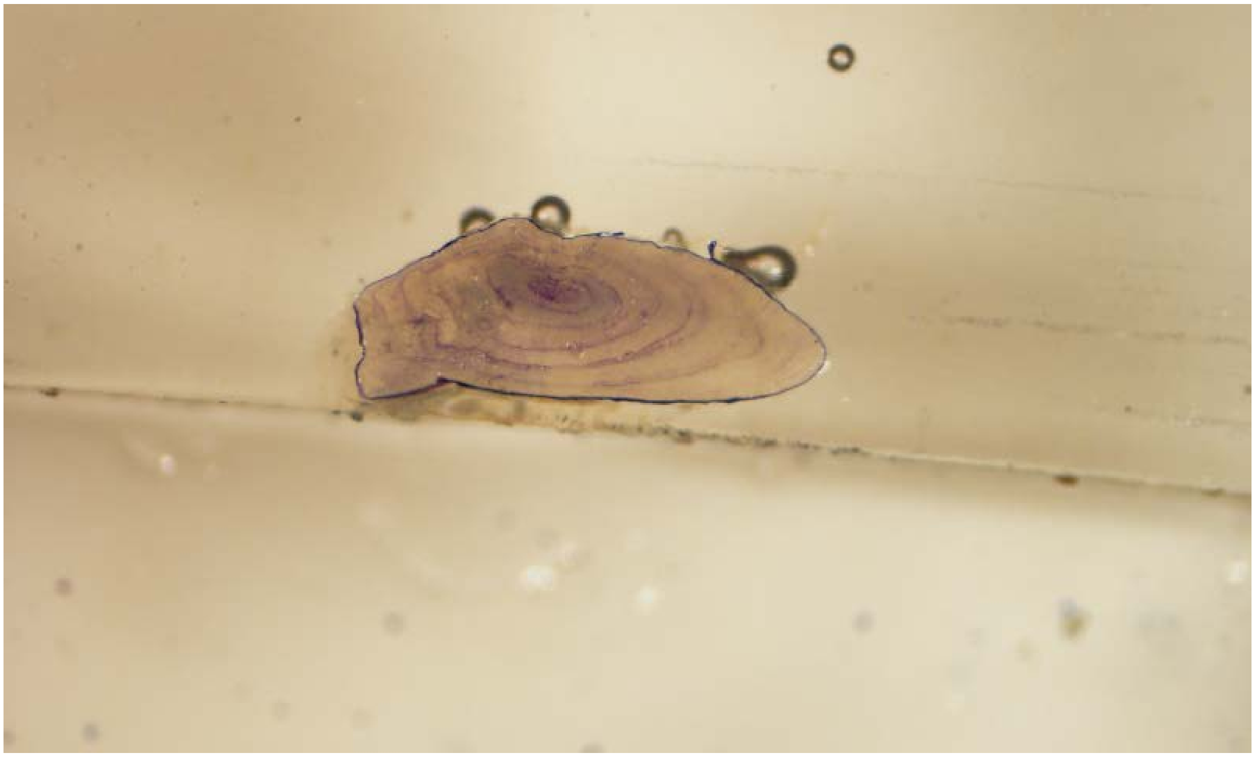


**Figure 106. Sectioned otolith sample #106. Sample was from an American eel that was 337 mm TL, 75 g, and captured 5/3/2012 from an estuarine habitat in Delaware. Ages from the sample exchange ranged from 3-9 years, mode was 4 years. This was a paired sample with W47.**

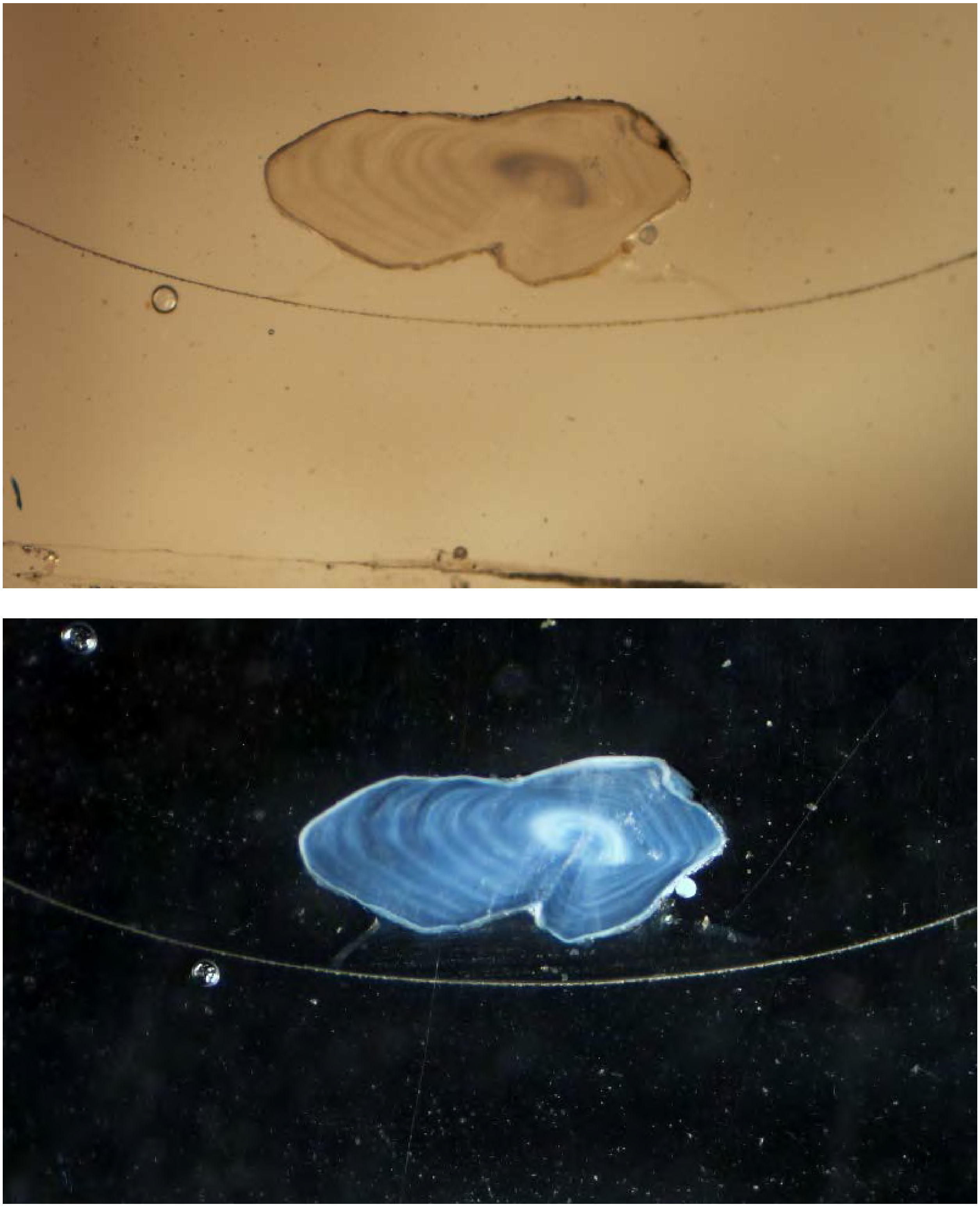


**Figure 107. Sectioned otolith sample #107. Sample was from an American eel that was 304 mm TL, 67 g, and captured 8/15/2013 from an estuarine habitat in South Carolina. The sample provided by SCDNR was aged as 6 years old. Ages from the sample exchange ranged from 2-9 years, mode was 7 years. This was a paired sample with W48.**

**Figure 108. Sectioned otolith sample #108. Sample was from a male American eel that was 318 mm TL, 44 g, and captured 10/1997 in Maine. Ages from the sample exchange ranged from 4-14 years, mode was 8 years. This was a paired sample with W87.**

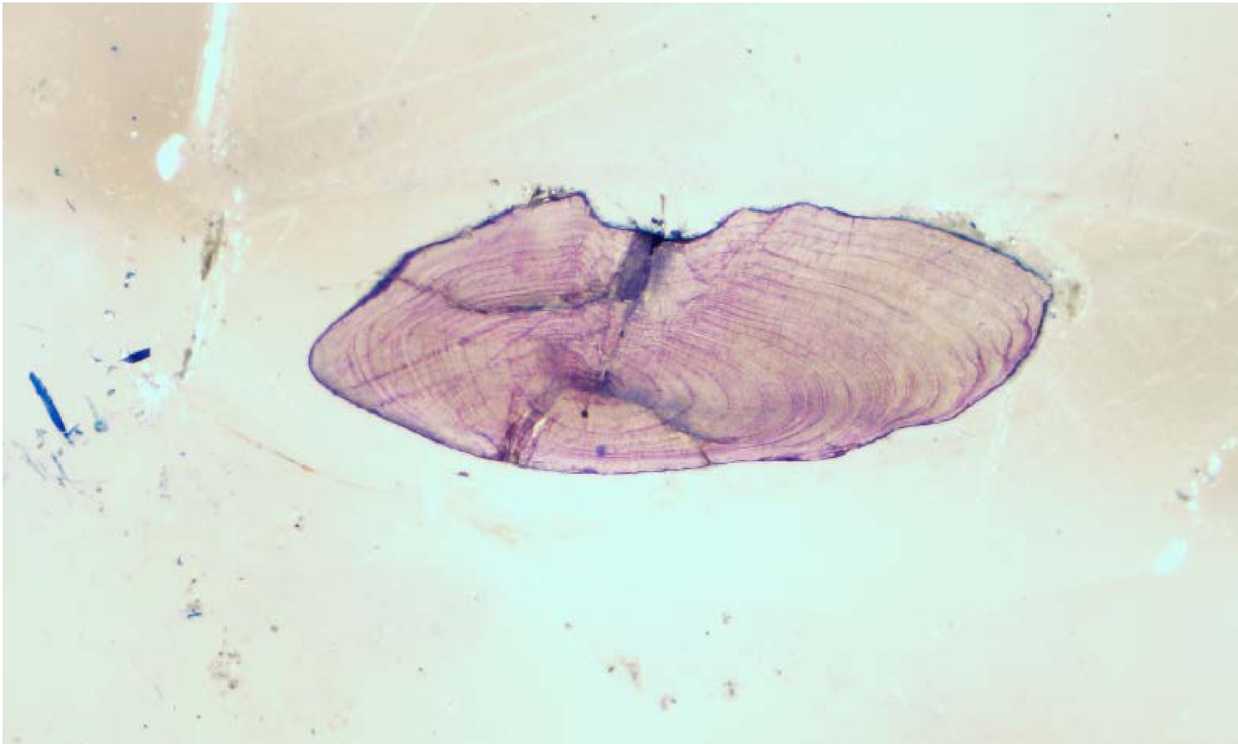


**Figure 109. Sectioned otolith sample #109. Sample was from a female American eel that was 490 mm TL, captured in 1999 in the Hudson River. The sample provided by David Secor and Wendy Morrison was aged as 19.5 years old. Ages from the sample exchange ranged from 10-21 years, mode was 20 years.**

**Figure 110. Sectioned otolith sample #110. Sample was from an American eel that was 714 mm TL, 680 g, and captured 11/12/2008 from an estuarine habitat in New Jersey. The sample provided by NJDFW was aged as 15 years old. Ages from the sample exchange ranged from 9-19 years, mode was 16 years. This was a paired sample with W25.**

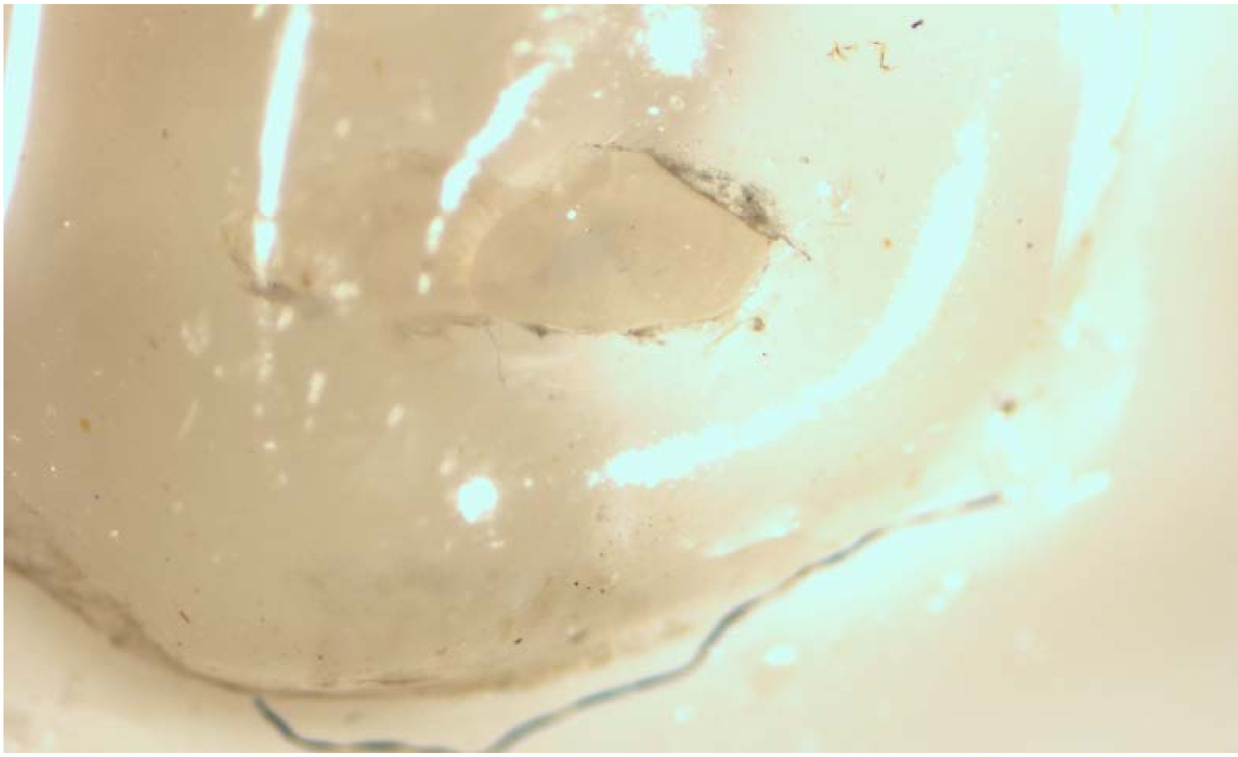


**Figure 111. Sectioned otolith sample #111. Sample was from an American eel that was 276 mm TL, 43 g, and captured 10/16/2014 from a freshwater habitat in Virginia. The sample provided by VIMS was aged as 4 years old. Ages from the sample exchange ranged from 2-5 years, mode was 3 years.**

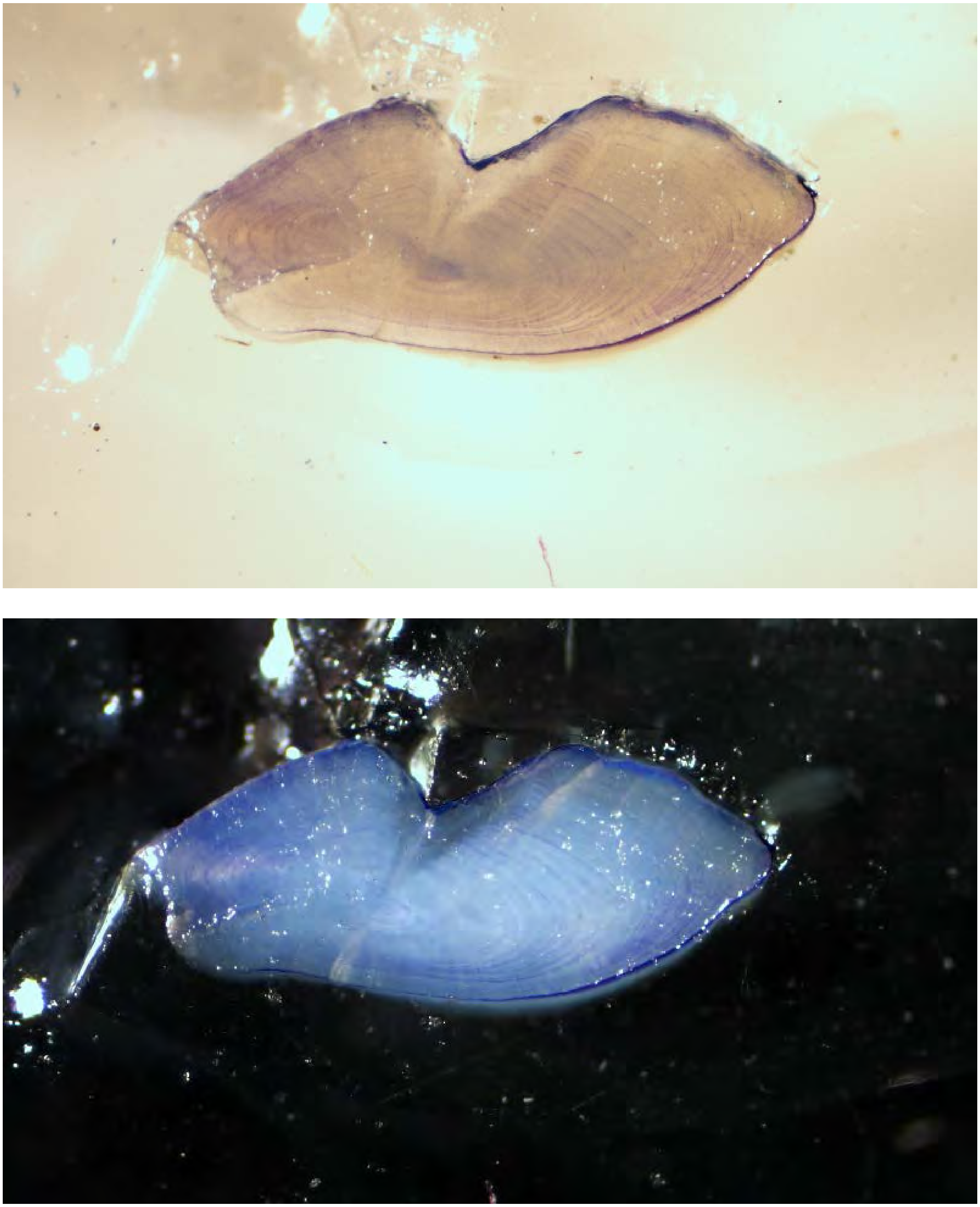


**Figure 112. Sectioned otolith sample #112. Sample was from a female American eel that was 538 mm TL, captured in 1999 from the Hudson River. The sample provided by David Secor and Wendy Morrison was aged as 22.5 years old. Ages from the sample exchange ranged from 6-23 years, mode was 21 years.**

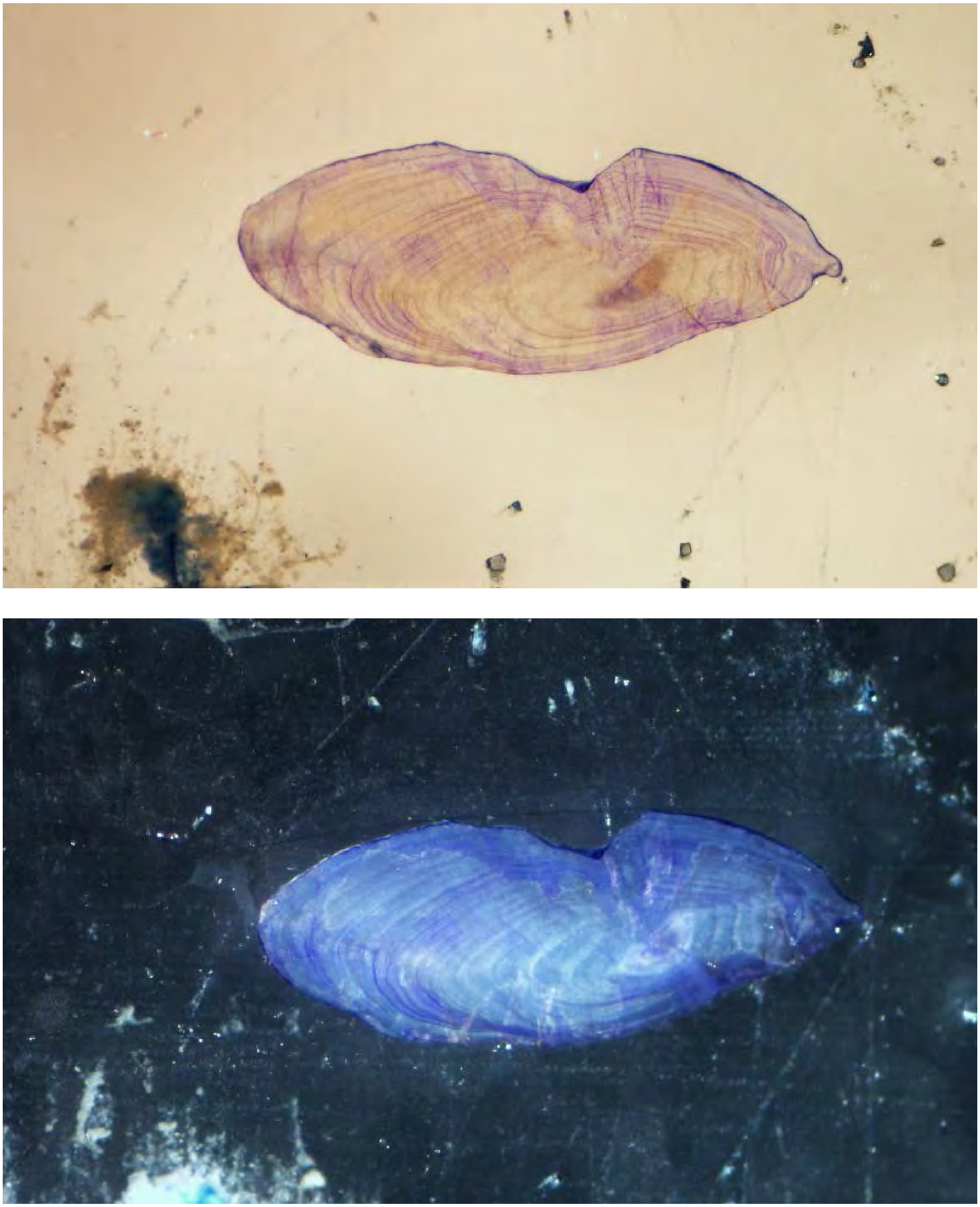


**Figure 113. Sectioned otolith sample #113. Sample was from a female American eel that was 480 mm TL, captured in 1999 from the Hudson River. The sample provided by David Secor and Wendy Morrison was aged as 16 years old. Ages from the sample exchange ranged from 10-19 years, mode was 15 years.**

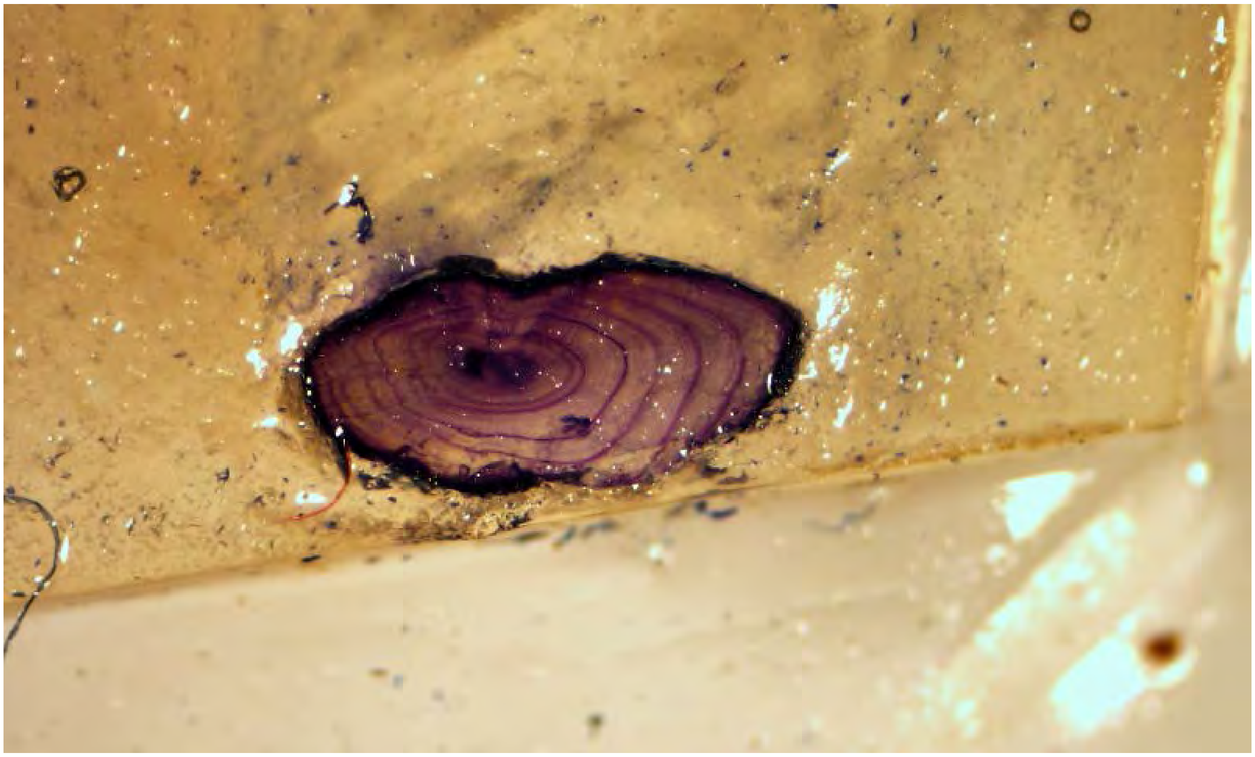


**Figure 114. Sectioned otolith sample #114. Sample was from a male American eel that was captured 10/2005 in Massachusetts. Ages from the sample exchange ranged from 5-7 years, mode was 6 years.**

**Figure 115. Sectioned otolith sample #115. Sample was from an American eel that was 488 mm TL, 208 g, and captured 9/16/2013 from an estuarine habitat in South Carolina. The sample provided by SC DNR was aged as 8 years old. Ages from the sample exchange ranged from 5-10 years, mode was 8 years. This was a paired sample with W22.**

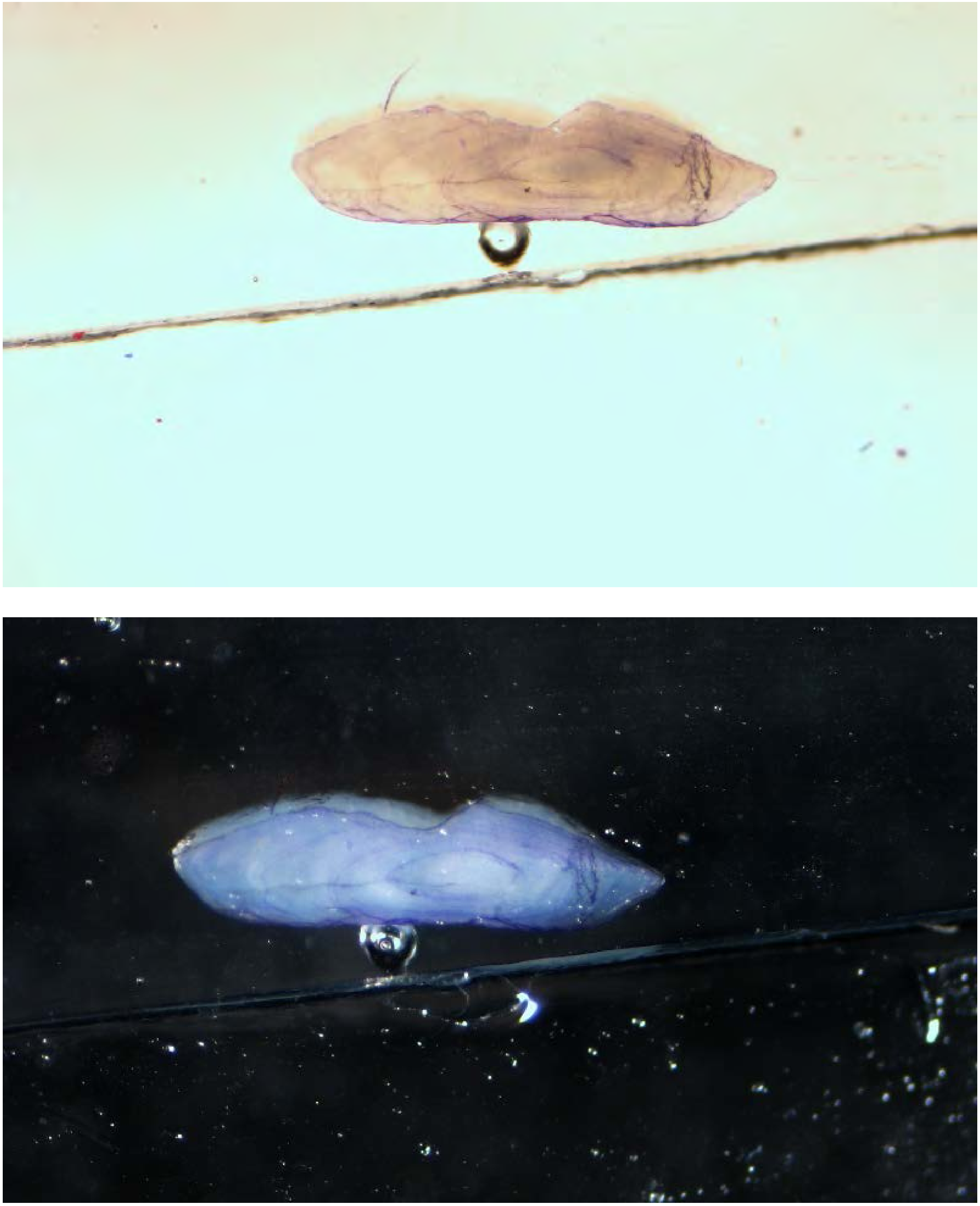


**Figure 116. Sectioned otolith sample #116. Sample was from an American eel that was 495 mm TL, 272 g, and captured 6/28/2012 from an estuarine habitat in Delaware. Ages from the sample exchange ranged from 3-5 years, mode was 4 years. This was a paired sample with W90.**

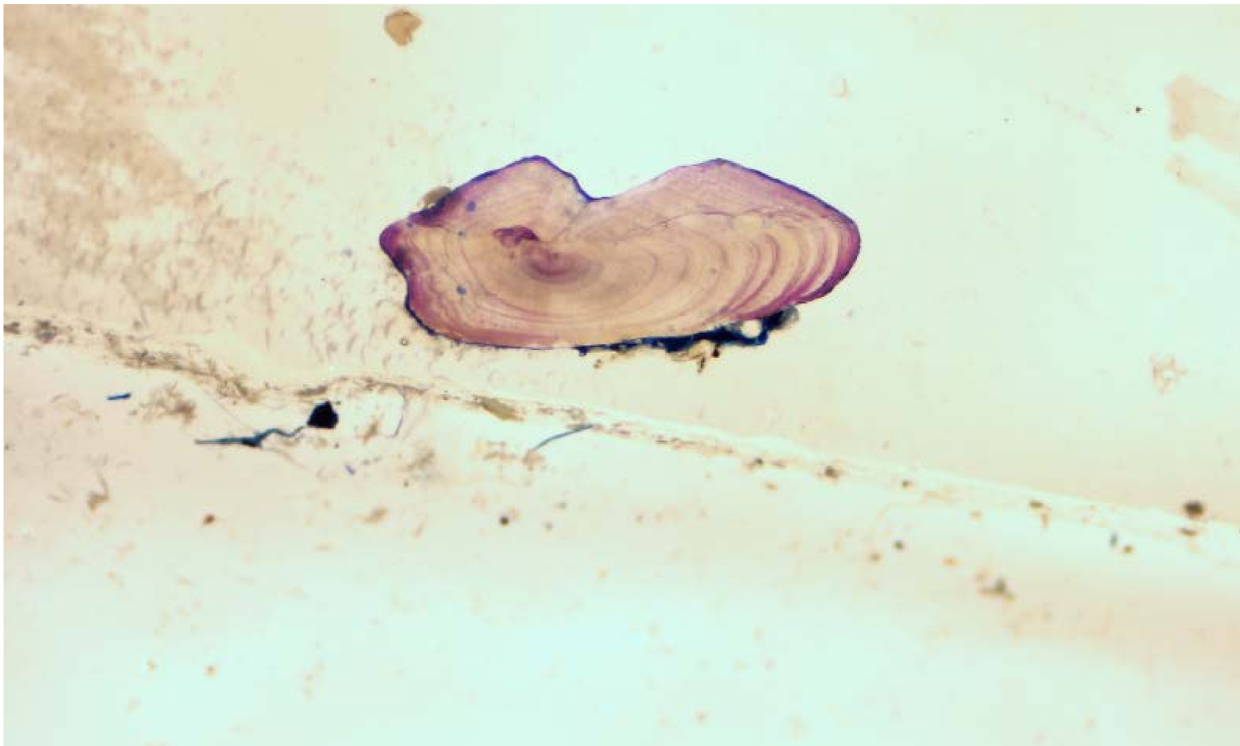
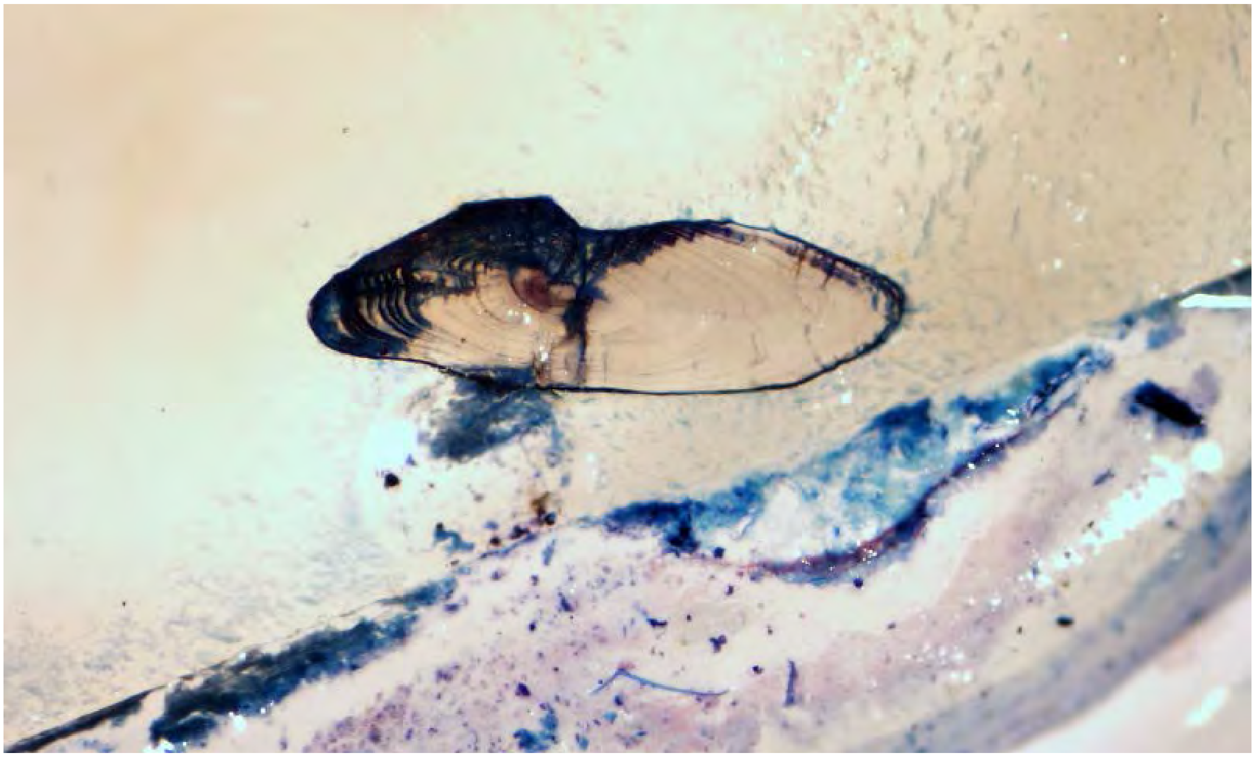


**Figure 117. Sectioned otolith sample #117. Sample was from a male American eel that was 302 mm TL, 49 g, and captured 7/1997 in Maine. Ages from the sample exchange ranged from 4-11 years, mode was 8 years. This was a paired sample with W18.**



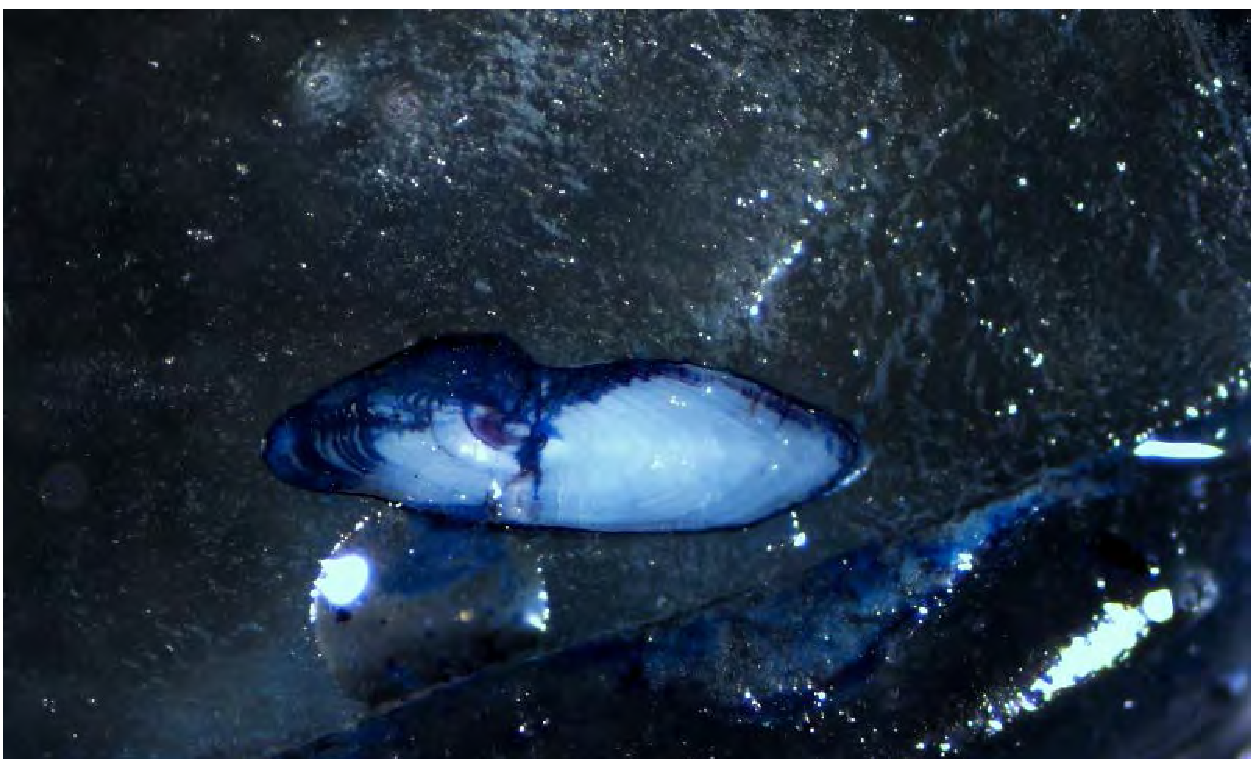


**Figure 118. Sectioned otolith sample #118. Sample was from an American eel that was 404 mm TL, 110 g, and captured 4/28/2008 from an estuarine habitat in New Jersey. The sample provided by NJDFW was aged as 10 years old. Ages from the sample exchange ranged from 3-12 years, mode was 8 years. This was a paired sample with W102.**

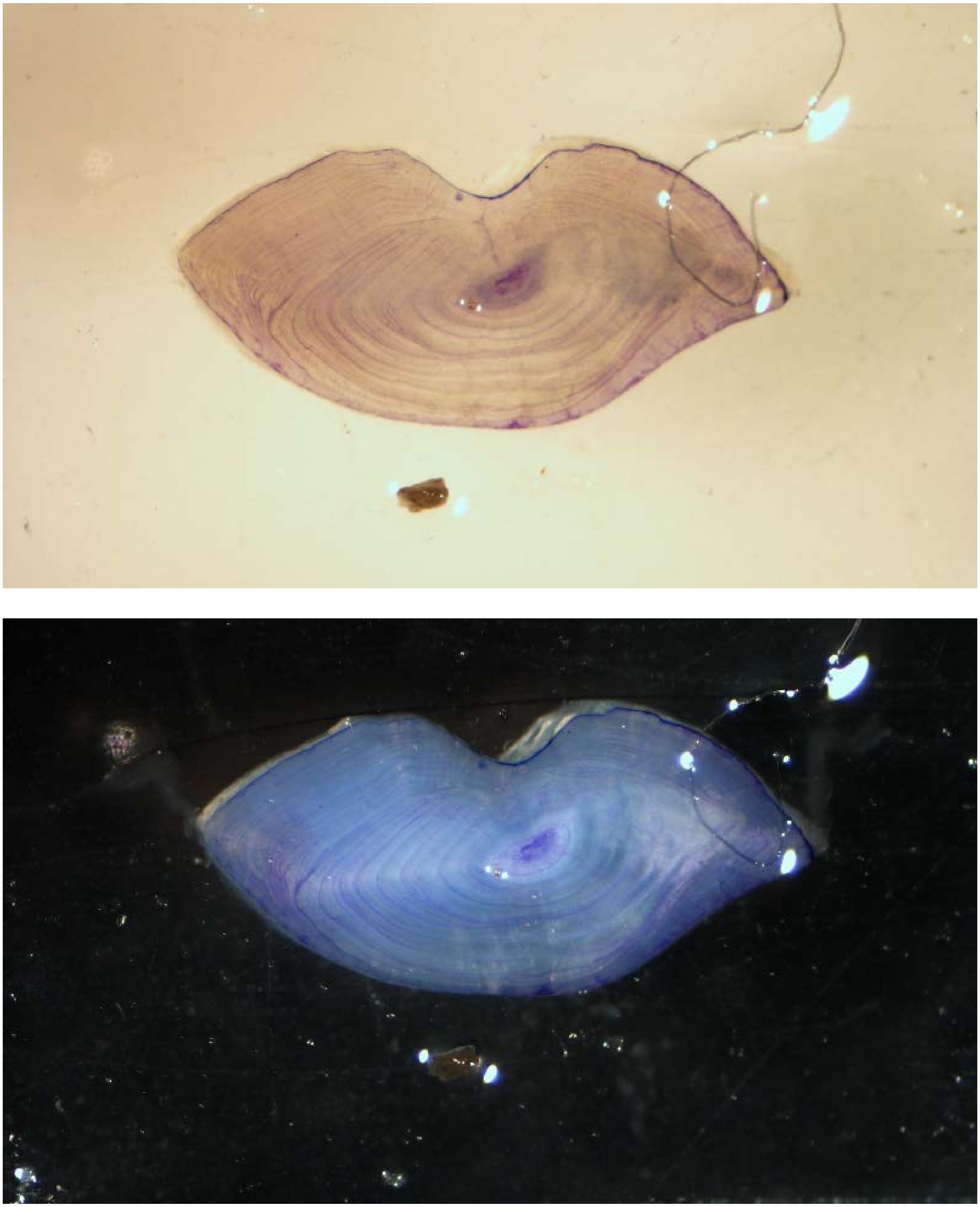


**Figure 119. Sectioned otolith sample #119. Sample was from a female American eel that was 470 mm TL, captured in 1999 from the Hudson River. The sample provided by David Secor and Wendy Morrison was aged as 21 years old. Ages from the sample exchange ranged from 5-20 years, mode was 12 years.**

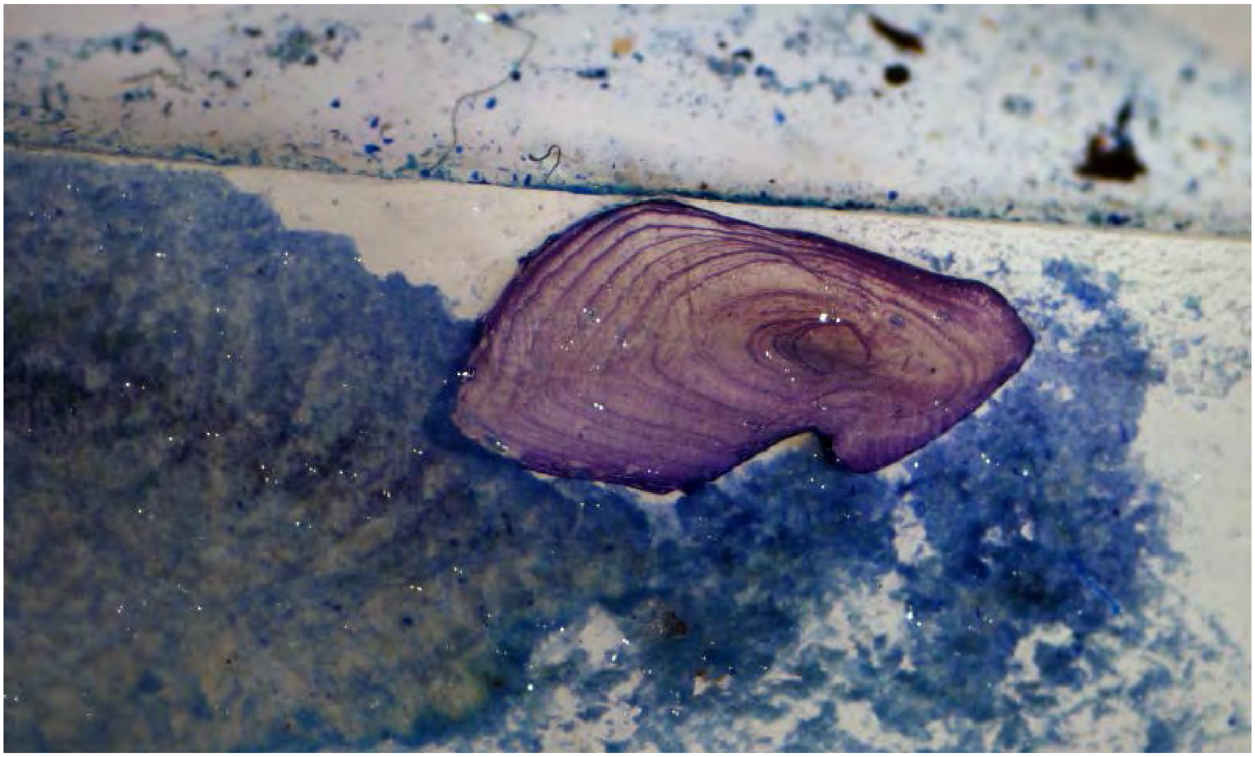


**Figure 120. Sectioned otolith sample #120. Sample was from an American eel that was 526 mm TL, 197 g, and captured 8/1997 in Maine. Ages from the sample exchange ranged from 5-9 years, mode was 8 years. This was a paired sample with W91.**

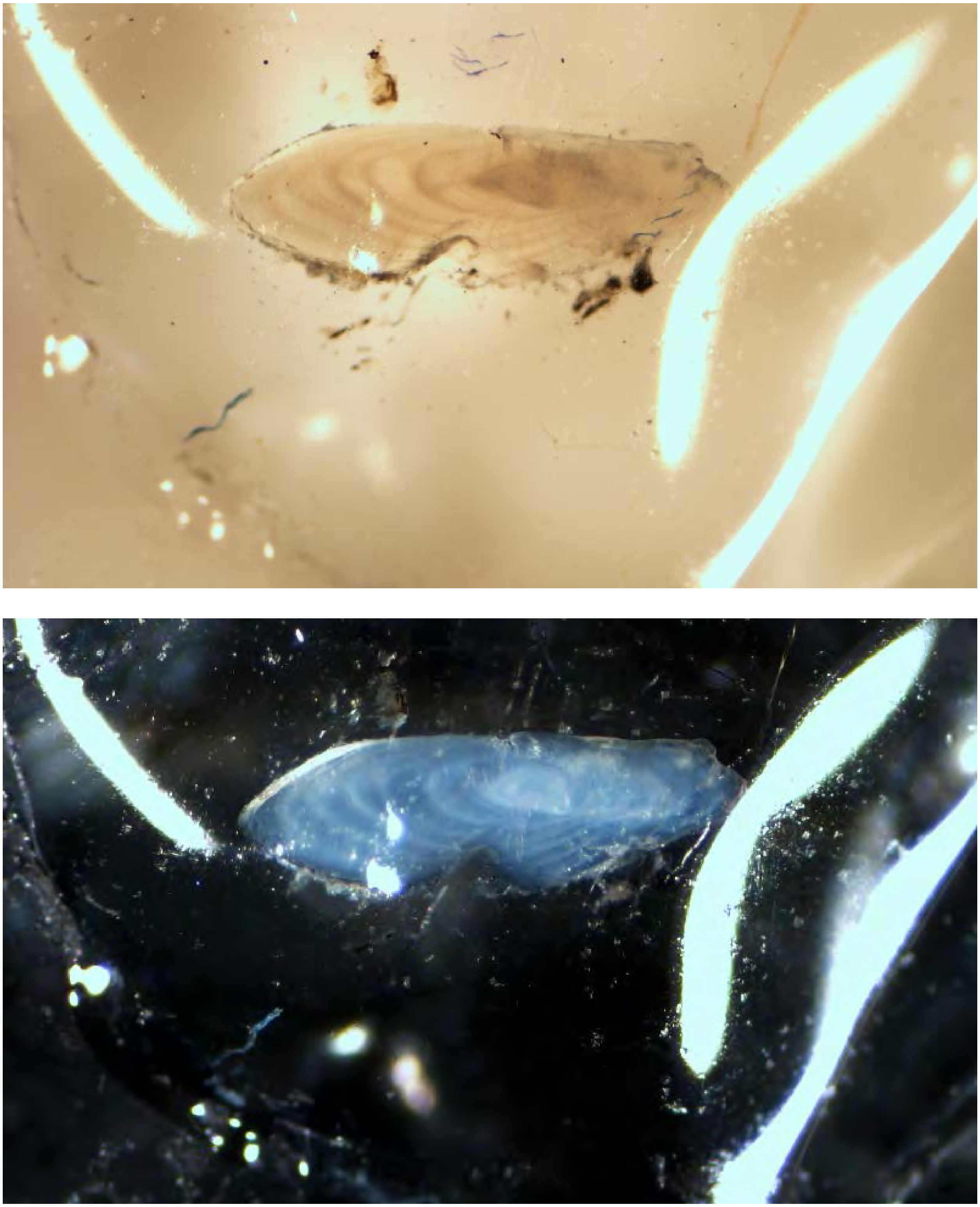


**Figure 121. Sectioned otolith sample #121. Sample was from an American eel that was 398 mm TL, 142 g, and captured 9/24/2014 from an estuarine habitat in Virginia. The sample provided by VIMS was aged as 6 years old. Ages from the sample exchange ranged from 5-7 years, mode was 6 years.**

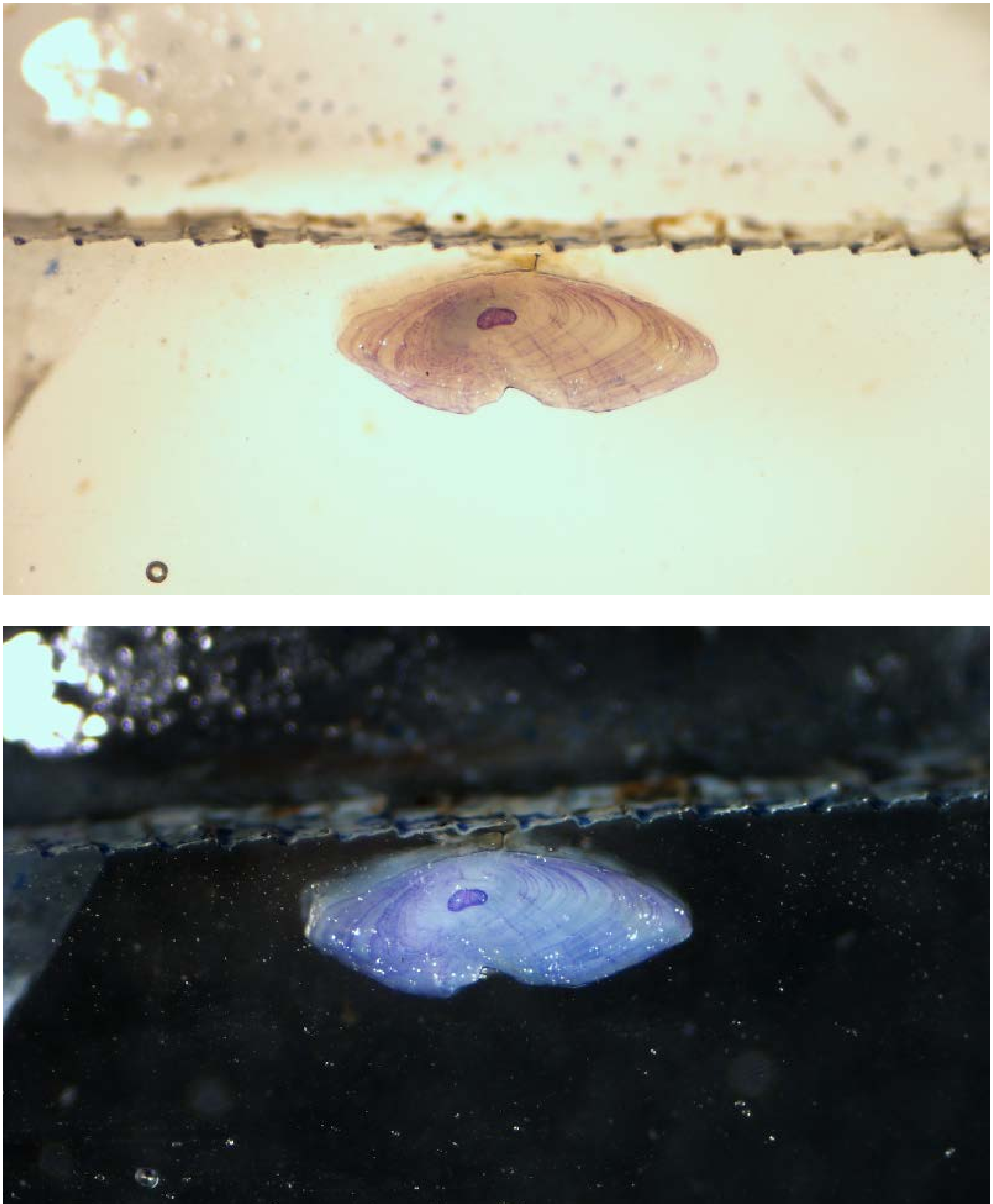


**Figure 122. Sectioned otolith sample #122. Sample was from an American eel that was 277 mm TL, 40 g, and captured 9/11/2012 from an estuarine habitat in Delaware. Ages from the sample exchange ranged from 4-10 years, mode was 8 years. This was a paired sample with W34.**

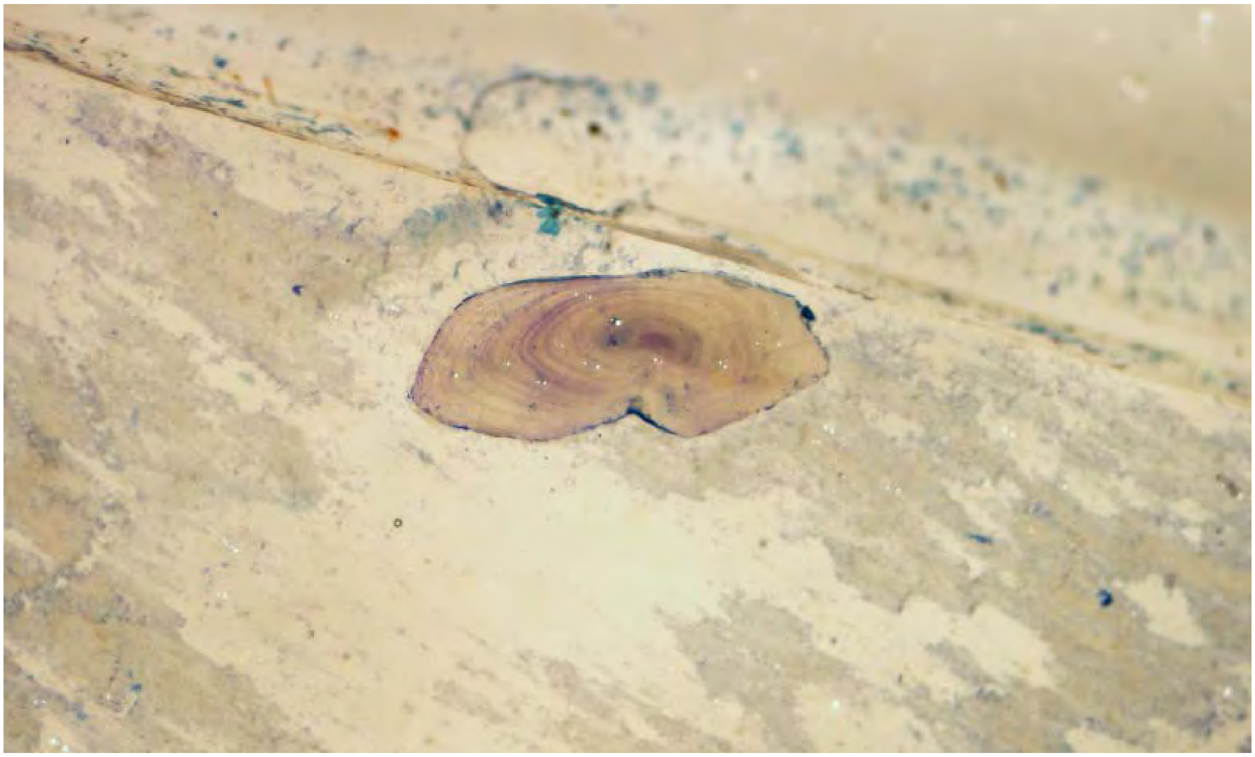


**Figure 123. Sectioned otolith sample #123. Sample was from an American eel that was 270 mm TL, 35 g, and captured 7/1997 in Maine. Ages from the sample exchange ranged from 2-11 years, mode was 7 years. This was a paired sample with W69.**

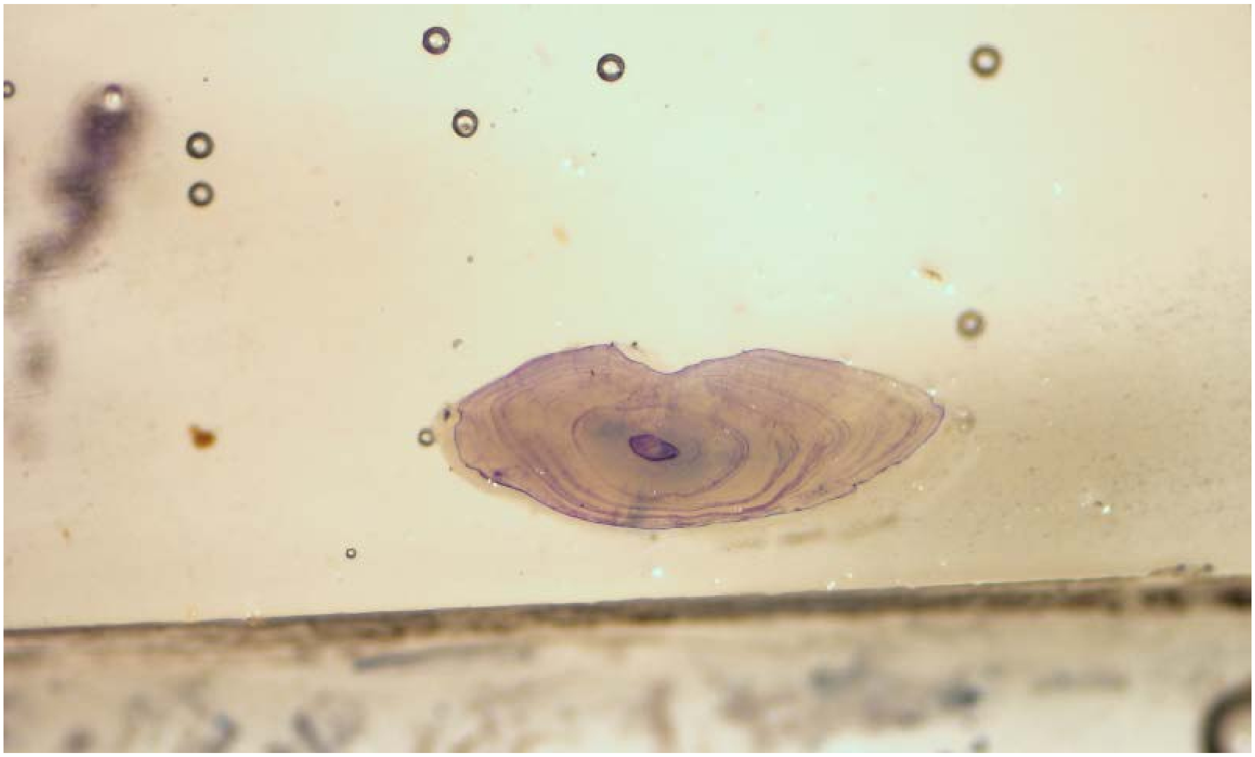


**Figure 124. Sectioned otolith sample #124. Sample was from an American eel that was 396 mm TL, 140 g, and captured 6/28/2012 from an estuarine habitat in Delaware. Ages from the sample exchange ranged from 4-9 years, mode was 6 years. This was a paired sample with W38.**

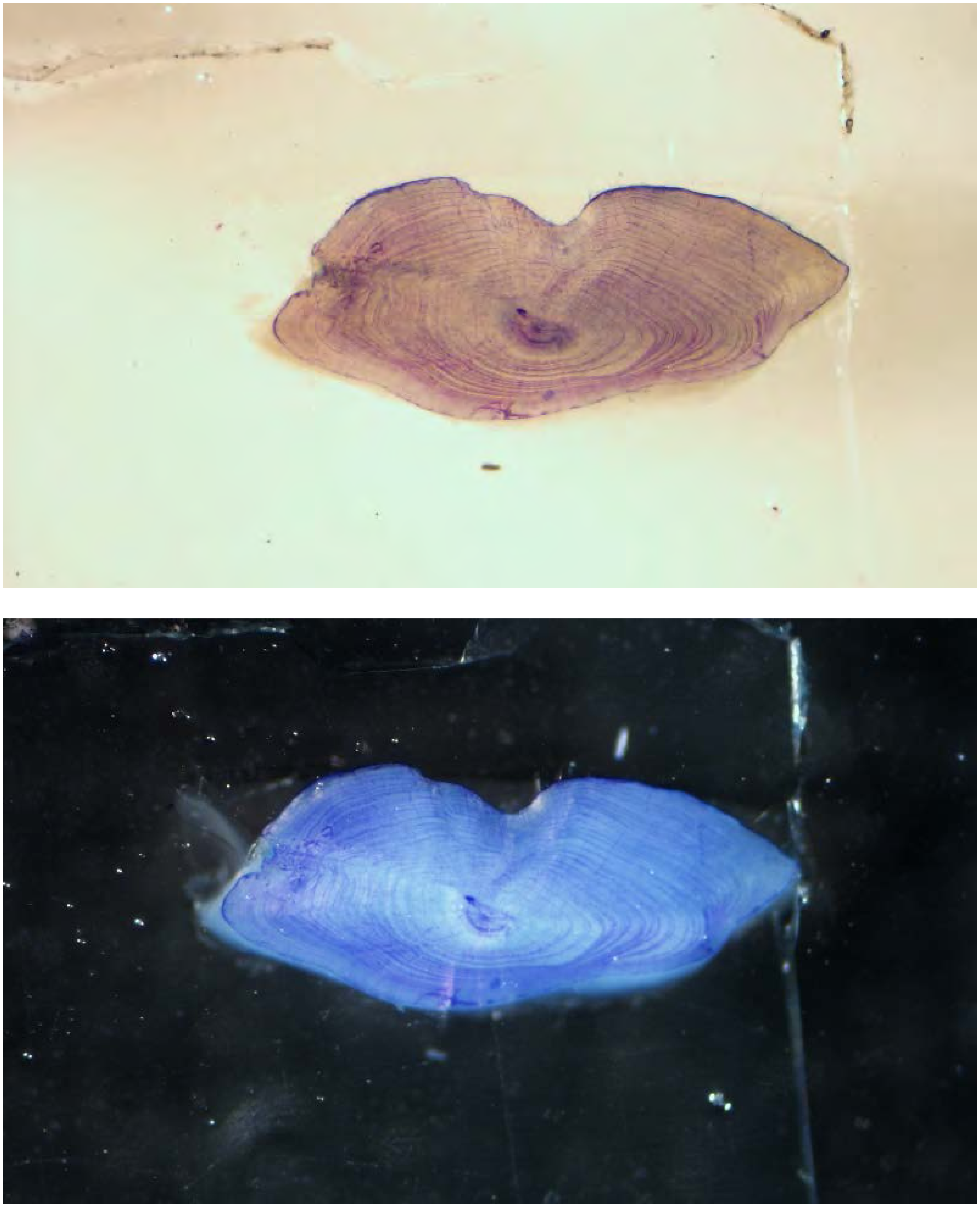


**Figure 125. Sectioned otolith sample #125. Sample was from a female American eel that was 505 mm TL, captured in 1999 in the Hudson River. The sample provided by David Secor and Wendy Morrison was aged as 21.5 years old. Ages from the sample exchange ranged from 9-22 years, mode was 19 years.**

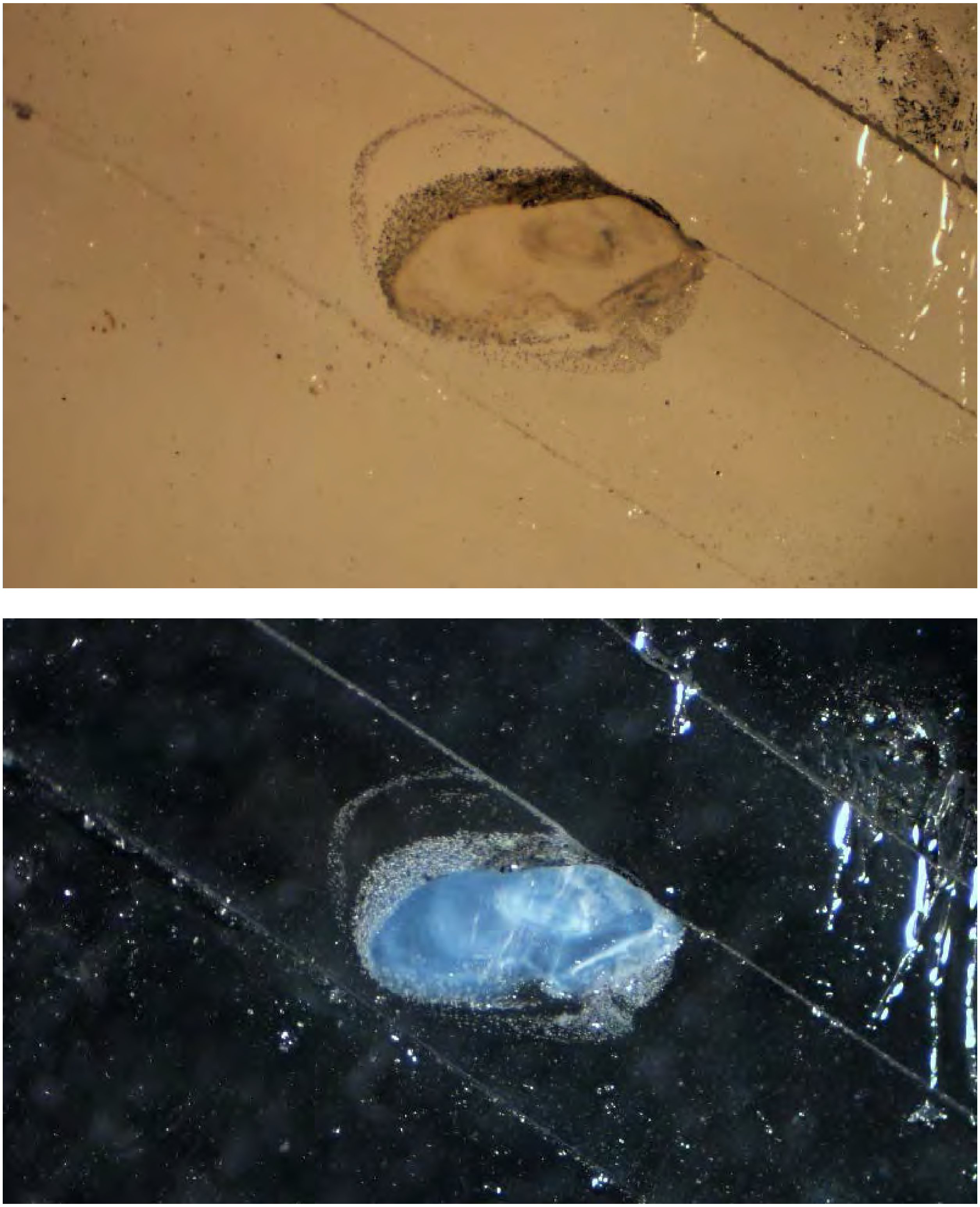


**Figure 126. Sectioned otolith sample #126. Sample was from an American eel that was 189 mm TL, 11 g, and captured 7/5/2013 from an estuarine habitat in South Carolina. The sample provided by SCDNR was aged as 0 years old. Ages from the sample exchange ranged from 0-3 years, mode was 2 years. This was a paired sample with W26.**

**Figure 127. Sectioned otolith sample #127. Sample was from a male American eel that was captured 10/2005 in Maine. Ages from the sample exchange ranged from 4-7 years, mode was 5 years.**

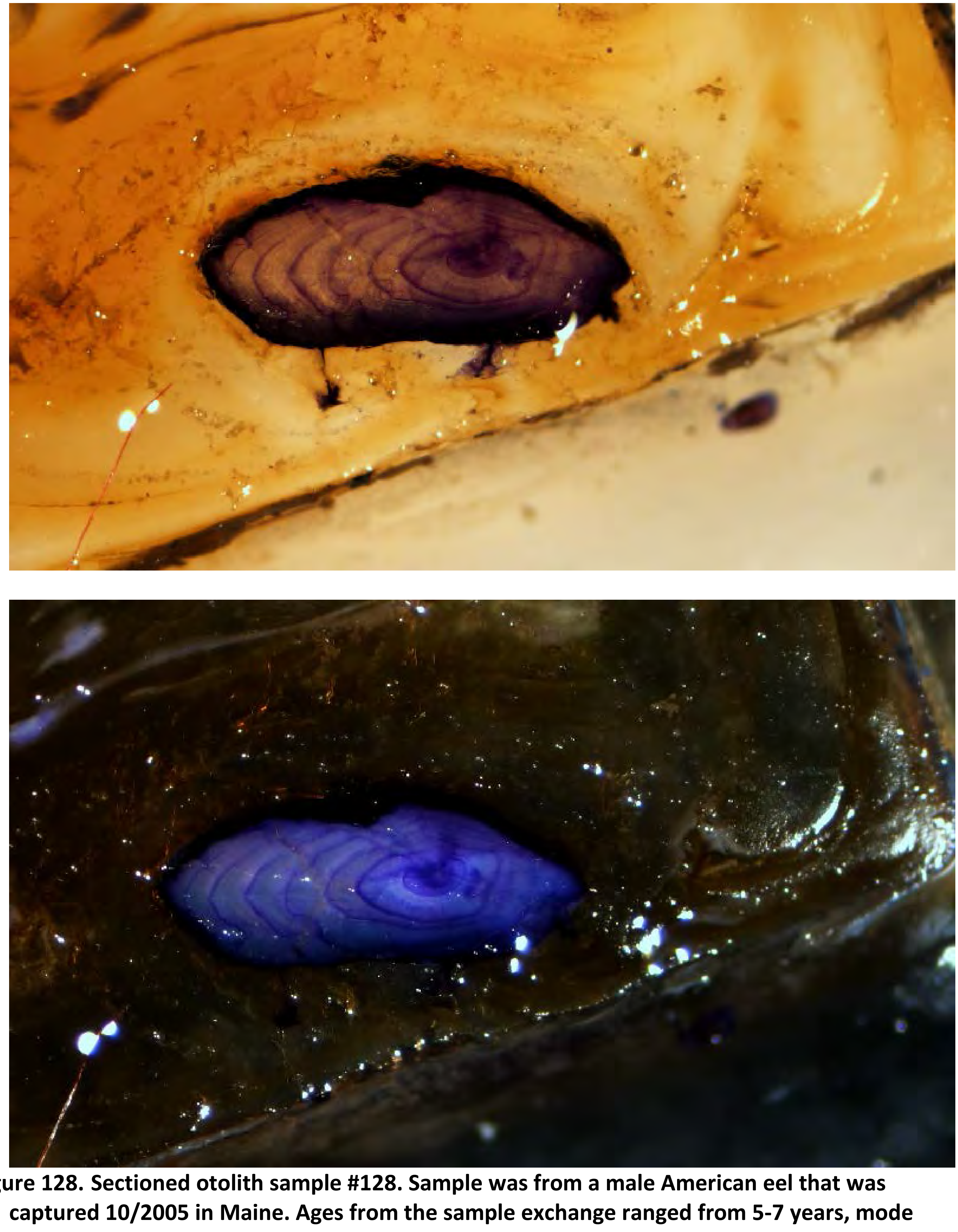


**Figure 128. Sectioned otolith sample #128. Sample was from a male American eel that was captured 10/2005 in Maine. Ages from the sample exchange ranged from 5-7 years, mode was 6 years.**

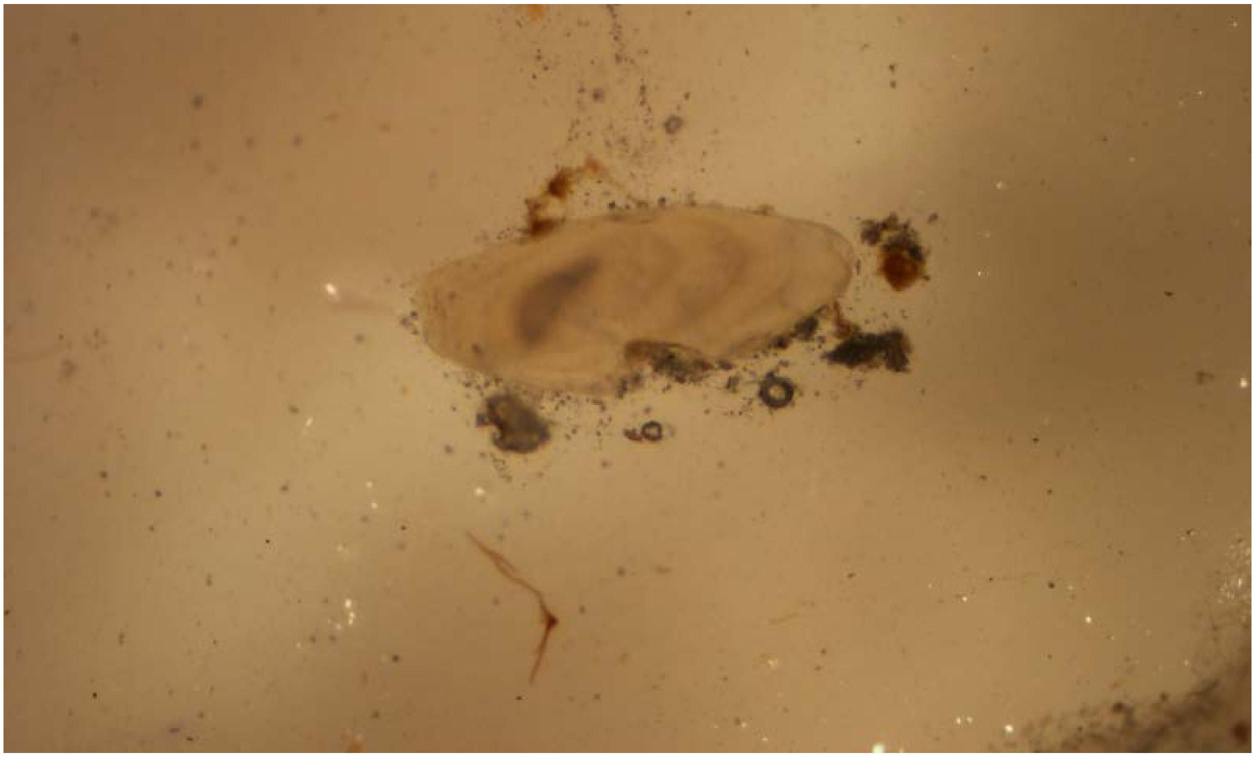


**Figure 129. Sectioned otolith sample #129. Sample was from an American eel that was 281 mm TL, 36 g, and captured 4/13/2015 from an estuarine habitat in Virginia. The sample provided by VIMS was aged as 3 years old. Ages from the sample exchange ranged from 3-6 years, mode was 3 years.**

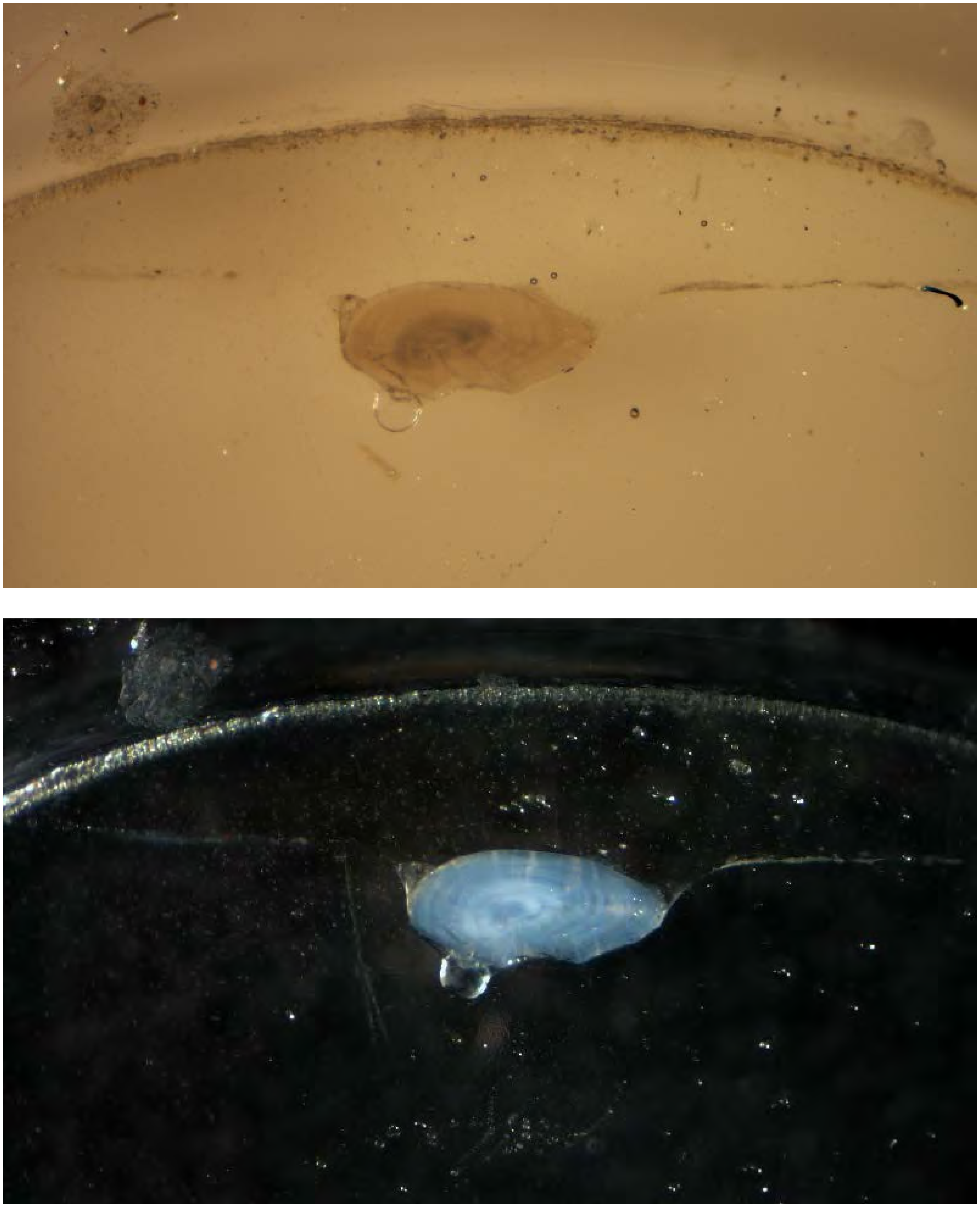


**Figure 130. Sectioned otolith sample #130. Sample was from an American eel that was 168 mm TL, 8 g, and captured 8/1996 in Maine. Ages from the sample exchange ranged from 1-9 years, mode was 1 years. This was a paired sample with W92.**

**Figure 131. Sectioned otolith sample #131. Sample was from a male American eel that was captured 10/2005 in Maine. Ages from the sample exchange ranged from 6-17 years, mode was 10 years.**

**Figure 132. Sectioned otolith sample #132. Sample was from an American eel that was 353 mm TL, 79 g, and captured 10/7/2014 from a freshwater habitat in Virginia. The sample provided by VIMS was aged as 7 years old. Ages from the sample exchange ranged from 5-10 years, mode was 7 years.**

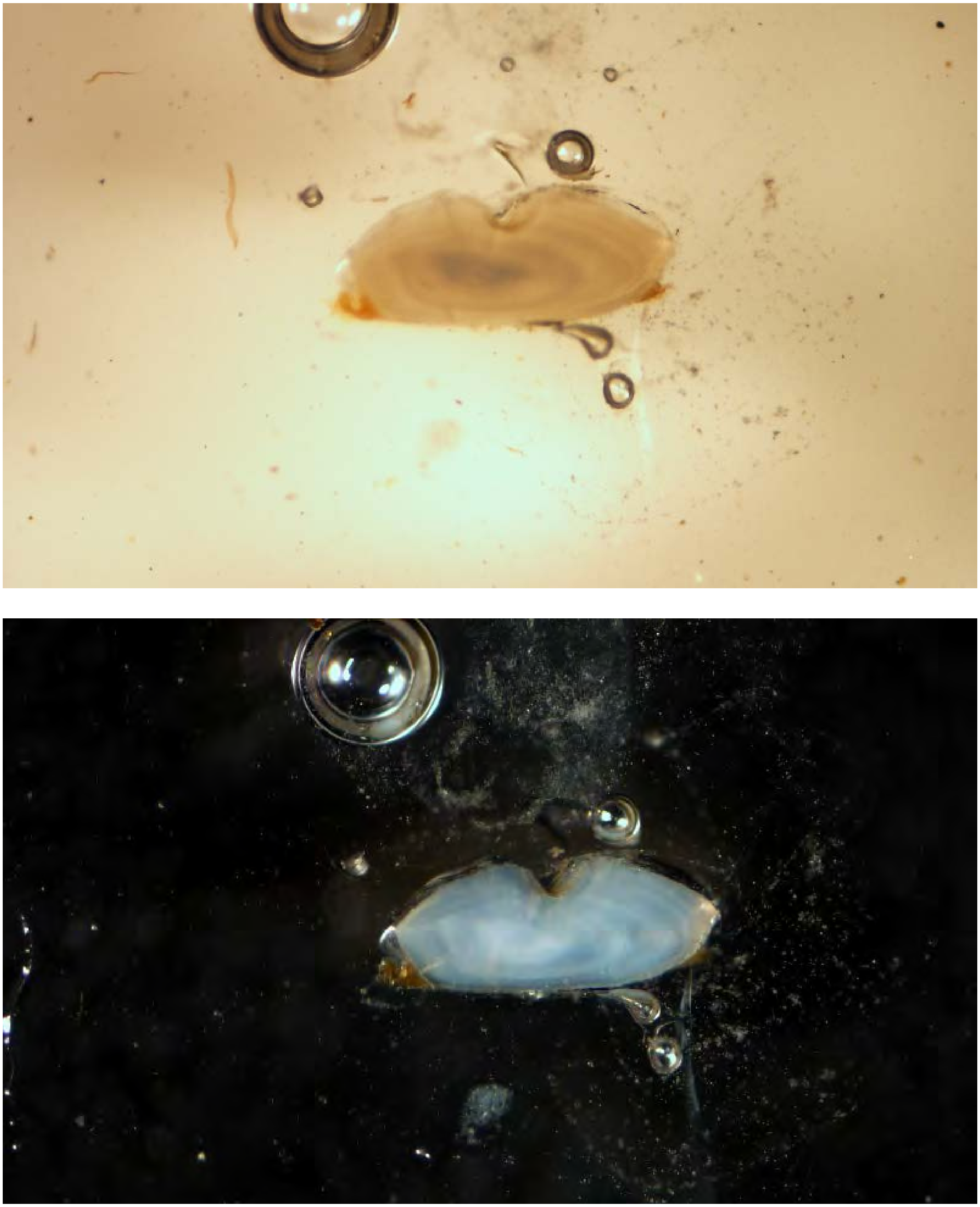


**Figure 133. Sectioned otolith sample #133. Sample was from an American eel that was 213 mm TL, 17 g, and captured 4/13/2015 from an estuarine habitat in Virginia. The sample provided by VIMS was aged as 4 years old. Ages from the sample exchange ranged from 3-6 years, mode was 4 years.**

**Figure 134. Sectioned otolith sample #134. Sample was from a female American eel that was 545 mm TL, captured in 1999 from the Hudson River. The sample provided by David Secor and Wendy Morrison was aged as 16 years old. Ages from the sample exchange ranged from 6-21 years, mode was 16 years.**

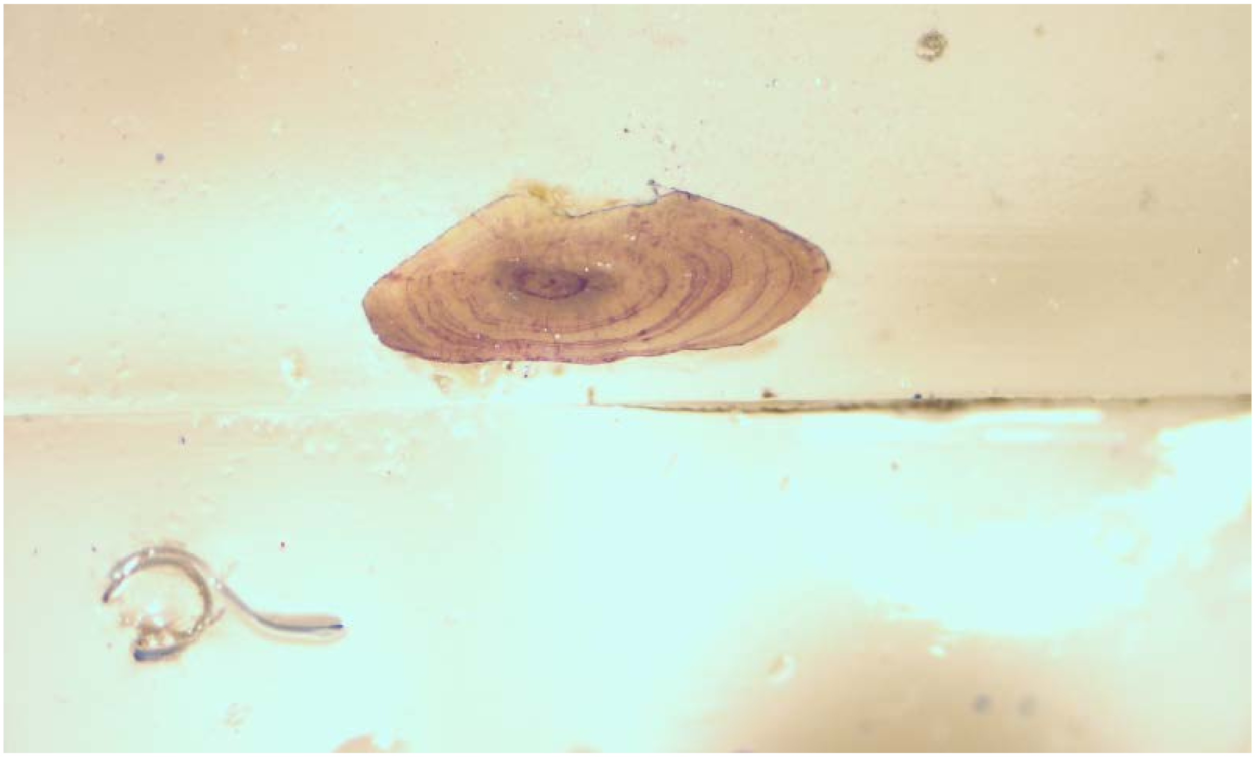


**Figure 135. Sectioned otolith sample #135. Sample was from an American eel that was 285 mm TL, 40 g, and captured 10/2/2012 from an estuarine habitat in Delaware. Ages from the sample exchange ranged from 3-7 years, mode was 4 years. This was a paired sample with W19.**

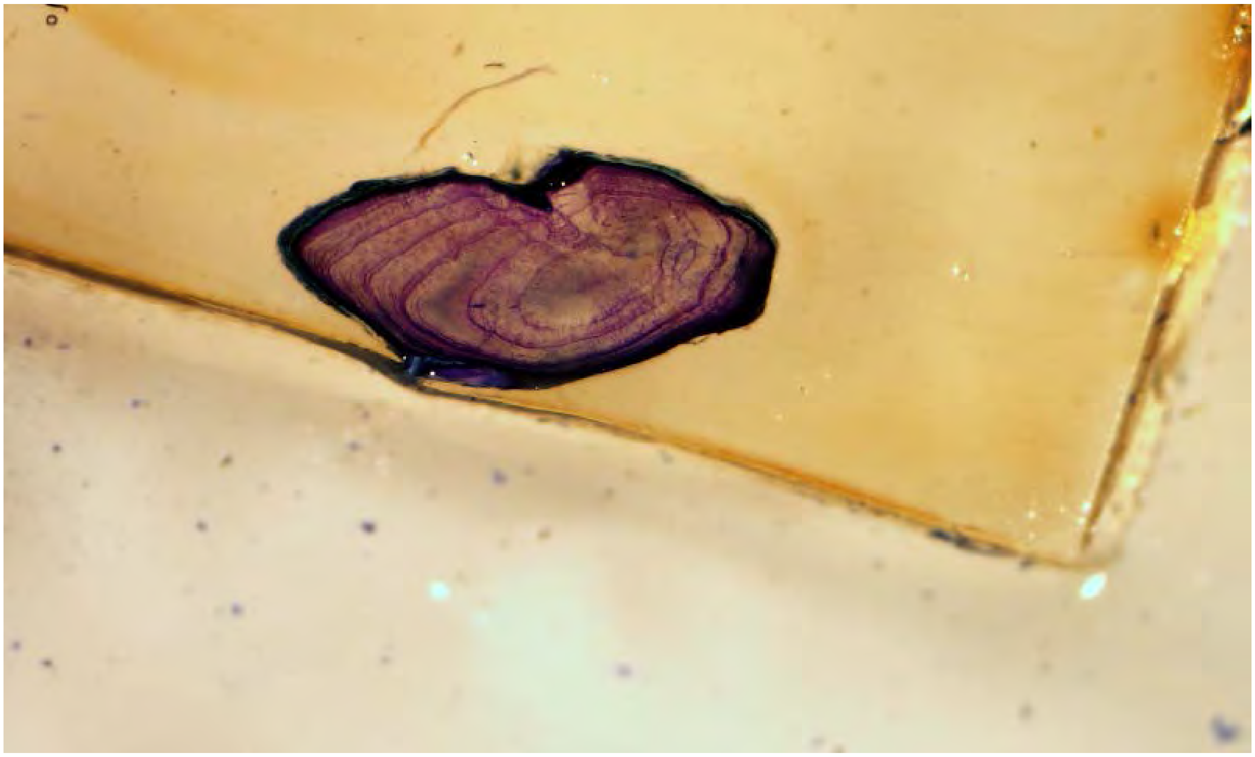


**Figure 136. Sectioned otolith sample #136. Sample was from a male American eel that was captured 10/2005 from Massachusetts. Ages from the sample exchange ranged from 4-7 years, mode was 5 years.**

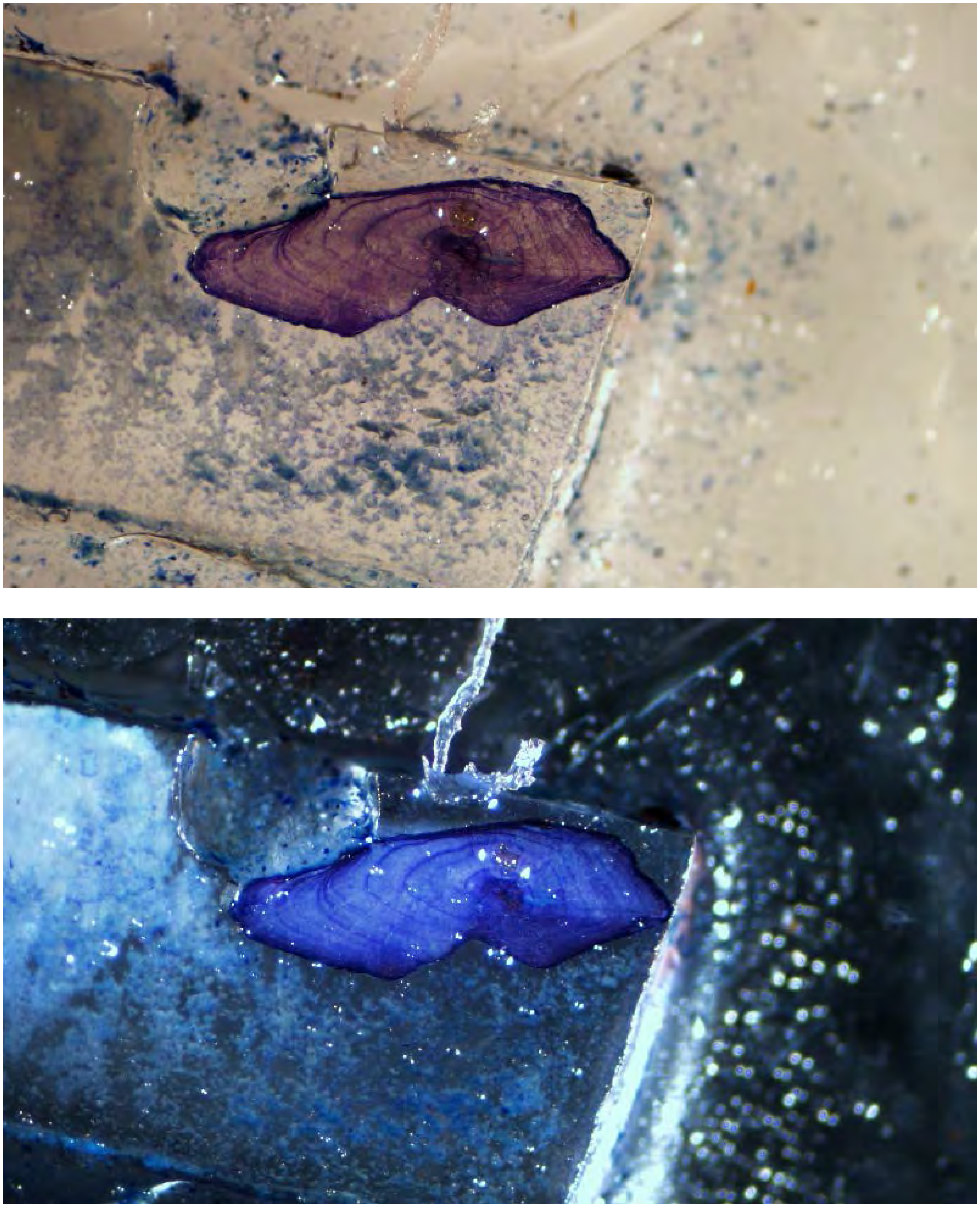


**Figure 137. Sectioned otolith sample #137. Sample was from a female American eel that was 438 mm TL, 116 g, and captured 8/1997 in Maine. Ages from the sample exchange ranged from 3-10 years, mode was 8 years. This was a paired sample with W106.**

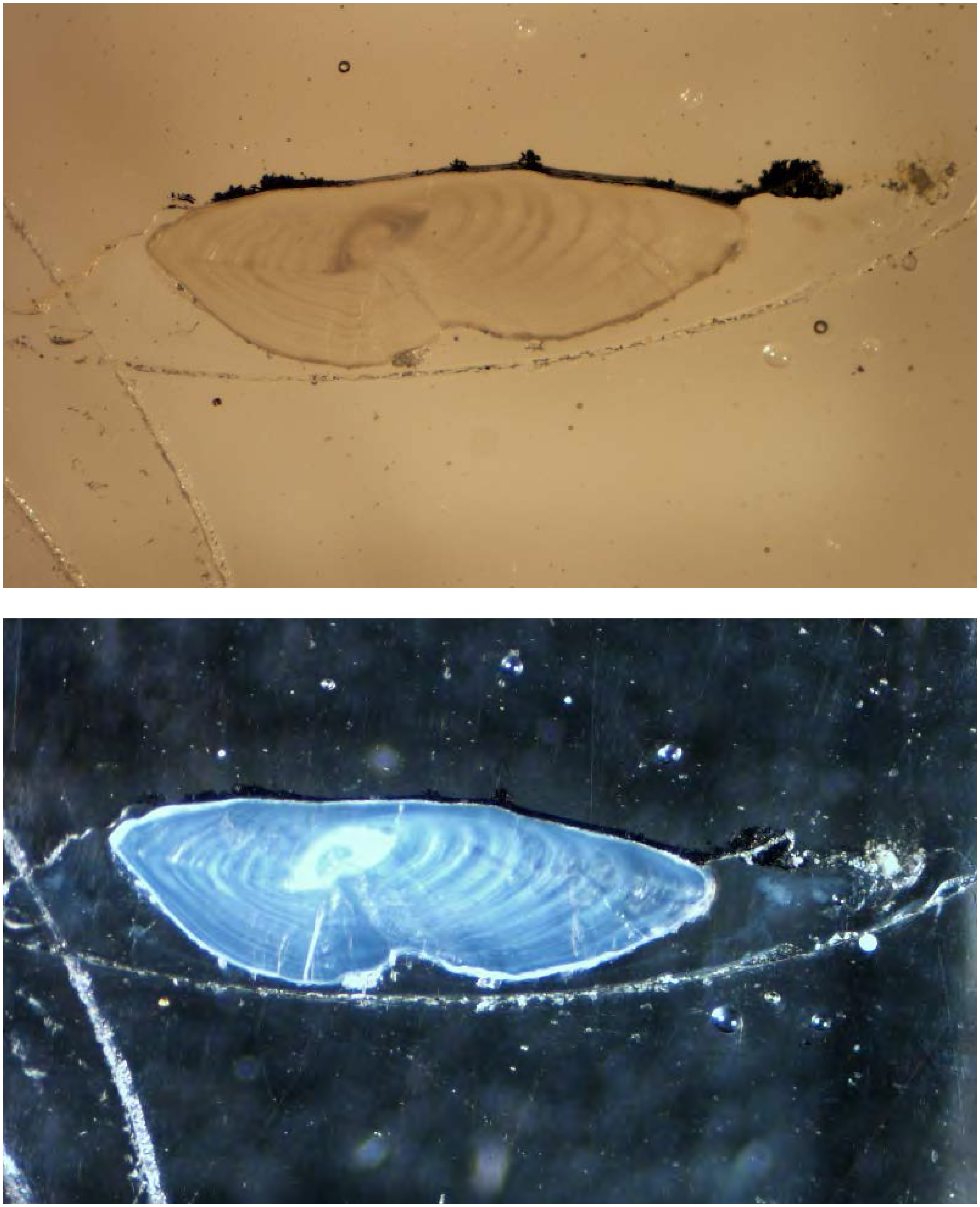


**Figure 138. Sectioned otolith sample #138. Sample was from a male American eel that was 440 mm TL, 150 g, and captured 9/13/2013 from an estuarine habitat in South Carolina. The sample provided by SCDNR was aged as 8 years old. Ages from the sample exchange ranged from 6-10 years, mode was 8 years. This was a paired sample with W2.**

**Figure 139. Sectioned otolith sample #139. Sample was from an American eel that was 385 mm TL, 132 g, and captured 1/13/2015 from a freshwater habitat in Florida. The sample provided by FL FWC was aged as 6 years old. Ages from the sample exchange ranged from 4-8 years, mode was 6 years. This was a paired sample with W93.**

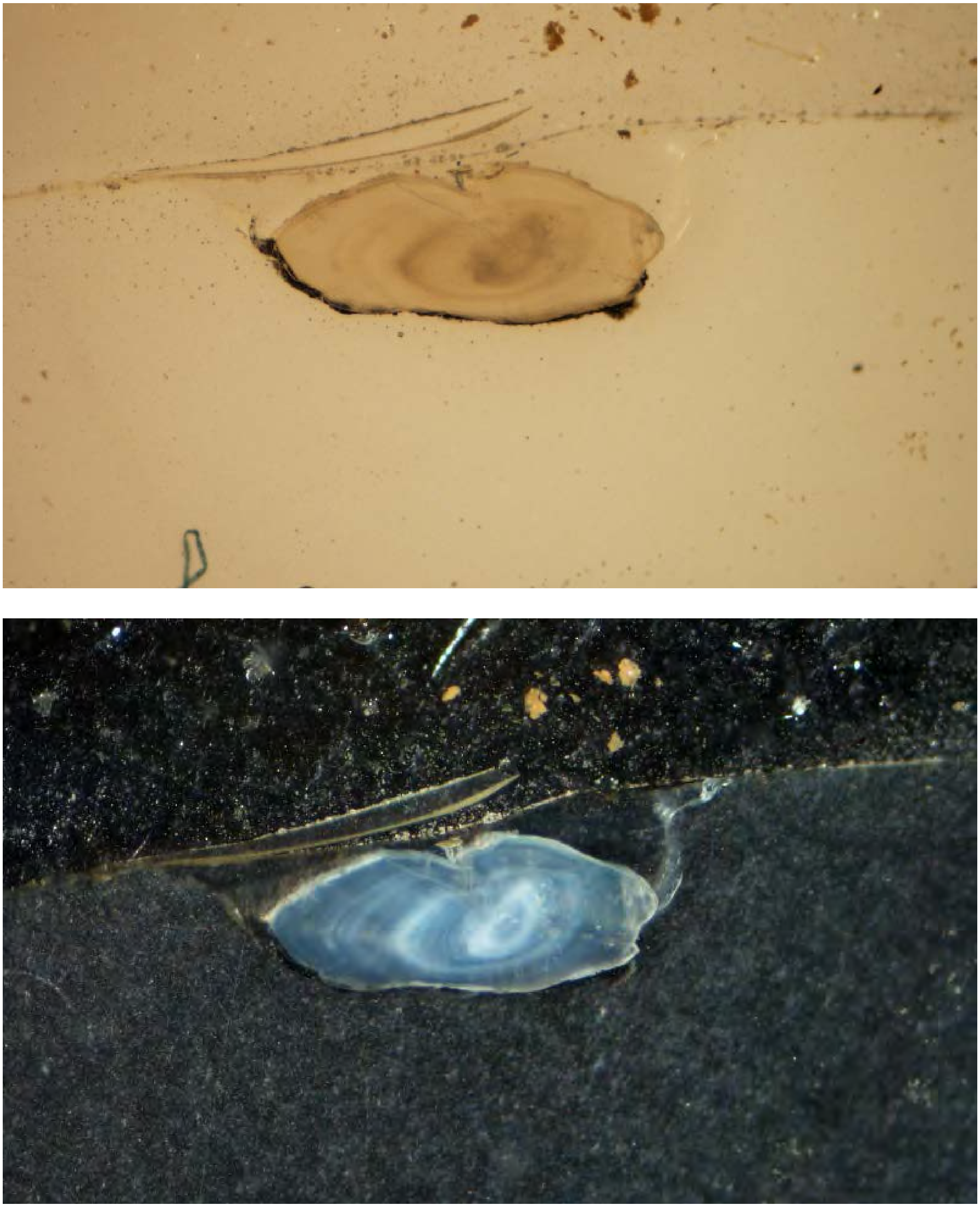


**Figure 140. Sectioned otolith sample #140. Sample was from an American eel that was 232 mm TL, 260 g, and captured 5/20/2013 from an estuarine habitat in South Carolina. The sample provided by SCDNR was aged as 2 years old. Ages from the sample exchange ranged from 2-6 years, mode was 2 years. This was a paired sample with W73.**

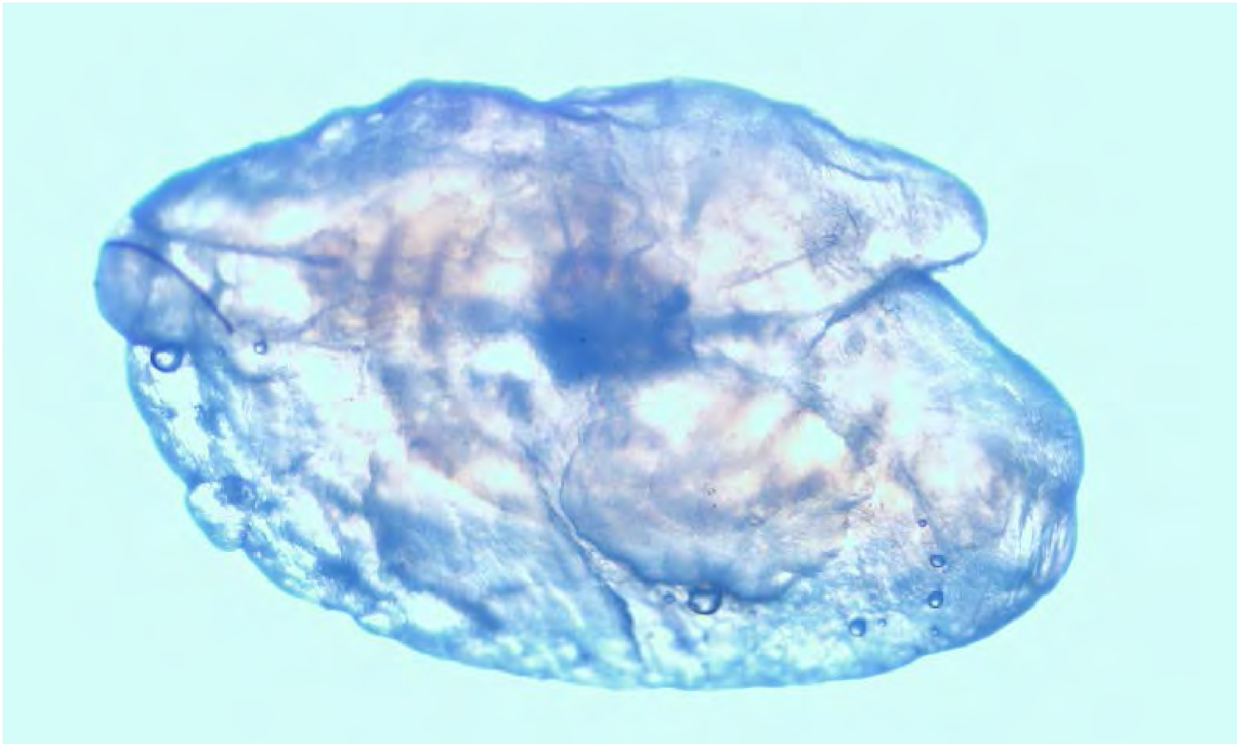


**Figure 1. Whole otolith sample #W1. Sample was from an American eel that was 379 mm TL, 112 g, and captured 12/12/2012 from an estuarine habitat in South Carolina. The sample provided by SCDNR was aged as 5 years old. Ages from the sample exchange ranged from 4-7 years, mode was 6 years. This was a paired sample with section #31.**

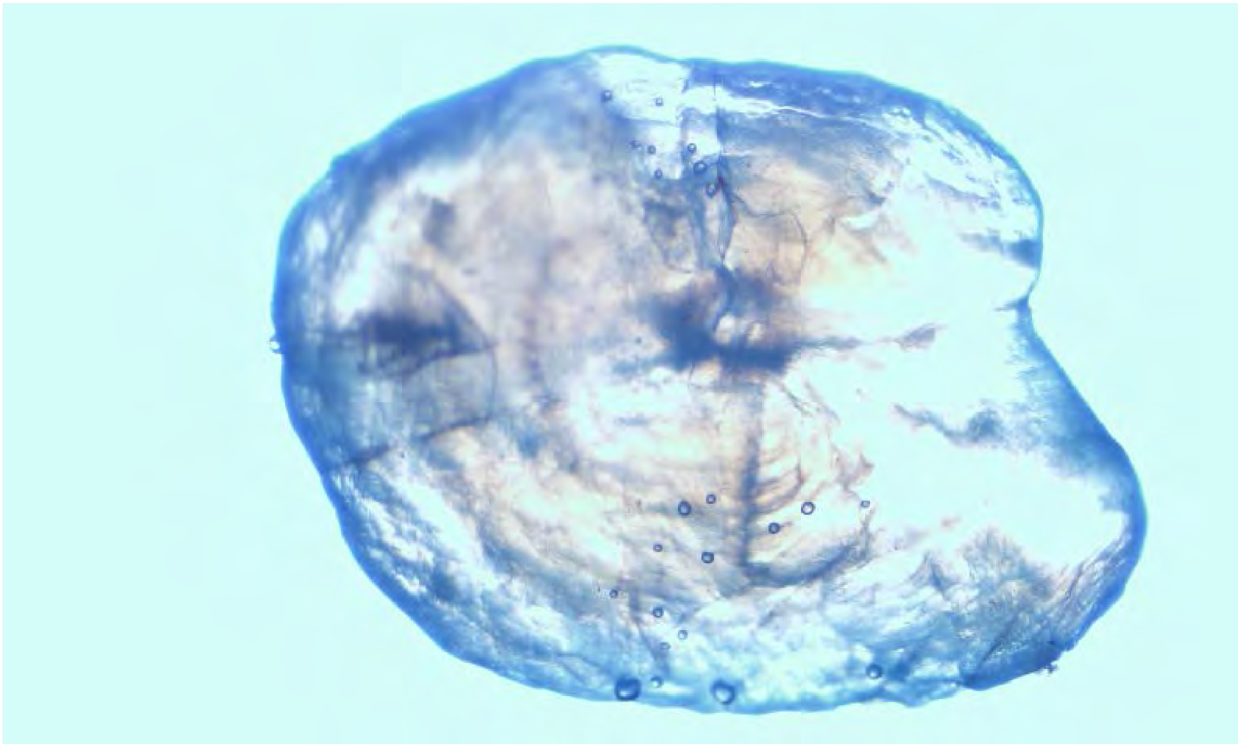


**Figure 2. Whole otolith sample #W2. Sample was from a male American eel that was 440 mm TL, 150 g, and captured 9/13/2013 from an estuarine habitat in South Carolina. The sample provided by SCDNR was aged as 8 years old. Ages from the sample exchange ranged from 2-9 years, mode was 8 years. This was a paired sample with section #138.**

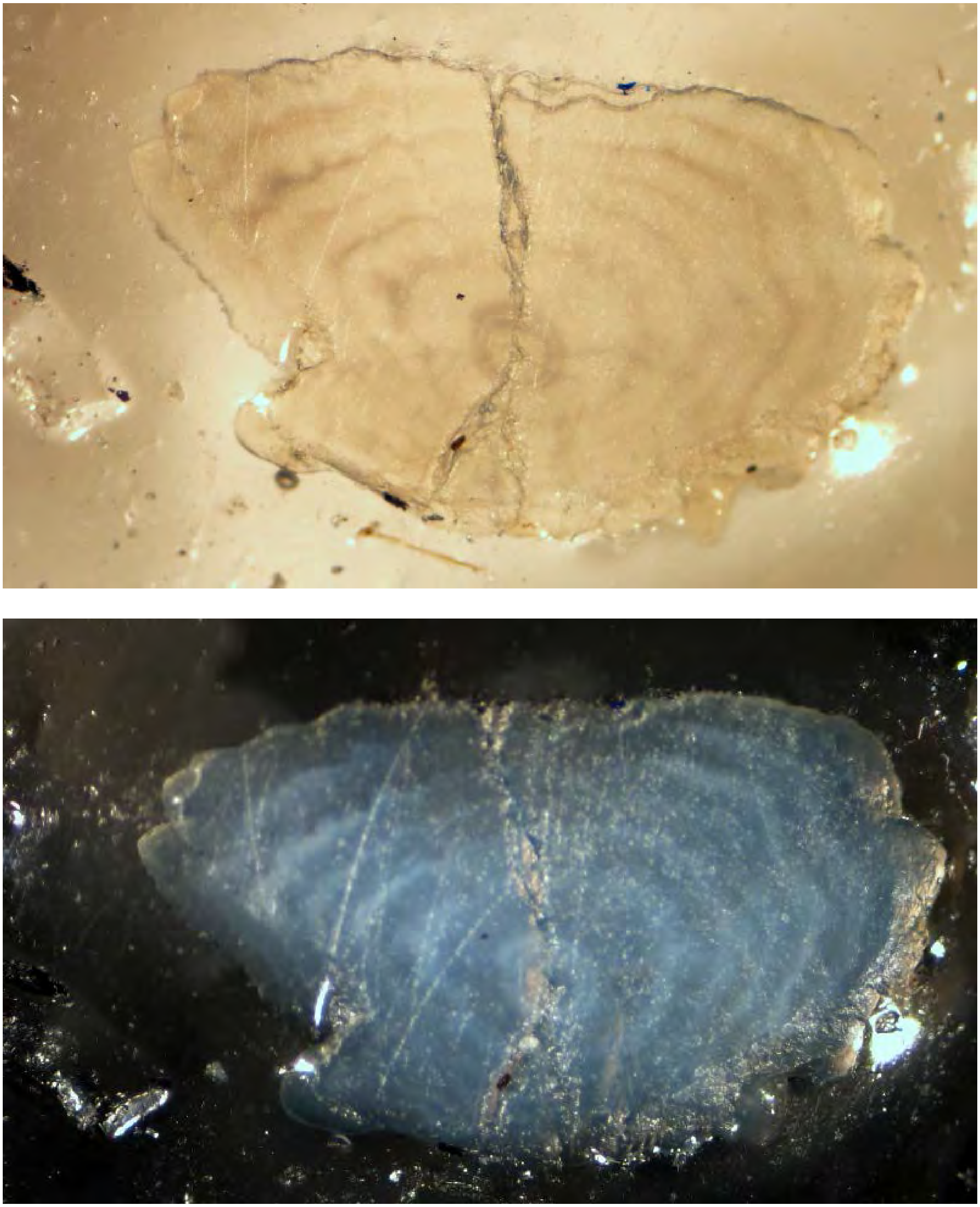


**Figure 3. Whole otolith sample #W3. Sample was from a female American eel that was 566 mm TL, 301 g, and captured 5/11/2011 from an estuarine habitat in Maryland. The sample provided by MD DNR was aged as 6 years old. Ages from the sample exchange ranged from 5-7 years, mode was 5 years.**

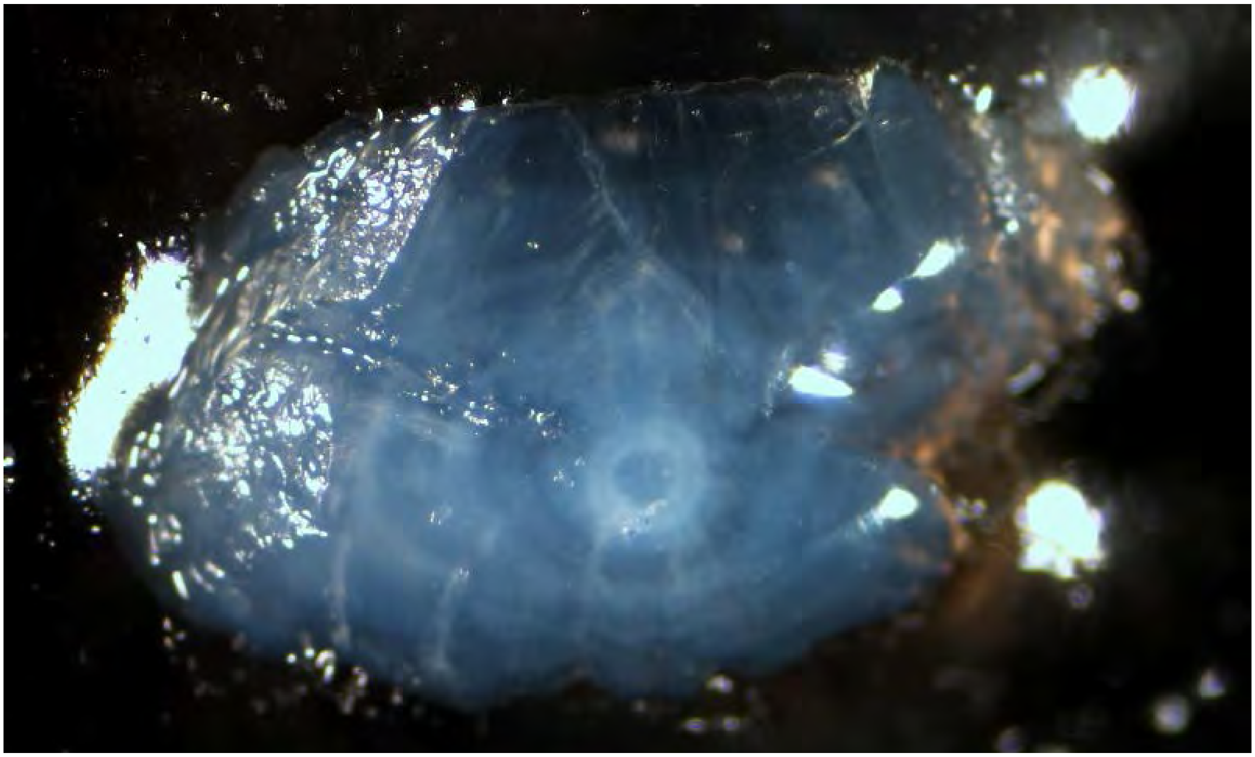


**Figure 4. Whole otolith sample #W4. Sample was from an American eel that was 488 mm TL, 261 g, and captured 6/28/2012 from an estuarine habitat in Delaware. Ages from the sample exchange ranged from 2-6 years, mode was 4 years. This was a paired sample with section #87.**

**Figure 5. Whole otolith sample #W5. Sample was from a male American eel that was 296 mm TL, 52 g, and captured 9/27/2013 from an estuarine habitat in South Carolina. The sample provided by SCDNR was aged as 10 years old. Ages from the sample exchange ranged from 1-6 years, mode was 4 years. This was a paired sample with section #56.**

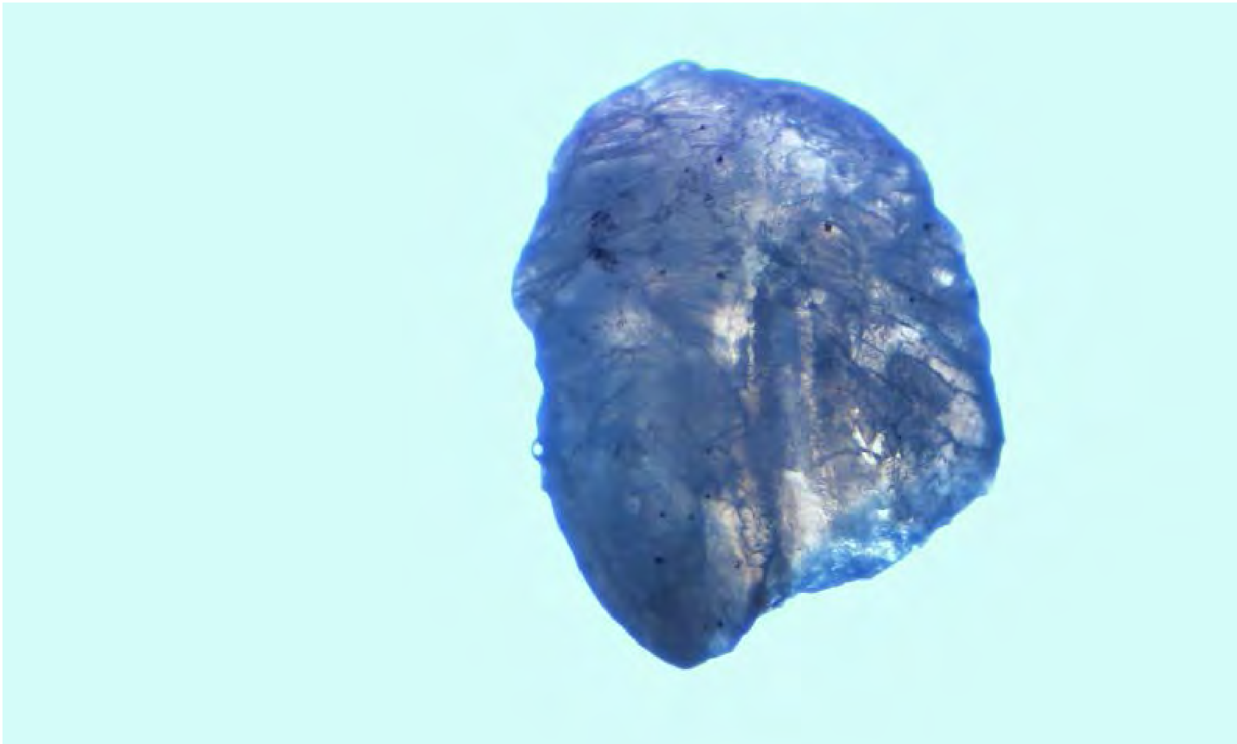


**Figure 6. Whole otolith sample #W6. Sample was from an American eel that was 319 mm TL, 50 g, and captured 4/25/2013 from an estuarine habitat in New Jersey. The sample provided by NJDFW was aged as 3 years old. Ages from the sample exchange ranged from 0-3 years, mode was 3 years. This was a paired sample with section #105.**

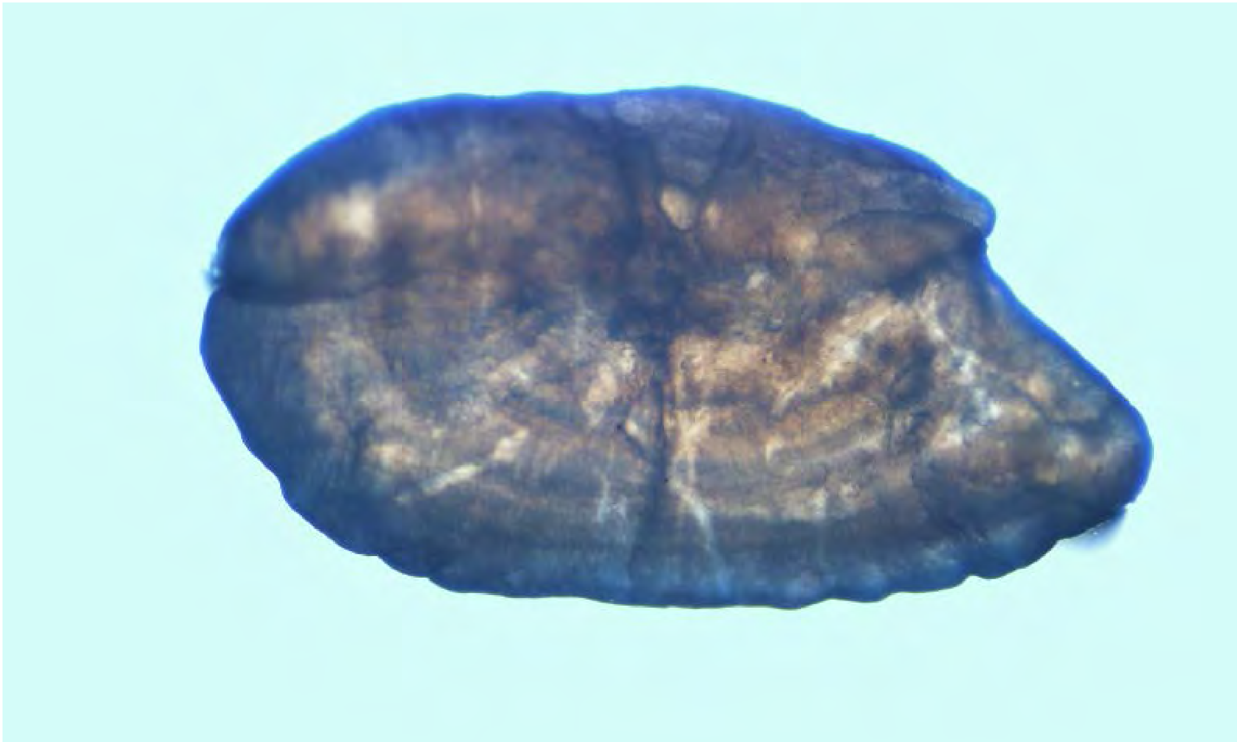


**Figure 7. Whole otolith sample #W7. Sample was from a male American eel that was 336 mm TL, 90 g, and captured 9/27/2013 from an estuarine habitat in South Carolina. The sample provided by SCDNR was aged as 4 years old. Ages from the sample exchange ranged from 3-6 years, mode was 5 years. This was a paired sample with section #46.**

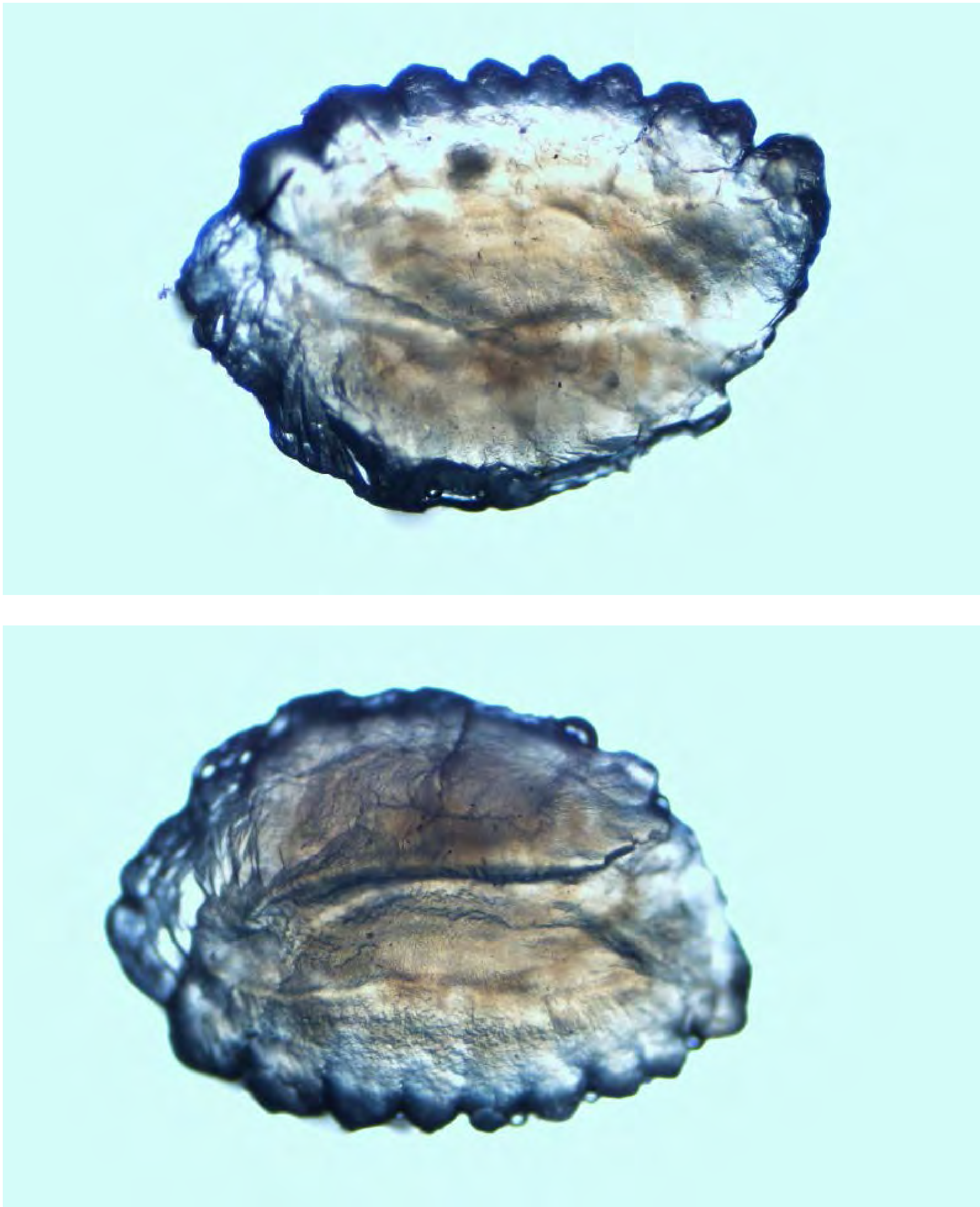


**Figure 8. Whole otolith sample #W8. Sample was from an American eel that was 398 mm TL, 123 g, and captured 11/13/2014 from a freshwater habitat in Florida. The sample provided by FL FWC was aged as 2 years old. Ages from the sample exchange ranged from 2-6 years, mode was 4 years. This was a paired sample with section #62.**

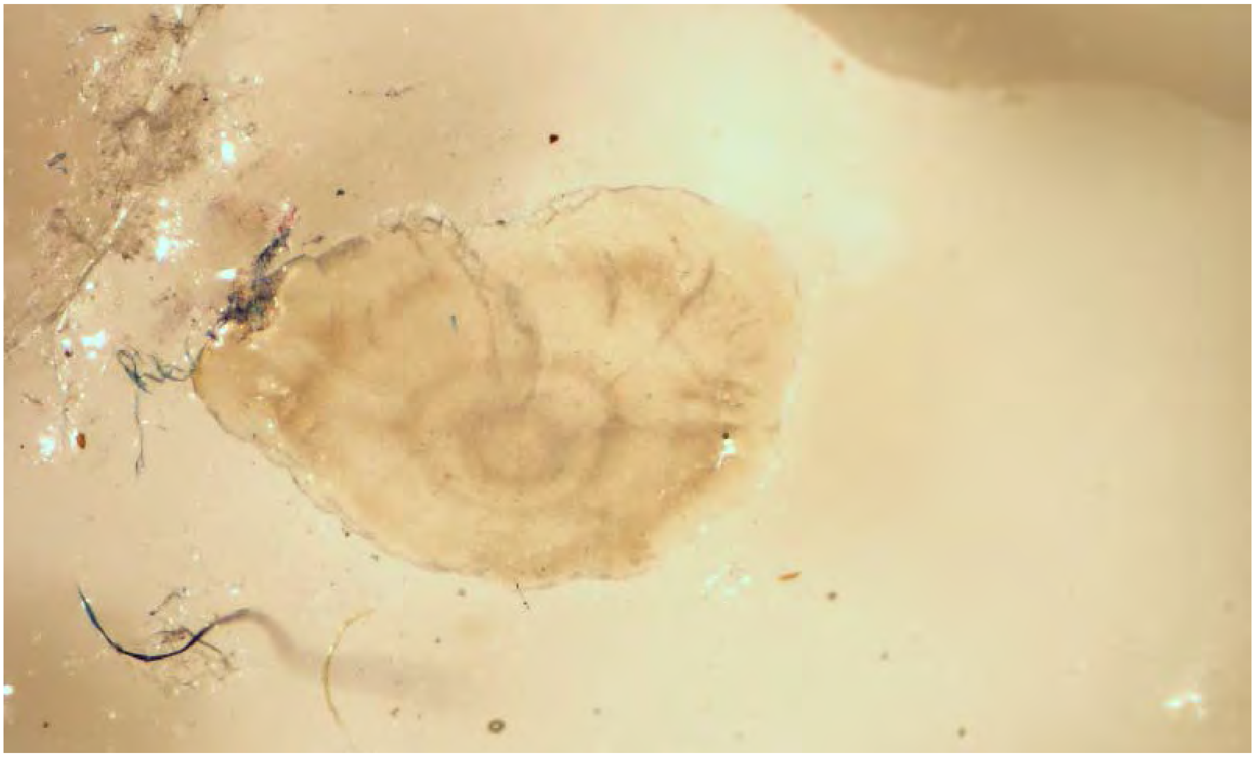


**Figure 9. Whole otolith sample #W9. Sample was from a male American eel that was 294 mm TL, 43 g, and captured 5/11/2011 from an estuarine habitat in Maryland. The sample provided by MD DNR was aged as 3 years old. Ages from the sample exchange ranged from 2-3 years, mode was 2 years.**

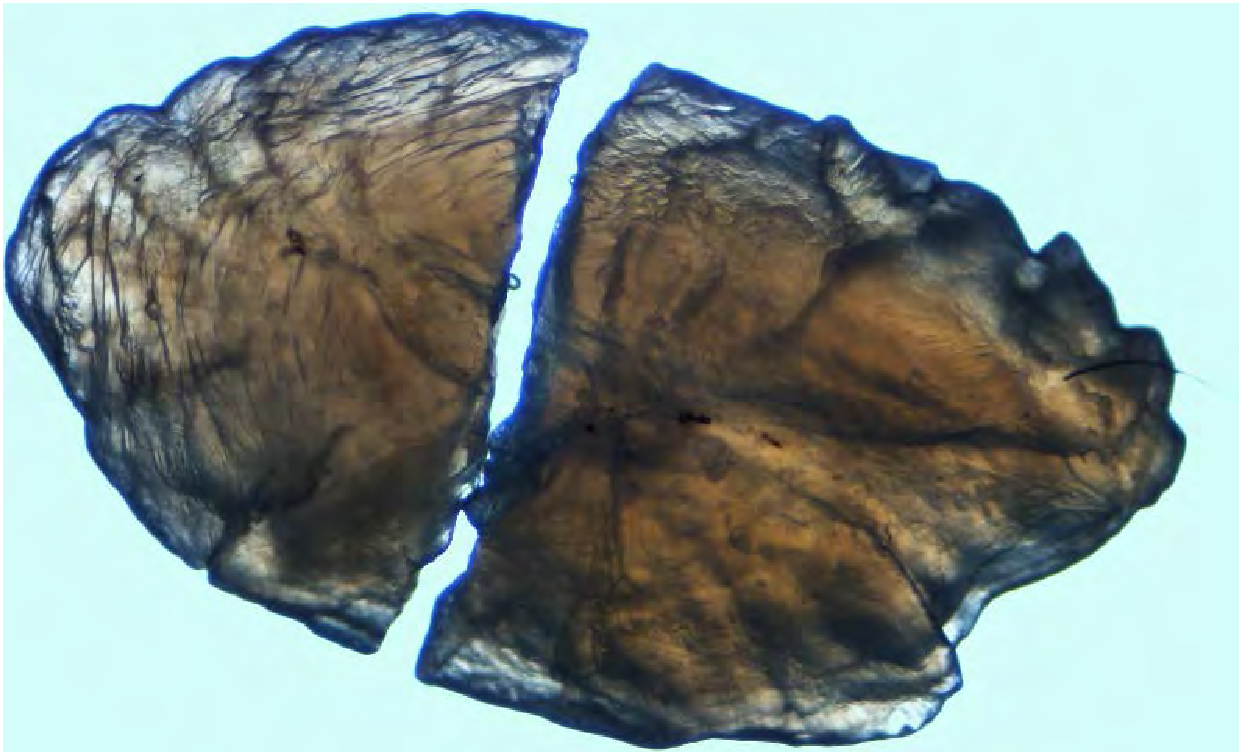


**Figure 10. Whole otolith sample #W10. Sample was from an American eel that was 588 mm TL, 350 g, and captured 9/29/2008 from an estuarine habitat in New Jersey. The sample provided by NJDFW was aged as 11 years old. Ages from the sample exchange ranged from 1-10 years, mode was 7 years. This was a paired sample with section #11.**

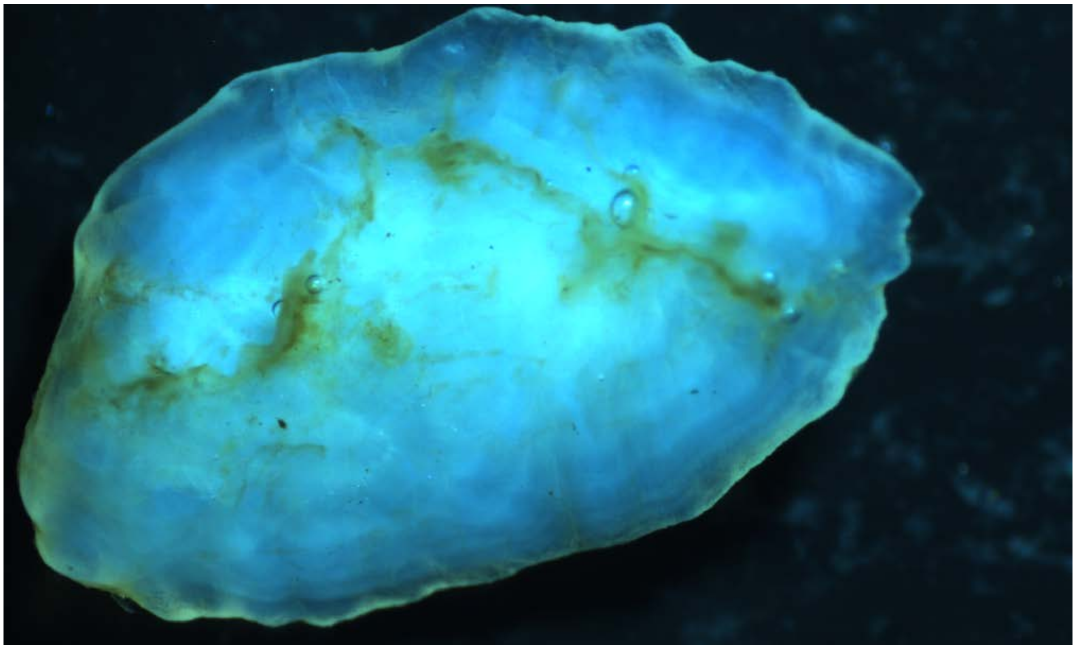


**Figure 11. Whole otolith sample #W11. Sample was from an American eel that was 656 mm TL, 510 g, and captured 5/29/2014 from an estuarine habitat in New Jersey. The sample provided by NJDFW was aged as 9 years old. Ages from the sample exchange ranged from 4-8 years, mode was 7 years. This was a paired sample with section #41.**

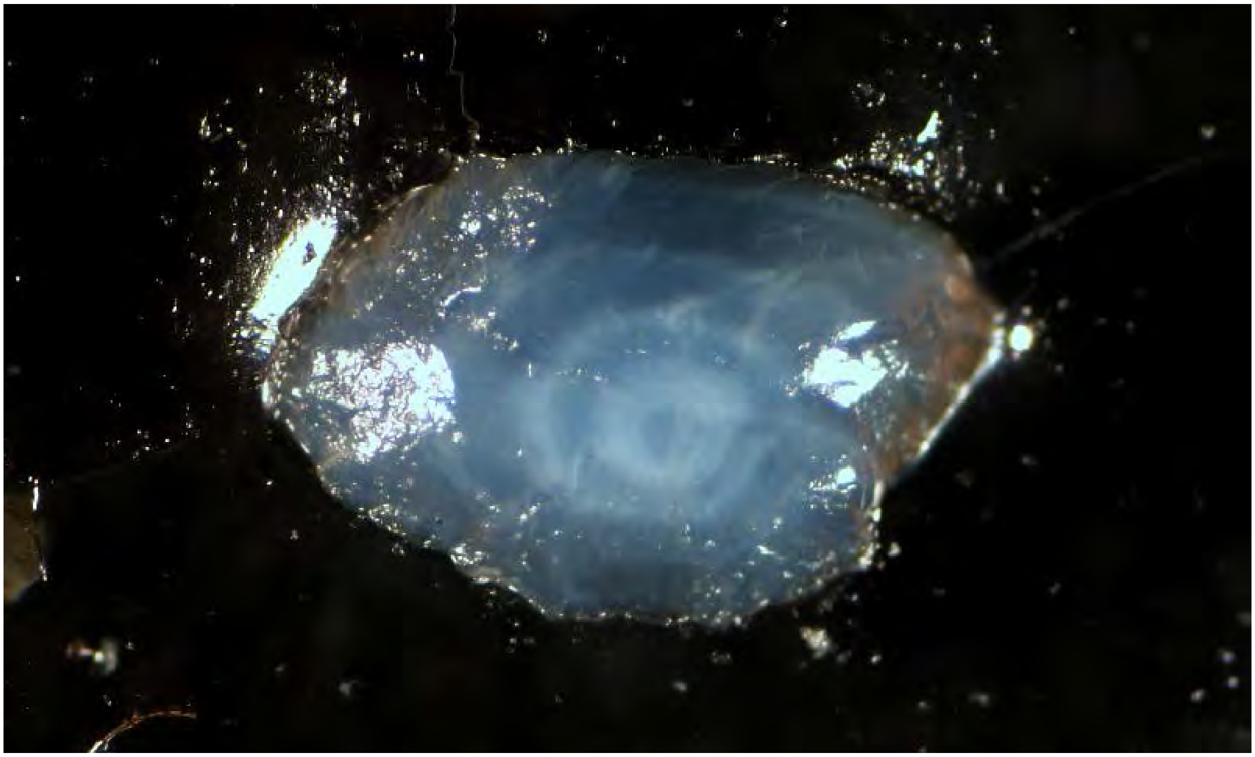


**Figure 12. Whole otolith sample #W12. Sample was from an American eel that was 409 mm TL, 128 g, and captured 6/26/2012 from an estuarine habitat in Delaware. Ages from the sample exchange ranged from 1-4 years, mode was 3 years. This was a paired sample with section #75.**

**Figure 13. Whole otolith sample #W13. Sample was from an American eel that was 202 mm TL, 13 g, and captured 7/5/2013 from an estuarine habitat in South Carolina. The sample provided by SCDNR was aged as 1 year old. Ages from the sample exchange ranged from 1-3 years, mode was 2 years. This was a paired sample with section #43.**

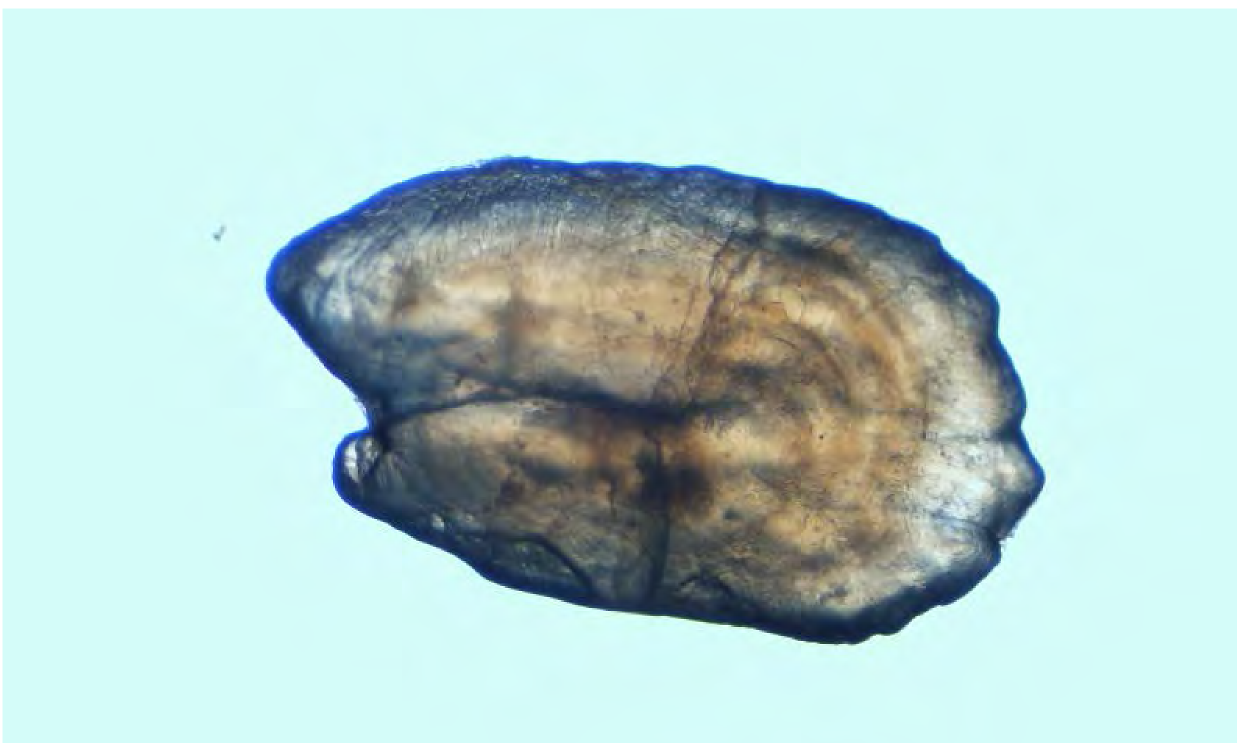


**Figure 14. Whole otolith sample #W14. Sample was from an American eel that was 296 mm TL, 60 g, and captured 6/18/2013 from an estuarine habitat in South Carolina. The sample provided by SCDNR was aged as 5 years old. Ages from the sample exchange ranged from 2-7 years, mode was 5 years. This was a paired sample with section #67.**

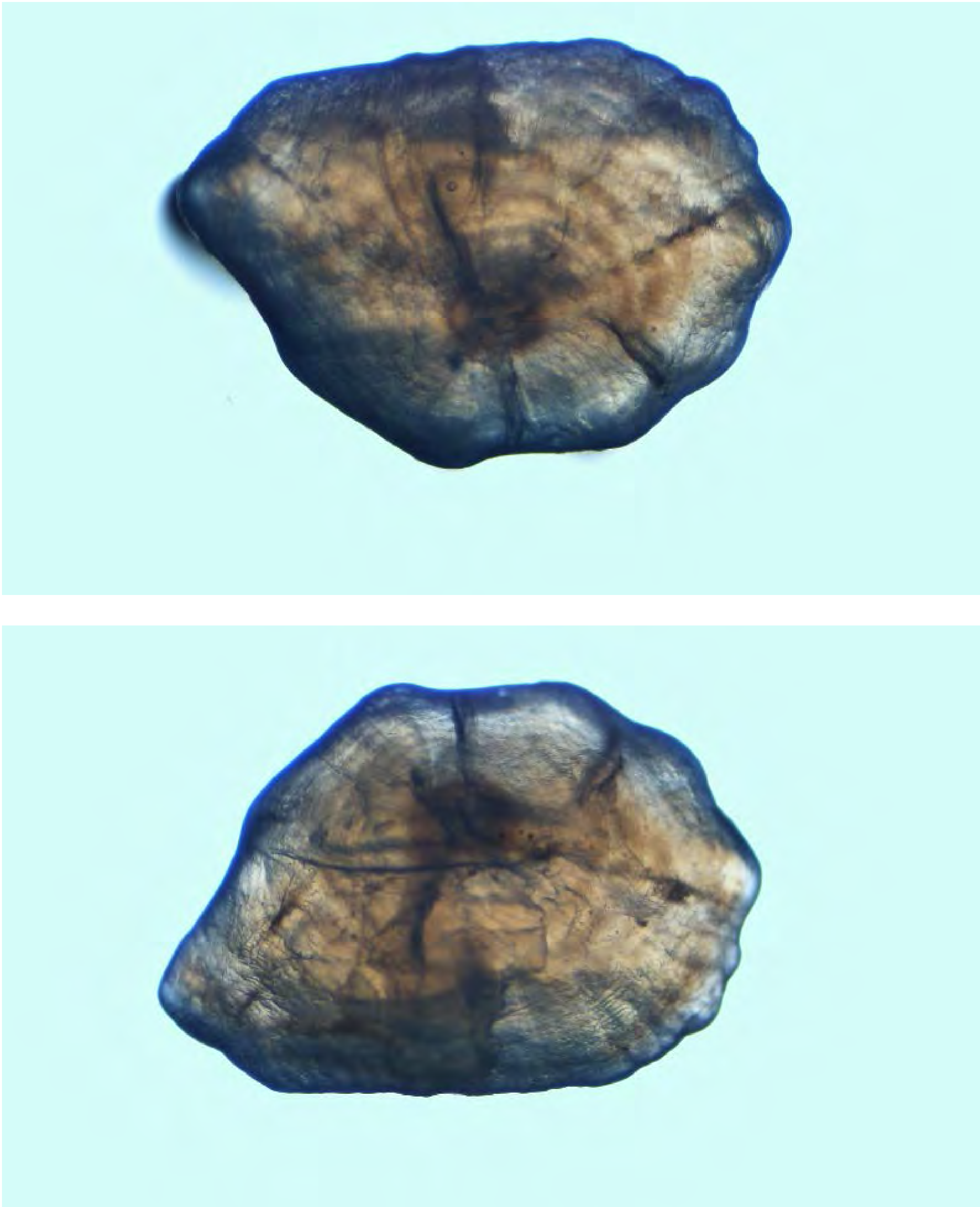


**Figure 15. Whole otolith sample #W15. Sample was from an American eel that was 340 mm TL, 71 g, and captured 9/27/2013 from an estuarine habitat in South Carolina. The sample provided by SCDNR was aged as 7 years old. Ages from the sample exchange ranged from 2-9 years, mode was 7 years. This was a paired sample with section #90.**

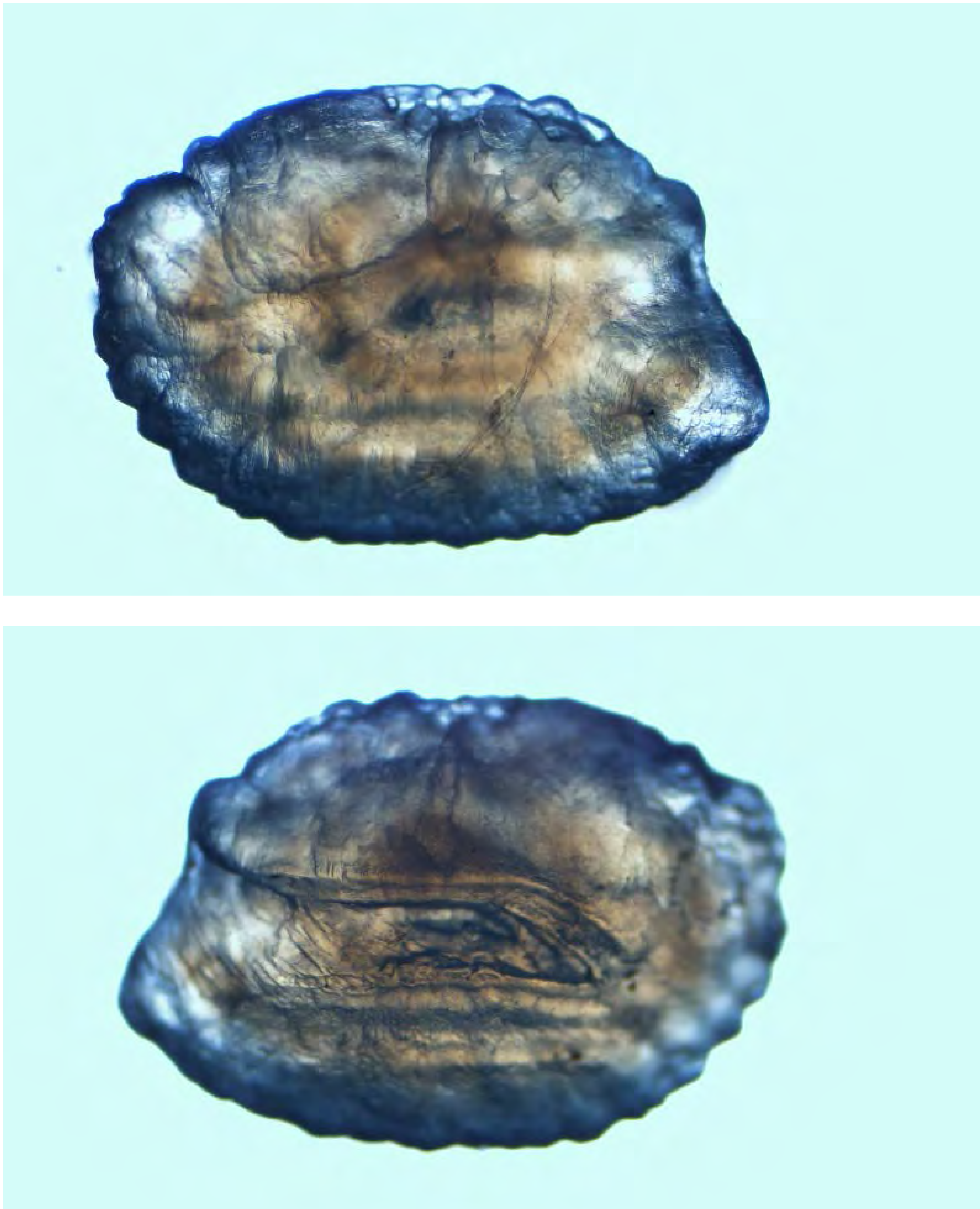


**Figure 16. Whole otolith sample #W16. Sample was from an American eel that was 351 mm TL, 80 g, and captured 2/25/2014 from a freshwater habitat in Florida. The sample provided by FL FWC was aged as 3 years old. Ages from the sample exchange ranged from 1-4 years, mode was 2 years. This was a paired sample with section #97.**

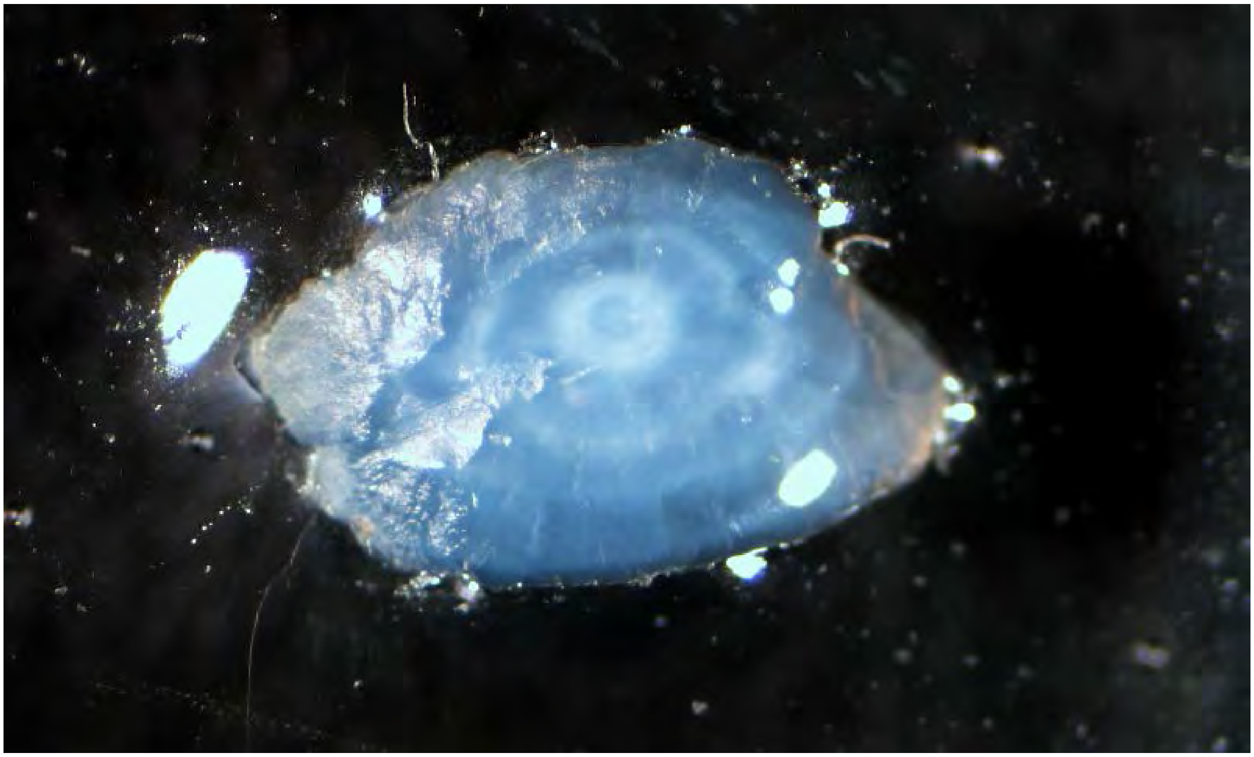


**Figure 17. Whole otolith sample #W17. Sample was from an American eel that was 375 mm TL, 115 g, and captured 6/28/2012 from an estuarine habitat in Delaware. Ages from the sample exchange ranged from 2-4 years, mode was 3 years. This was a paired sample with section #37.**

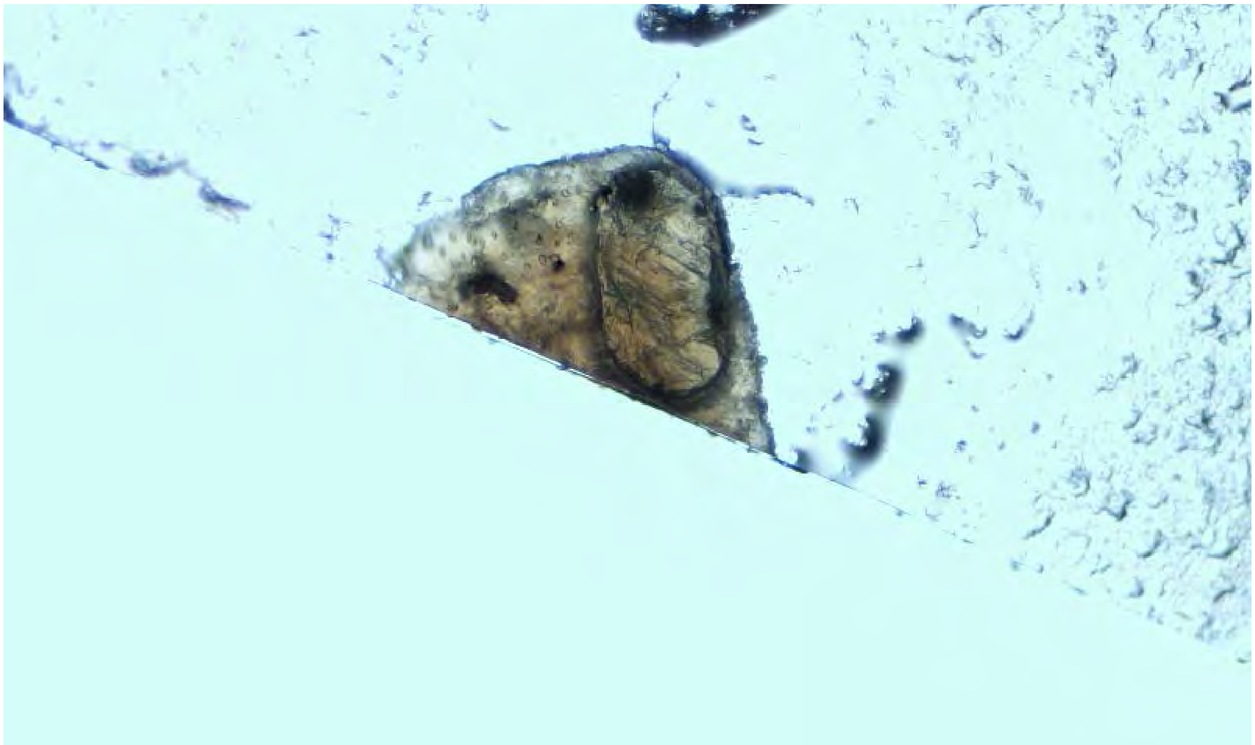


**Figure 18. Whole otolith sample #W18. Sample was from a male American eel that was 302 mm TL, 49 g, and captured 7/1997 in Maine. Ages from the sample exchange ranged from 0-5 years, mode was 3 years. This was a paired sample with section #117.**

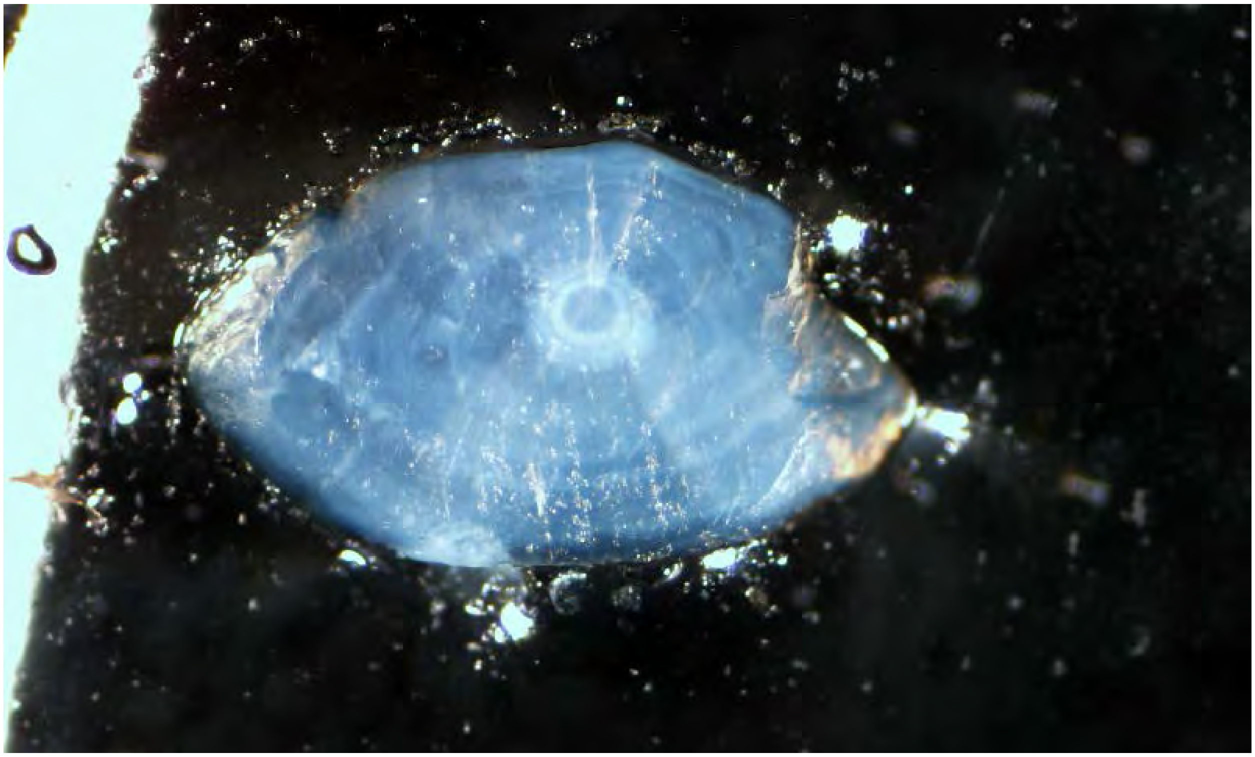


**Figure 19. Whole otolith sample #W19. Sample was from an American eel that was 285 mm TL, 40 g, and captured 10/2/2012 from an estuarine habitat in Delaware. Ages from the sample exchange ranged from 1-6 years, mode was 4 years. This was a paired sample with section #135.**

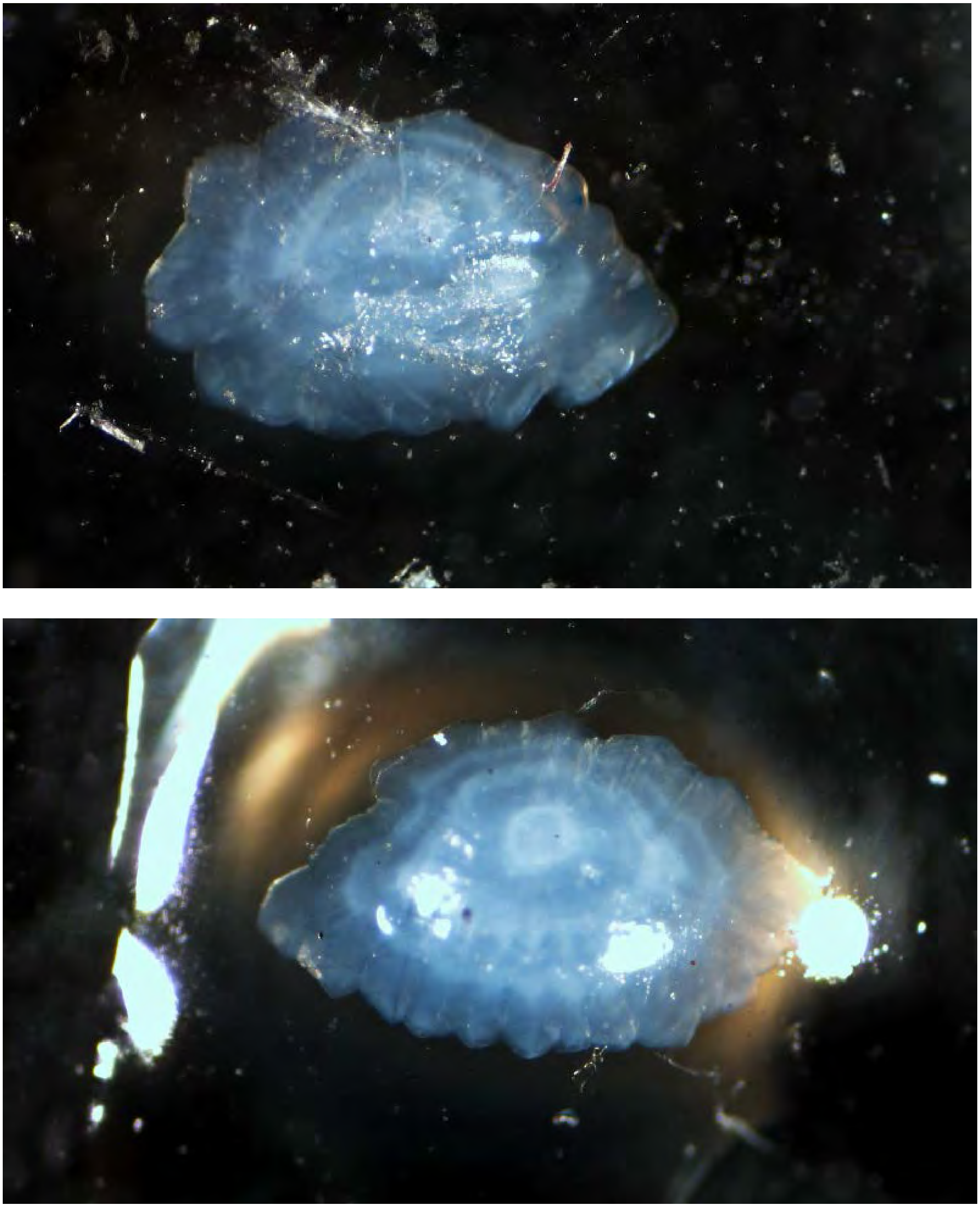


**Figure 20. Whole otolith sample #W20. Sample was from a female American eel that was 352 mm TL, 81 g, and captured 4/18/2012 from an estuarine habitat in Maryland. The sample provided by MD DNR was aged as 3 years old. Ages from the sample exchange ranged from 2-4 years, mode was 3 years.**

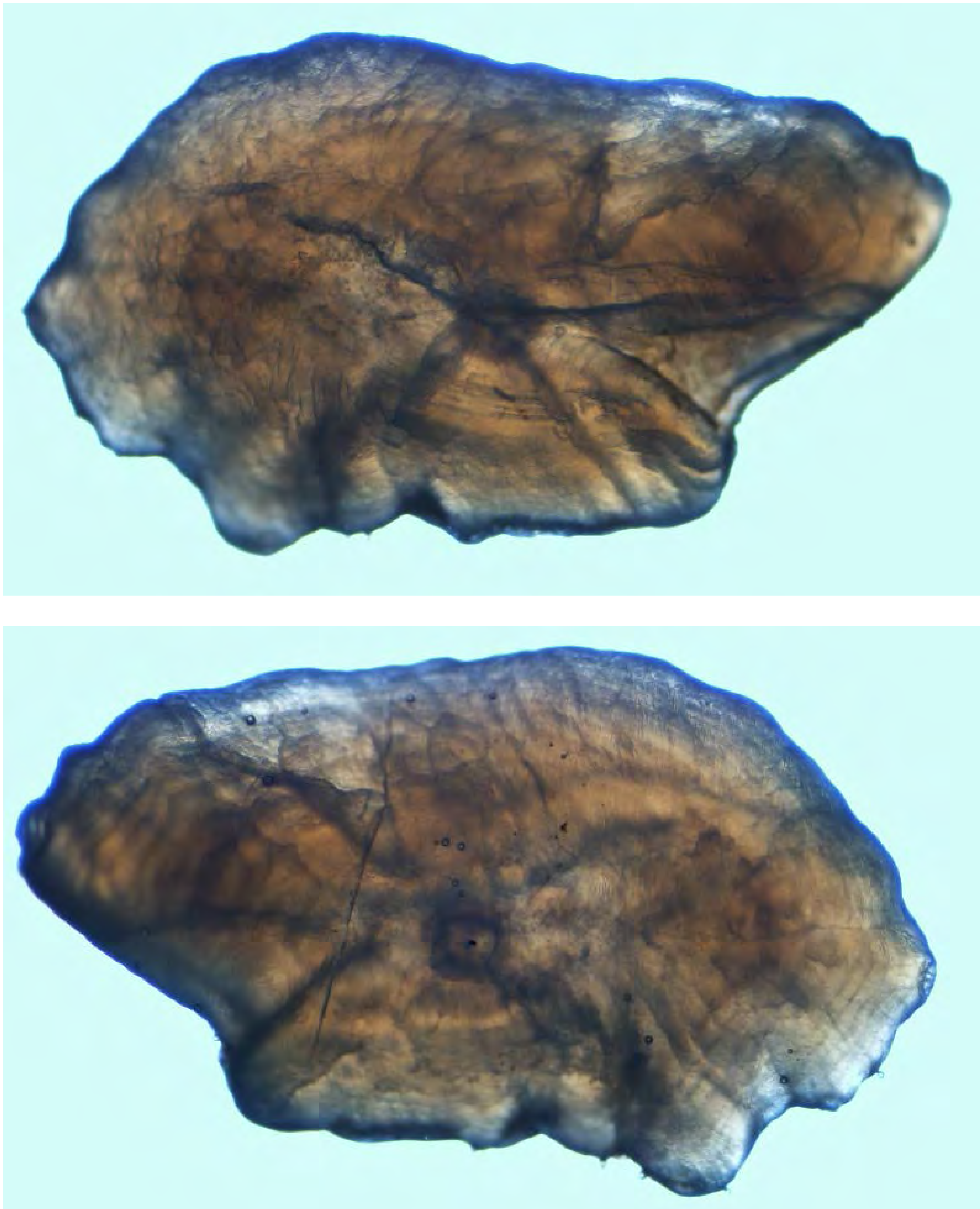


**Figure 21. Whole otolith sample #W21. Sample was from an American eel that was 725 mm TL, 770 g, and captured 10/22/2008 from an estuarine habitat in New Jersey. The sample provided by NJDFW was aged as 13 years old. Ages from the sample exchange ranged from 5-14 years, mode was 13 years. This was a paired sample with section #27.**

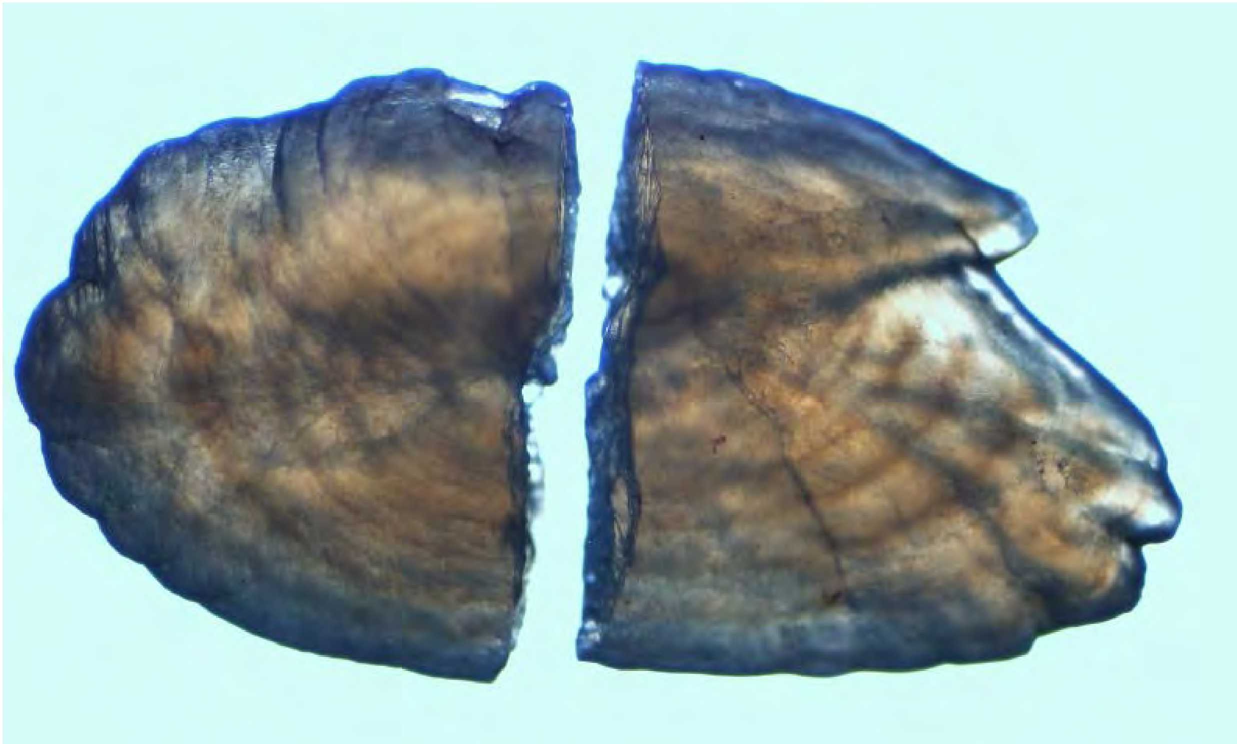
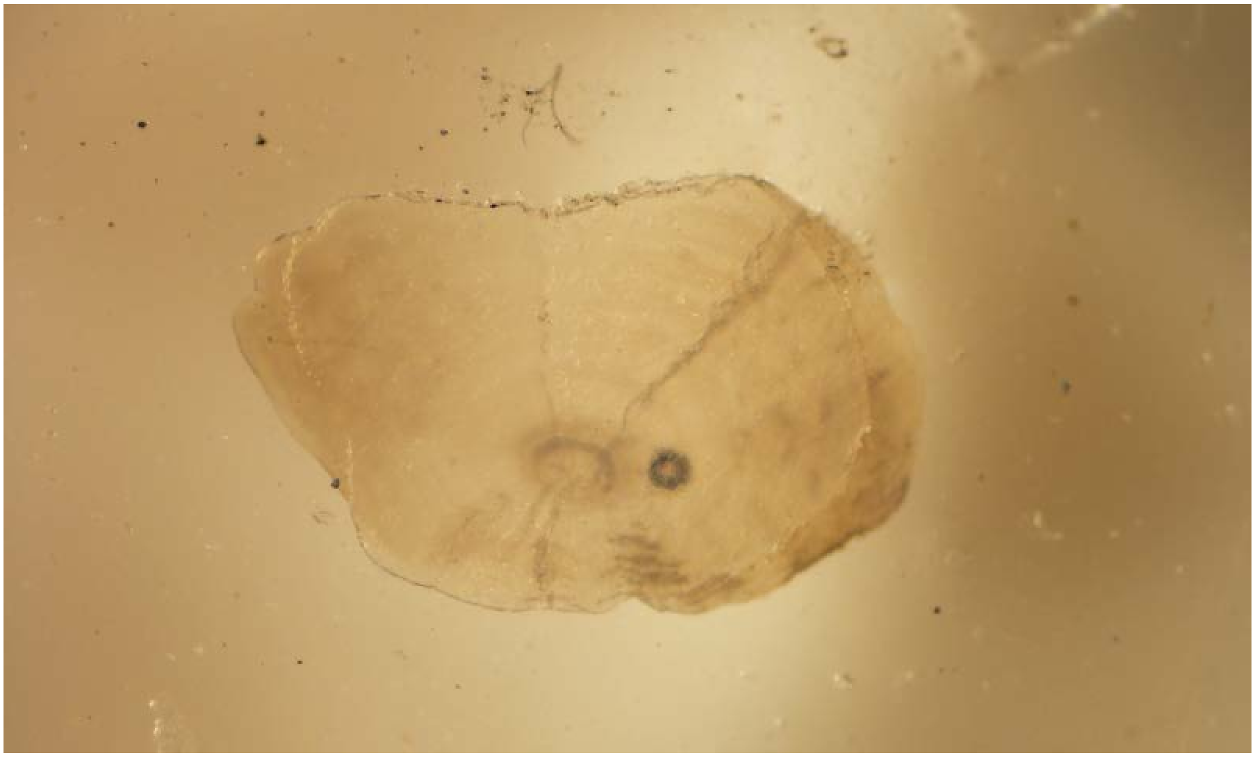


**Figure 22. Whole otolith sample #W22. Sample was from an American eel that was 488 mm TL, 208 g, and captured 9/16/2013 from an estuarine habitat in South Carolina. The sample provided by SCDNR was aged as 8 years old. Ages from the sample exchange ranged from 4-8 years, mode was 8 years. This was a paired sample with section #115.**



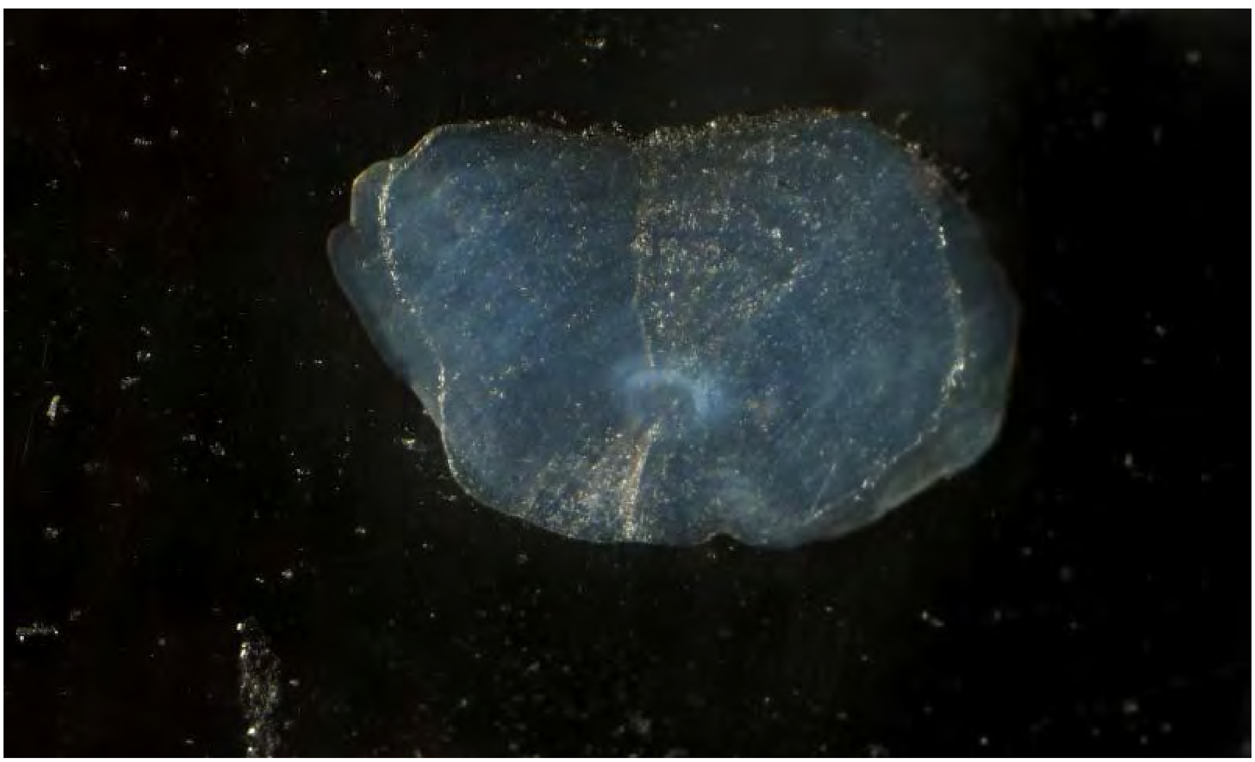


**Figure 23. Whole otolith sample #W23. Sample was from a male American eel that was 336 mm TL, 66 g, and captured 4/27/2011 from an estuarine habitat in Maryland. The sample provided by MD DNR was aged as 6 years old. Ages from the sample exchange ranged from 2-8 years, mode was 6 years.**

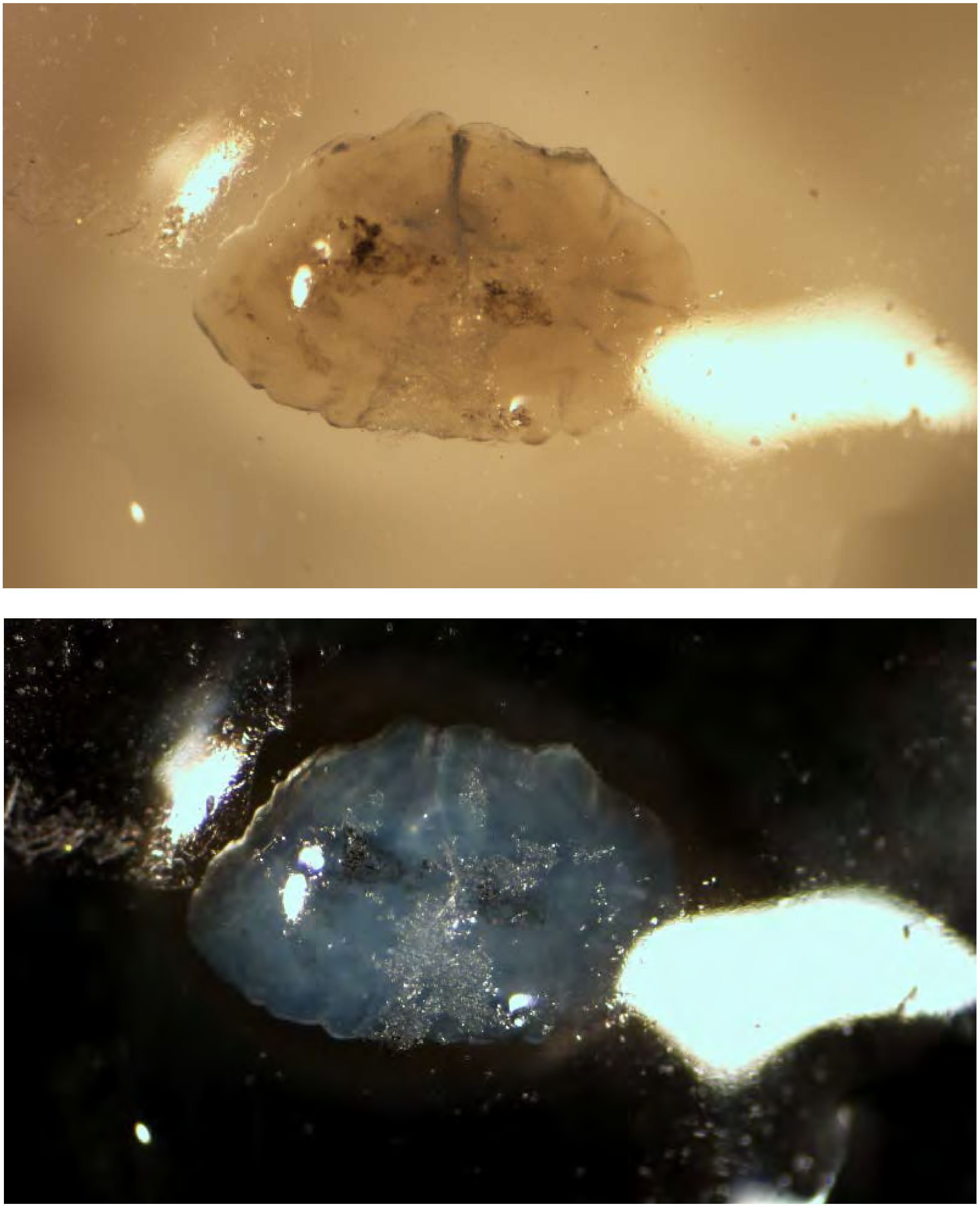


**Figure 24. Whole otolith sample #W24. Sample was from a male American eel that was 344 mm TL, 71 g, and captured 4/18/2012 from an estuarine habitat in Maryland. The sample provided by MD DNR was aged as 4 years old. Ages from the sample exchange ranged from 3-5 years, mode was 3 years.**

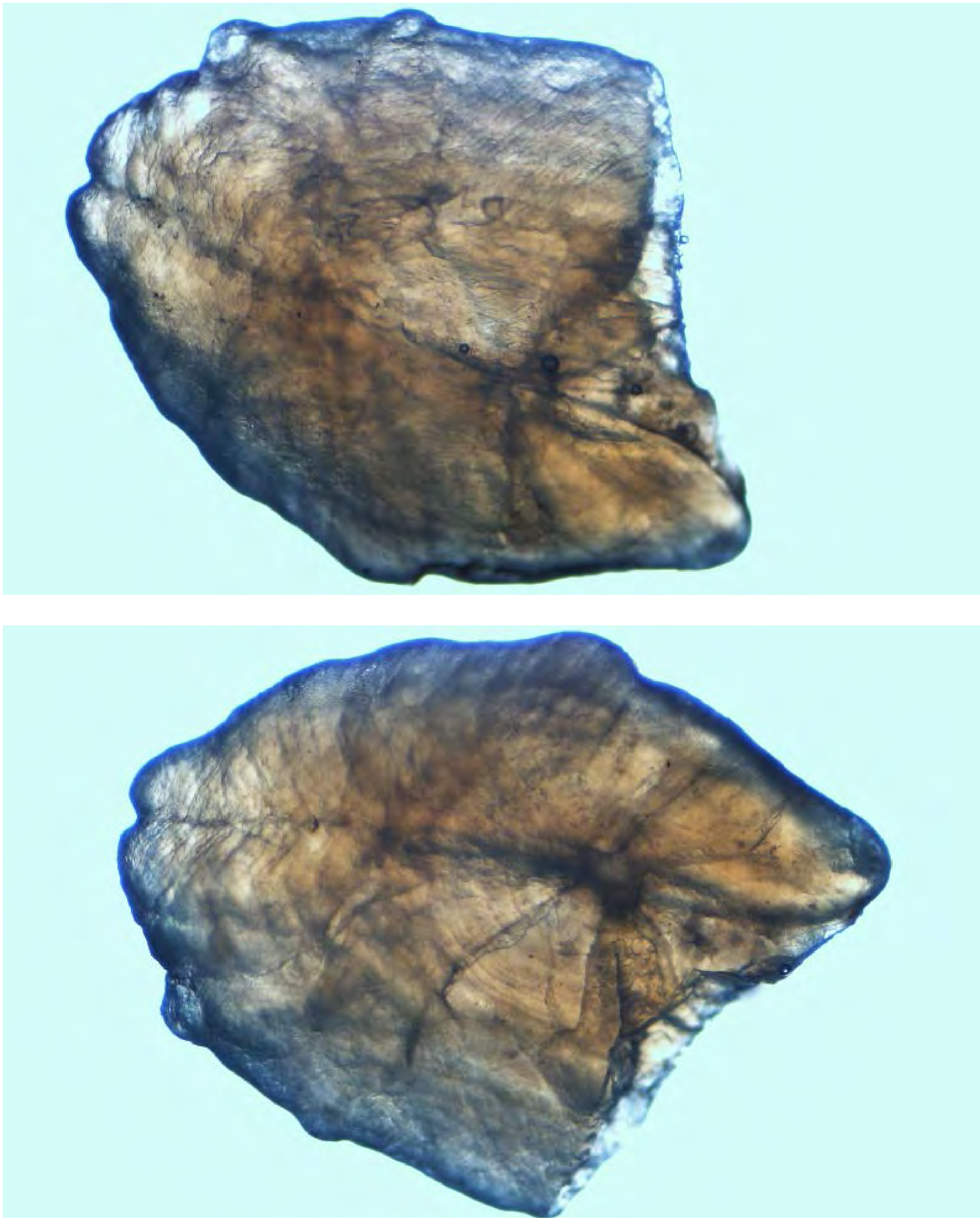


**Figure 25. Whole otolith sample #W25. Sample was from an American eel that was 714 mm TL, 680 g, and captured 11/12/2008 from an estuarine habitat in New Jersey. The sample provided by NJDFW was aged as 15 years old. Ages from the sample exchange ranged from 3-12 years, mode was 9 years. This was a paired sample with section #110.**

**[Photo not available]**

**Figure 26. Whole otolith sample #W26. Sample was from an American eel that was 189 mm TL, 11 g, and captured 7/5/2013 from an estuarine habitat in South Carolina. The sample provided by SCDNR was aged as 0 years old. Ages from the sample exchange ranged from 0-3 years, mode was 2 years. This was a paired sample with section #126.**

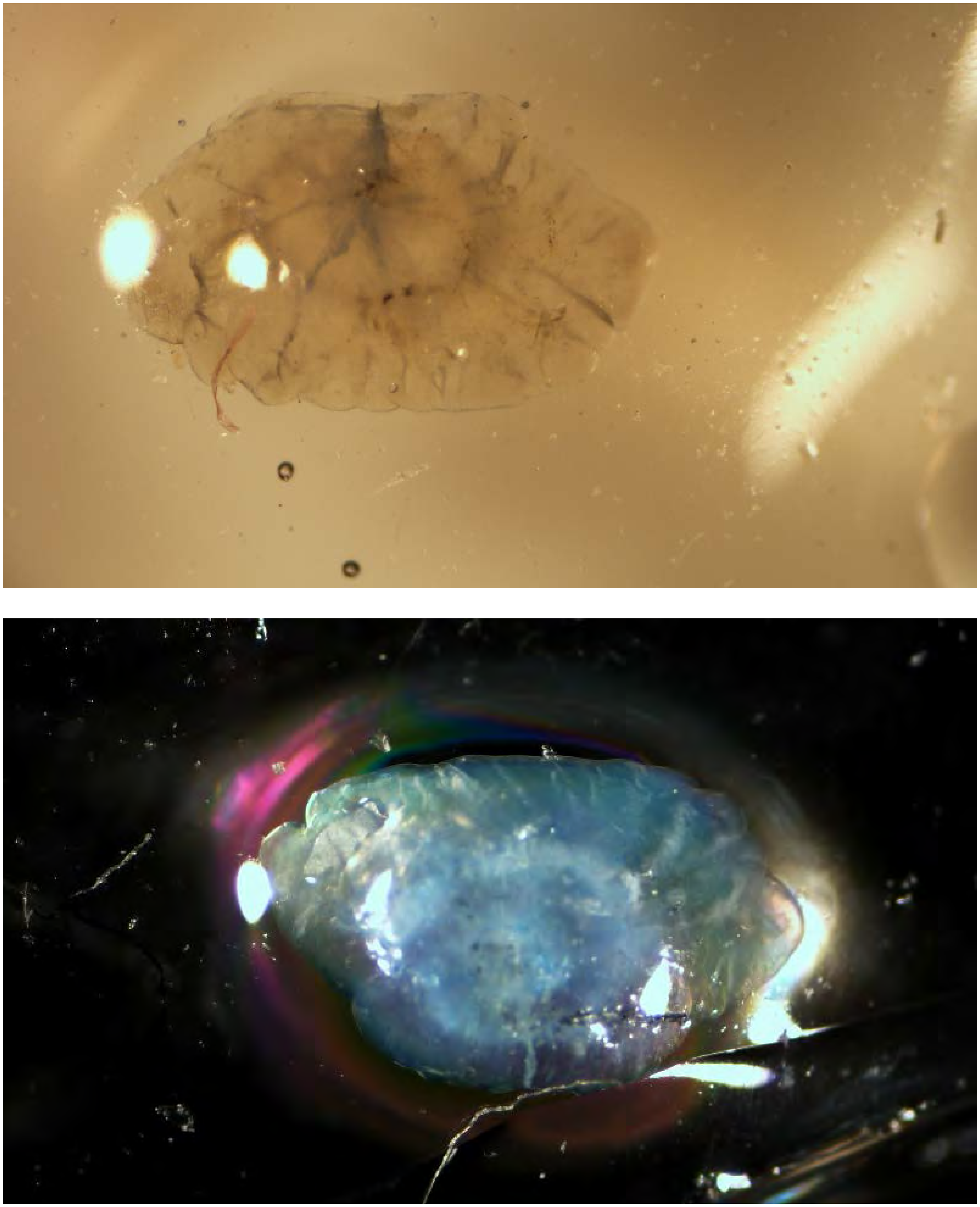


**Figure 27. Whole otolith sample #W27. Sample was from a female American eel that was 334 mm TL, 65 g, and captured 4/18/2012 from an estuarine habitat in Maryland. The sample provided by MD DNR was aged as 2 years old. Ages from the sample exchange ranged from 1-3 years, mode was 2 years.**

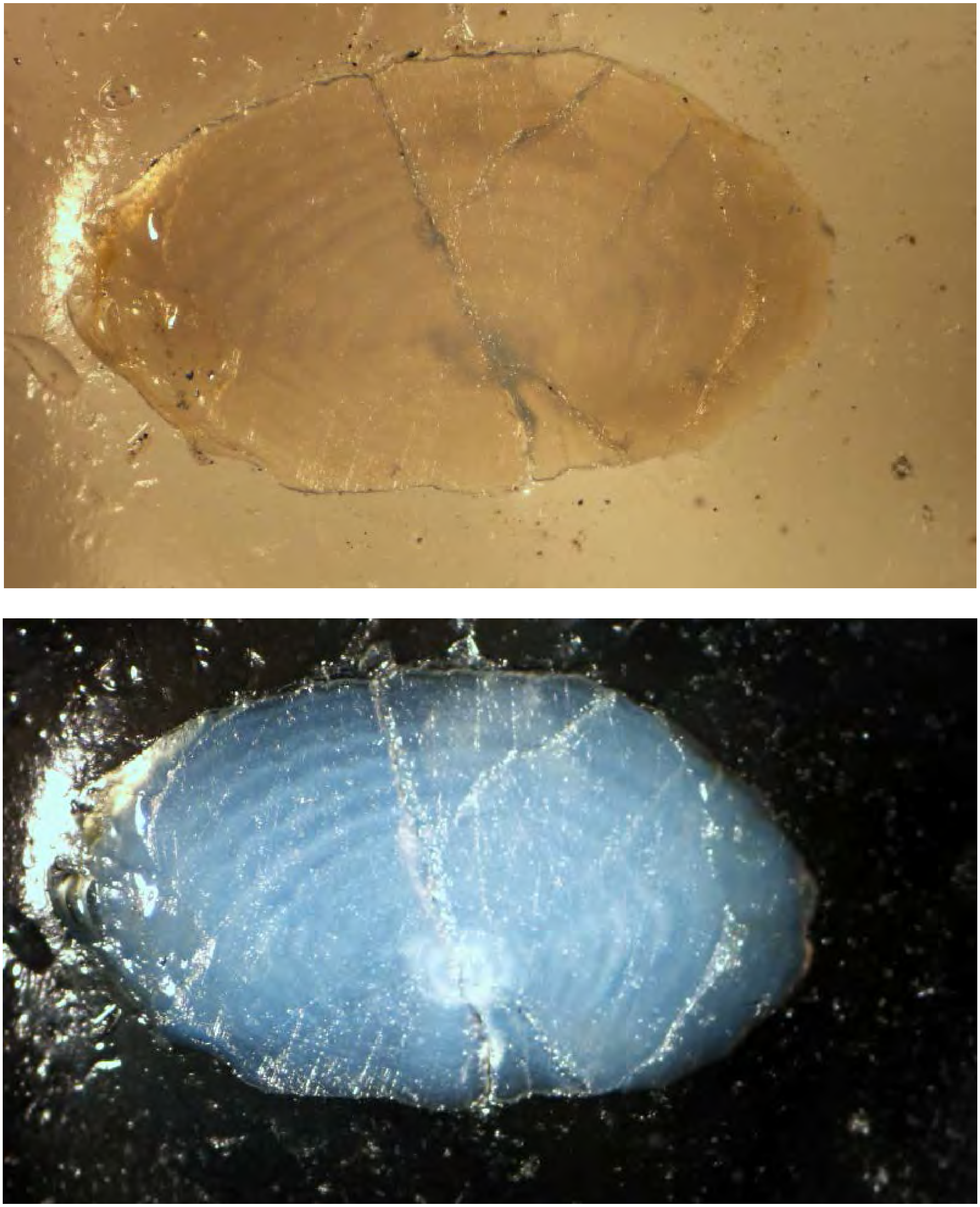


**Figure 28. Whole otolith sample #W28. Sample was from a female American eel that was 462 mm TL, 196 g, and captured 4/27/2011 from an estuarine habitat in Maryland. The sample provided by MD DNR was aged as 11 years old. Ages from the sample exchange ranged from 7-12 years, mode was 10 years.**

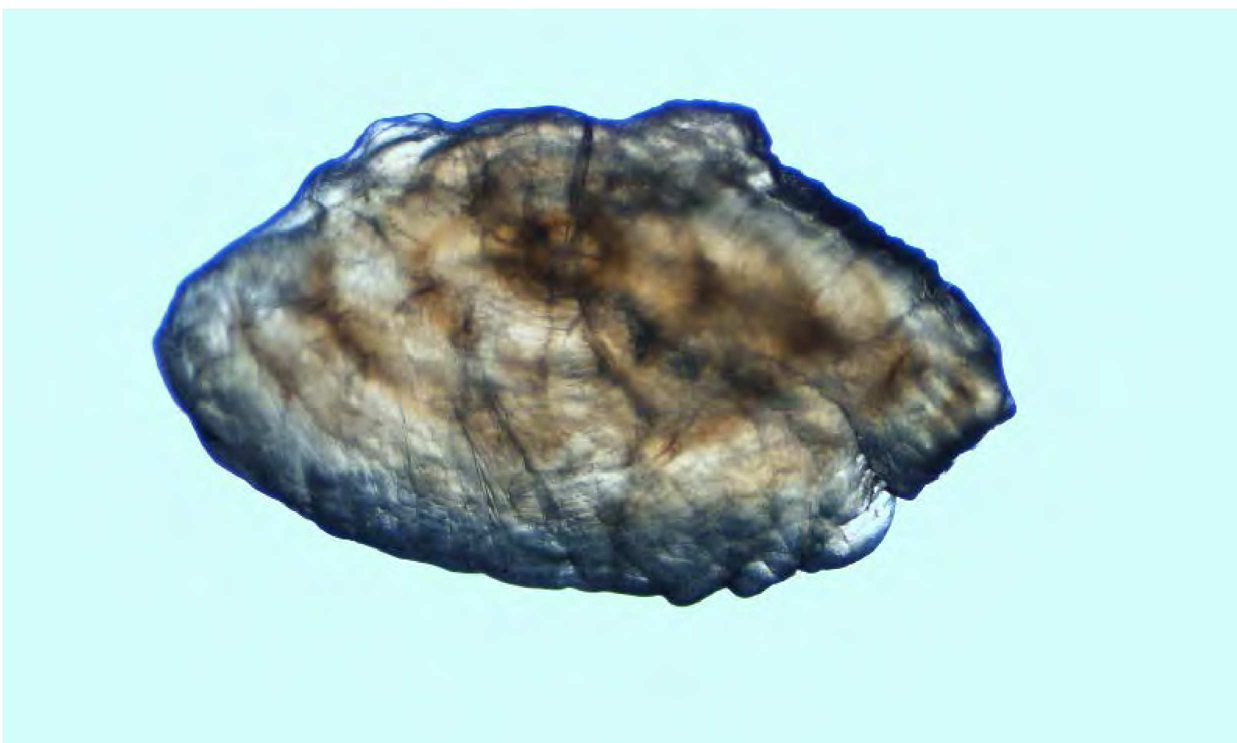


**Figure 29. Whole otolith sample #W29. Sample was from an American eel that was 428 mm TL, 120 g, and captured 10/23/2013 from an estuarine habitat in New Jersey. The sample provided by NJDFW was aged as 4 years old. Ages from the sample exchange ranged from 3-4 years, mode was 3 years. This was a paired sample with section #53.**

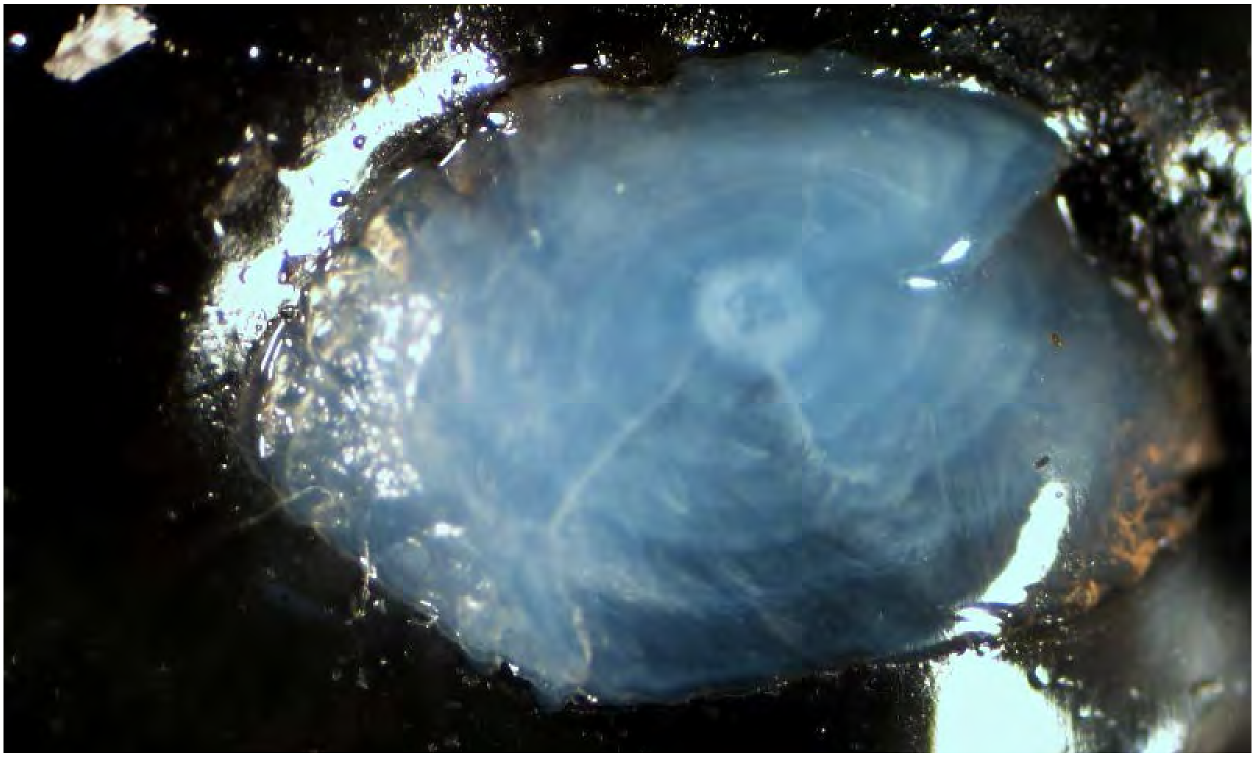


**Figure 30. Whole otolith sample #W30. Sample was from an American eel that was 493 mm TL, 335 g, and captured 8/1/2012 from an estuarine habitat in Delaware. Ages from the sample exchange ranged from 4-10 years, mode was 6 years. This was a paired sample with section #78.**

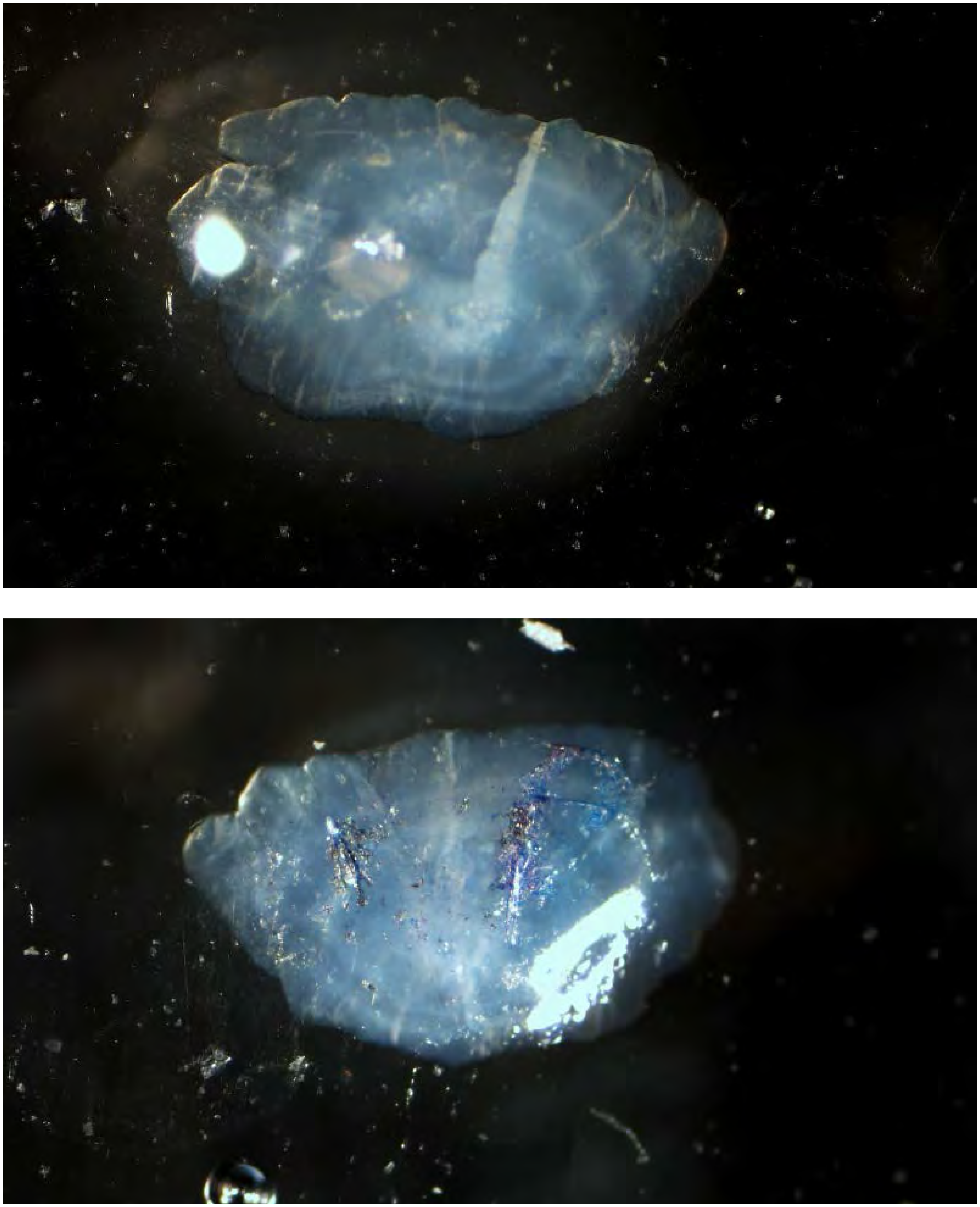


**Figure 31. Whole otolith sample #W31. Sample was from a male American eel that was 362 mm TL, 87 g, and captured 4/18/2012 from an estuarine habitat in Maryland. The sample provided by MD DNR was aged as 3 years old. Ages from the sample exchange ranged from 2-3 years, mode was 2 years.**

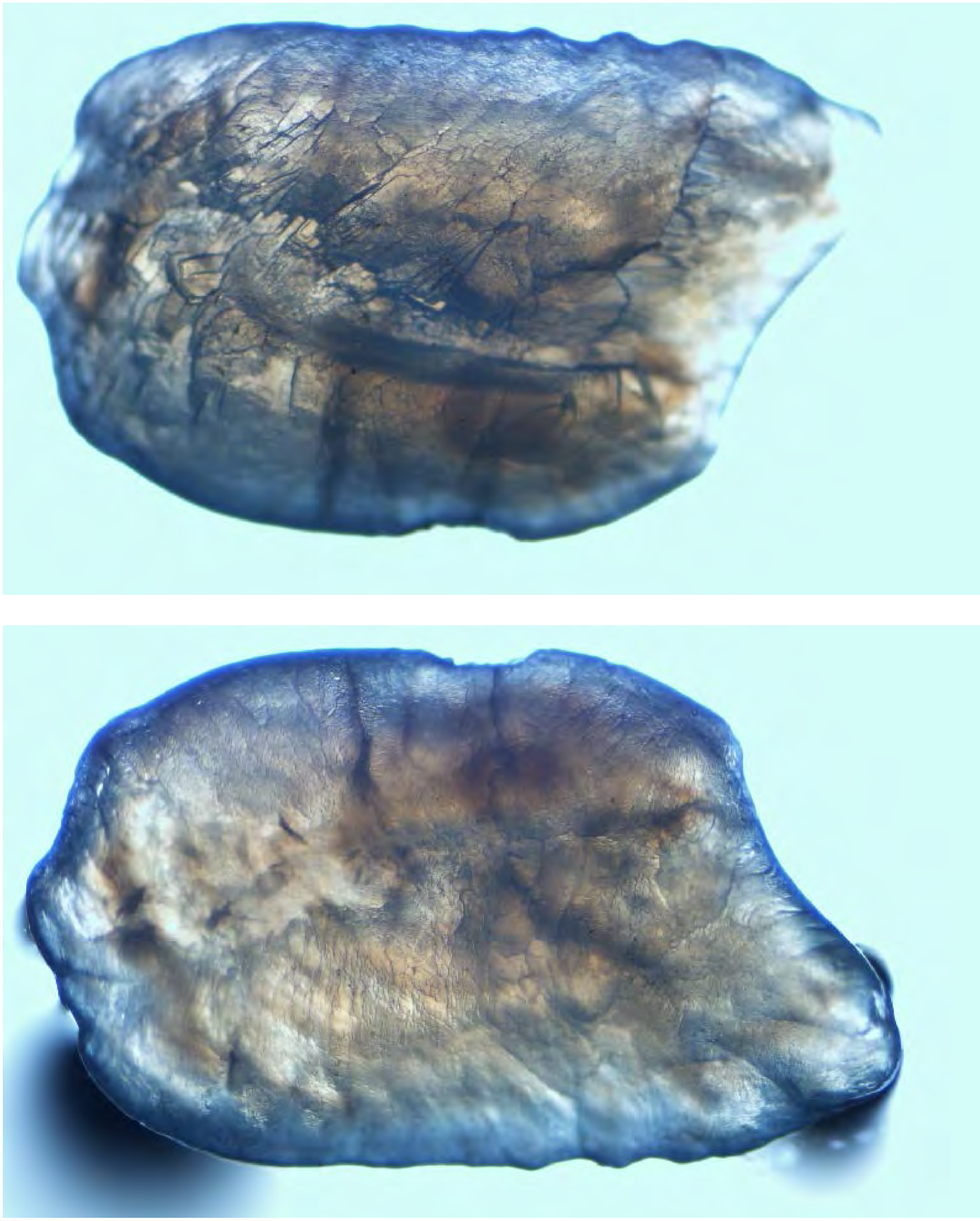


**Figure 32. Whole otolith sample #W32. Sample was from an American eel that was 577 mm TL, 426 g, and captured 3/5/2015 from a freshwater habitat in Florida. The sample provided by FL FWC was aged as 7 years old. Ages from the sample exchange ranged from 3-9 years, mode was 6 years. This was a paired sample with section #2.**

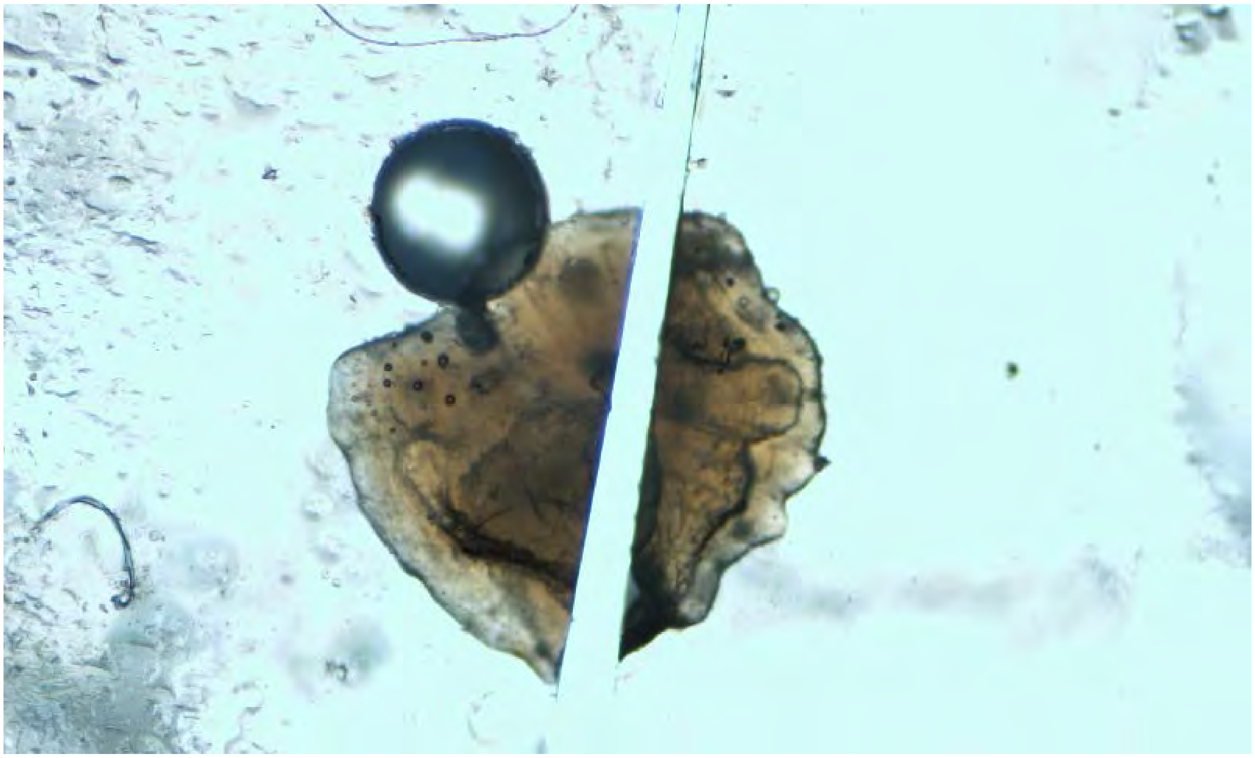


**Figure 33. Whole otolith sample #W33. Sample was from a male American eel that was 342 mm TL, 73 g, and captured 9/1997 in Maine. Ages from the sample exchange ranged from 0-4 years, mode was 3 years. This was a paired sample with section #103.**

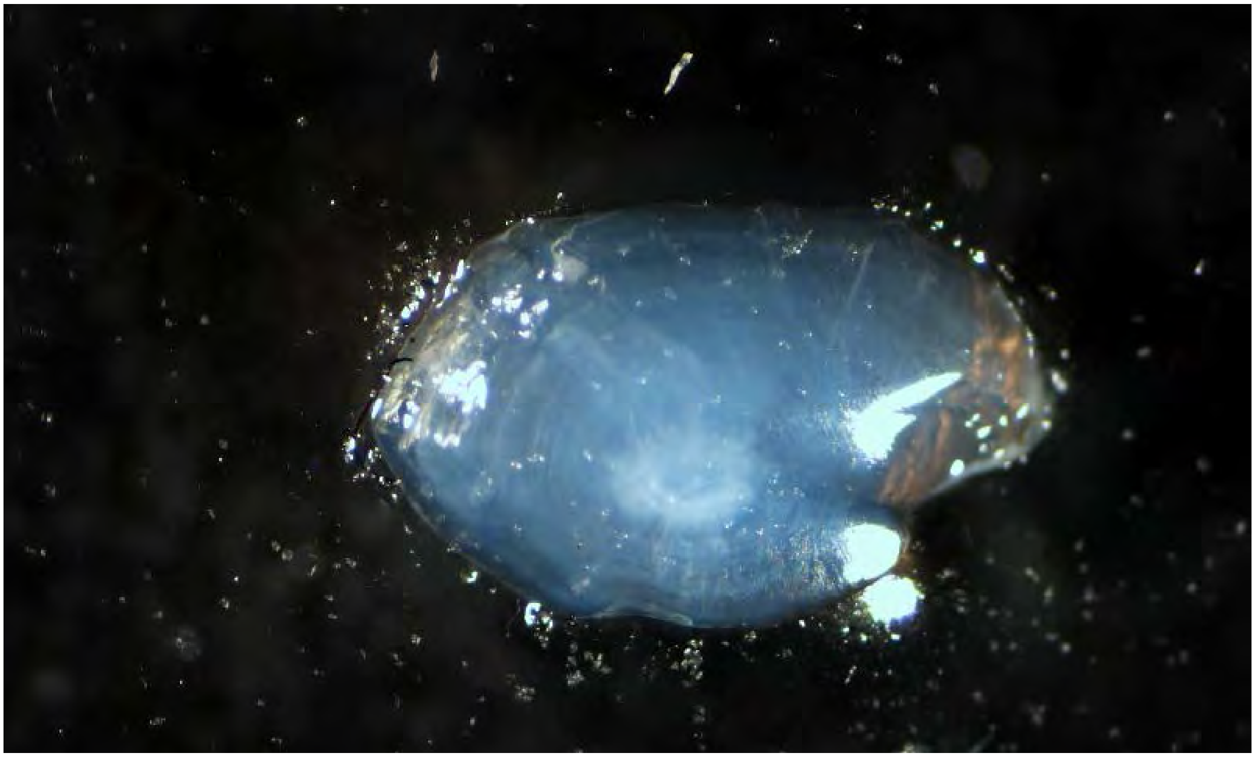


**Figure 34. Whole otolith sample #W34. Sample was from an American eel that was 277 mm TL, 40 g, and captured 9/11/2012 from an estuarine habitat in Delaware. Ages from the sample exchange ranged from 3-8 years, mode was 6 years. This was a paired sample with section #122.**

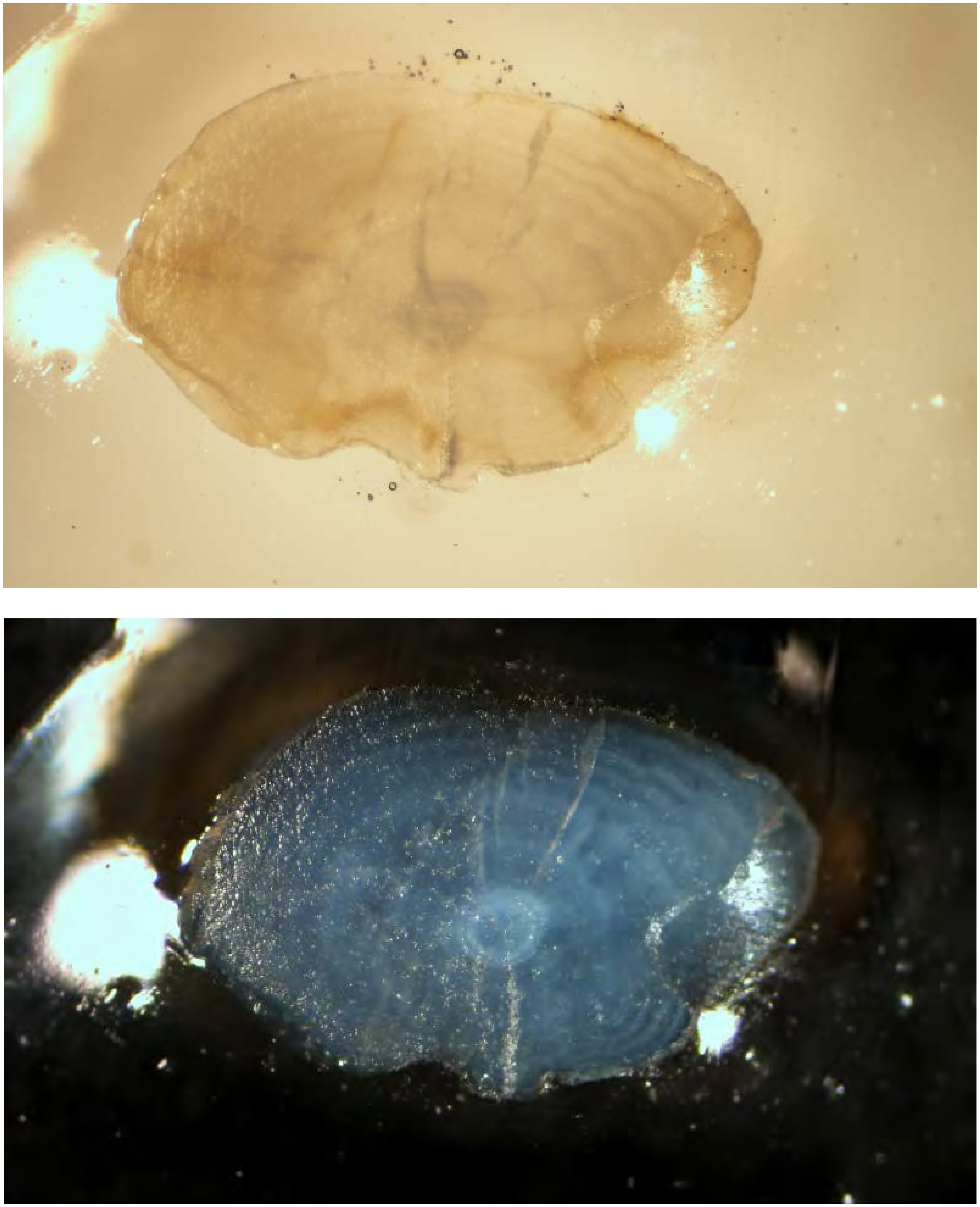


**Figure 35. Whole otolith sample #W35. Sample was from a female American eel that was 379 mm TL, 84 g, and captured 4/27/2011 from an estuarine habitat in Maryland. The sample provided by MD DNR was aged as 7 years old. Ages from the sample exchange ranged from 4-9 years, mode was 6 years.**

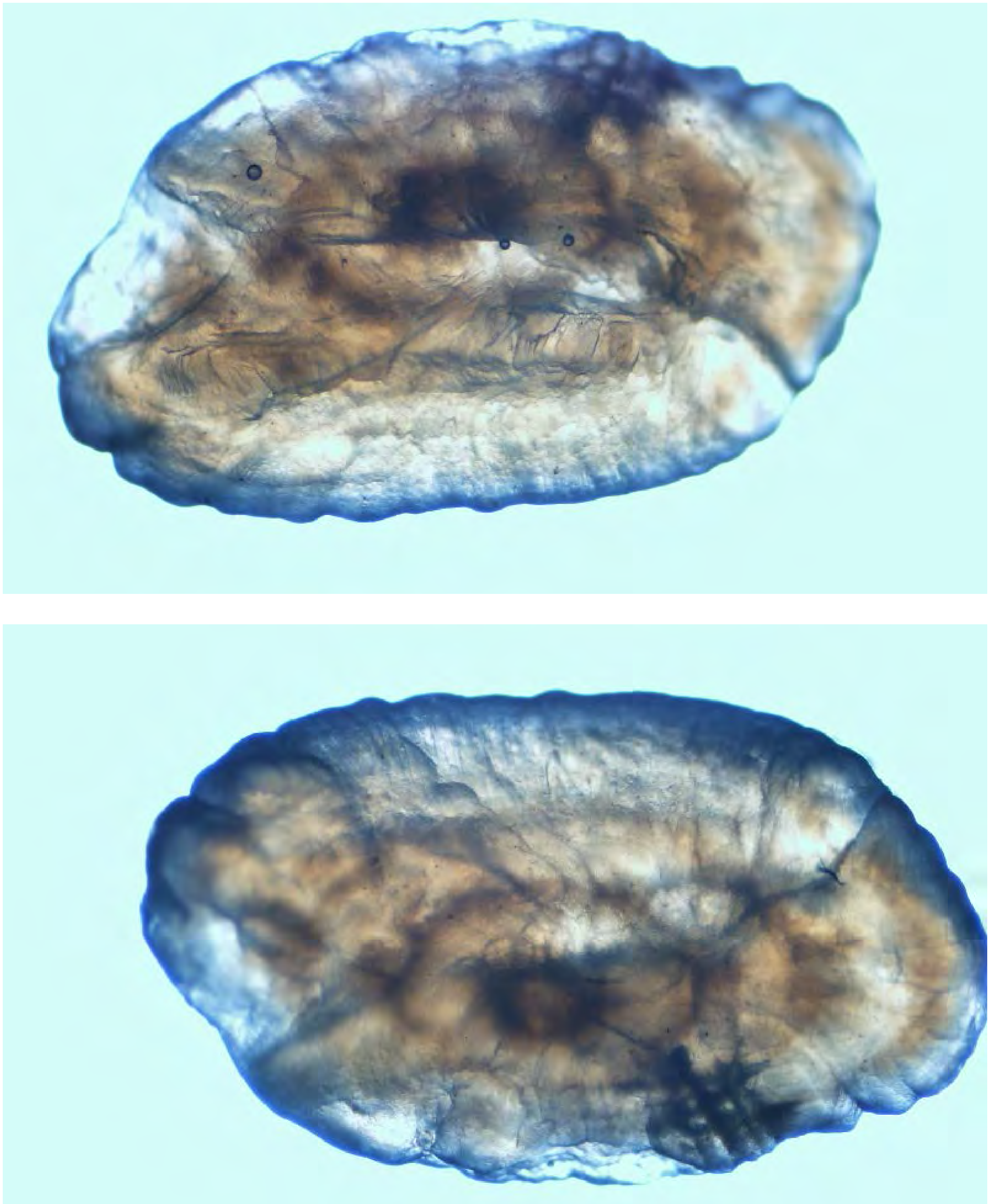


**Figure 36. Whole otolith sample #W36. Sample was from an American eel that was 435 mm TL, 191 g, and captured 4/18/2015 from a freshwater habitat in Florida. The sample provided by FL FWC was aged as 5 years old. Ages from the sample exchange ranged from 3-4 years, mode was 3 years. This was a paired sample with section #77.**

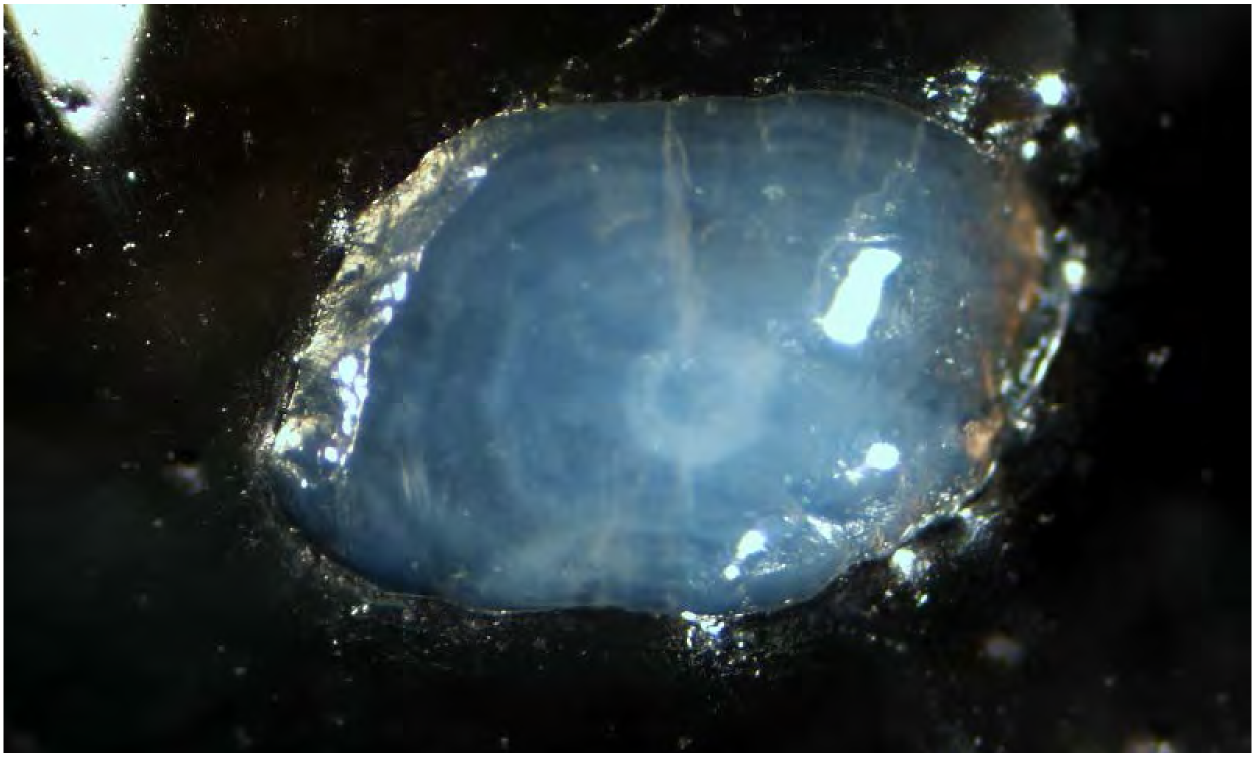


**Figure 37. Whole otolith sample #W37. Sample was from an American eel that was 312 mm TL, 51 g, and captured 5/3/2012 from an estuarine habitat in Delaware. Ages from the sample exchange ranged from 2-9 years, mode was 4 years. This was a paired sample with section #22.**

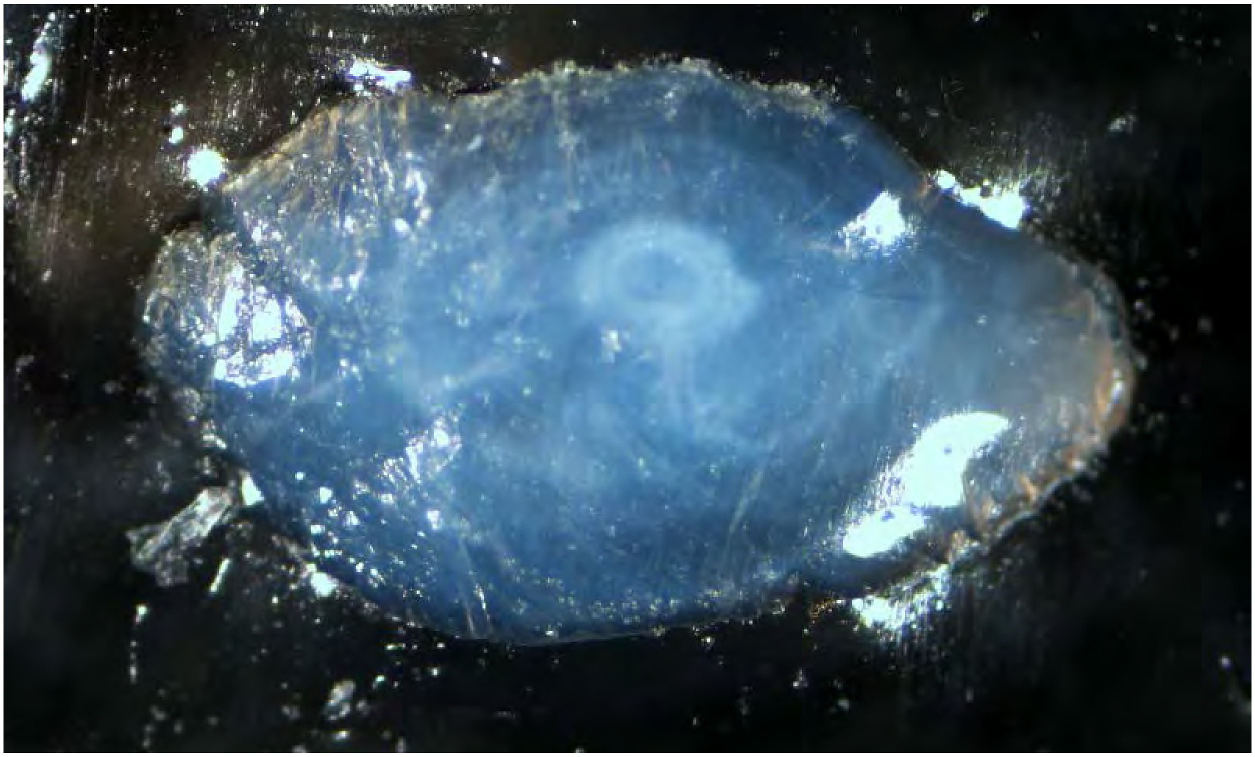


**Figure 38. Whole otolith sample #W38. Sample was from an American eel that was 396 mm TL, 140 g, and captured 6/28/2012 from an estuarine habitat in Delaware. Ages from the sample exchange ranged from 1-9 years, mode was 4 years. This was a paired sample with section #124.**

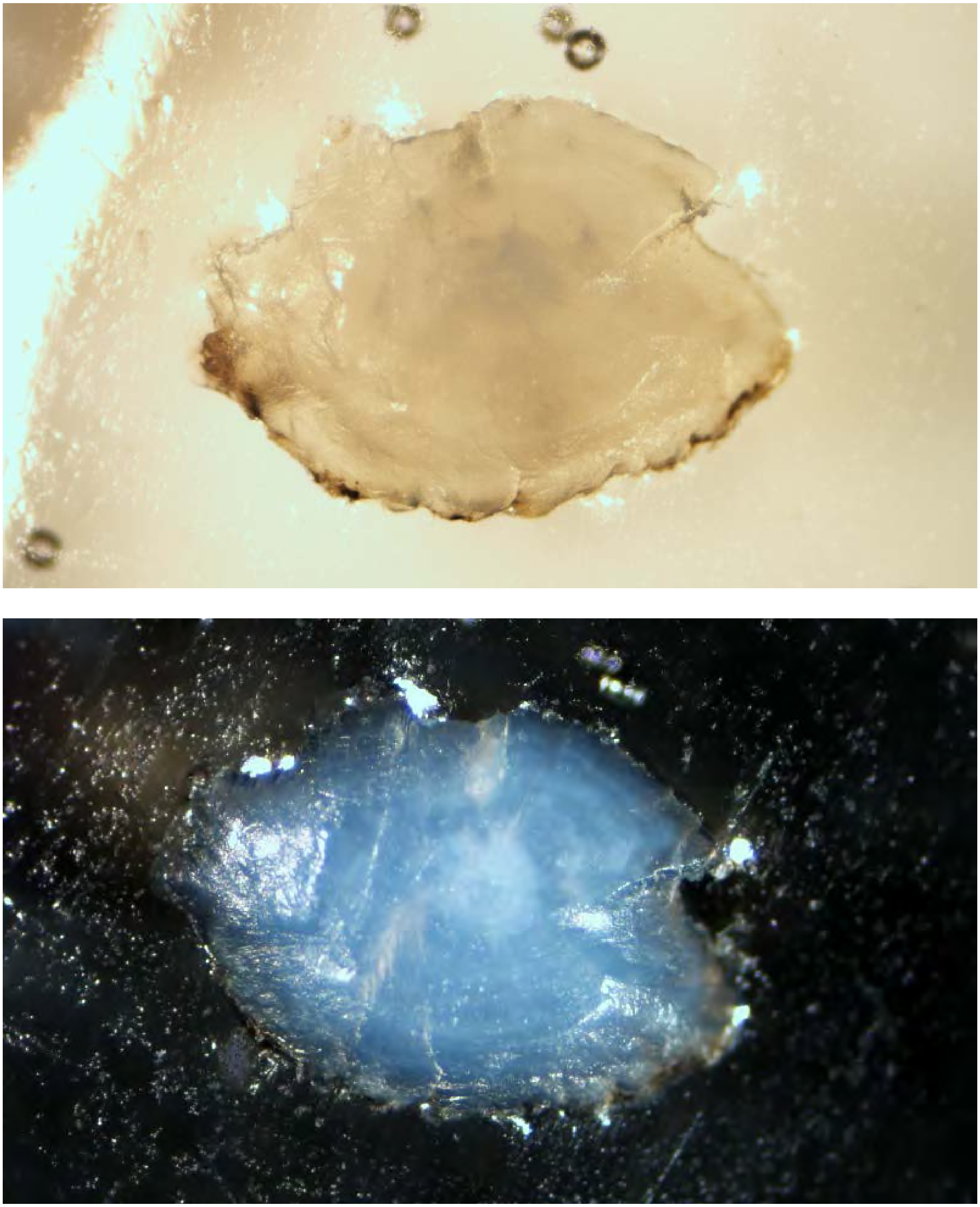


**Figure 39. Whole otolith sample #W39. Sample was from an American eel that was 286 mm TL, 43 g, and captured 10/2/2012 from an estuarine habitat in Delaware. Ages from the sample exchange ranged from 0-5 years, mode was 3 years. This was a paired sample with section #3.**

**Figure 40. Whole otolith sample #W40. Sample was from a male American eel that was 313 mm TL, 55 g, and captured 9/27/2013 from an estuarine habitat in South Carolina. The sample provided by SCDNR was aged as 8 years old. Ages from the sample exchange ranged from 2-9 years, mode was 8 years. This was a paired sample with section #95.**

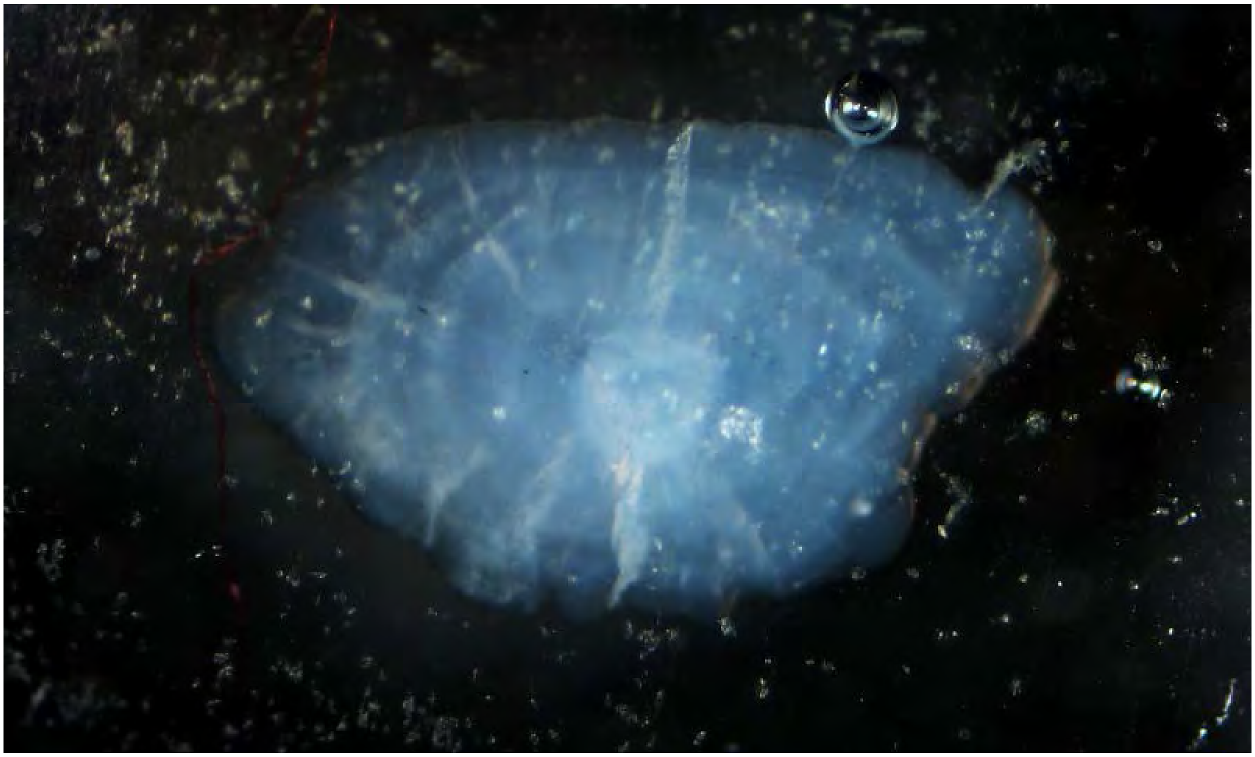
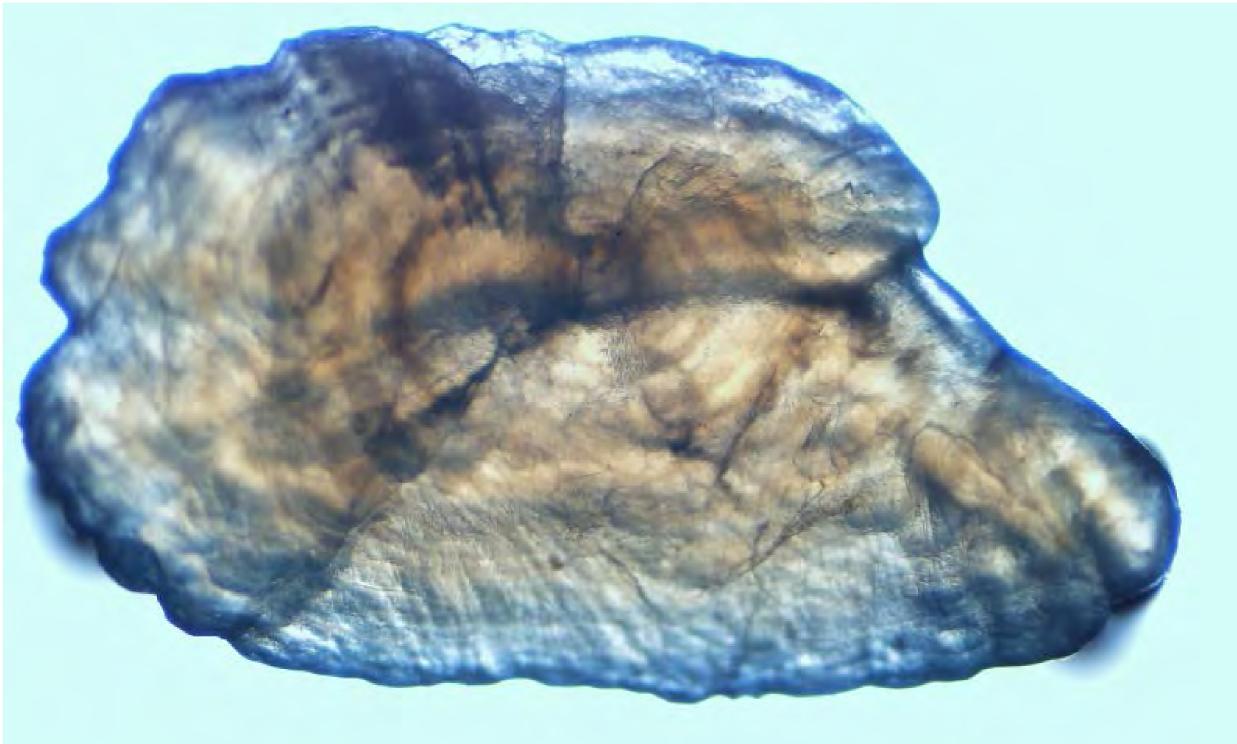


**Figure 41. Whole otolith sample #W41. Sample was from a male American eel that was 324 mm TL, 58 g, and captured 4/18/2012 from an estuarine habitat in Maryland. The sample provided by MD DNR was aged as 4 years old. Ages from the sample exchange ranged from 2-4 years, mode was 4 years.**



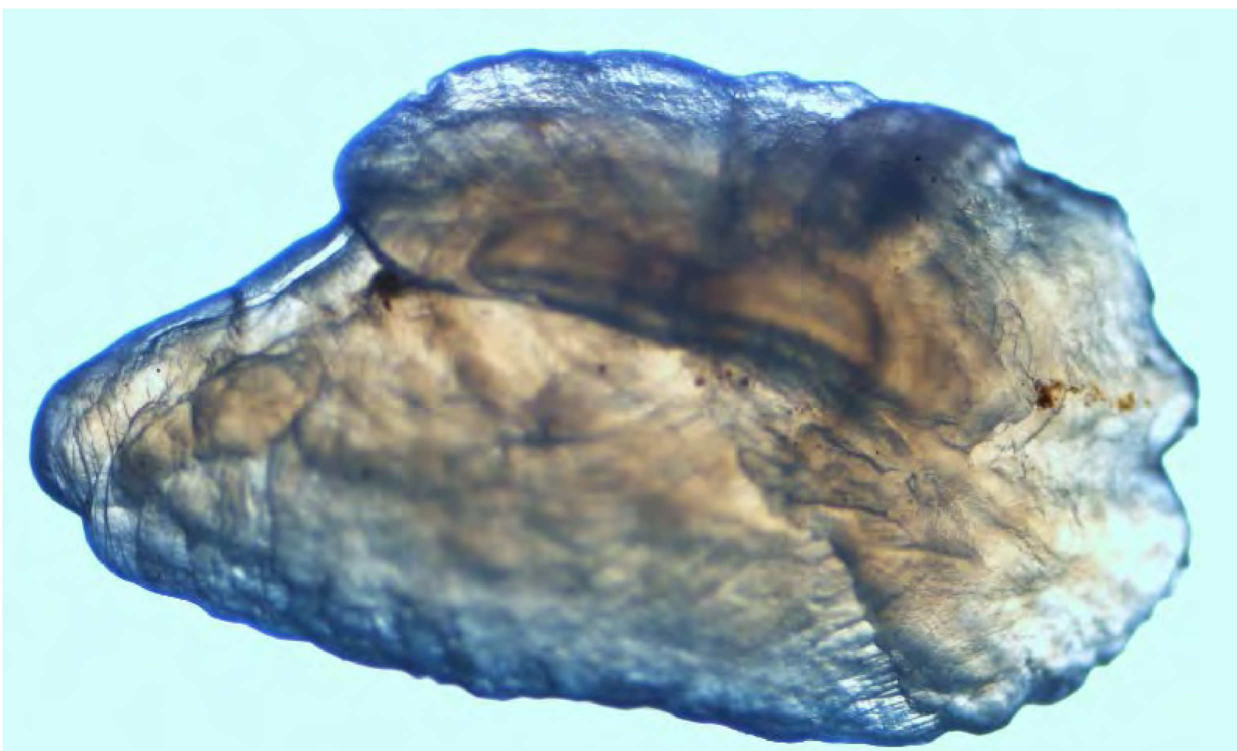


**Figure 42. Whole otolith sample #W42. Sample was from an American eel that was 618 mm TL, 330 g, and captured 11/12/2008 from an estuarine habitat in New Jersey. The sample provided by NJDFW was aged as 12 years old. Ages from the sample exchange ranged from 4-12 years, mode was 12 years. This was a paired sample with section #26.**

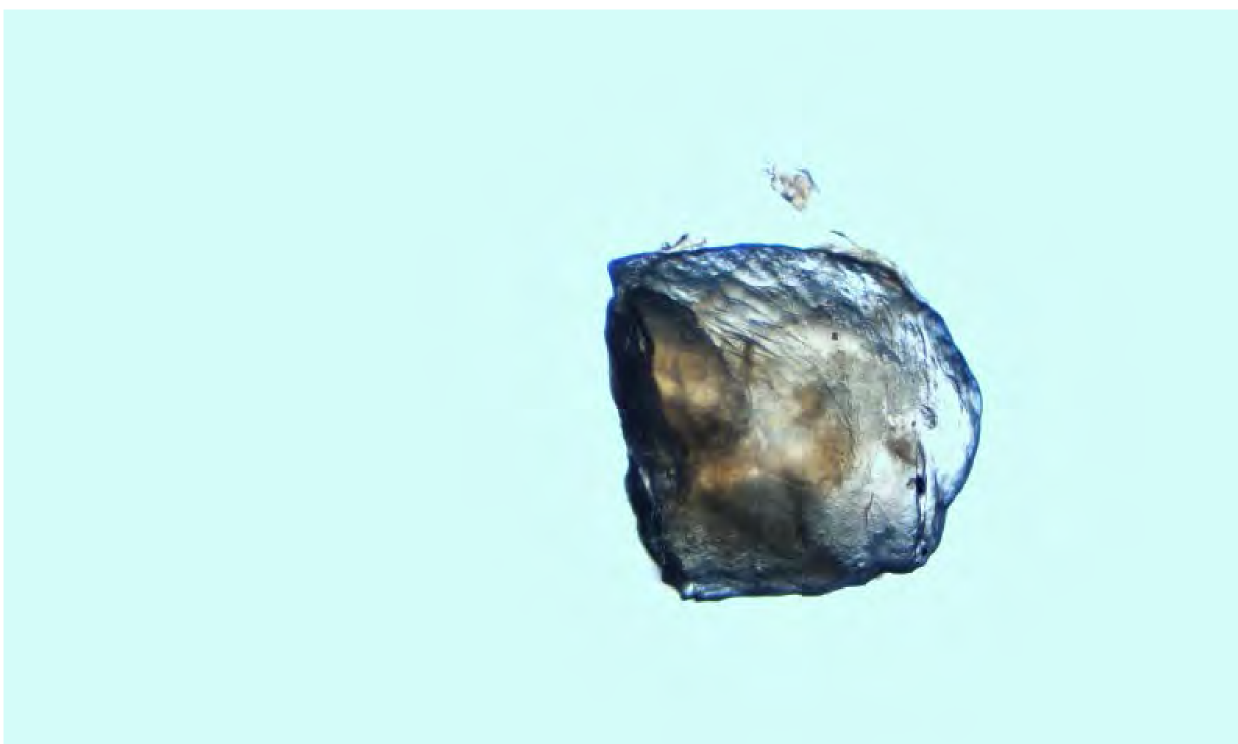


**Figure 43. Whole otolith sample #W43. Sample was from an American eel that was 290 mm TL, 50 g, and captured 5/15/2014 from an estuarine habitat in New Jersey. The sample provided by NJDFW was aged as 1 year old. Ages from the sample exchange ranged from 1-3 years, mode was 2 years. This was a paired sample with section #89.**

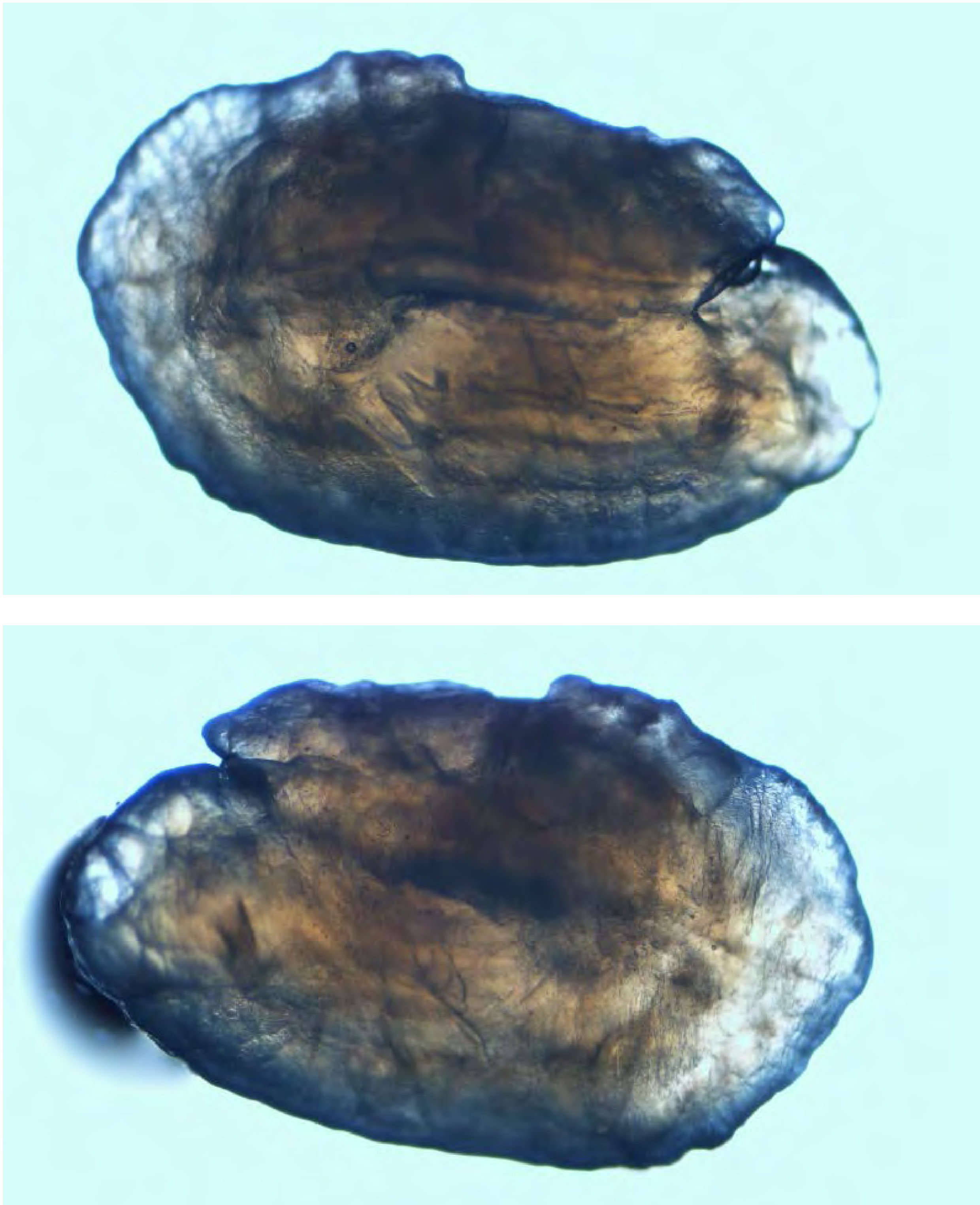


**Figure 44. Whole otolith sample #W44. Sample was from an American eel that was 457 mm TL, 227 g, and captured 4/1/2014 from an estuarine habitat in Florida. The sample provided by FL FWC was aged as 8 years old. Ages from the sample exchange ranged from 1-9 years, mode was 7 years. This was a paired sample with section #100.**

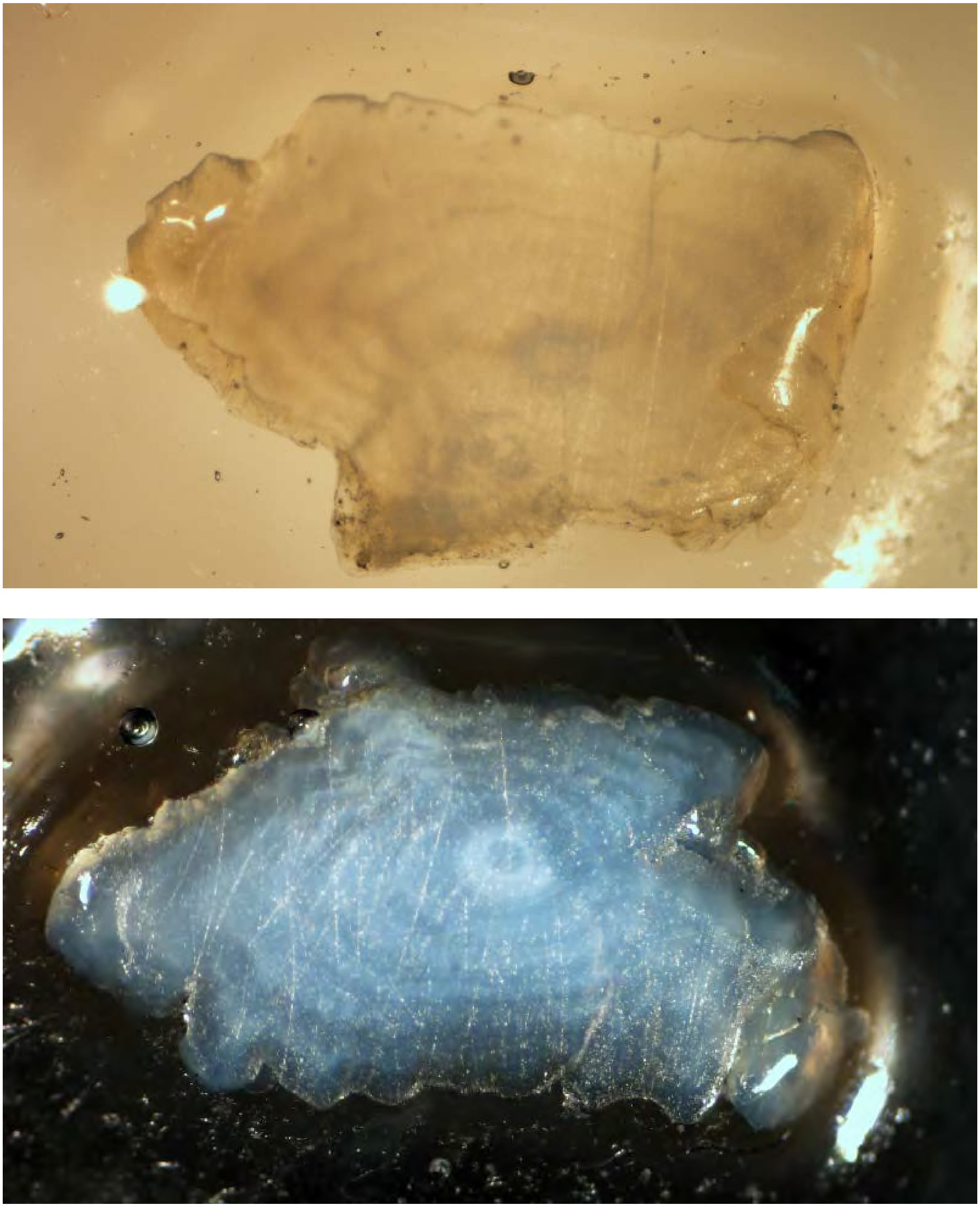


Figure 45. Whole otolith sample #W45. Sample was from a female American eel that was 768 mm TL, 932 g, and captured 4/18/2012 from an estuarine habitat in Maryland. The sample provided by MD DNR was aged as 6 years old. Ages from the sample exchange ranged from 4-6 years, mode was 5 years.

**Figure 46. Whole otolith sample #W46. Sample was from a male American eel that was 308 mm TL, 48 g, and captured 4/27/2011 from an estuarine habitat in Maryland. The sample provided by MD DNR was aged as 4 years old. Ages from the sample exchange ranged from 3-5 years, mode was 4 years.**

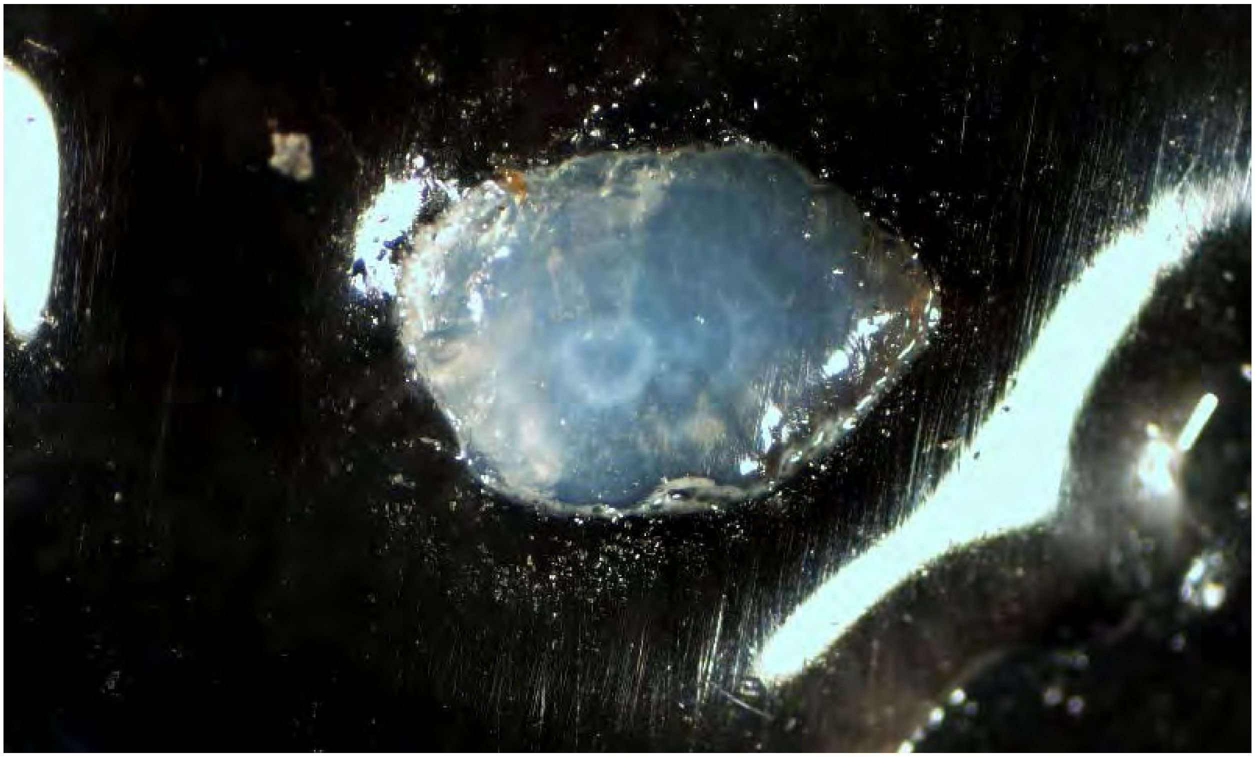


**Figure 47. Whole otolith sample #W47. Sample was from an American eel that was 337 mm TL, 75 g, and captured 5/3/2012 from an estuarine habitat in Delaware. Ages from the sample exchange ranged from 1-5 years, mode was 4 years. This was a paired sample with section #106.**

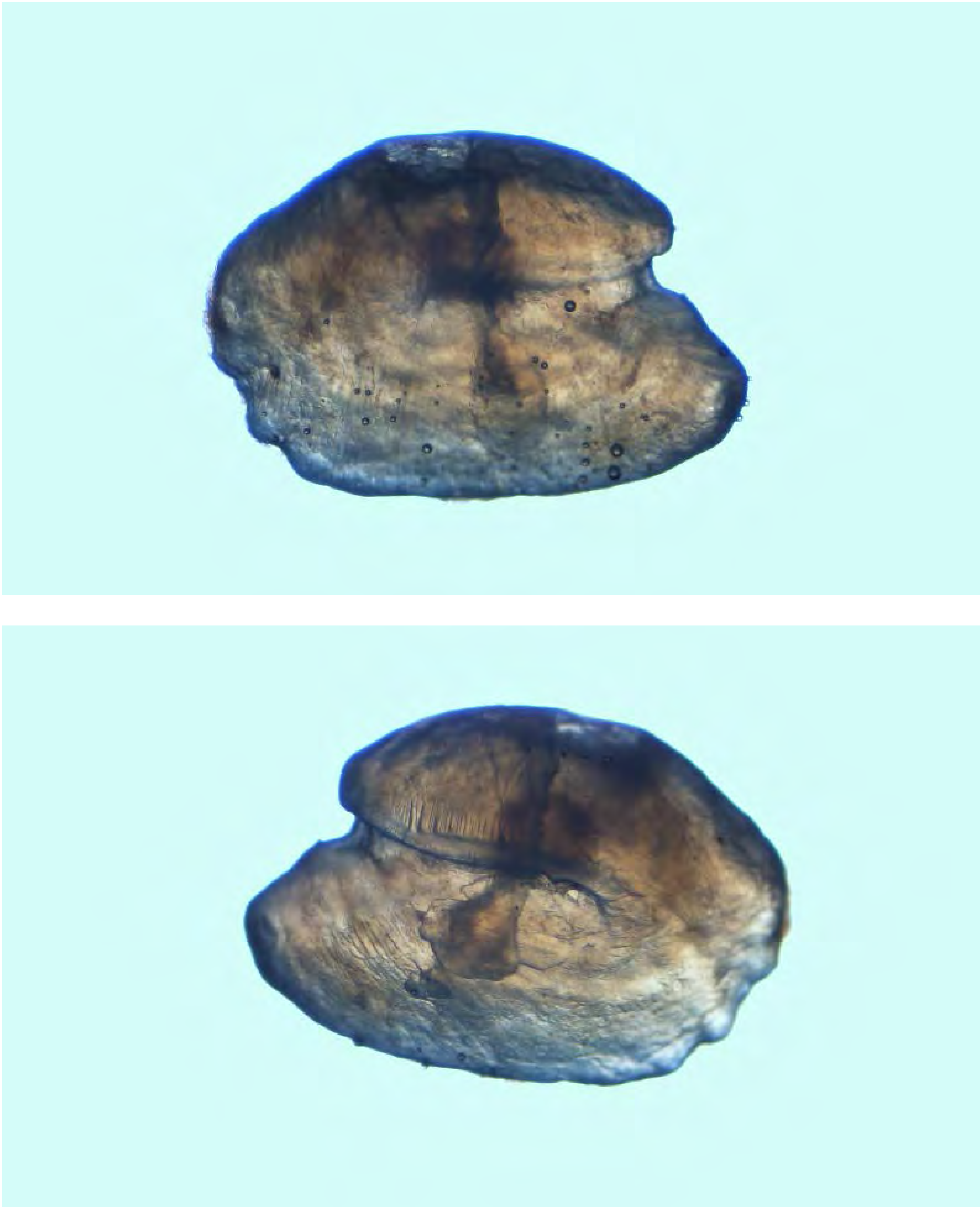


**Figure 48. Whole otolith sample #W48. Sample was from an American eel that was 304 mm TL, 67 g, and captured 8/15/2013 from an estuarine habitat in South Carolina. The sample provided by SCDNR was aged as 6 years old. Ages from the sample exchange ranged from 2-8 years, mode was 7 years. This was a paired sample with section #107.**

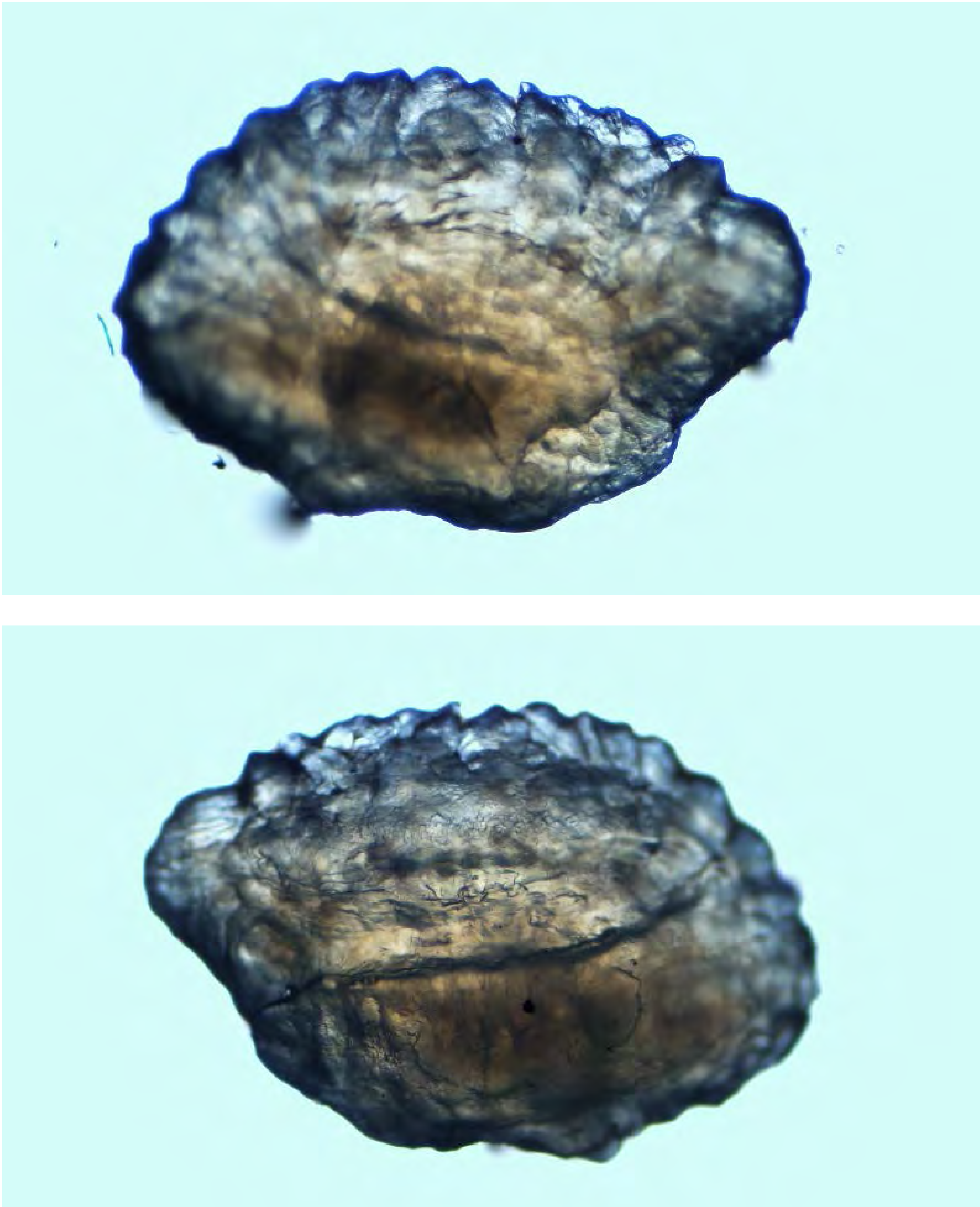


**Figure 49. Whole otolith sample #W49. Sample was from an American eel that was 426 mm TL, 140 g, and captured 11/6/2014 from an estuarine habitat in Florida. The sample provided by FL FWC was aged as 2 years old. Ages from the sample exchange ranged from 0-8 years, mode was 3 years. This was a paired sample with section #85.**

**Figure 50. Whole otolith sample #W50. Sample was from an American eel that was 559 mm TL, 366 g, and captured 10/2/2012 from an estuarine habitat in Delaware. Ages from the sample exchange ranged from 4-9 years, mode was 7 years. This was a paired sample with section #99.**

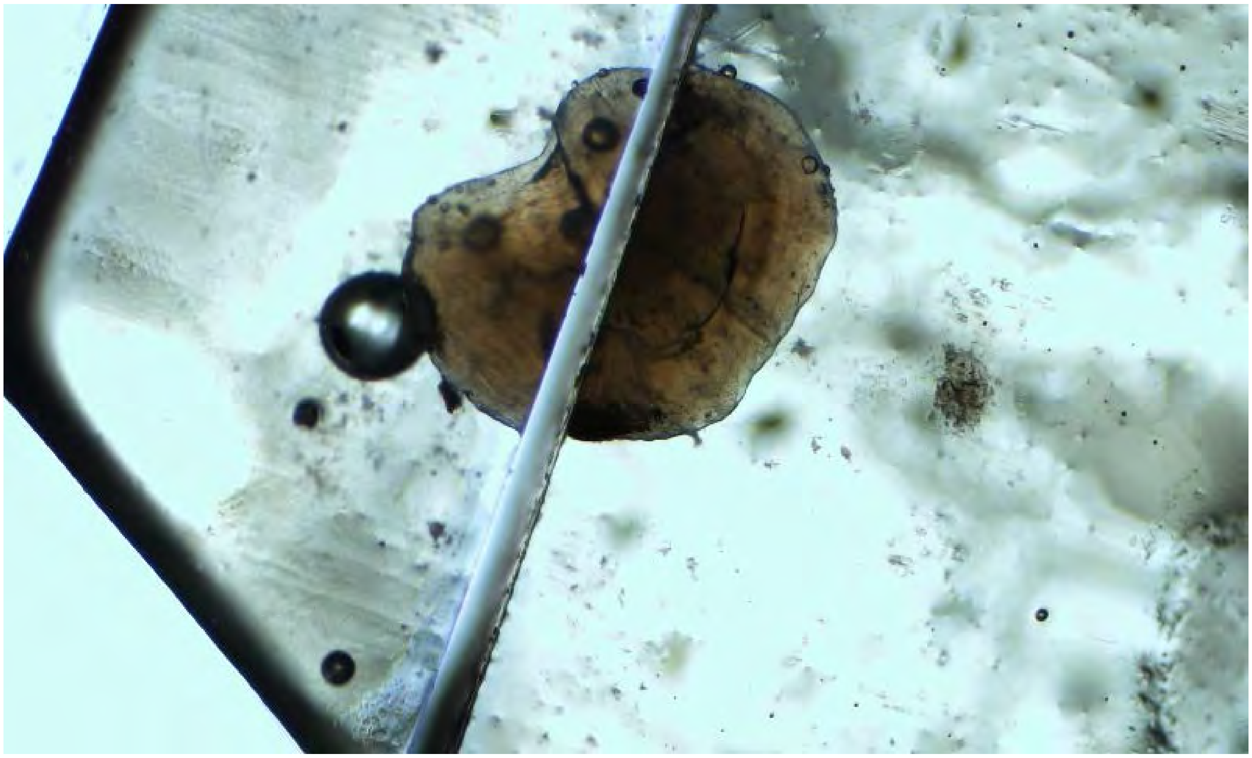
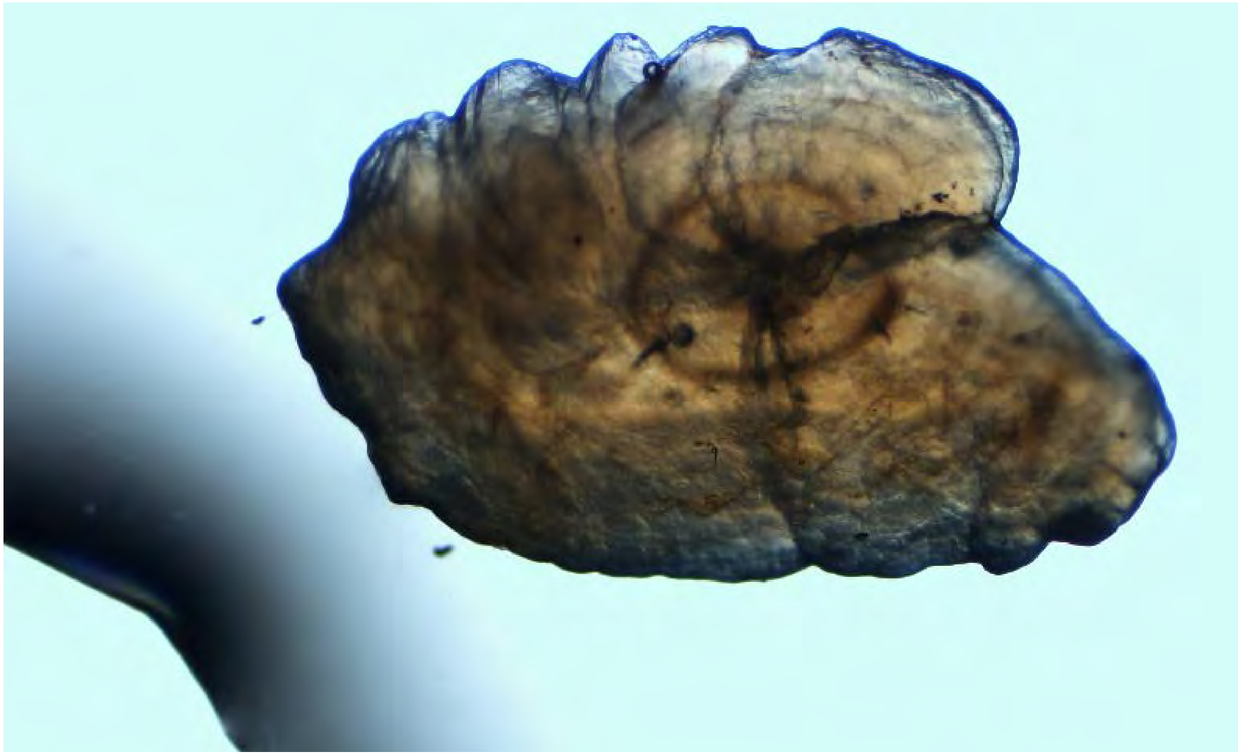


**Figure 51. Whole otolith sample #W51. Sample was from a male American eel that was 358 mm TL, 66 g, and captured 10/1997 in Maine. Ages from the sample exchange ranged from 1-10 years, mode was 8 years. This was a paired sample with section #101.**



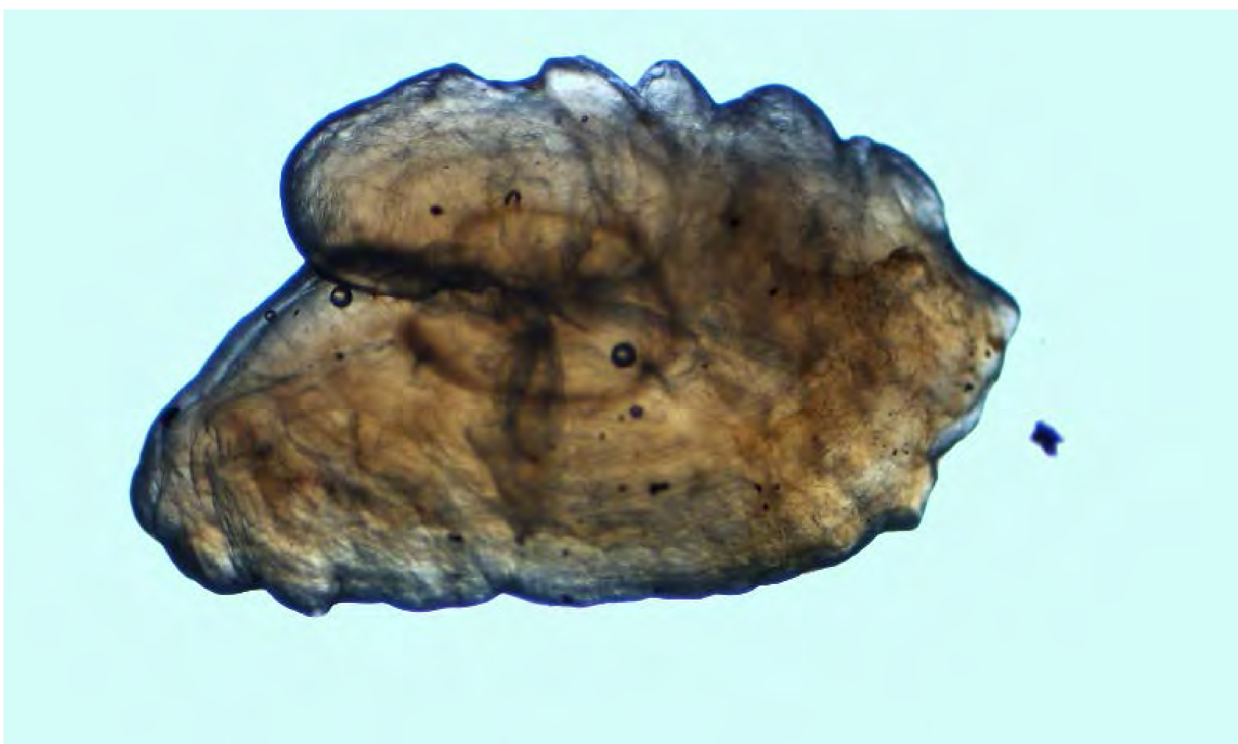


**Figure 52. Whole otolith sample #W52. Sample was from an American eel that was 621 mm TL, 370 g, and captured 5/29/2014 from an estuarine habitat in New Jersey. The sample provided by NJDFW was aged as 7 years old. Ages from the sample exchange ranged from 2-8 years, mode was 6 years. This was a paired sample with section #79.**

**Figure 53. Whole otolith sample #W53. Sample was from a female American eel that was 354 mm TL, 71 g, and captured 4/18/2012 from an estuarine habitat in Maryland. The sample provided by MD DNR was aged as 4 years old. Ages from the sample exchange ranged from 1-5 years, mode was 4 years.**

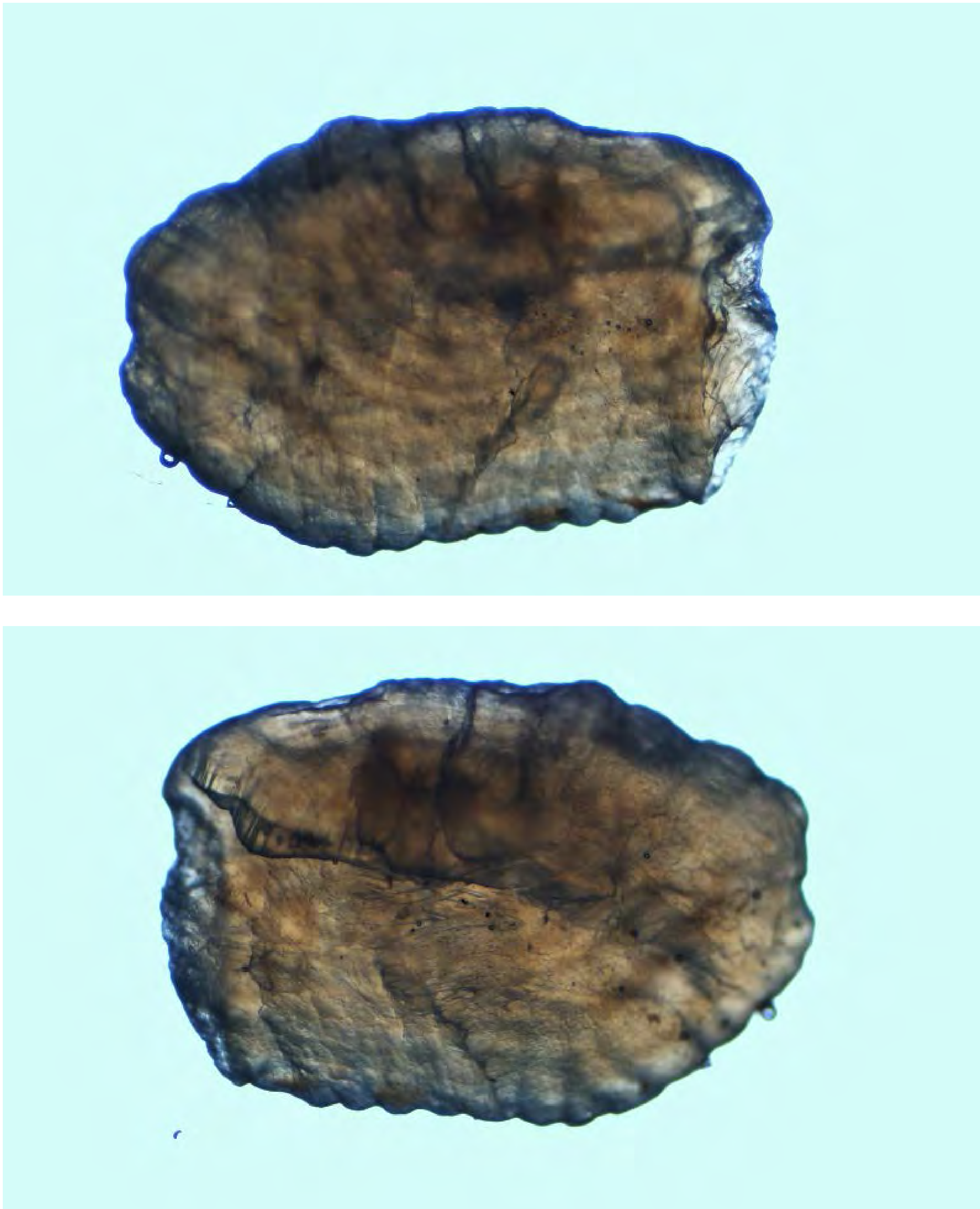


**Figure 54. Whole otolith sample #W54. Sample was from a female American eel that was 534 mm TL, 300 g, and captured 9/16/2013 from an estuarine habitat in South Carolina. The sample provided by SCDNR was aged as 6 years old. Ages from the sample exchange ranged from 5-7 years, mode was 6 years. This was a paired sample with section #73.**

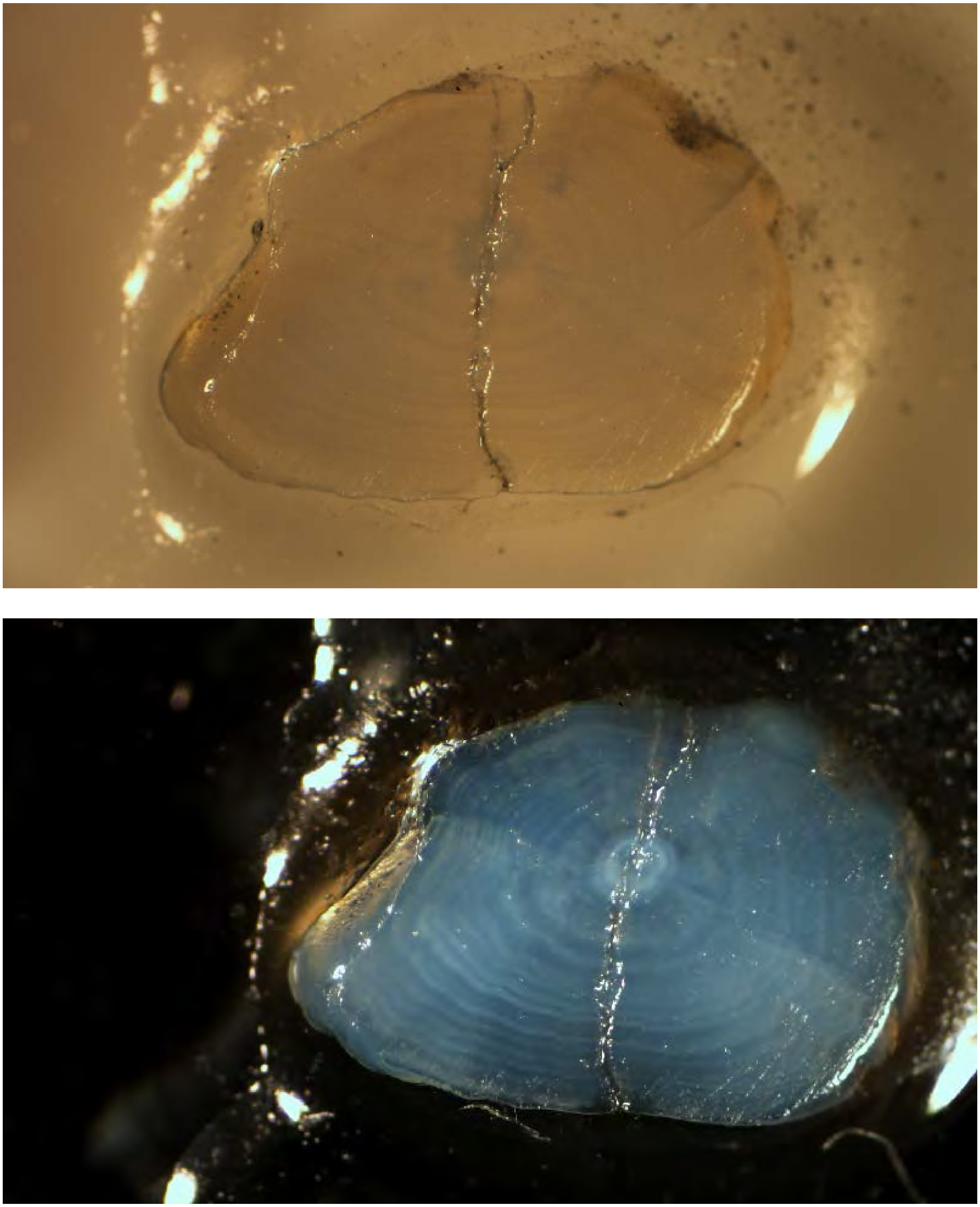


**Figure 55. Whole otolith sample #W55. Sample was from a female American eel that was 438 mm TL, 160 g, and captured 4/27/2011 from an estuarine habitat in Maryland. The sample provided by MD DNR was aged as 12 years old. Ages from the sample exchange ranged from 4-13 years, mode was 12 years.**

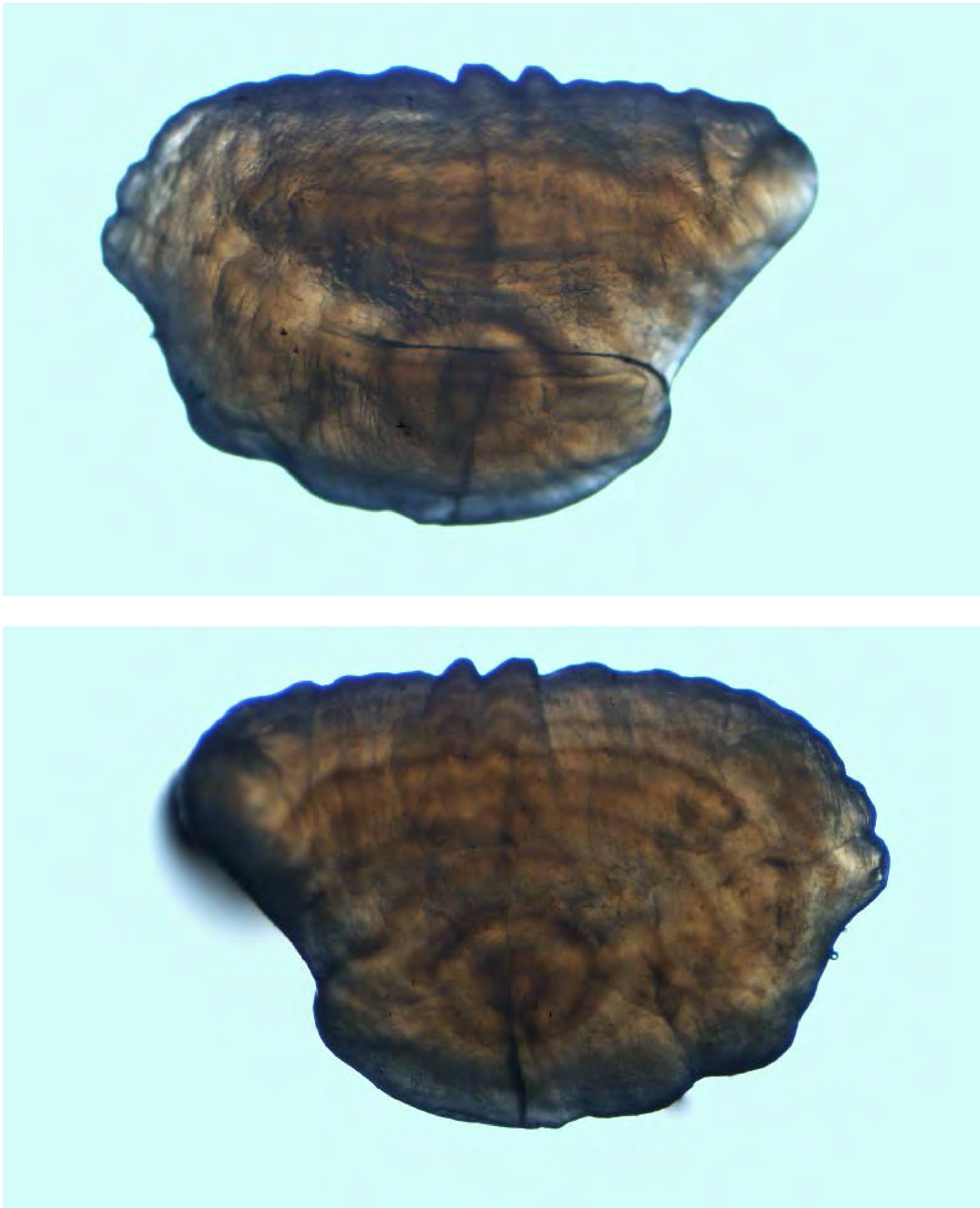


**Figure 56. Whole otolith sample #W56. Sample was from a female American eel that was 537 mm TL, 375 g, and captured 10/2/2013 from an estuarine habitat in South Carolina. The sample provided by SCDNR was aged as 8 years old. Ages from the sample exchange ranged from 6-9 years, mode was 7 years. This was a paired sample with section #20.**

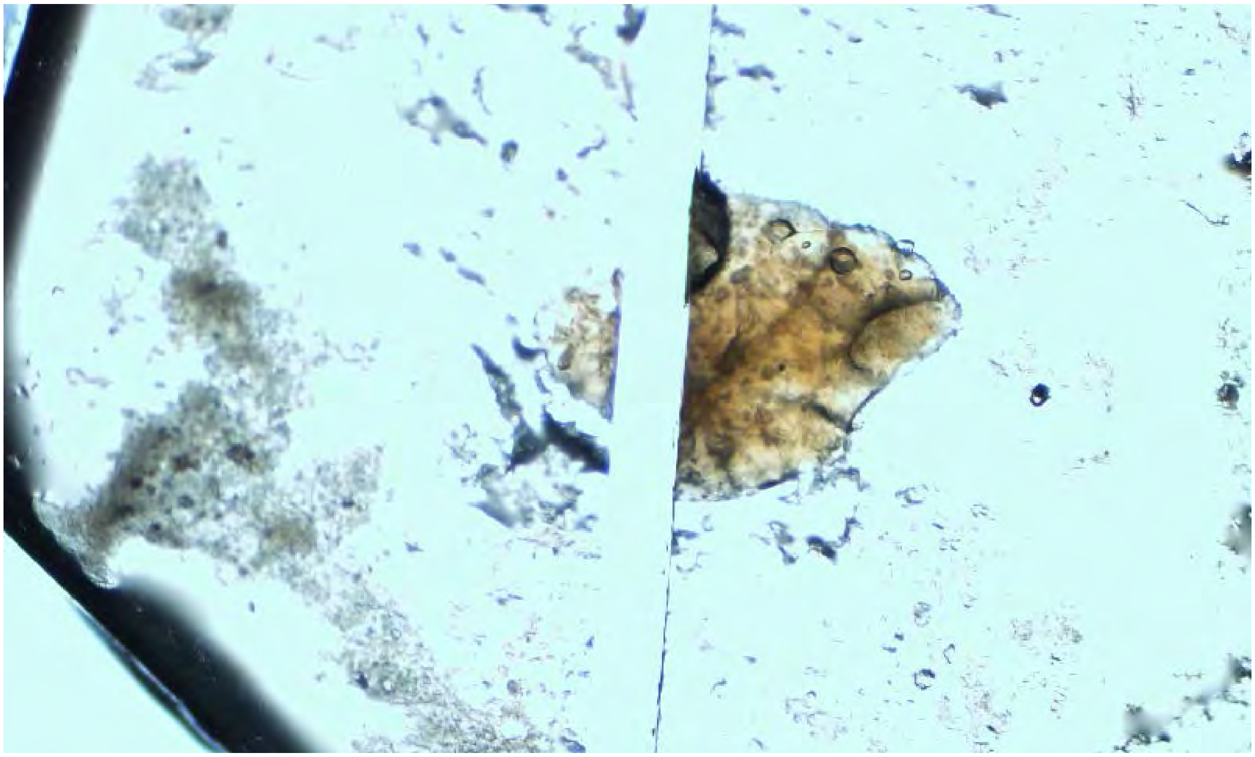


**Figure 57. Whole otolith sample #W57. Sample was from a male American eel that was 293 mm TL, 47 g, and captured 7/1997 in Maine. Ages from the sample exchange ranged from 2-6 years, mode was 2 years. This was a paired sample with section #82.**

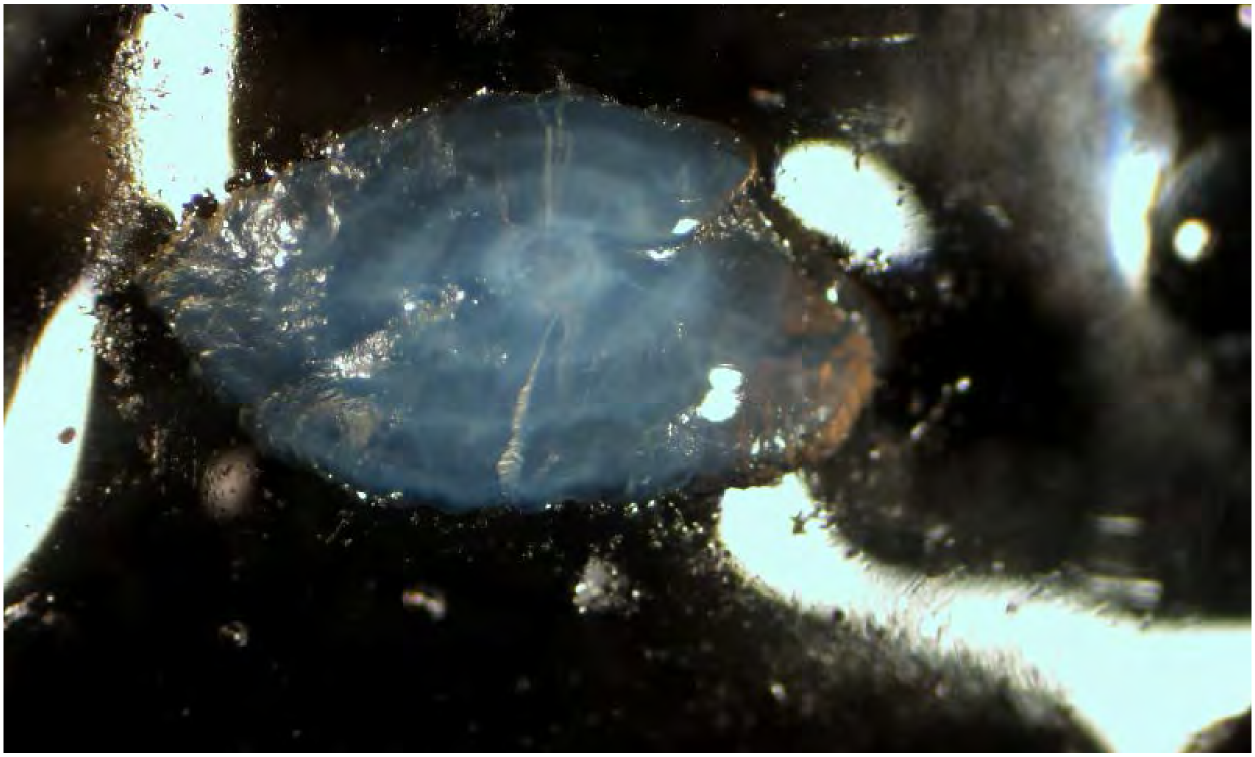


**Figure 58. Whole otolith sample #W58. Sample was from an American eel that was 430 mm TL, 171 g, and captured 6/28/2012 from an estuarine habitat in Delaware. Ages from the sample exchange ranged from 2-4 years, mode was 3 years. This was a paired sample with section #58.**

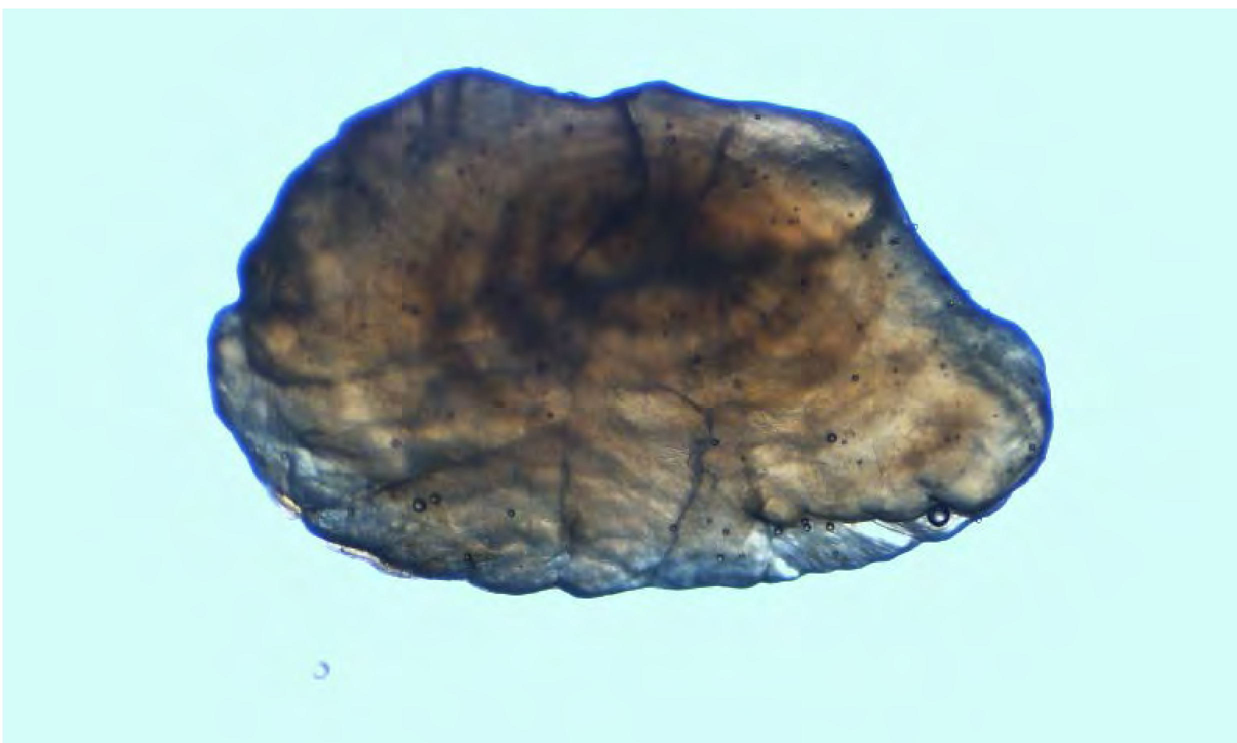


**Figure 59. Whole otolith sample #W59. Sample was from a female American eel that was 440 mm TL, 189 g, and captured 5/23/2013 from an estuarine habitat in South Carolina. The sample provided by SCDNR was aged as 6 years old. Ages from the sample exchange ranged from 1-7 years, mode was 6 years. This was a paired sample with section #30.**

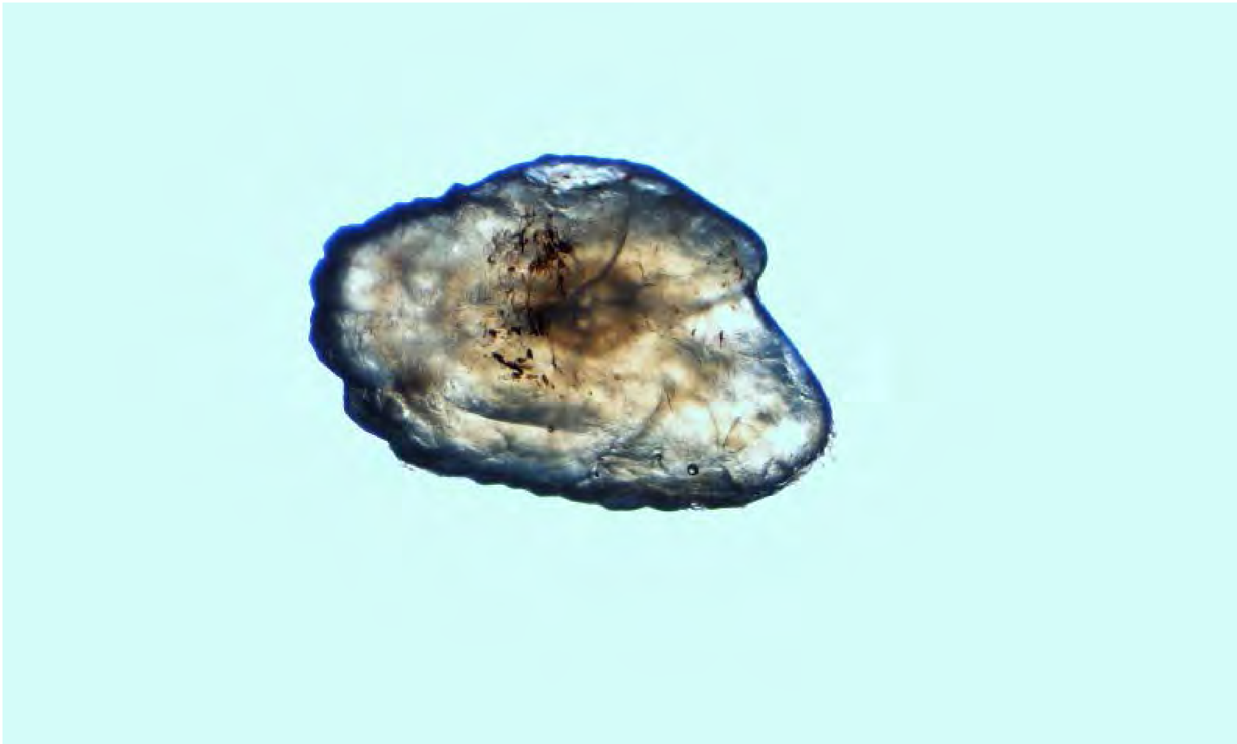


**Figure 60. Whole otolith sample #W60. Sample was from an American eel that was 284 mm TL, 40 g, and captured 5/15/2014 from an estuarine habitat in New Jersey. The sample provided by NJDFW was aged as 2 years old. Ages from the sample exchange ranged from 2-4 years, mode was 2 years. This was a paired sample with section #35.**

**Figure 61. Whole otolith sample #W61. Sample was from an American eel that was 120 mm TL, 3 g, and captured 7/1997 from Maine. Ages from the sample exchange ranged from 0-1 years, mode was 1 years. This was a paired sample with section #92.**

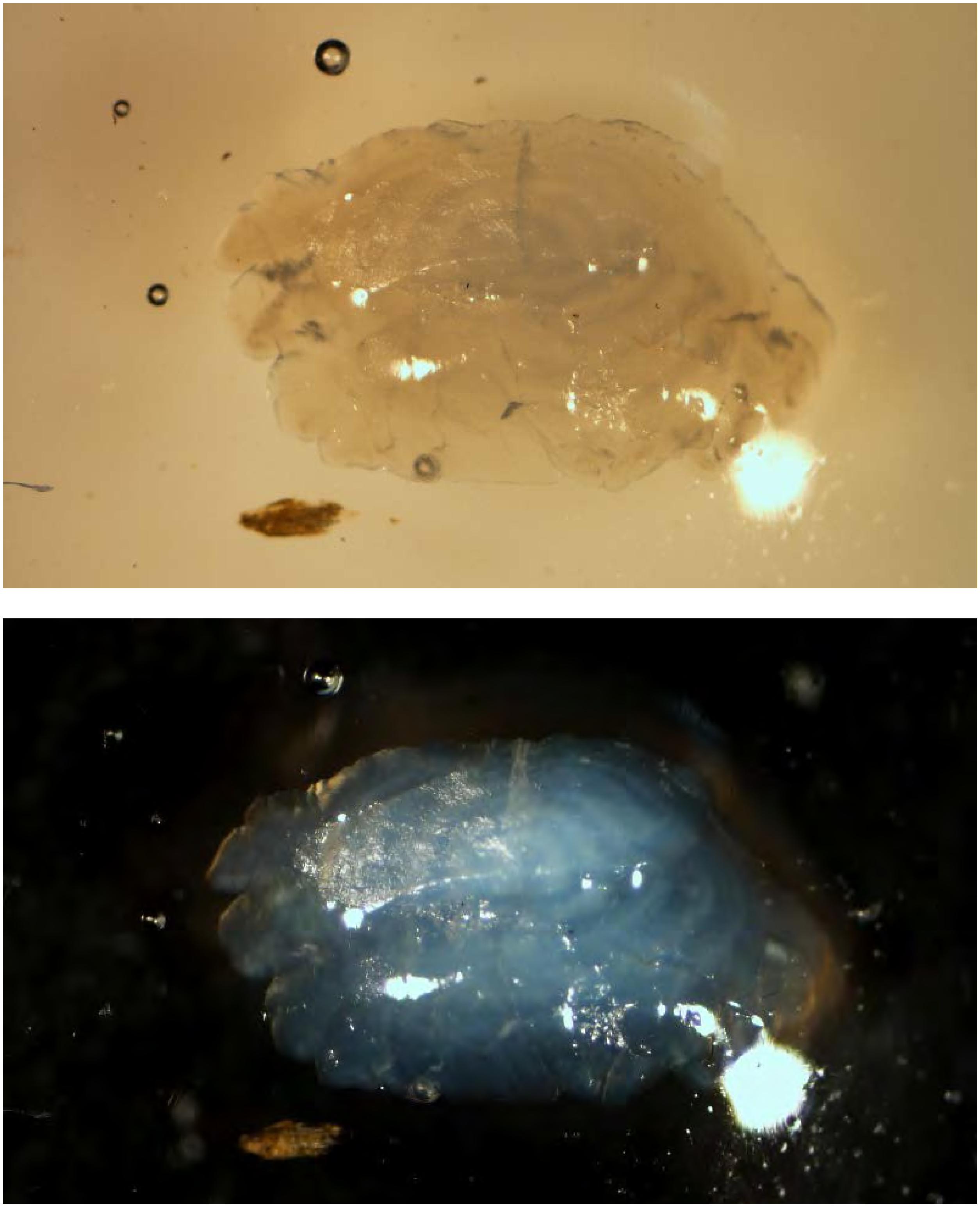


**Figure 62. Whole otolith sample #W62. Sample was from a female American eel that was 488 mm TL, 207 g, and captured 4/18/2012 from an estuarine habitat in Maryland. The sample provided by MD DNR was aged as 5 years old. Ages from the sample exchange ranged from 3-6 years, mode was 5 years.**

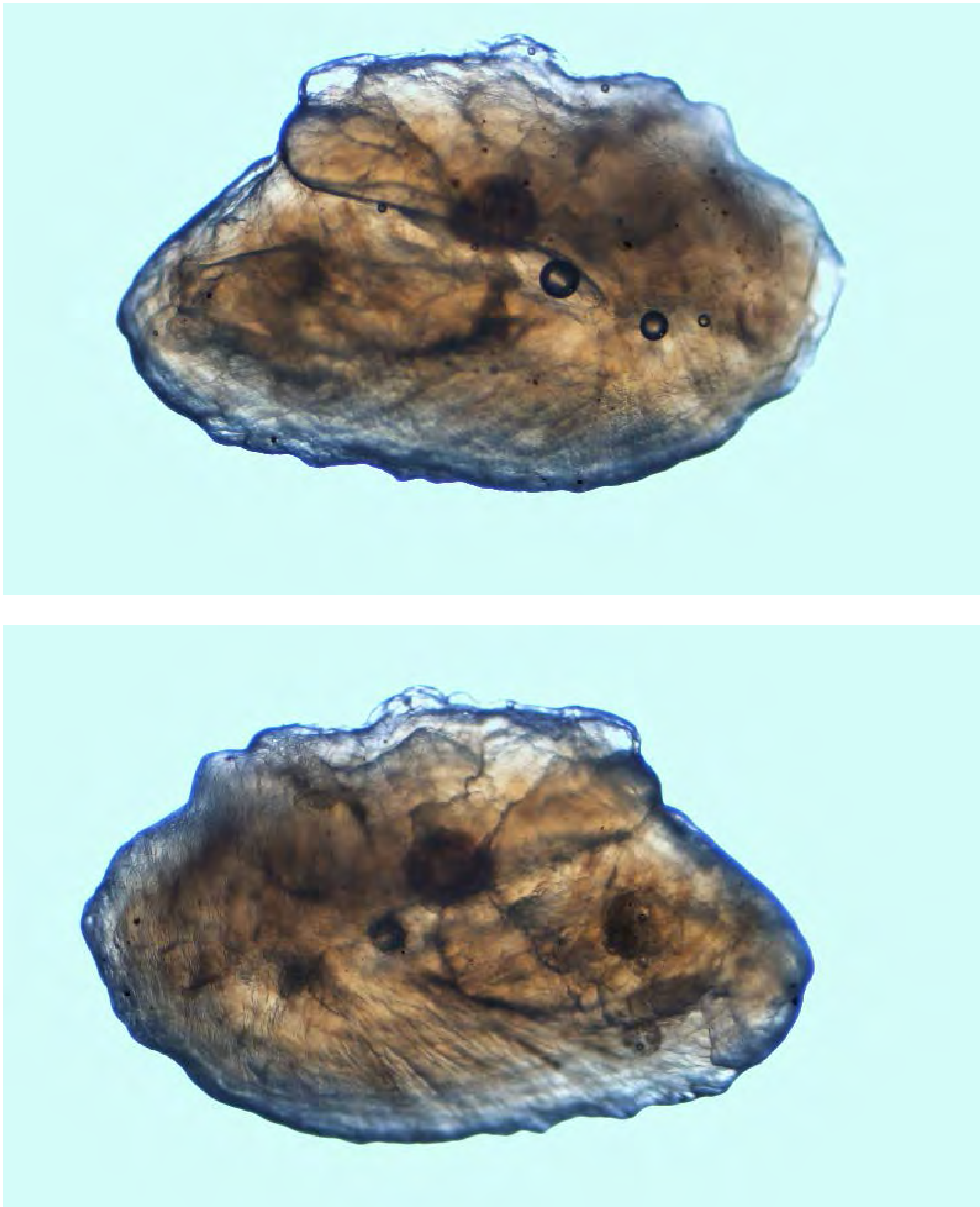
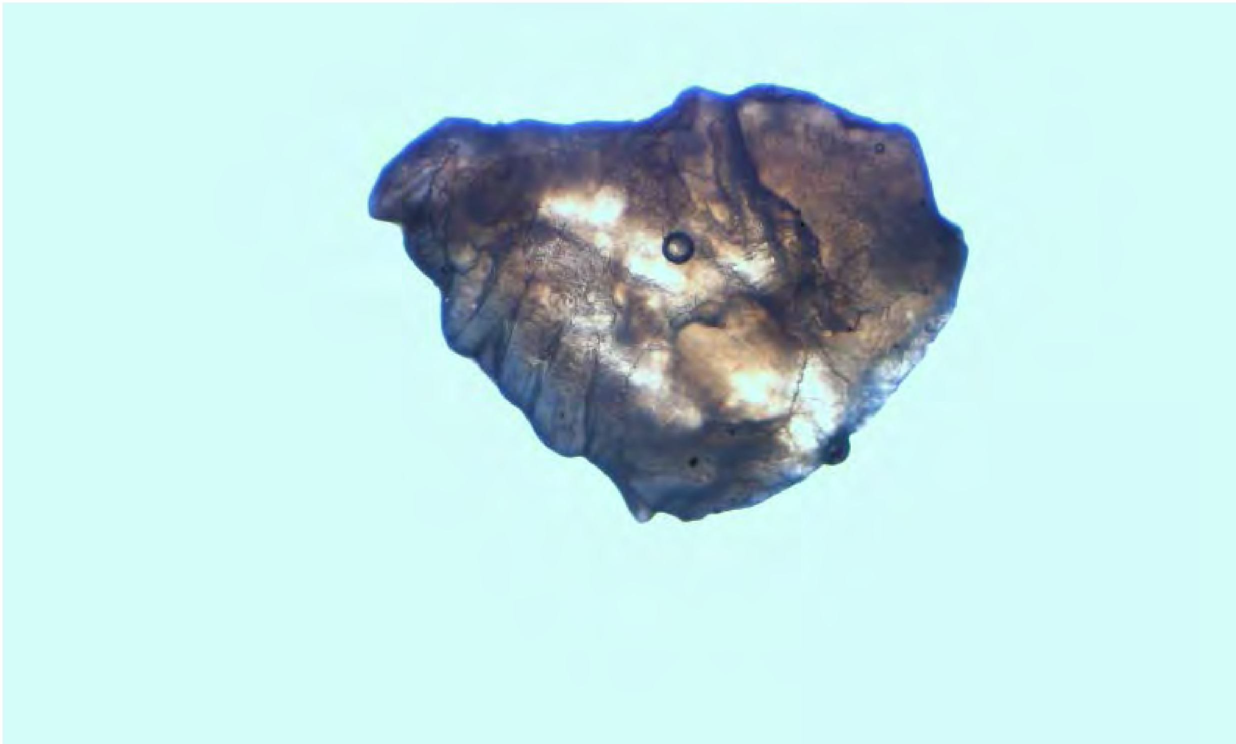


**Figure 63. Whole otolith sample #W63. Sample was from an American eel that was 645 mm TL, 450 g, and captured 5/19/2014 from an estuarine habitat in New Jersey. The sample provided by NJDFW was aged as 5 years old. Ages from the sample exchange ranged from 5-10 years, mode was 6 years. This was a paired sample with section #14.**



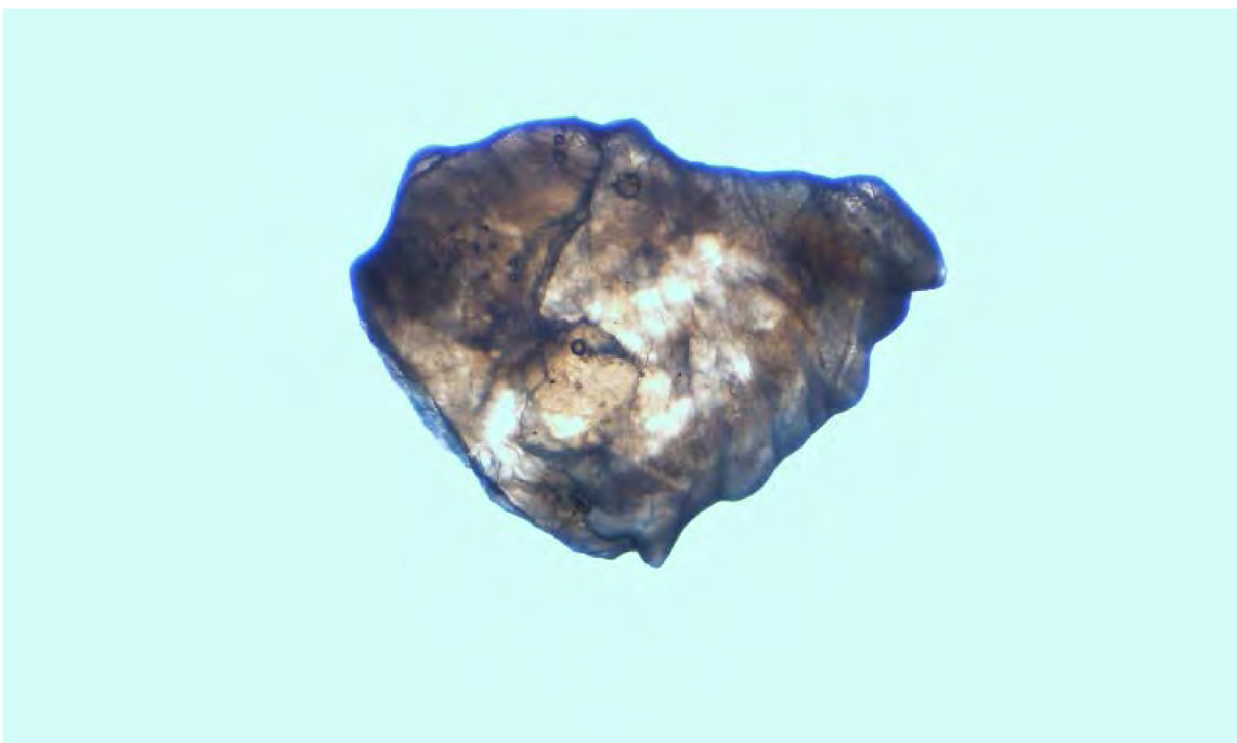


**Figure 64. Whole otolith sample #W64. Sample was from an American eel that was 489 mm TL, 230 g, and captured 4/25/2013 from an estuarine habitat in New Jersey. The sample provided by NJDFW was aged as 5 years old. Ages from the sample exchange ranged from 1-7 years, mode was 3 years. This was a paired sample with section #39.**

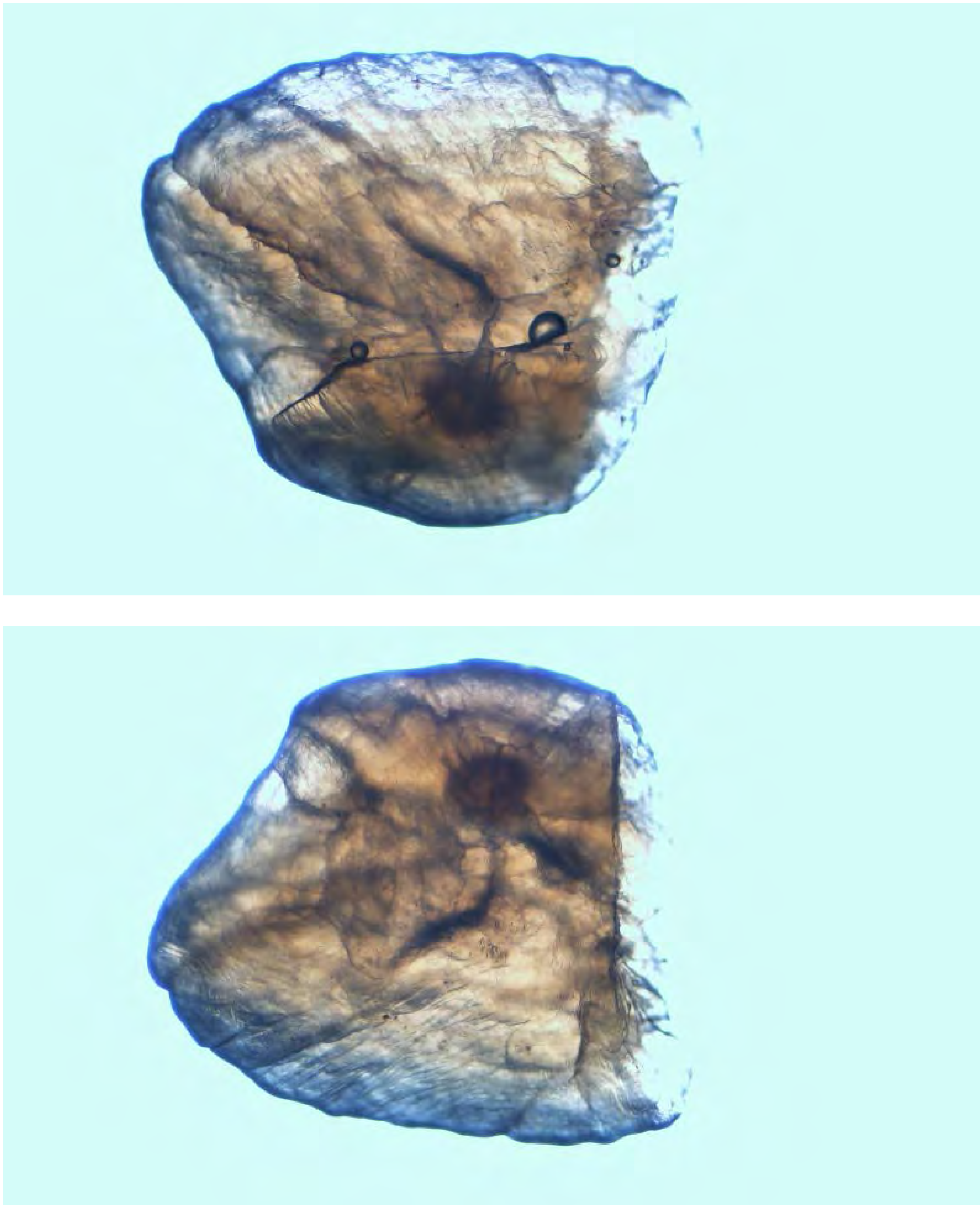


**Figure 65. Whole otolith sample #W65. Sample was from an American eel that was 698 mm TL, 550 g, and captured 11/12/2008 from an estuarine habitat in New Jersey. The sample provided by NJDFW was aged as 13 years old. Ages from the sample exchange ranged from 3-12 years, mode was 8 years. This was a paired sample with section #71.**

**Figure 66. Whole otolith sample #W66. Sample was from a male American eel that was 380 mm TL, 91 g, and captured 9/1997 from Maine. Ages from the sample exchange ranged from 2-11 years, mode was 2 years. This was a paired sample with section #83.**

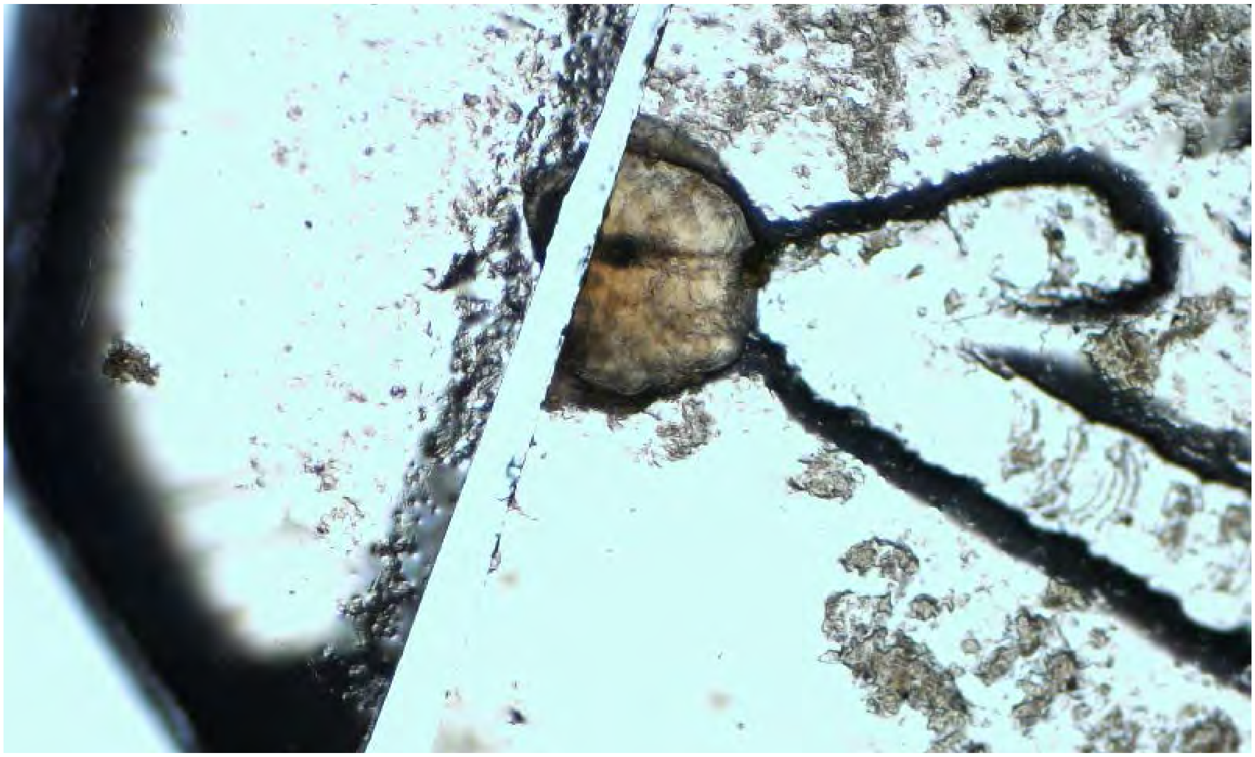


**Figure 67. Whole otolith sample #W67. Sample was from a male American eel that was 238 mm TL, 21 g, and captured 7/1997 from Maine. Ages from the sample exchange ranged from 0-6 years, mode was 3 years. This was a paired sample with section #10.**

**Figure 68. Whole otolith sample #W68. Sample was from an American eel that was 330 mm TL, 57 g, and captured 10/2/2012 from an estuarine habitat in Delaware. Ages from the sample exchange ranged from 2-4 years, mode was 3 years. This was a paired sample with section #34.**

**Figure 69. Whole otolith sample #W69. Sample was from a male American eel that was 270 mm TL, 35 g, and captured 7/1997 from Maine. Ages from the sample exchange ranged from 0-3 years, mode was 2 years. This was a paired sample with section #123.**

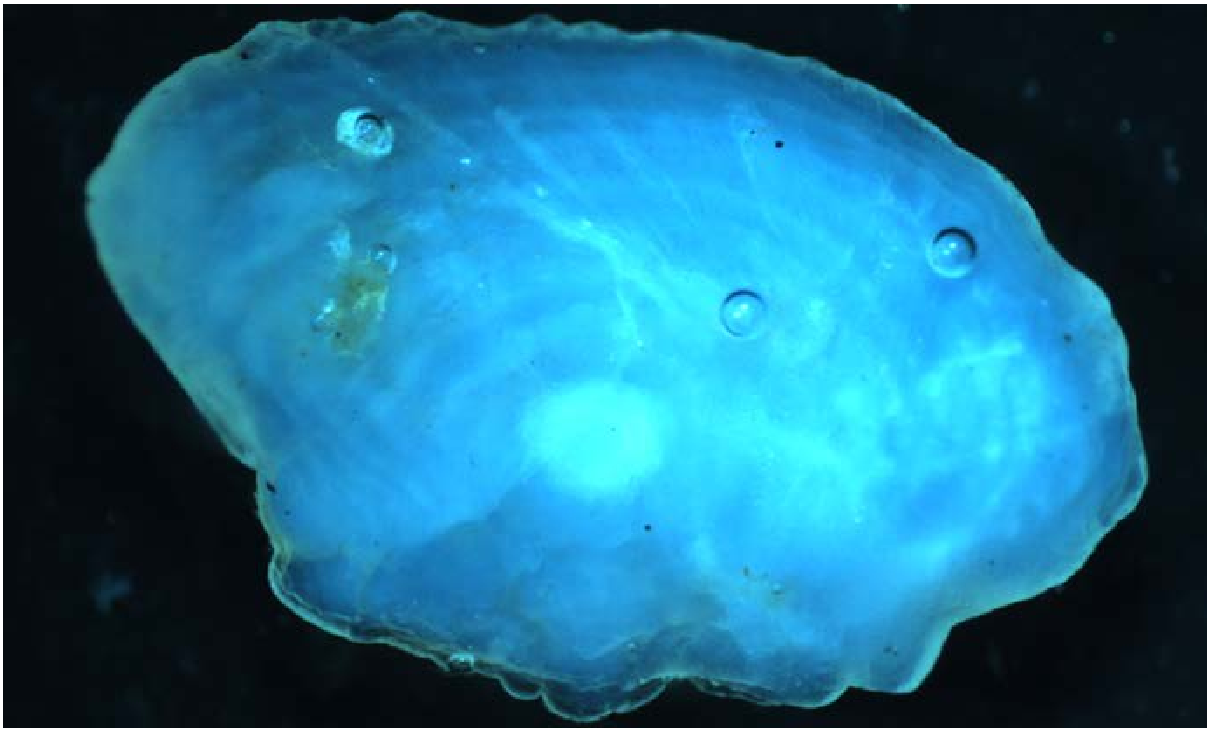


**Figure 70. Whole otolith sample #W70. Sample was from an American eel that was 590 mm TL, 370 g, and captured 5/19/2014 from an estuarine habitat in New Jersey. The sample provided by NJDFW was aged as 8 years old. Ages from the sample exchange ranged from 4-9 years, mode was 7 years. This was a paired sample with section #40.**

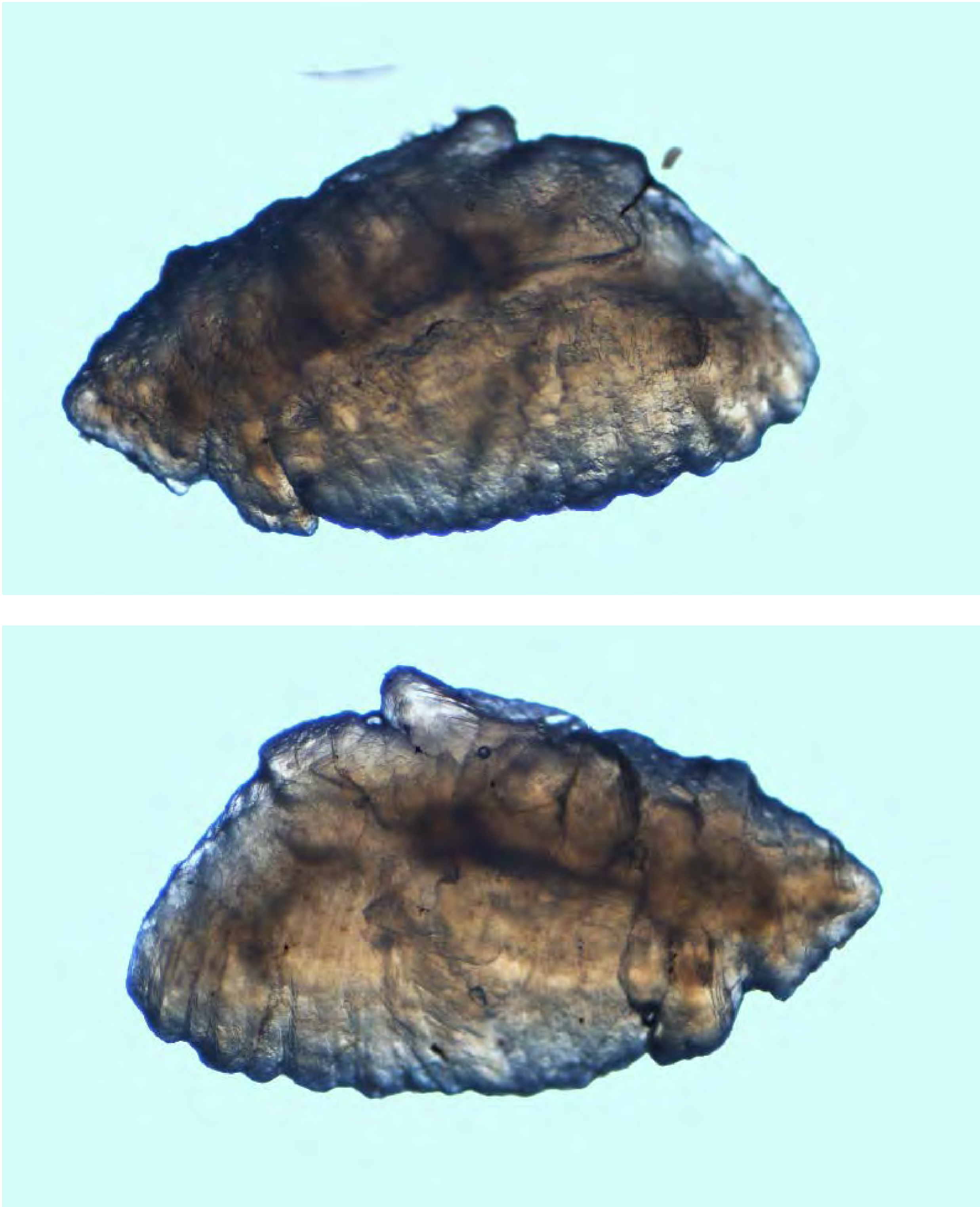


**Figure 71. Whole otolith sample #W71. Sample was from a female American eel that was 632 mm TL, 444 g, and captured 8/1997 from Maine. Ages from the sample exchange ranged from 3-7 years, mode was 7 years. This was a paired sample with section #42.**

**Figure 72. Whole otolith sample #W72. Sample was from a female American eel that was 557 mm TL, 347 g, and captured 8/9/2012 from an estuarine habitat in Delaware. Ages from the sample exchange ranged from 1-5 years, mode was 4 years. This was a paired sample with section #88.**

**Figure 73. Whole otolith sample #W73. Sample was from an American eel that was 260 mm TL, 232 g, and captured 5/20/2013 from an estuarine habitat in South Carolina. The sample provided by SCDNR was aged as 2 years old. Ages from the sample exchange ranged from 0-4 years, mode was 3 years. This was a paired sample with section #140.**

**Figure 74. Whole otolith sample #W74. Sample was from an American eel that was 385 mm TL, 108 g, and captured 9/1997 from Maine. Ages from the sample exchange ranged from 6-8 years, mode was 6 years. This was a paired sample with section #1.**

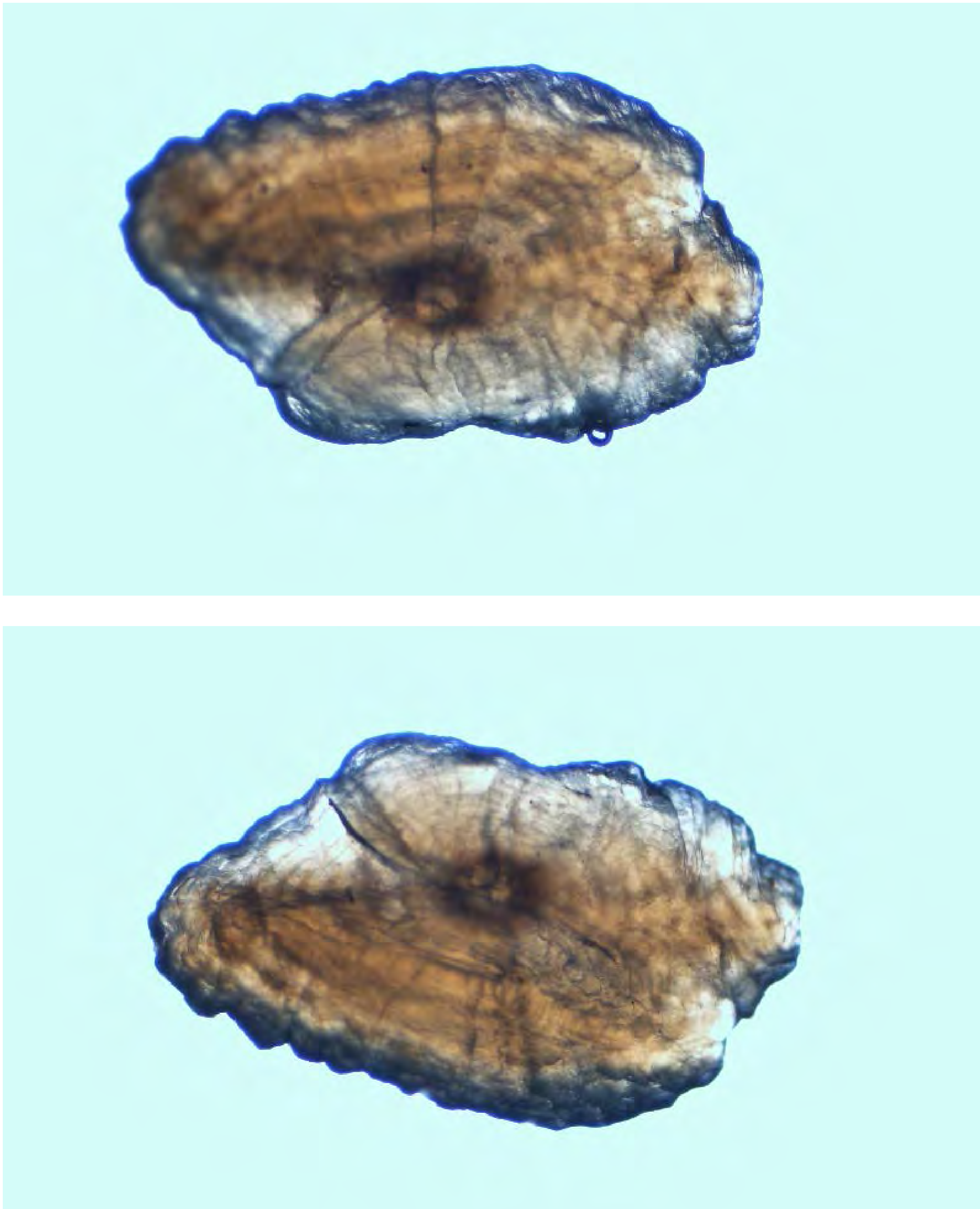


**Figure 75. Whole otolith sample #W75. Sample was from a male American eel that was 495 mm TL, 182 g, and captured 8/1997 from Maine. Ages from the sample exchange ranged from 2-9 years, mode was 7 years. This was a paired sample with section #74.**

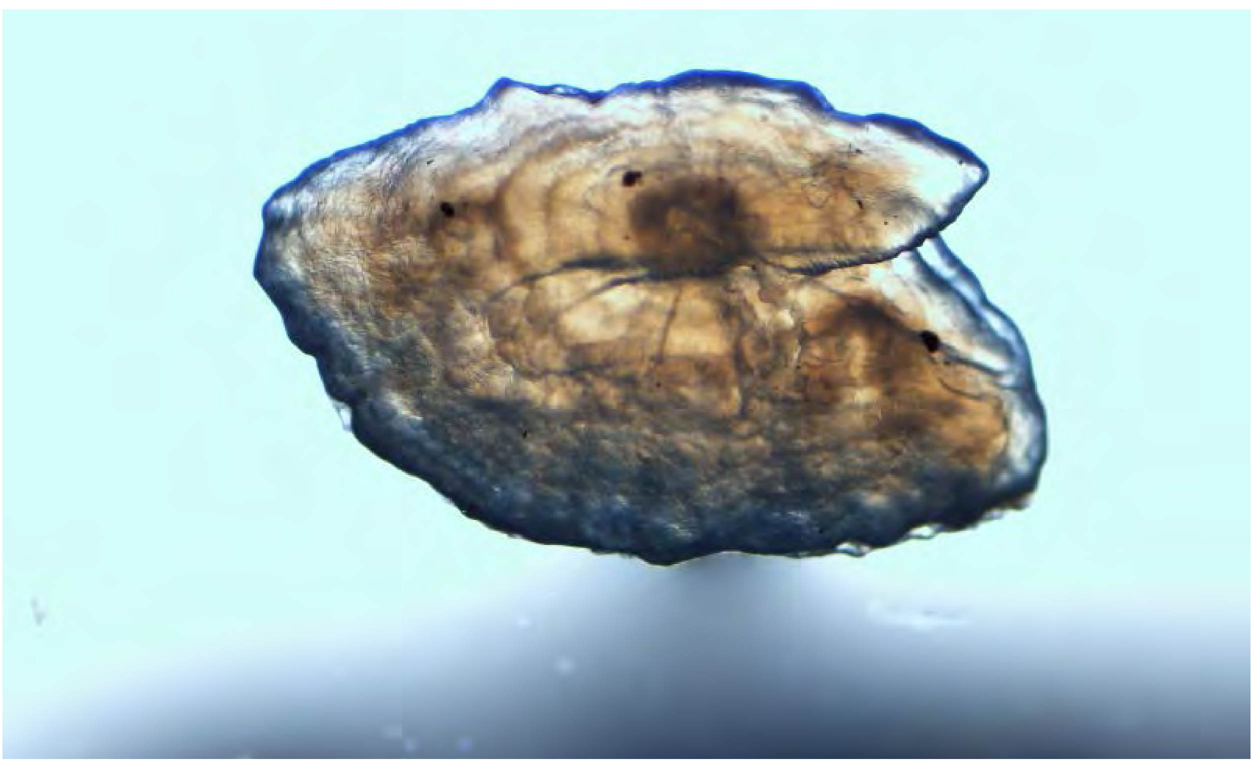


**Figure 76. Whole otolith sample #W76. Sample was from an American eel that was 426 mm TL, 210 g, and captured 5/29/2014 from an estuarine habitat in New Jersey. The sample provided by NJDFW was aged as 7 years old. Ages from the sample exchange ranged from 2-8 years, mode was 6 years. This was a paired sample with section #98.**

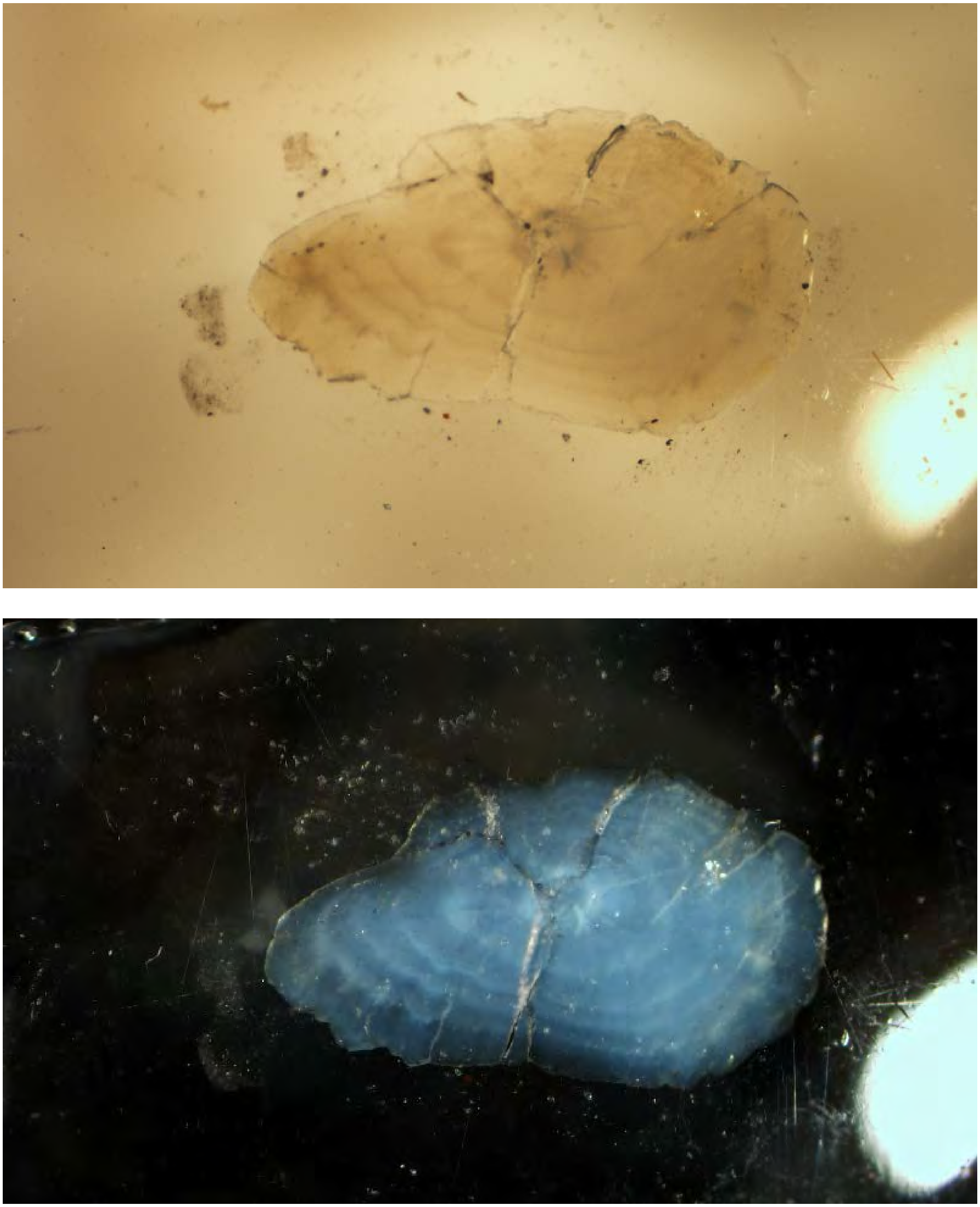


**Figure 77. Whole otolith sample #W77. Sample was from a female American eel that was 397 mm TL, 106 g, and captured 5/11/2011 from an estuarine habitat in Maryland. The sample provided by MD DNR was aged as 5 years old. Ages from the sample exchange ranged from 3-6 years, mode was 4 years.**

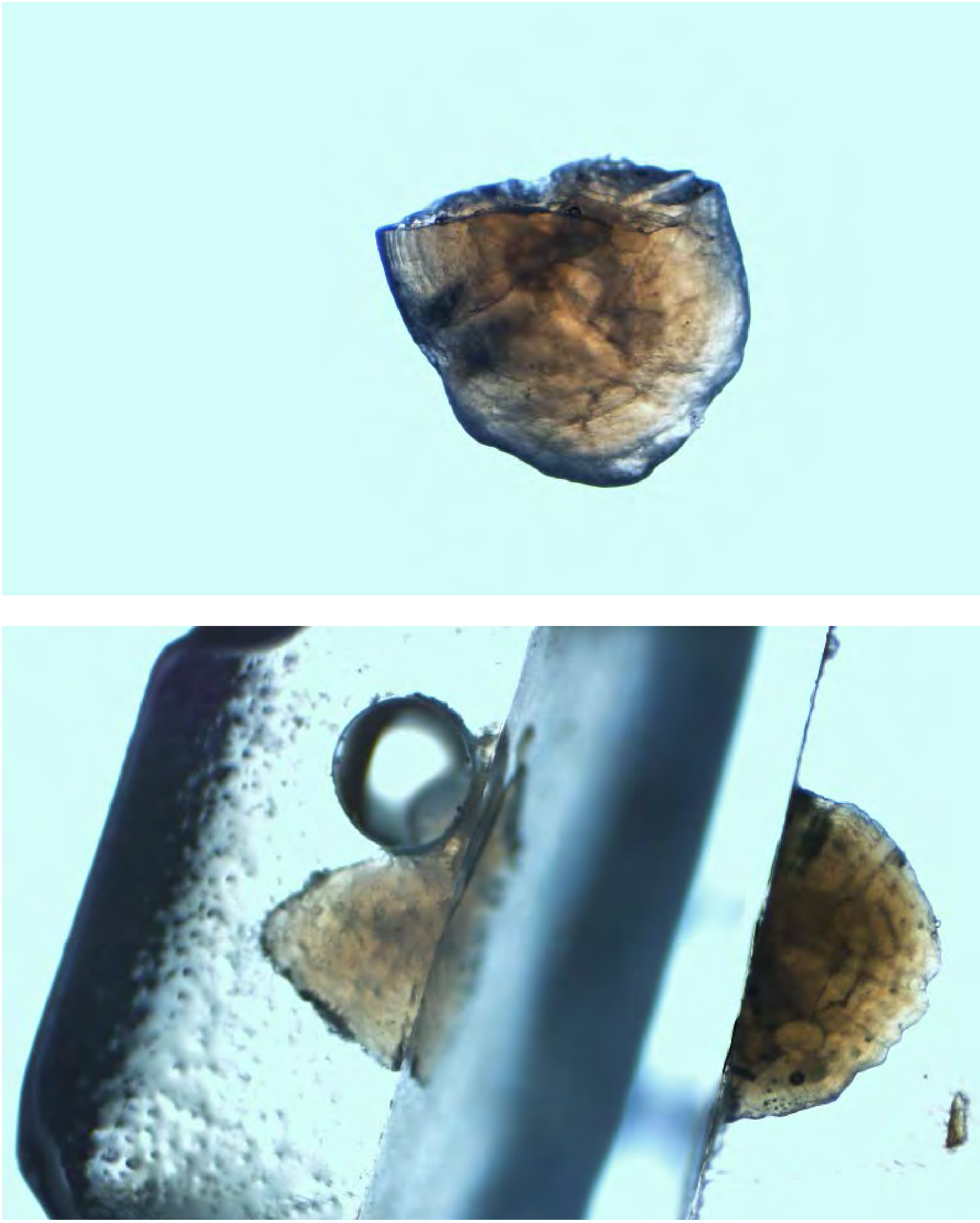
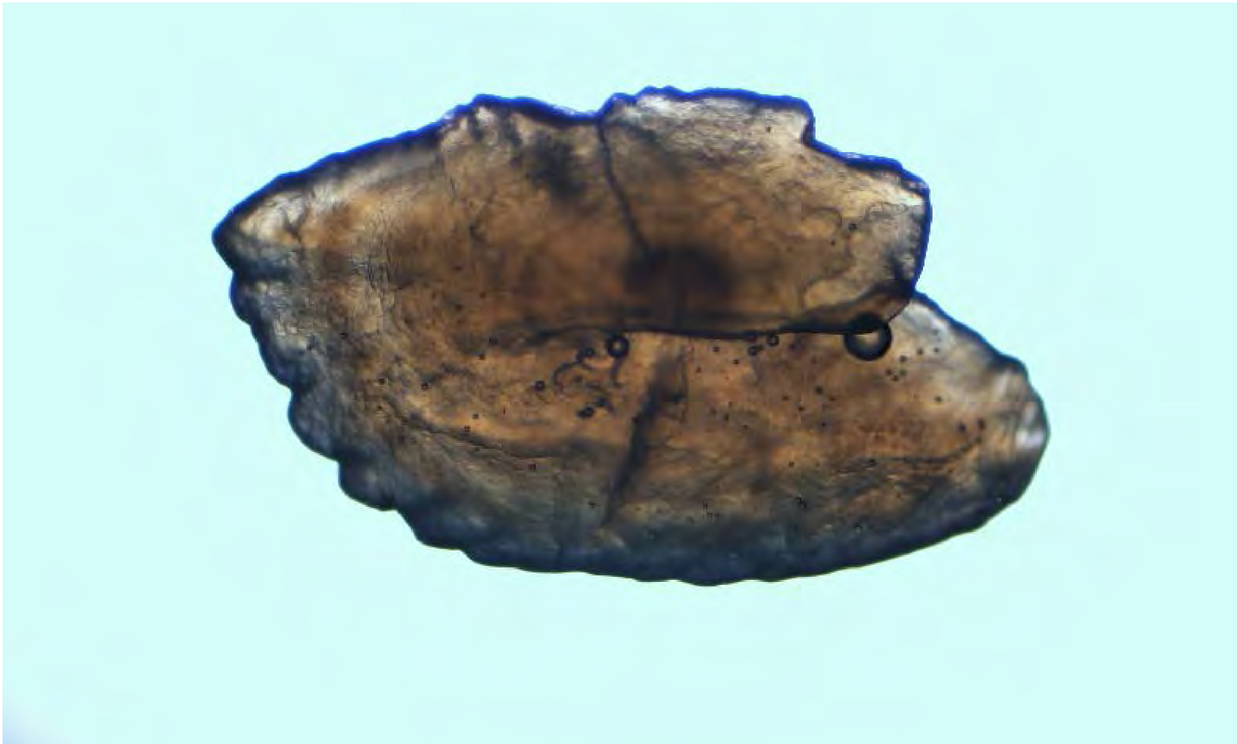


**Figure 78. Whole otolith sample #W78. Sample was from a male American eel that was 368 mm TL, 81 g, and captured 10/1997 from Maine. Ages from the sample exchange ranged from 1-12 years, mode was 6 years. This was a paired sample with section #33.**

**Figure 79. Whole otolith sample #W79. Sample was from an American eel that was 203 mm TL, 15 g, and captured 7/1997 from Maine. Ages from the sample exchange ranged from 0-7 years, mode was 3 years. This was a paired sample with section #38.**



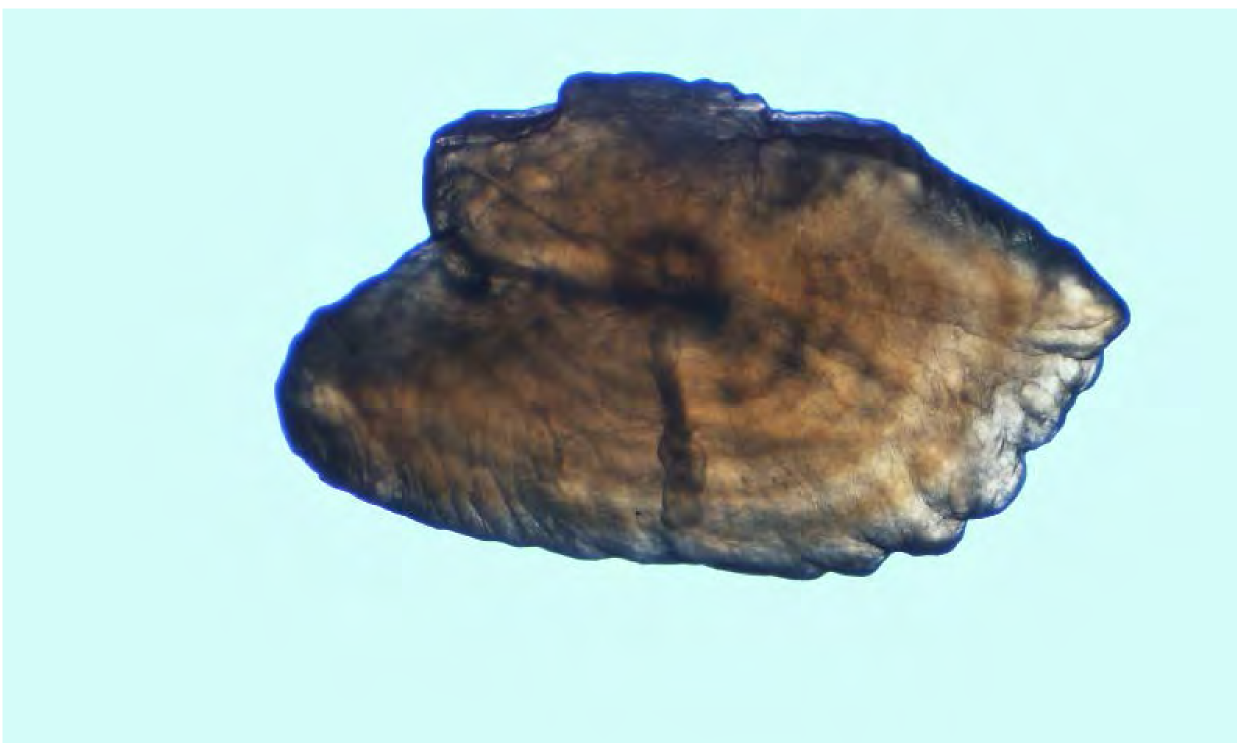


**Figure 80. Whole otolith sample #W80. Sample was from an American eel that was 473 mm TL, 217 g, and captured 3/6/2013 from an estuarine habitat in South Carolina. The sample provided by SCDNR was aged as 6 years old. Ages from the sample exchange ranged from 3-8 years, mode was 7 years. This was a paired sample with section #66.**

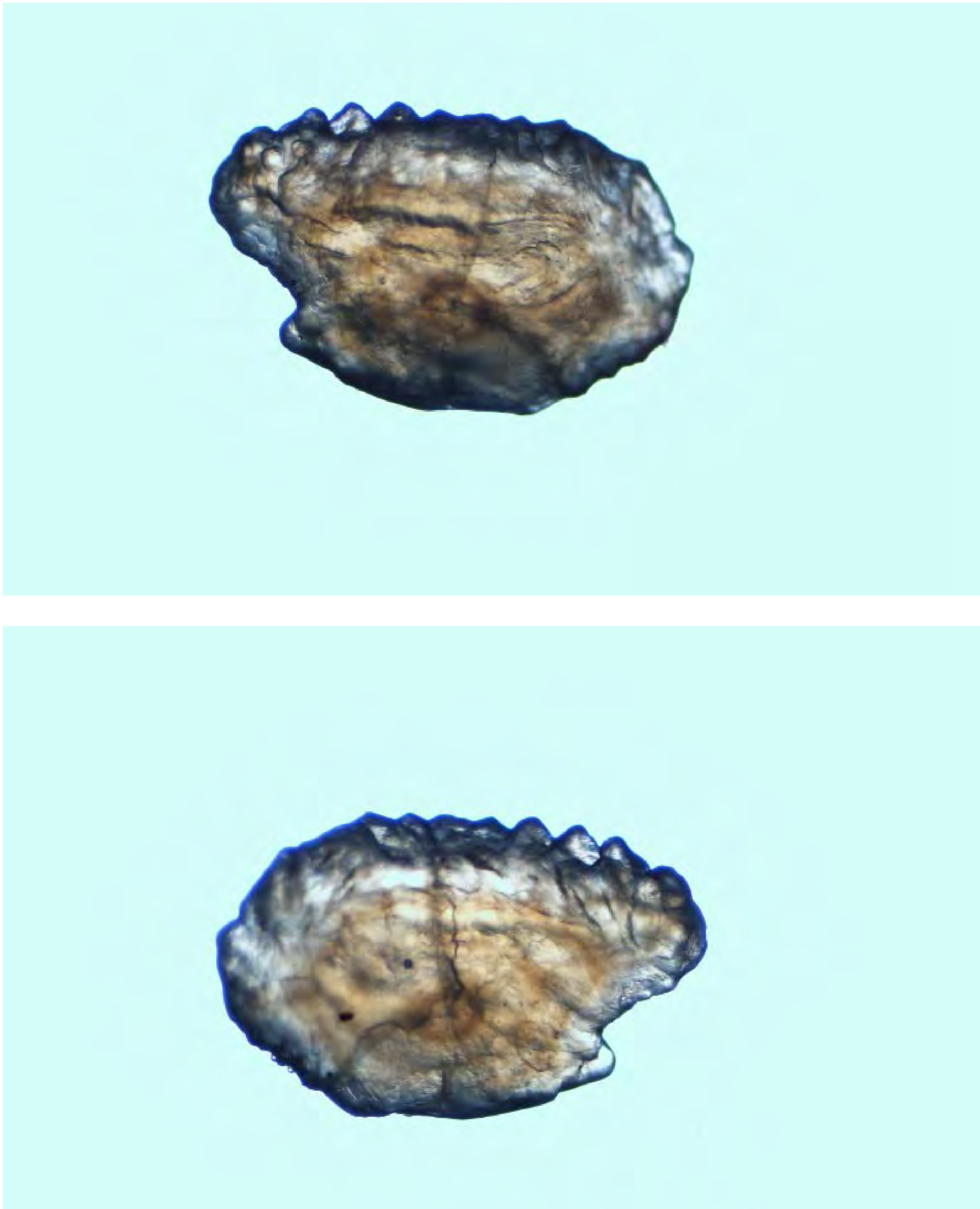


**Figure 81. Whole otolith sample #W81. Sample was from an American eel that was 400 mm TL, 90 g, and captured 5/29/2014 from an estuarine habitat in New Jersey. The sample provided by NJDFW was aged as 5 years old. Ages from the sample exchange ranged from 1-4 years, mode was 2 years. This was a paired sample with section #36.**

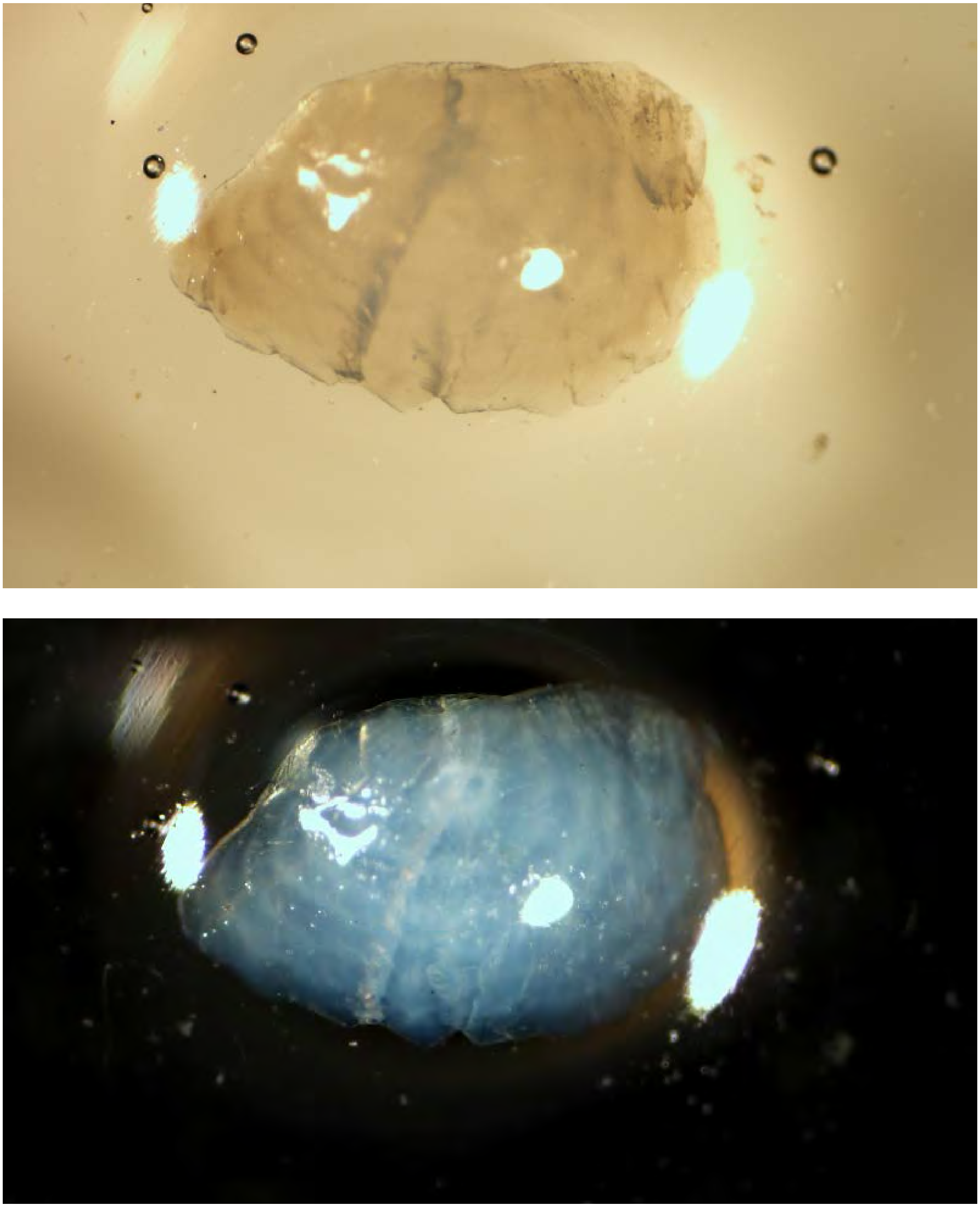


**Figure 82. Whole otolith sample #W82. Sample was from a female American eel that was 433 mm TL, 117 g, and captured 5/11/2011 from an estuarine habitat in Maryland. The sample provided by MD DNR was aged as 6 years old. Ages from the sample exchange ranged from 5-6 years, mode was 5 years.**

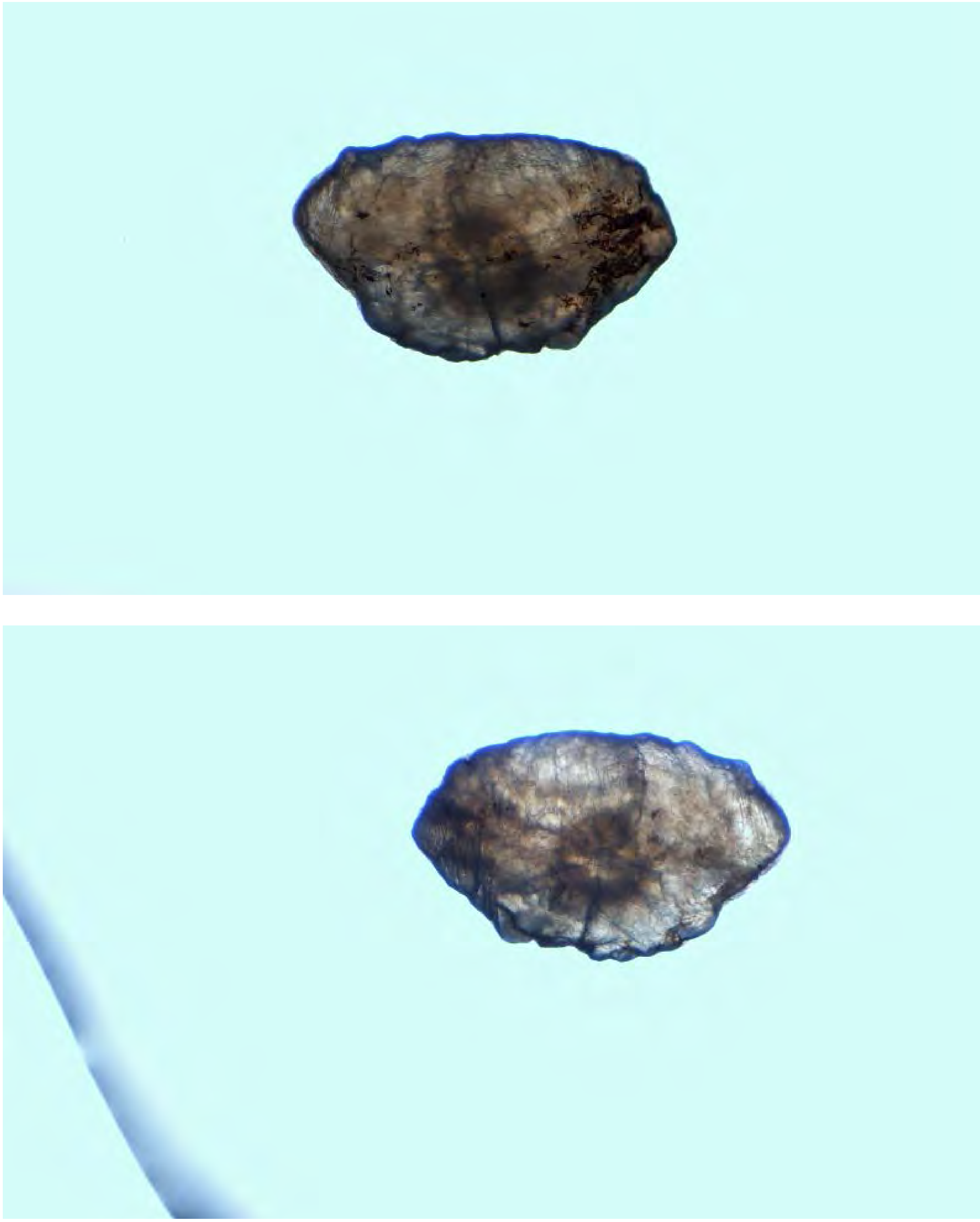


**Figure 83. Whole otolith sample #W83. Sample was from an American eel that was 252 mm TL, 30 g, and captured 4/25/2013 from an estuarine habitat in New Jersey. The sample provided by NJDFW was aged as 0 years old. Ages from the sample exchange ranged from 0-3 years, mode was 0 years. This was a paired sample with section #7.**

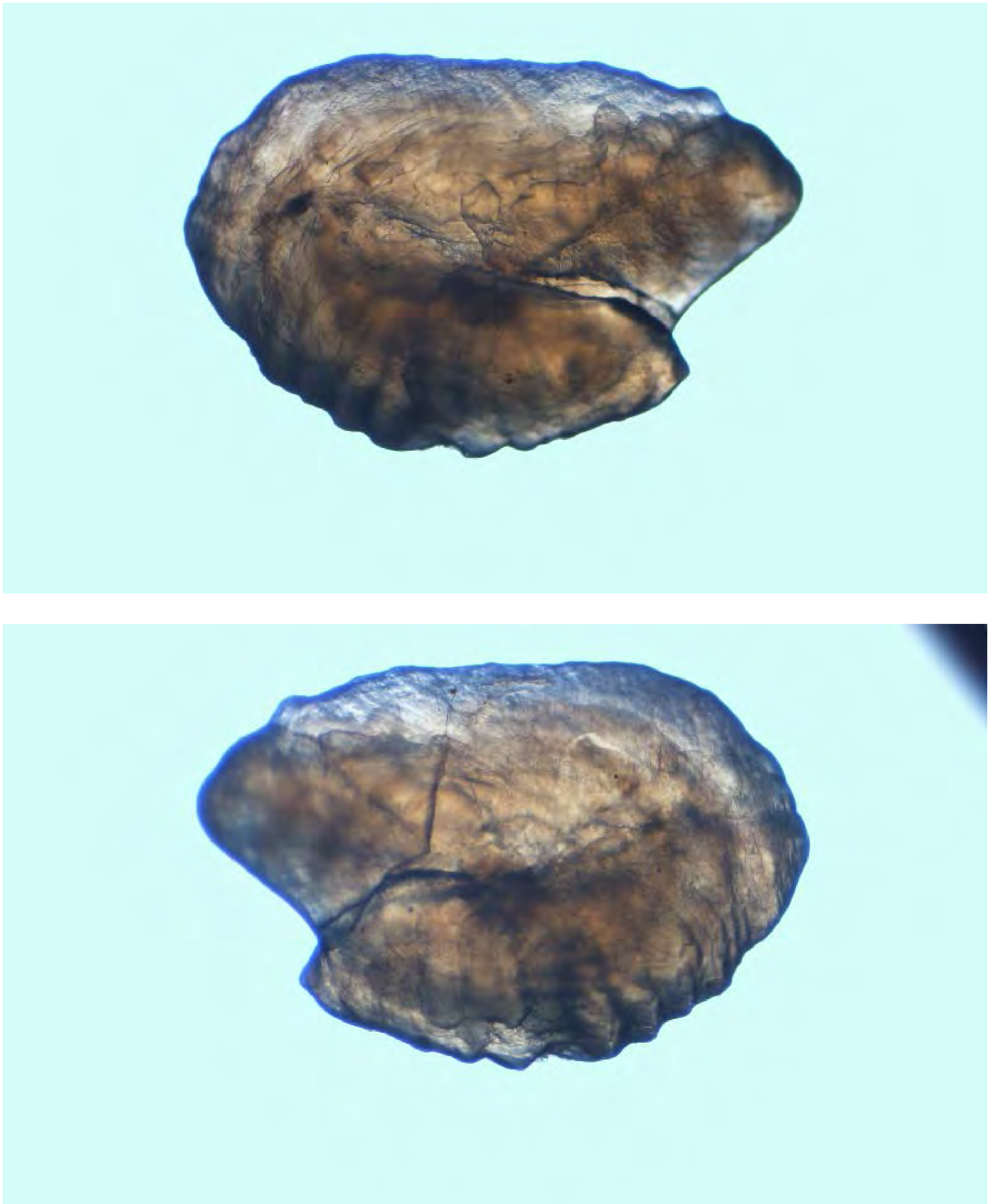


**Figure 84. Whole otolith sample #W84. Sample was from an American eel that was 403 mm TL, 122 g, and captured 9/16/2013 from an estuarine habitat in South Carolina. The sample provided by SCDNR was aged as 7 years old. Ages from the sample exchange ranged from 2-6 years, mode was 5 years. This was a paired sample with section #25.**

**Figure 85. Whole otolith sample #W85. Sample was from a male American eel that was 346 mm TL, 74 g, and captured 9/1997 from Maine. Ages from the sample exchange ranged from 2-7 years, mode was 7 years. This was a paired sample with section #50.**

**Figure 86. Whole otolith sample #W86. Sample was from an American eel that was 180 mm TL, 9 g, and captured 7/1997 from Maine. Ages from the sample exchange ranged from 0-4 years, mode was 1 years. This was a paired sample with section #68.**

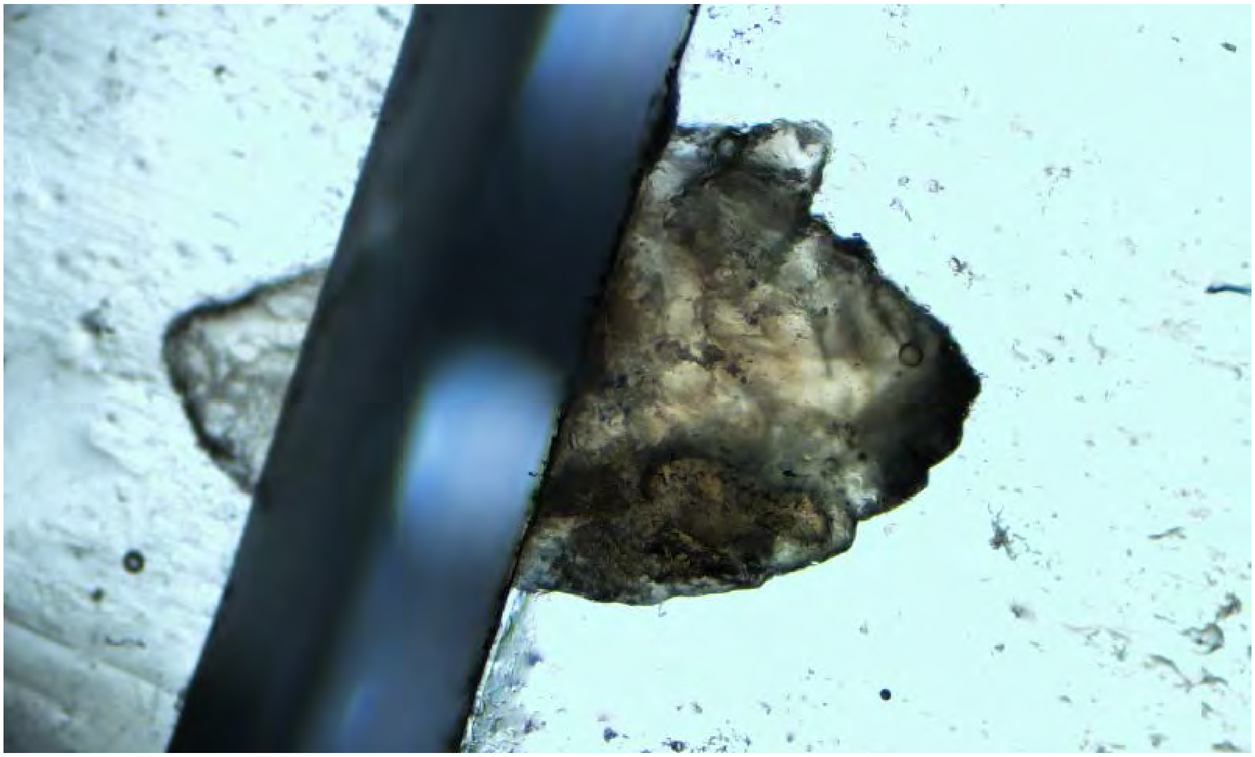
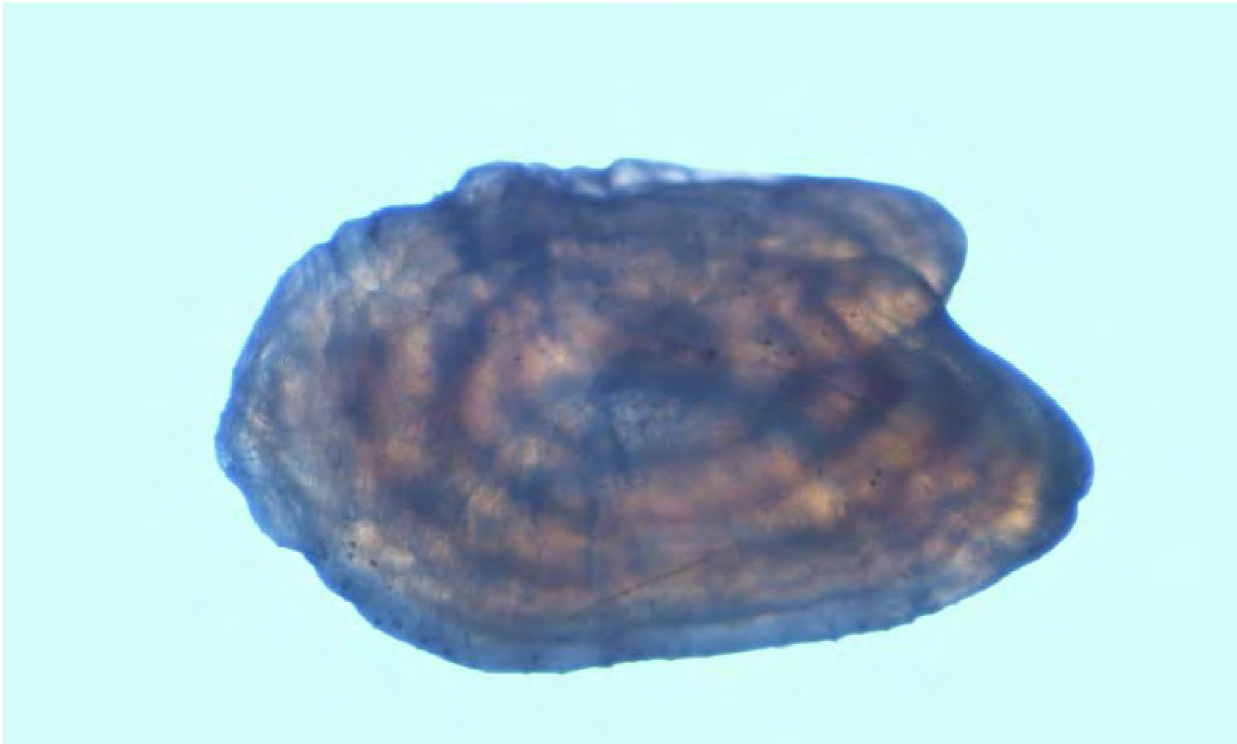


**Figure 87. Whole otolith sample #W87. Sample was from a male American eel that was 318 mm TL, 44 g, and captured 10/1997 from Maine. Ages from the sample exchange ranged from 0-8 years, mode was 6 years. This was a paired sample with section #108.**

[Photo not available]

**Figure 88. Whole otolith sample #W88. Sample was from an American eel that was 616 mm TL, 632 g, and captured 7/23/2015 from an estuarine habitat in Florida. The sample provided by FL FWC was aged as 10 years old. Ages from the sample exchange ranged from 4-11 years, mode was 4 years. This was a paired sample with section #12.**



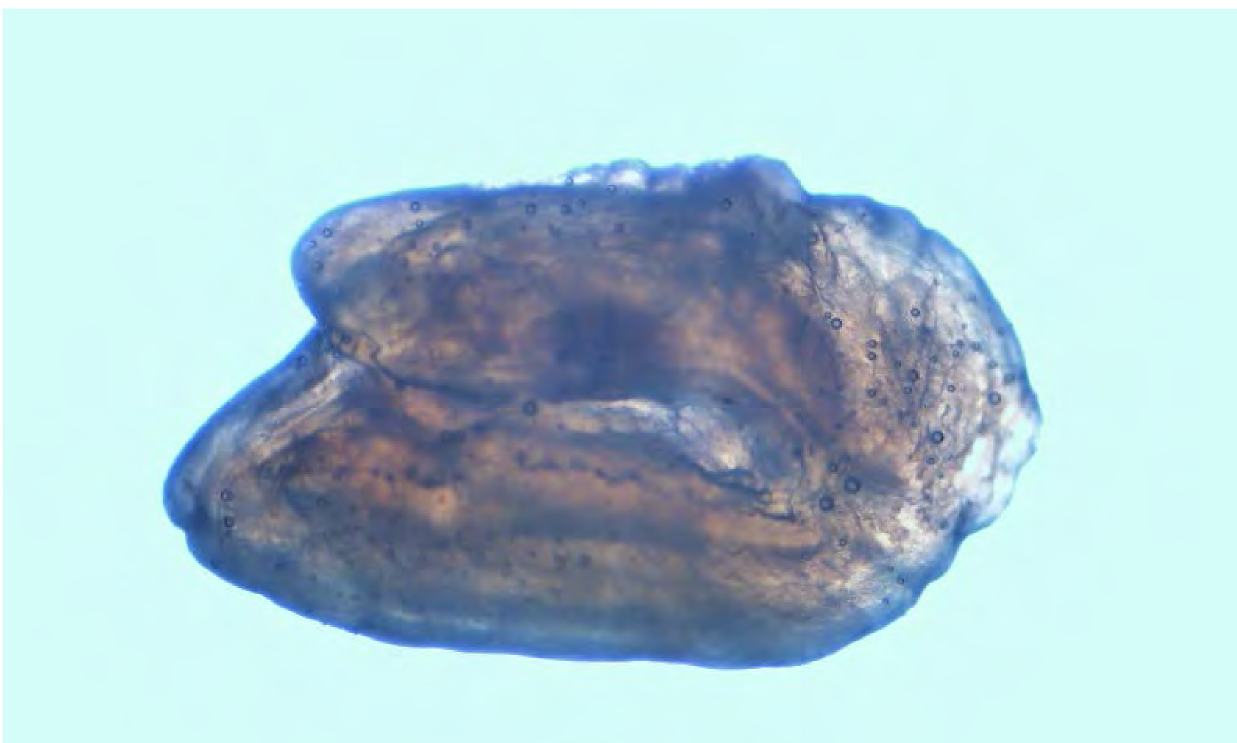


**Figure 89. Whole otolith sample #W89. Sample was from a female American eel that was 561 mm TL, 357 g, and captured 1/9/2013 from an estuarine habitat in South Carolina. The sample provided by SCDNR was aged as 6 years old. Ages from the sample exchange ranged from 3-7 years, mode was 6 years. This was a paired sample with section #70.**

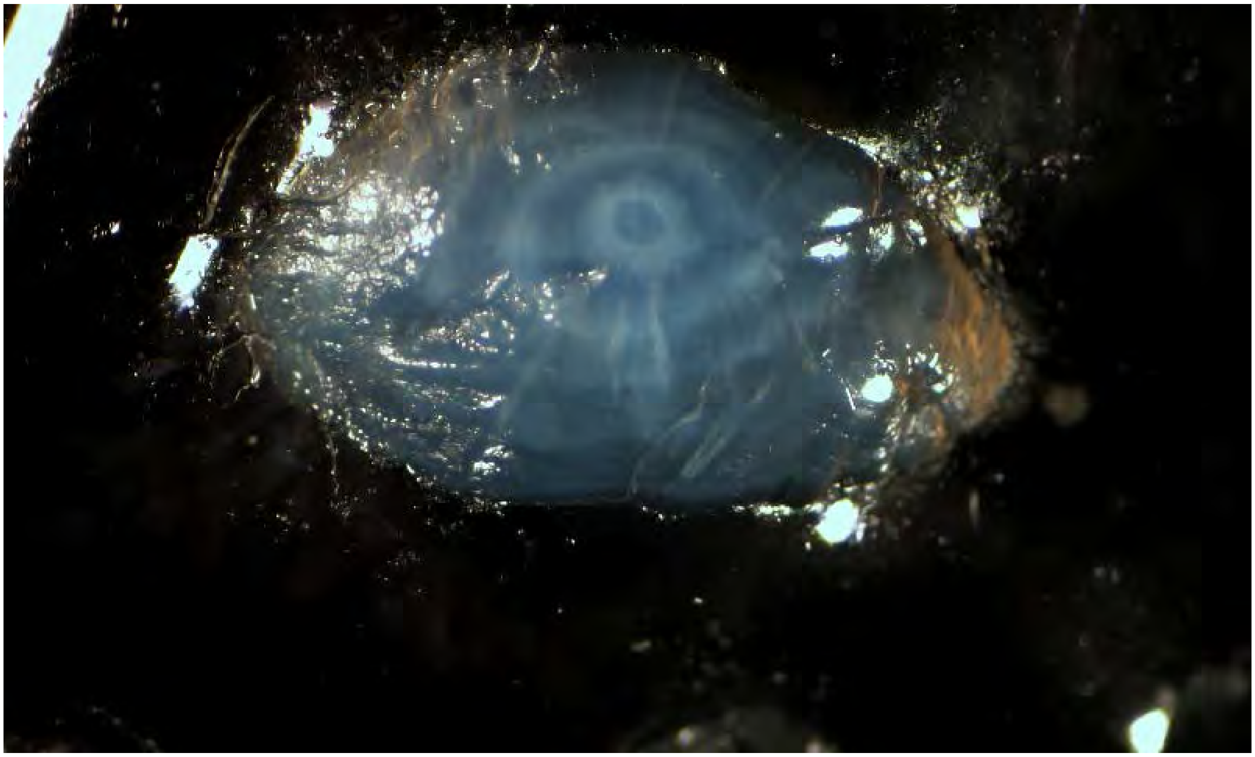


**Figure 90. Whole otolith sample #W90. Sample was from an American eel that was 495 mm TL, 272 g, and captured 6/28/2012 from an estuarine habitat in Delaware. Ages from the sample exchange ranged from 1-5 years, mode was 4 years. This was a paired sample with section #116.**

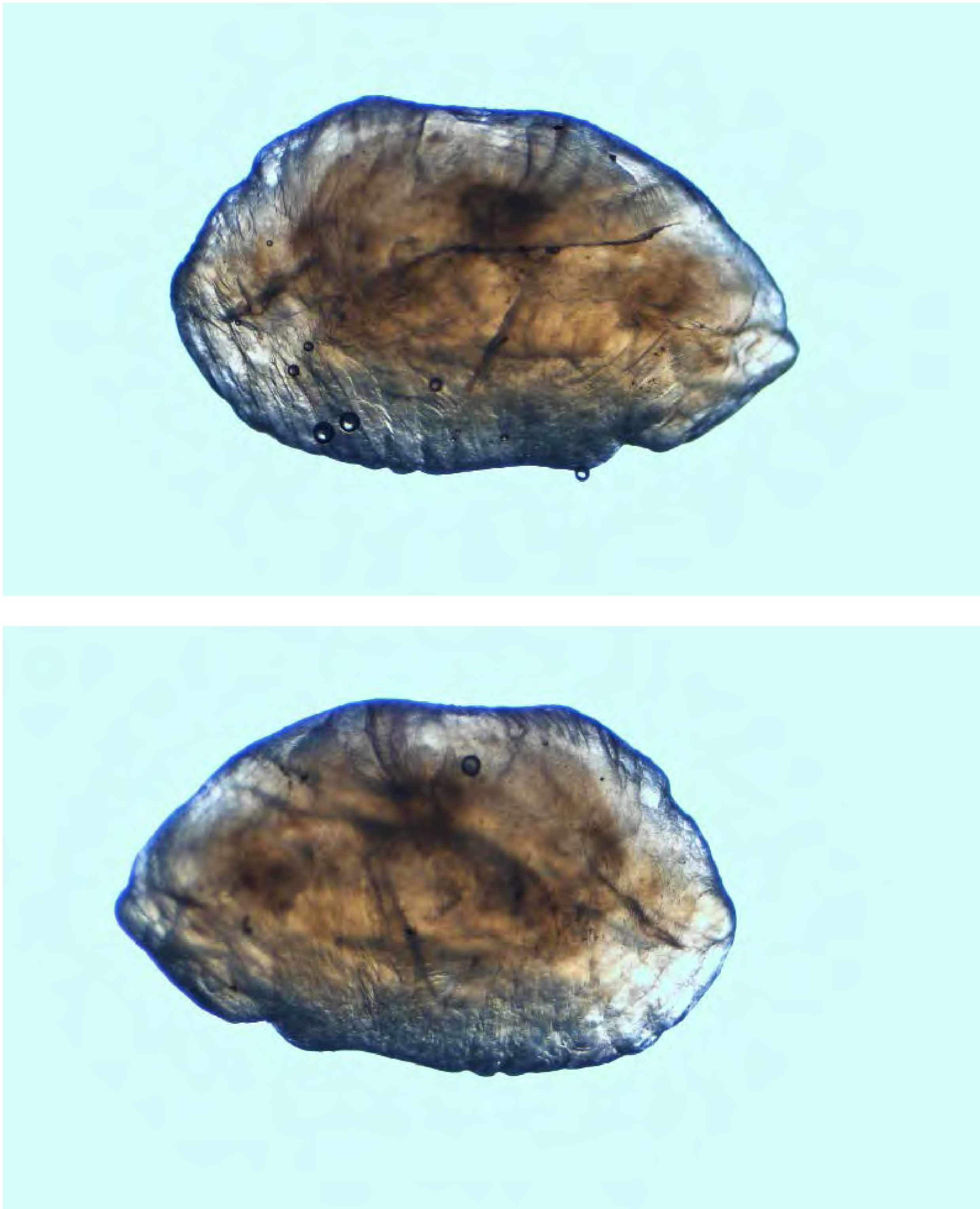


**Figure 91. Whole otolith sample #W91. Sample was from a female American eel that was 526 mm TL, 197 g, and captured 8/1997 from Maine. Ages from the sample exchange ranged from 1-8 years, mode was 6 years. This was a paired sample with section #120.**

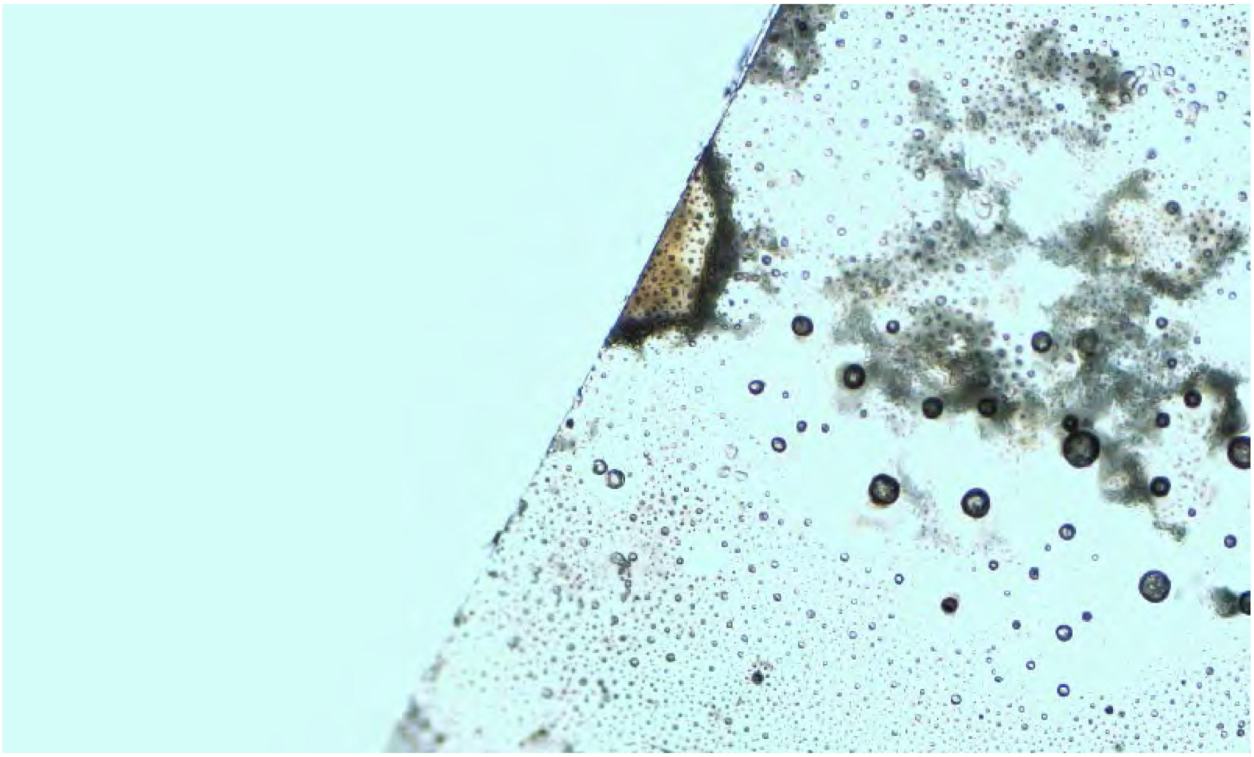


**Figure 92. Whole otolith sample #W92. Sample was from an American eel that was 168 mm TL, 8 g, and captured 8/1996 from Maine. Ages from the sample exchange ranged from 0-2 years, mode was 1 years. This was a paired sample with section #130.**

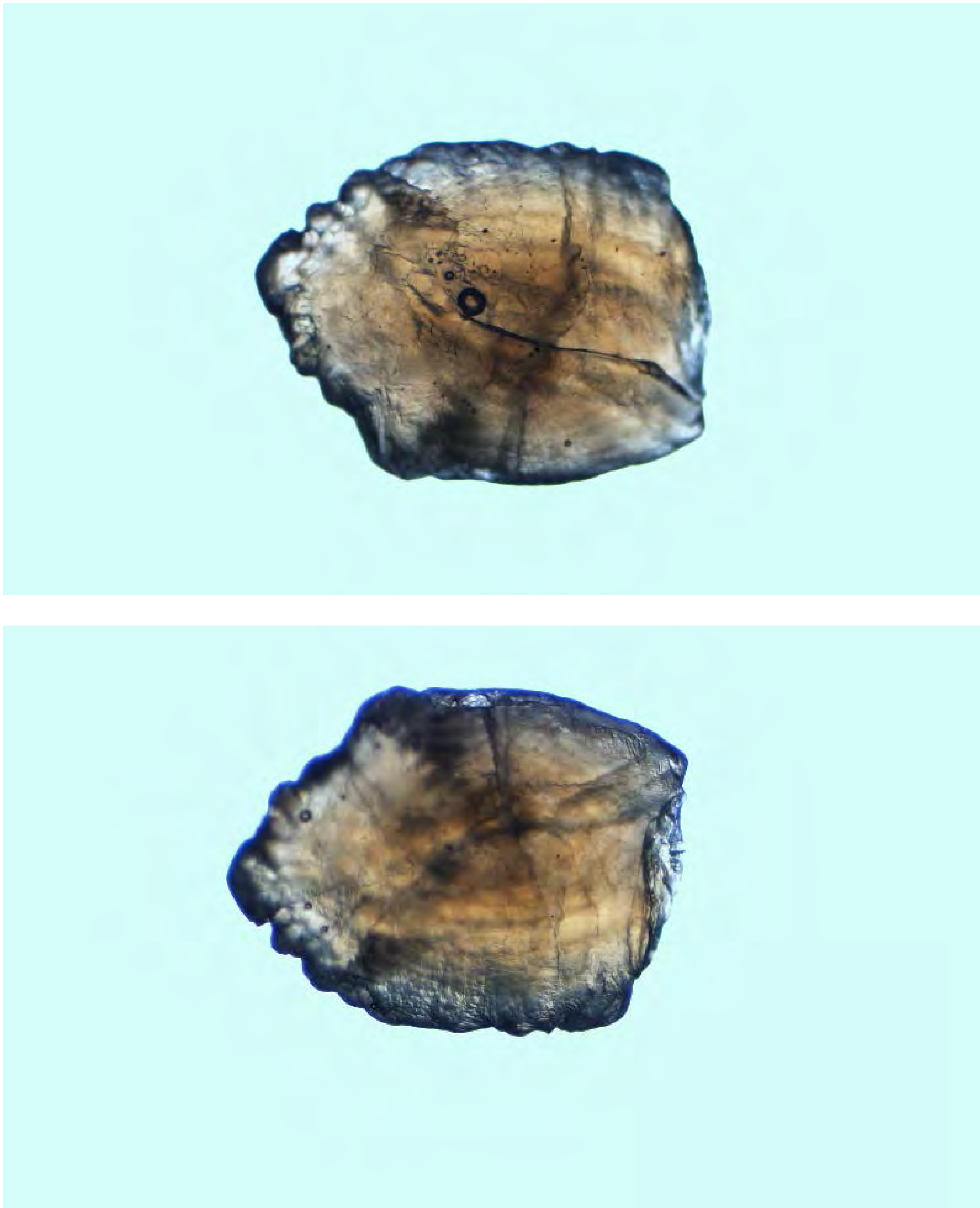


**Figure 93. Whole otolith sample #W93. Sample was from an American eel that was 385 mm TL, 132 g, and captured 1/13/2015 from a freshwater habitat in Florida. The sample provided by FL FWC was aged as 6 years old. Ages from the sample exchange ranged from 1-7 years, mode was 6 years. This was a paired sample with section #139.**

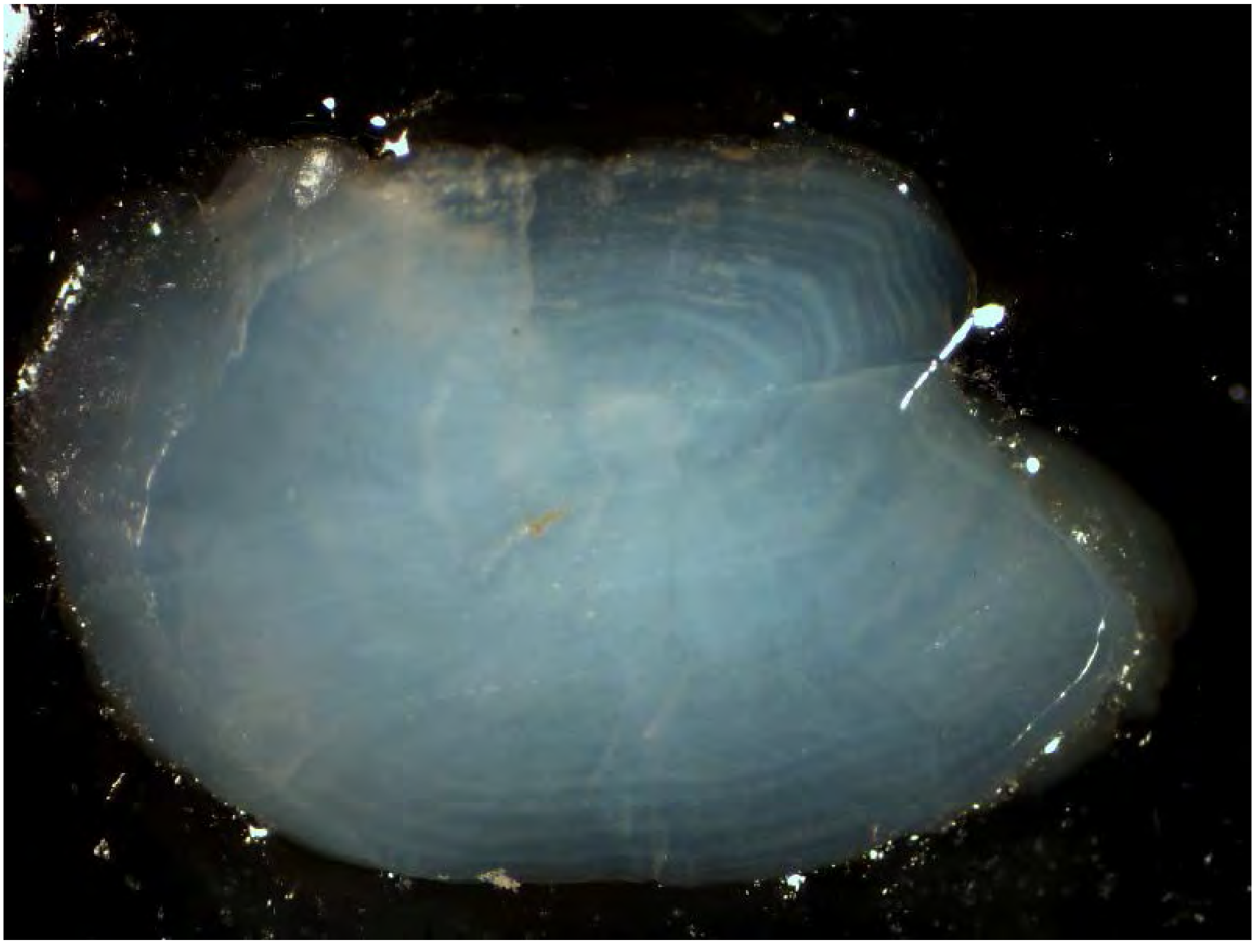


**Figure 94. Whole otolith sample #W94. Sample was from an American eel that was 770 mm TL, 805 g, and captured 9/24/2012 from a freshwater habitat in Delaware. Ages from the sample exchange ranged from 8-16 years, mode was 12 years. This was a paired sample with section #23.**

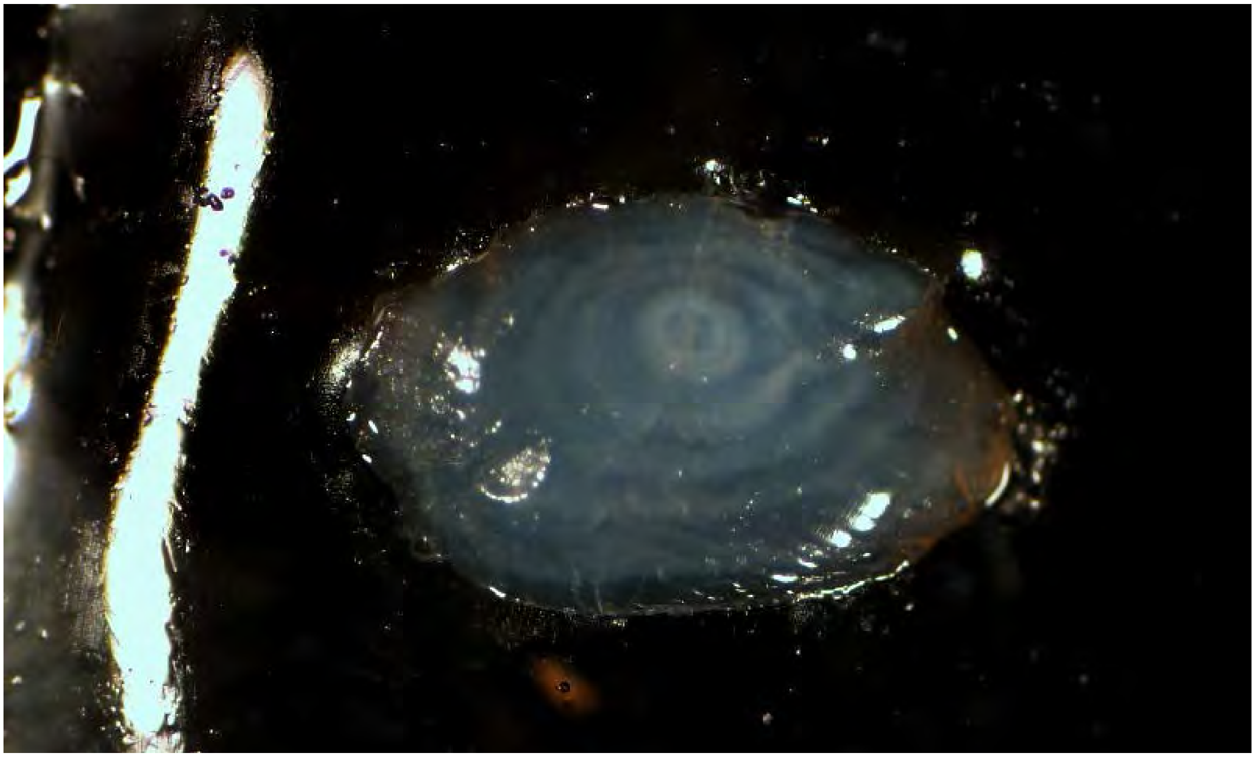


**Figure 95. Whole otolith sample #W95. Sample was from an American eel that was 371 mm TL, 103 g, and captured 9/11/2012 from an estuarine habitat in Delaware. Ages from the sample exchange ranged from 3-5 years, mode was 4 years. This was a paired sample with section #52.**

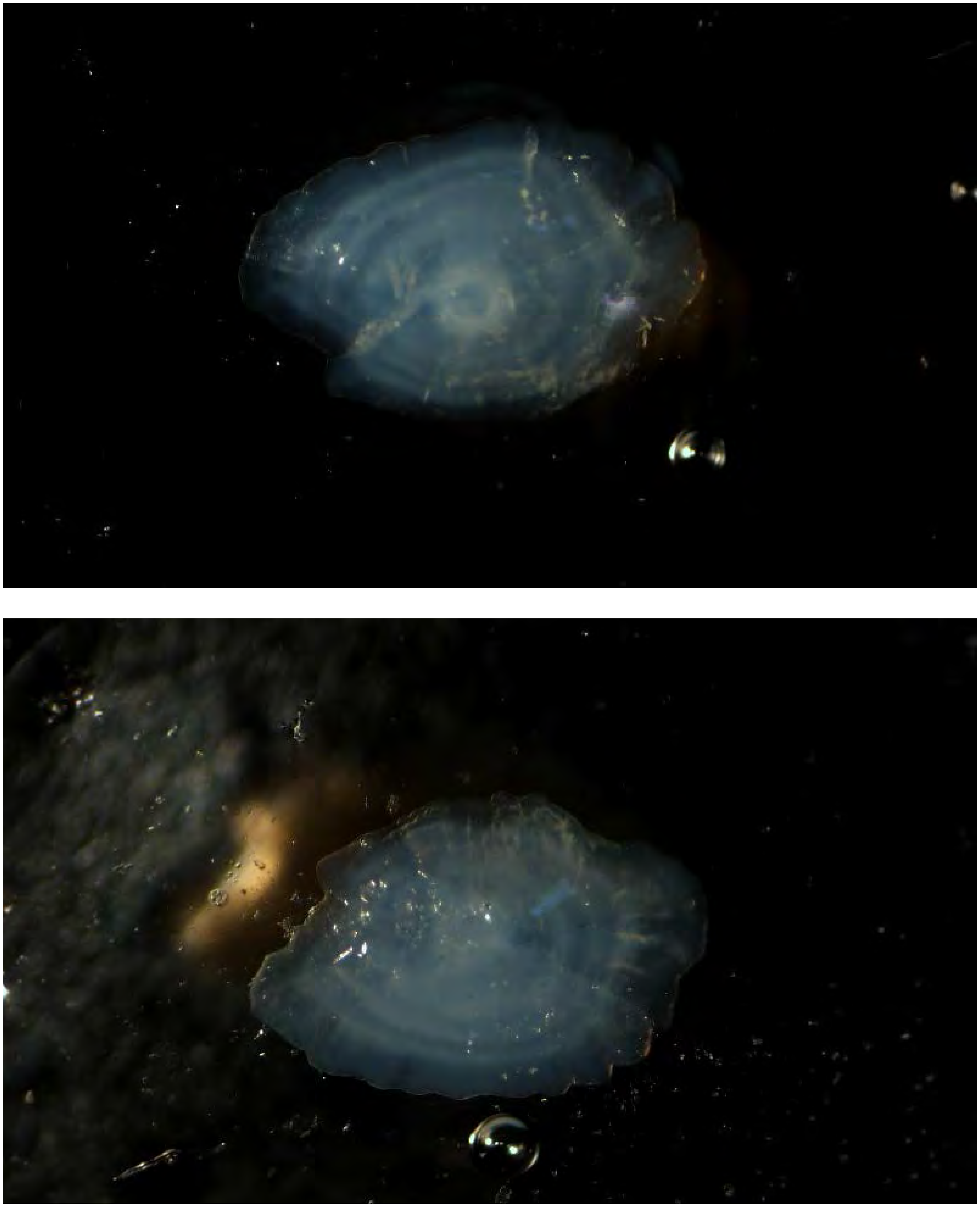
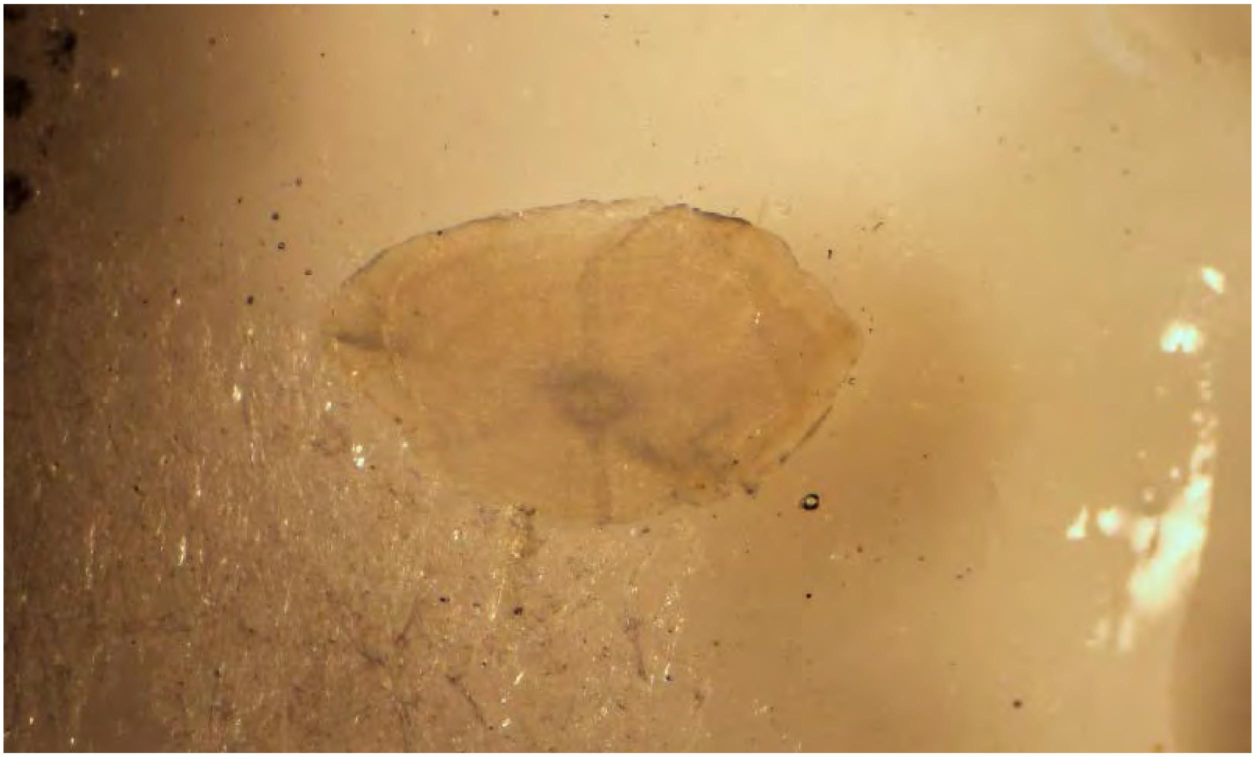


**Figure 96. Whole otolith sample #W96. Sample was from a male American eel that was 371 mm TL, 108 g, and captured 4/18/2012 from an estuarine habitat in Maryland. The sample provided by MD DNR was aged as 4 years old. Ages from the sample exchange ranged from 2-5 years, mode was 3 years.**



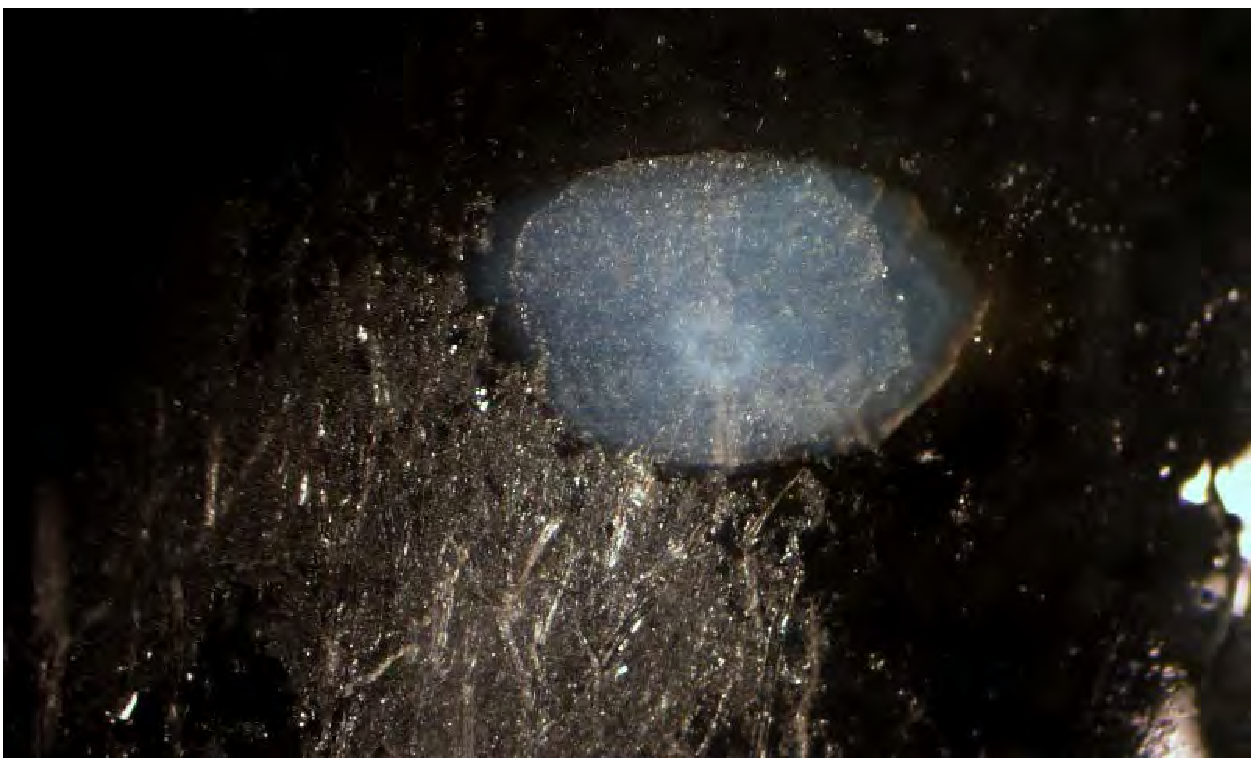
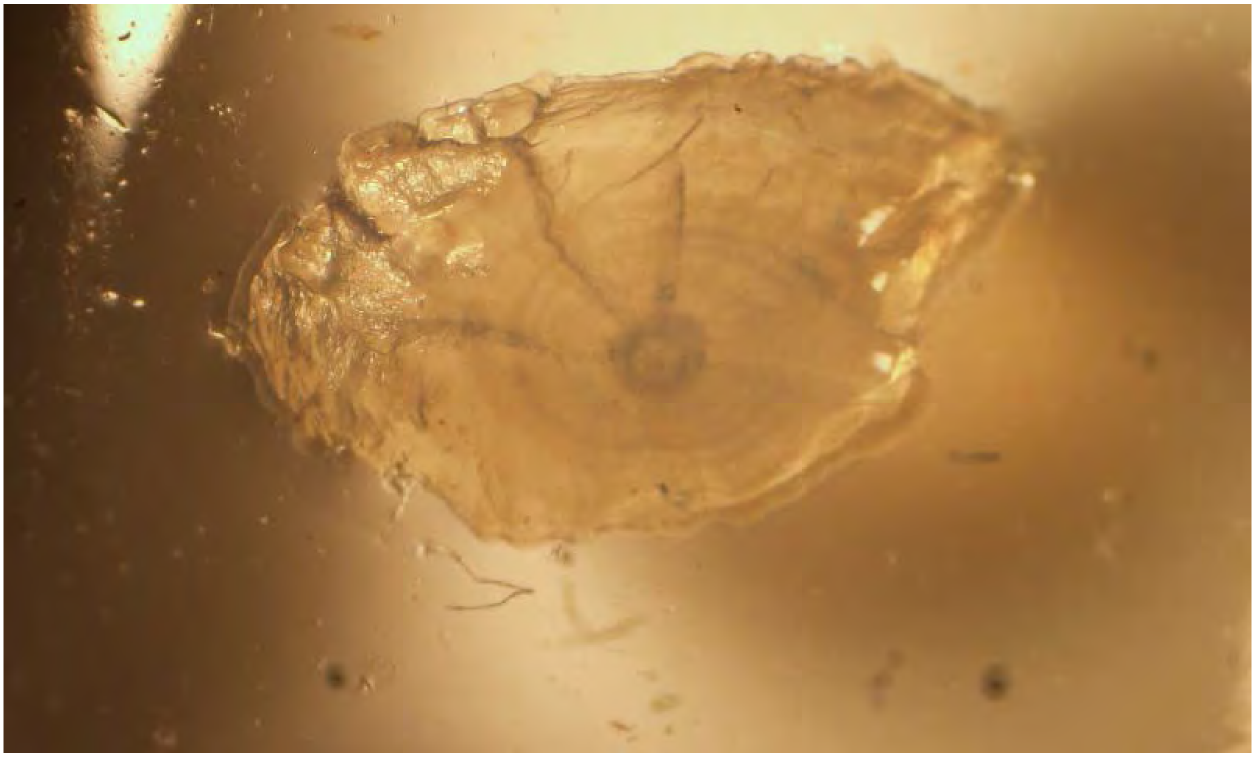


**Figure 97. Whole otolith sample #W97. Sample was from an American eel that was 325 mm TL, 53 g, and captured 5/11/2011 from an estuarine habitat in Maryland. The sample provided by MD DNR was aged as 5 years old. Ages from the sample exchange ranged from 2-6 years, mode was 4 years.**



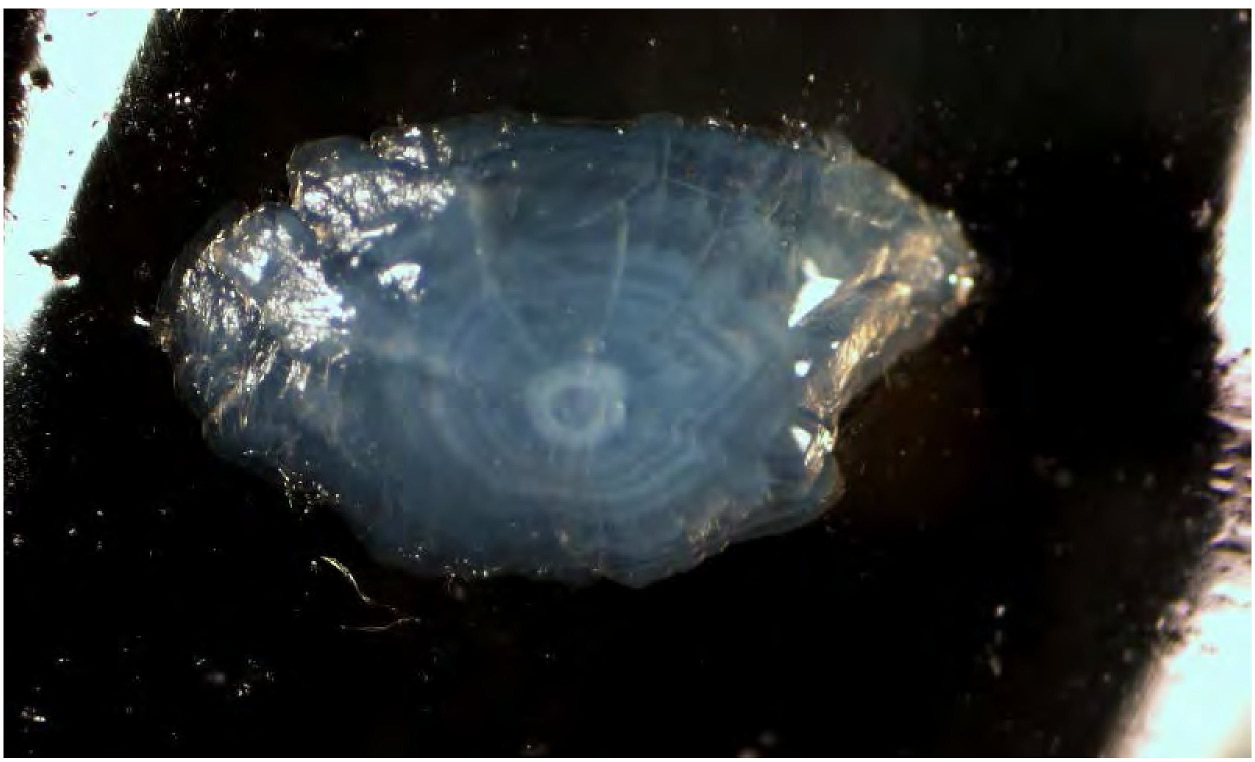


Figure 98. Whole otolith sample #W98. Sample was from an American eel that was 422 mm TL, 132 g, and captured 7/12/2012 from an estuarine habitat in Delaware. The sample provided by DE DFW was aged as 6 years old. Ages from the sample exchange ranged from 1-8 years, mode was 6 years. This was a paired sample with section #16.

**Figure 99. Whole otolith sample #W99. Sample was from a female American eel that was 271 mm TL, 36 g, and captured 10/12/2012 from an estuarine habitat in South Carolina. The sample provided by SCDNR was aged as 5 years old. Ages from the sample exchange ranged from 2-8 years, mode was 5 years. This was a paired sample with section #24.**

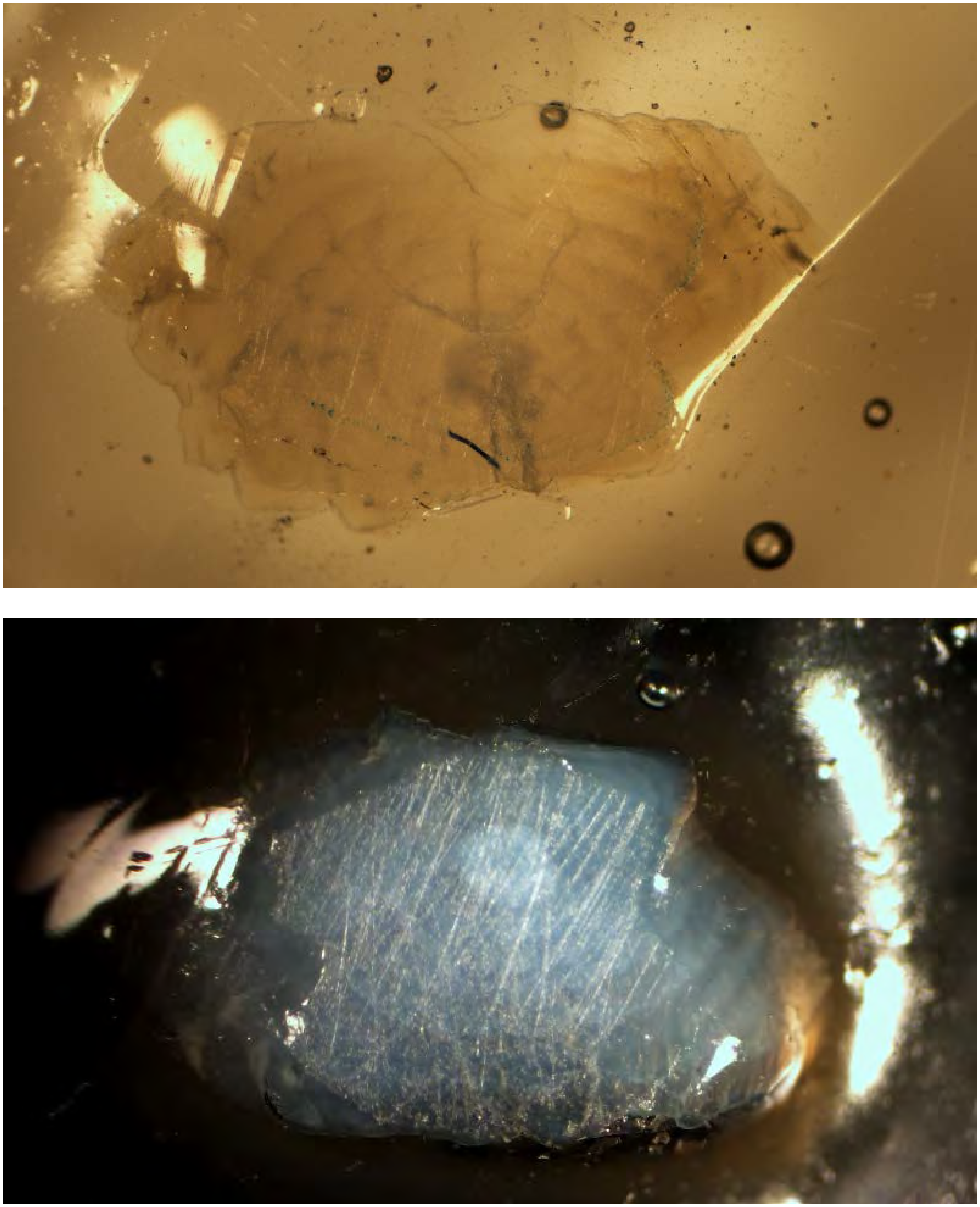


**Figure 100. Whole otolith sample #W100. Sample was from a female American eel that was 552 mm TL, 340 g, and captured 4/18/2012 from an estuarine habitat in Maryland. The sample provided by MD DNR was aged as 7 years old. Ages from the sample exchange ranged from 4-8 years, mode was 6 years.**

**Figure 101. Whole otolith sample #101. Sample was from a female American eel that was 483 mm TL, 216 g, and captured 9/1997 from Maine. Ages from the sample exchange ranged from 2-13 years, mode was 8 years. This was a paired sample with section #94.**

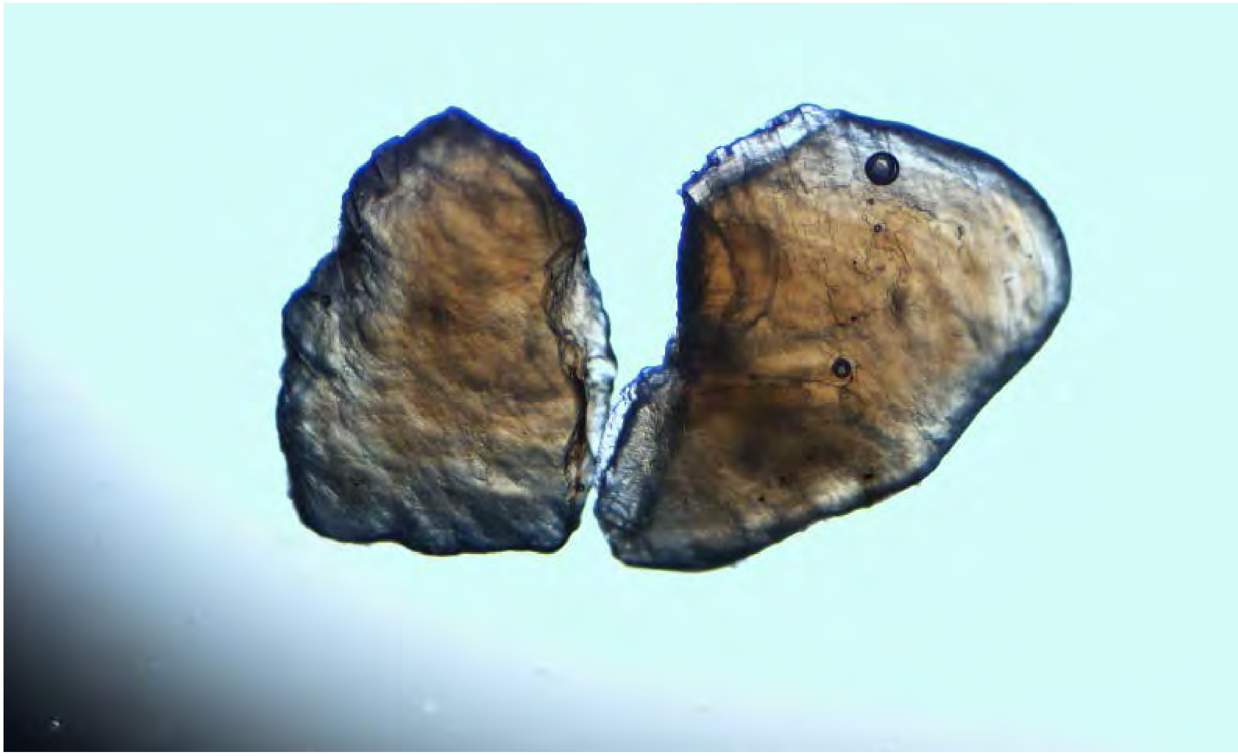


**Figure 102. Whole otolith sample #W102. Sample was from an American eel that was 404 mm TL, 110 g, and captured 4/28/2008 from an estuarine habitat in New Jersey. The sample provided by NJDFW was aged as 10 years old. Ages from the sample exchange ranged from 3-7 years, mode was 4 years. This was a paired sample with section #118.**

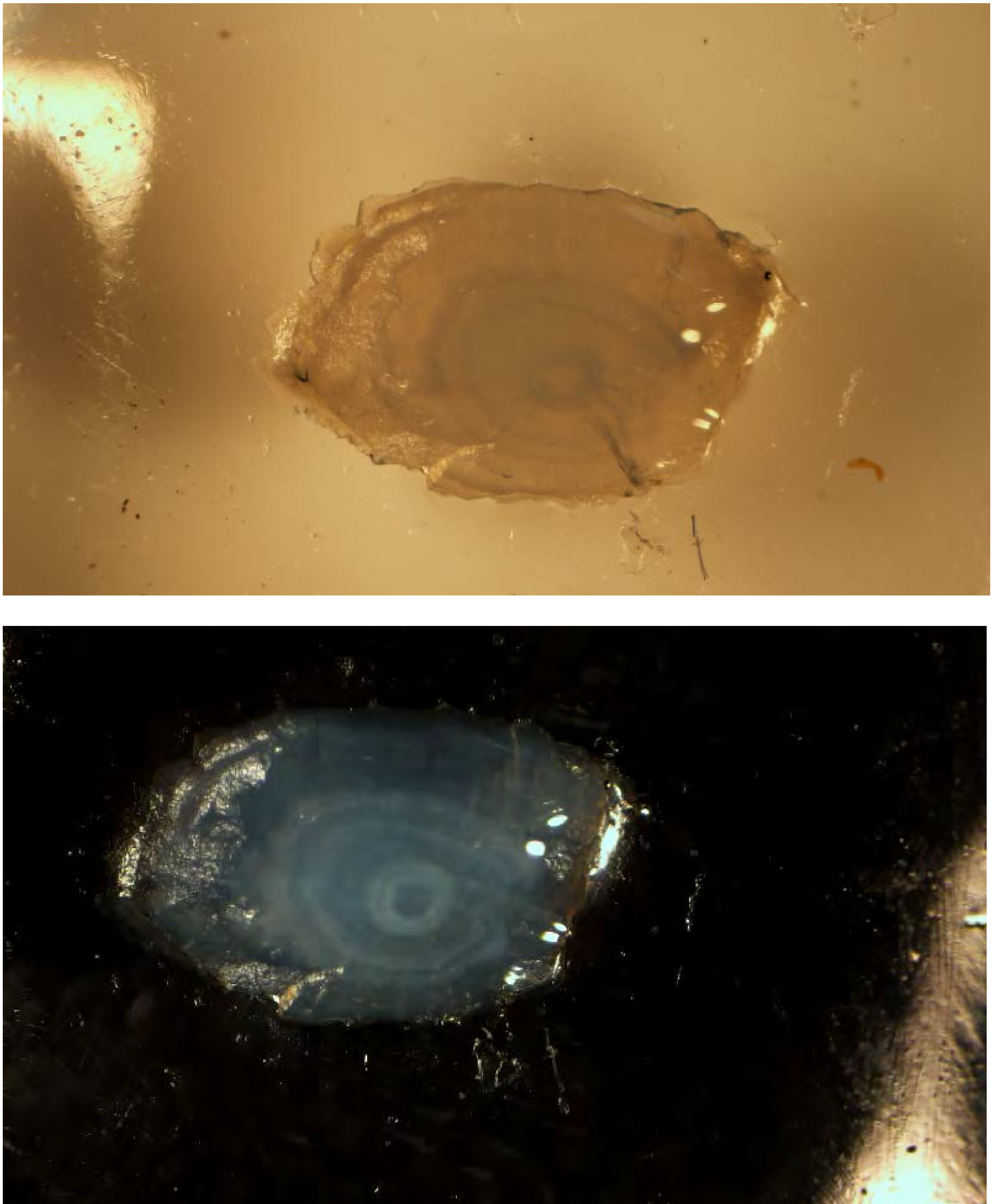


**Figure 103. Whole otolith sample #W103. Sample was from an American eel that was 435 mm TL, 172 g, and captured 7/26/2012 from an ocean habitat in Delaware. Ages from the sample exchange ranged from 2-6 years, mode was 3 years. This was a paired sample with section #8.**

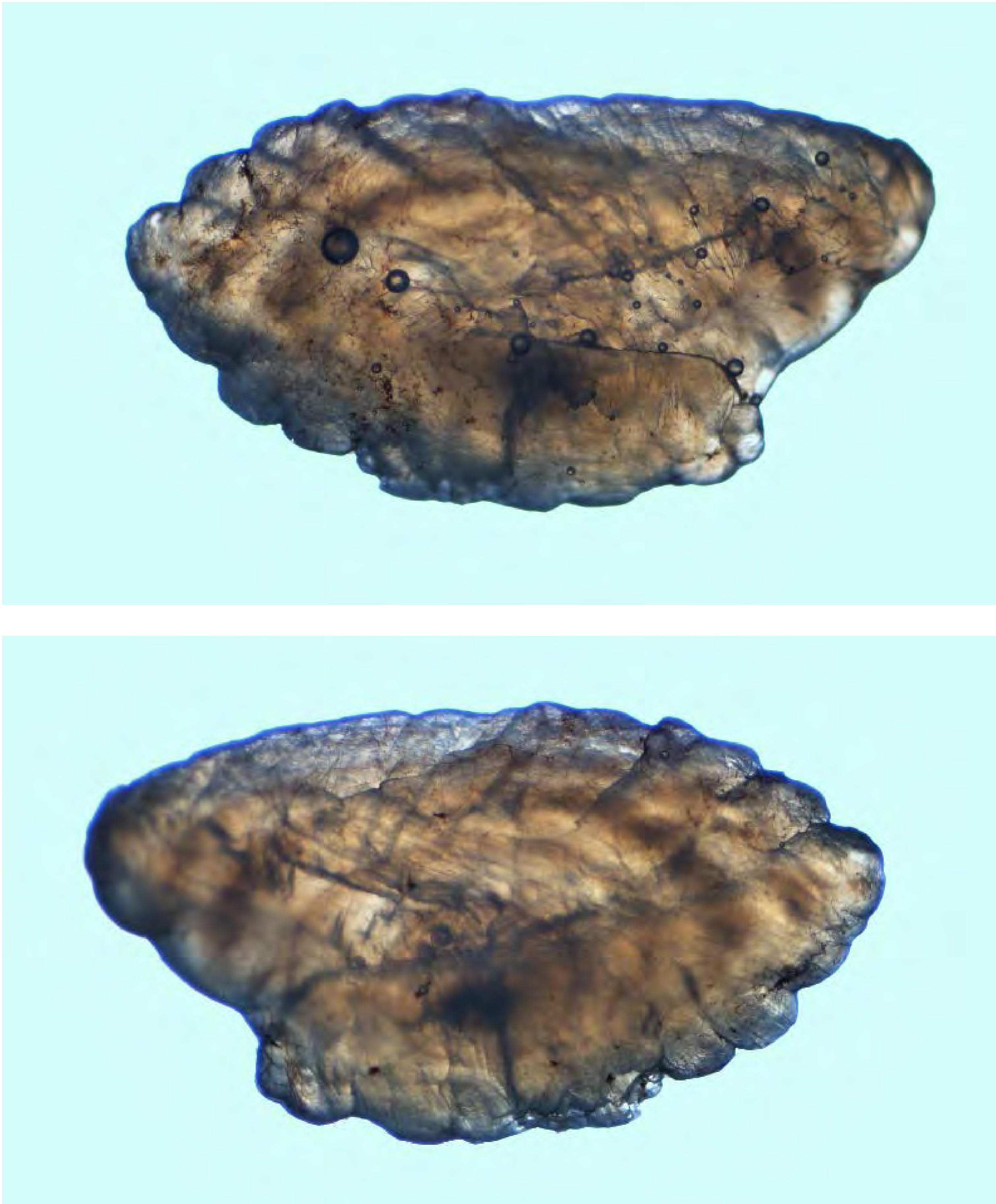


**Figure 104. Whole otolith sample #W104. Sample was from a female American eel that was 751 mm TL, 1025 g, and captured 9/13/2013 from an estuarine habitat in South Carolina. The sample provided by SCDNR was aged as 5 years old. Ages from the sample exchange ranged from 3-6 years, mode was 3 years. This was a paired sample with section #76.**

**Figure 105. Whole otolith sample #W105. Sample was from an American eel that was 564 mm TL, 440 g, and captured 9/29/2008 from an estuarine habitat in New Jersey. The sample provided by NJDFW was aged as 12 years old. Ages from the sample exchange ranged from 4-11 years, mode was 8 years. This was a paired sample with section #17.**

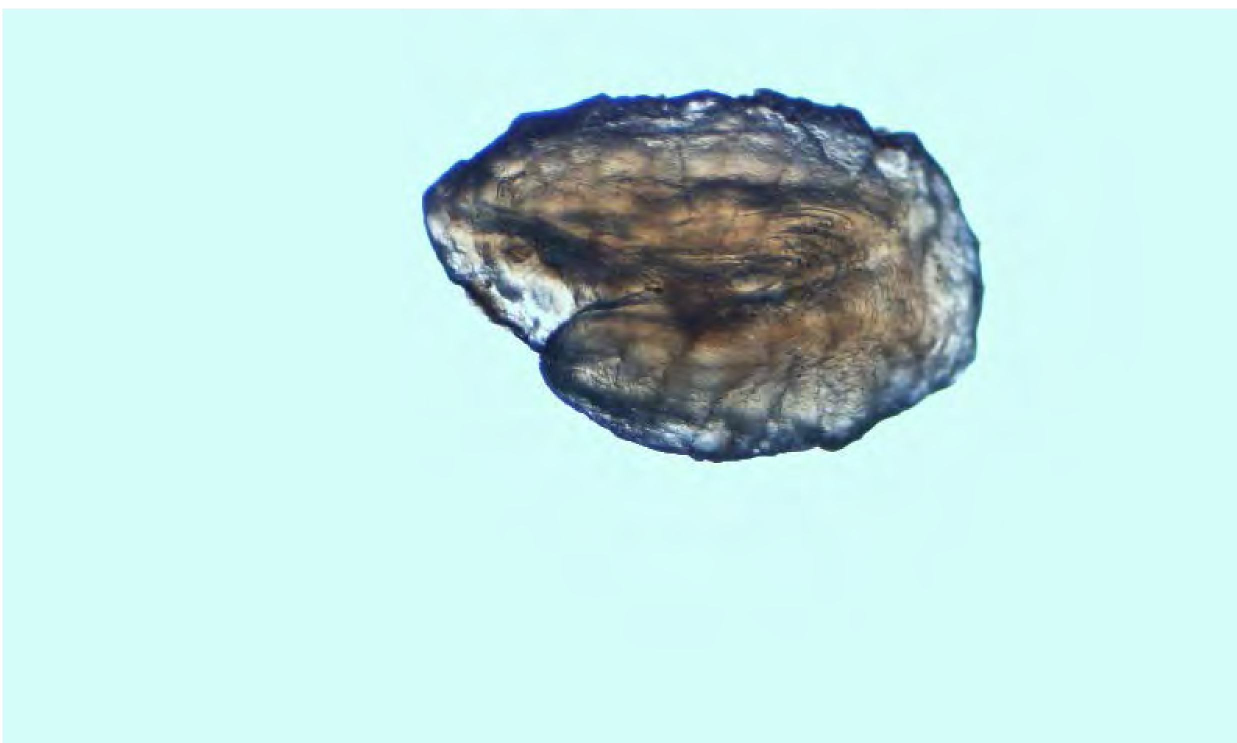


**Figure 106. Whole otolith sample #W106. Sample was from a female American eel that was 438 mm TL, 116 g, and captured 8/1997 from Maine. Ages from the sample exchange ranged from 3-8 years, mode was 5 years. This was a paired sample with section #137.**

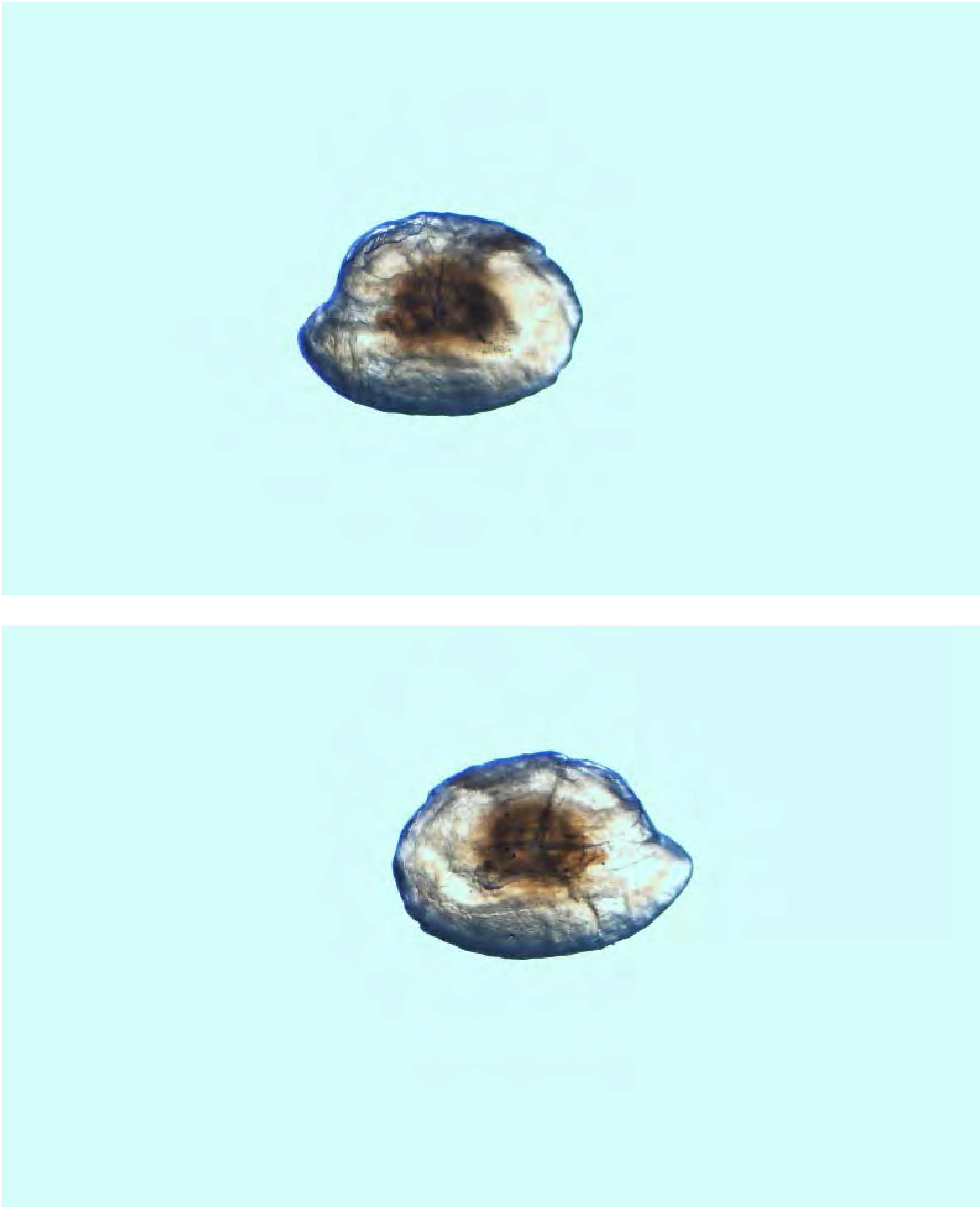
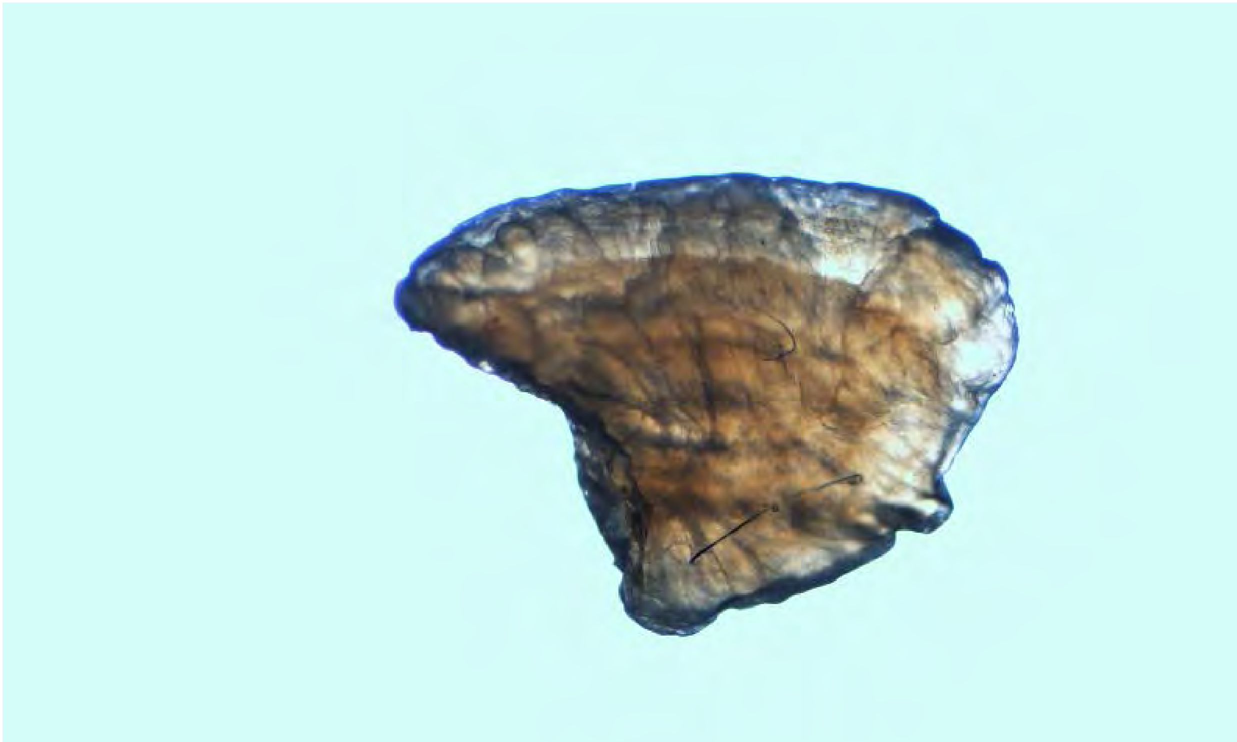


**Figure 107. Whole otolith sample #W107. Sample was from an American eel that was 207 mm TL, 17 g, and captured 10/1/2014 from a freshwater habitat in Florida. The sample provided by FL FWC was aged as 1 year old. Ages from the sample exchange ranged from 0-3 years, mode was 1 years. This was a paired sample with section #18.**



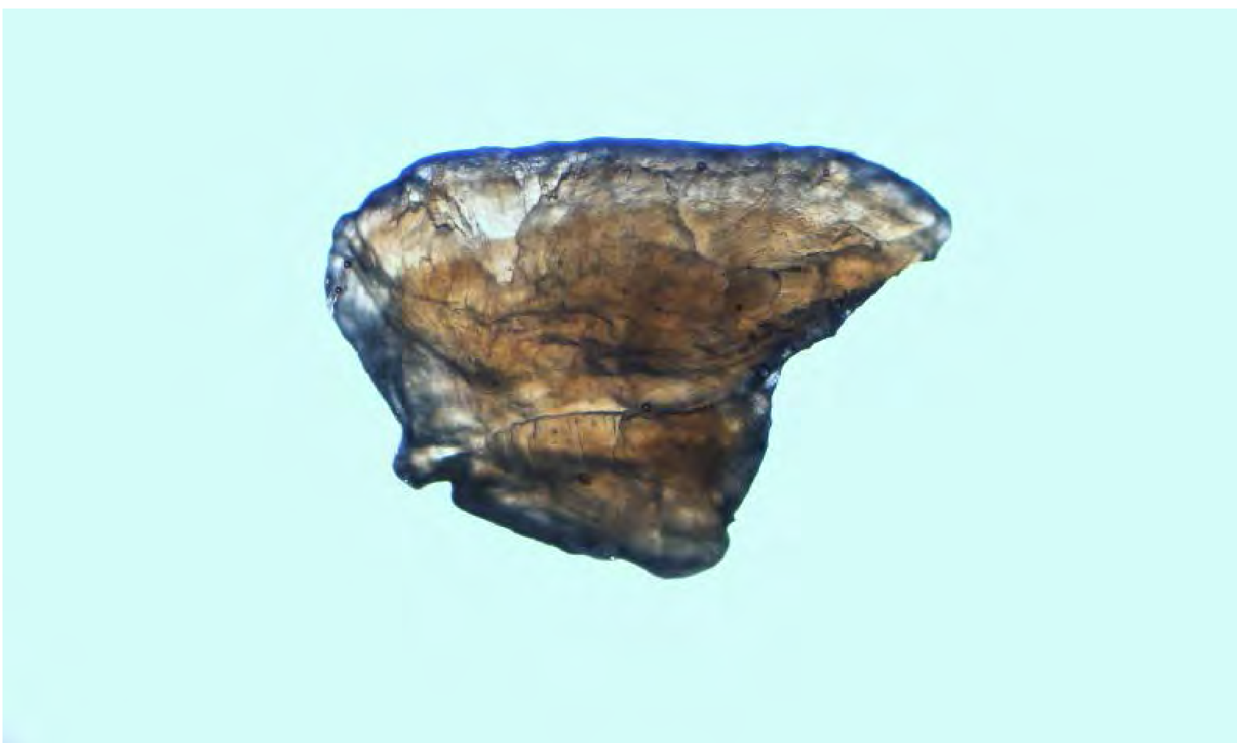


Figure 108. Whole otolith sample #W108. Sample was from an American eel that was 469 mm TL, 238 g, and captured 10/21/2014 from a freshwater habitat in Florida. The sample provided by FL FWC was aged as 4 years old. Ages from the sample exchange ranged from 3-6 years, mode was 4 years. This was a paired sample with section #51.

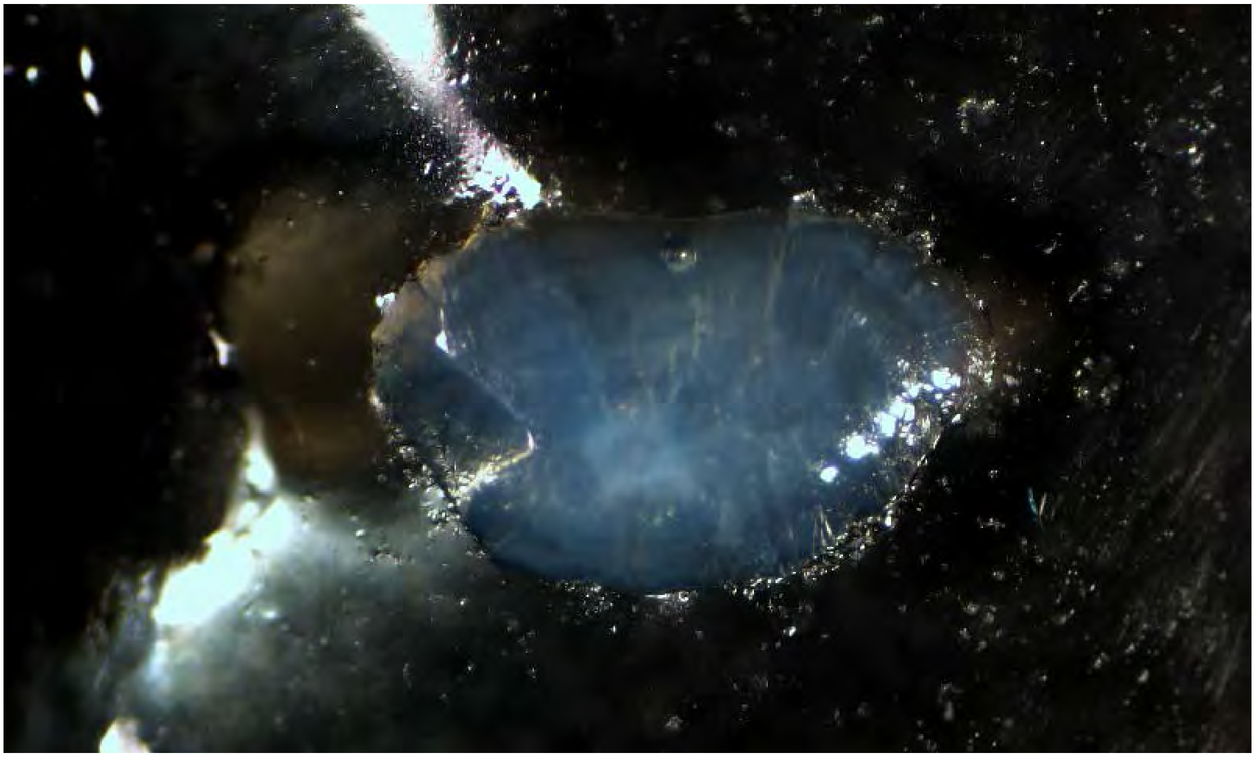
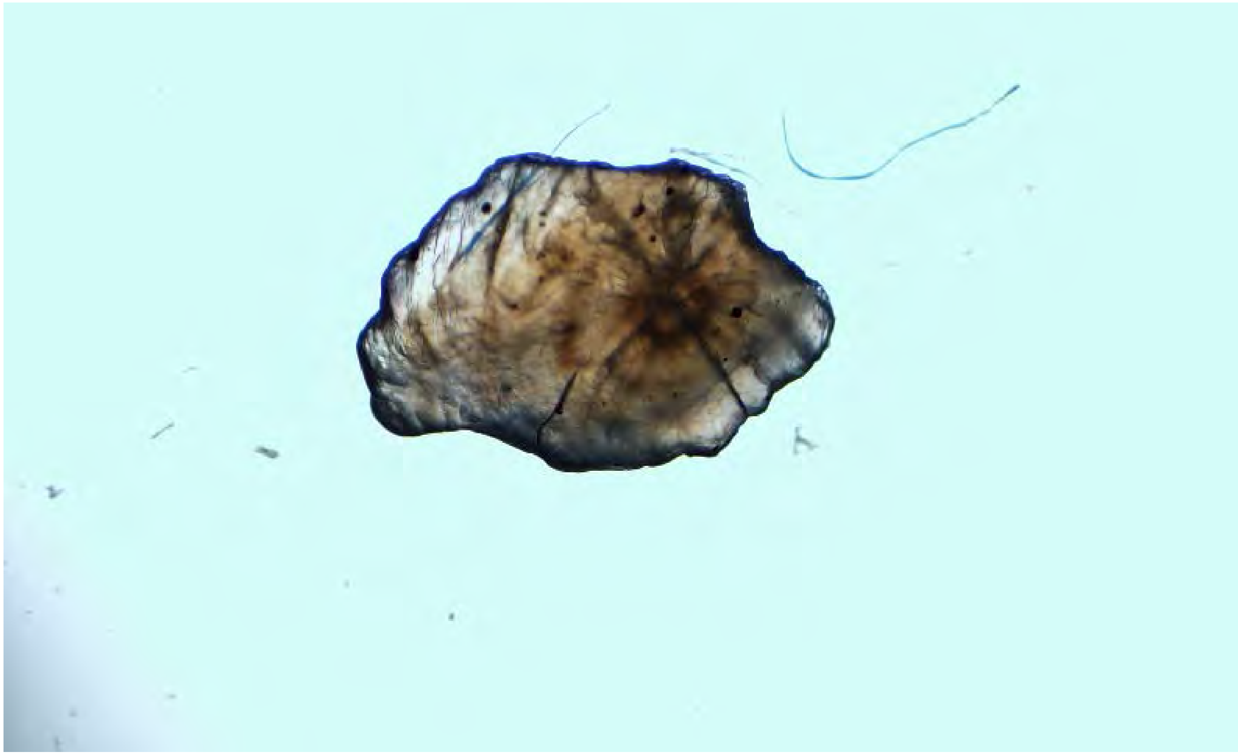


**Figure 109. Whole otolith sample #W109. Sample was from an American eel that was 356 mm TL, 80 g, and captured 6/28/2012 from an estuarine habitat in Delaware. Ages from the sample exchange ranged from 3-5 years, mode was 4 years. This was a paired sample with section #59.**



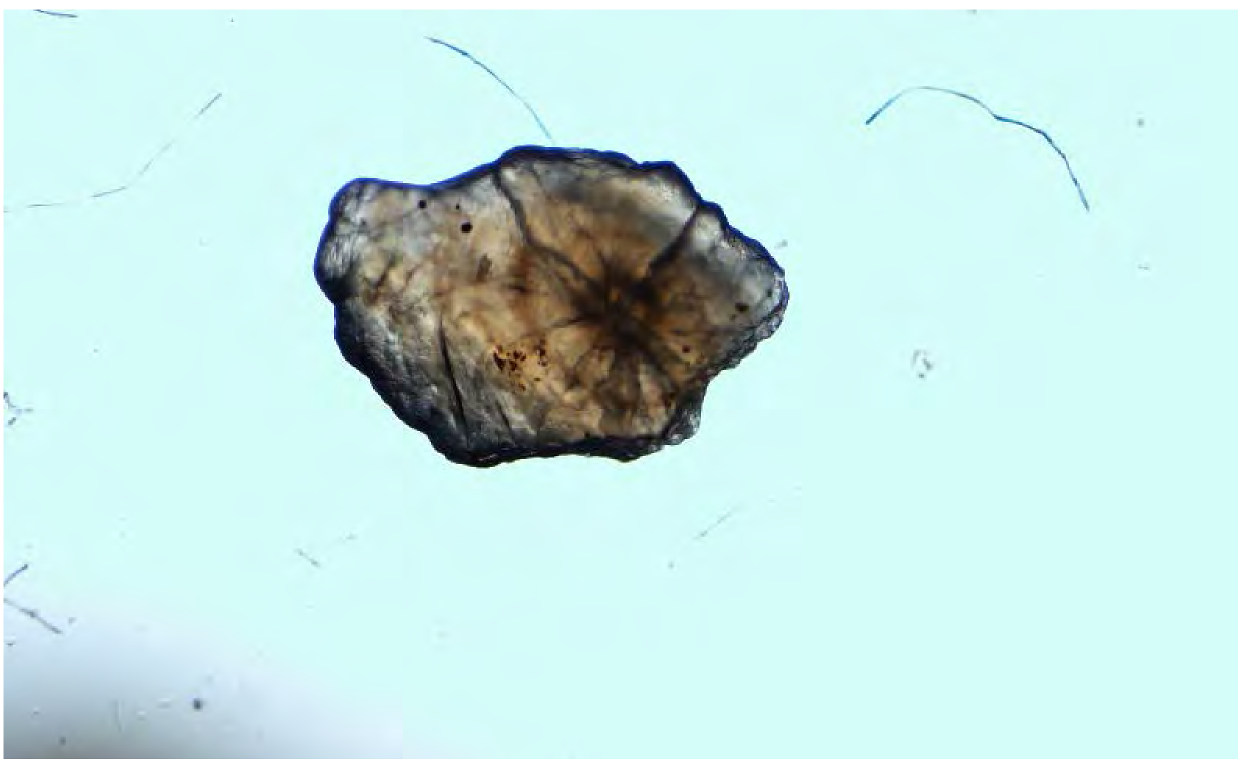


**Figure 110. Whole otolith sample #W110. Sample was from an American eel that was 397 mm TL, 100 g, and captured 5/21/2014 from an estuarine habitat in New Jersey. The sample provided by NJDFW was aged as 4 years old. Ages from the sample exchange ranged from 1-5 years, mode was 3 years. This was a paired sample with section #104.**

## Appendix C: Raw Data

**Table 1. Raw age data for sectioned otolith samples.**

| Section # | ME | CT | NY1 | NY2 | NJ1 | NJ2 | NJ3 | DE | MD1 | MD2 | VIMS1 | VIMS2 | SC1 | SC2 | FL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **1** | 16 | 12 | 8 | 8 | 7 | 9 | 9 | 10 | 13 | 8 | 9 | 13 | 8 | 9 | 11 |
| **2** | 8 | 8 | 7 | 7 | 7 | 6 | 7 | 7 | 8 | 7 | 7 | 7 | 6 | 5 | 8 |
| **3** | 6 | 2 | 4 | 3 | 4 | 4 | 5 | 4 | 5 | 4 | 3 | 3 | 4 | 4 | 3 |
| **4** | 7 | 5 | 5 | 7 | 7 | 7 | 6 | 6 | 6 | 6 | 5 | 6 | 5 | 5 | 6 |
| **5** | 21 | 9 | 1 | 24 | 0 | 11 | 11 | 24 | 12 | 11 | 8 | 5 | 7 | 11 | 23 |
| **6** | 9 |  | 9 | 10 |  | 8 | 9 | 10 | 7 | 12 | 6 | 6 | 6 | 7 | 9 |
| **7** | 4 |  | 2 | 2 | 1 | 0 | 0 |  | 4 | 1 | 1 | 3 | 0 | 1 | 2 |
| **8** | 5 | 5 | 4 | 6 | 4 | 2 | 3 | 7 | 7 | 3 | 3 | 4 | 5 | 5 | 5 |
| **9** | 8 | 7 | 9 | 9 | 8 | 9 | 8 | 8 | 9 | 10 | 8 | 7 | 3 | 7 | 8 |
| **10** | 5 | 7 | 4 | 4 | 5 | 5 | 5 | 5 | 6 | 7 | 4 | 5 | 3 | 4 | 5 |
| **11** | 9 | 8 | 9 | 9 | 9 | 9 | 9 | 12 | 10 | 8 | 11 | 13 | 5 | 11 | 9 |
| **12** | 7 | 10 | 9 | 10 | 7 | 10 | 7 | 10 | 11 | 10 | 11 | 12 | 8 | 9 | 10 |
| **13** | 7 | 8 | 7 | 6 | 6 | 7 | 7 | 7 | 7 | 6 | 6 | 7 | 6 | 6 | 6 |
| **14** | 7 | 8 | 7 | 6 | 6 | 5 | 6 | 6 | 6 | 8 | 6 | 6 | 5 | 6 | 7 |
| **15** | 3 | 2 | 2 | 2 | 2 | 1 | 2 | 3 | 2 | 2 | 1 | 2 | 1 | 1 | 1 |
| **16** | 5 | 7 | 4 | 7 | 4 | 3 | 4 | 6 | 5 | 6 | 6 | 6 | 3 | 4 | 3 |
| **17** | 13 | 11 | 9 | 7 | 10 | 8 | 10 | 9 | 11 | 9 | 9 | 11 | 7 | 10 | 10 |
| **18** | 4 | 4 | 1 | 3 | 1 | 2 | 1 | 3 | 1 | 1 | 2 | 3 | 1 | 2 | 1 |
| **19** | 6 | 6 | 6 | 6 | 7 | 6 | 7 | 6 | 6 | 5 | 6 | 6 | 4 | 5 | 6 |
| **20** | 8 | 8 | 8 | 7 | 8 |  | 7 | 7 | 8 | 8 | 8 | 9 | 8 | 8 | 8 |
| **21** | 10 | 9 | 9 | 7 | 8 | 8 | 9 | 9 | 8 | 8 | 8 | 9 | 7 | 6 | 7 |
| **22** | 8 | 8 | 9 | 4 | 6 | 5 | 5 | 10 | 8 | 9 | 7 | 6 | 3 | 5 | 8 |
| **23** | 14 | 4 | 18 | 16 | 15 | 16 | 14 | 18 | 21 | 21 | 18 | 17 | 6 | 12 | 12 |
| **24** | 7 | 6 | 5 | 5 | 5 |  | 6 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 |
| **25** | 7 | 6 | 7 | 7 | 6 |  | 6 | 7 | 7 | 7 | 7 |  | 7 | 7 | 6 |
| **26** | 13 | 3 | 12 | 12 | 12 | 15 | 12 | 11 | 12 | 12 | 12 | 12 | 5 | 11 | 11 |
| **27** | 13 | 13 | 12 | 13 | 10 |  | 12 | 13 | 11 | 11 | 15 | 13 | 9 | 12 | 13 |
| **28** | 11 | 9 | 13 | 6 | 7 | 7 | 8 | 13 | 10 | 17 | 8 |  | 5 | 9 | 12 |
| **29** | 6 | 2 | 1 | 3 | 3 | 1 | 2 |  | 3 | 3 | 2 | 2 | 2 | 2 | 2 |
| **30** | 9 | 8 | 7 | 7 | 6 | 6 | 10 | 6 | 8 | 7 | 6 | 6 | 6 | 7 | 7 |
| **31** | 7 | 7 | 6 | 6 | 6 | 5 | 6 | 6 | 6 | 6 | 6 | 6 | 5 | 5 | 6 |
| **32** | 5 | 6 | 4 | 6 | 6 | 5 | 5 | 4 | 6 | 5 | 6 | 6 | 5 | 5 | 5 |
| **33** | 9 | 8 | 7 | 7 | 8 | 11 | 10 | 13 | 10 | 10 | 9 | 9 | 6 | 6 | 10 |
| **34** | 6 | 4 | 5 | 4 | 5 | 3 | 7 | 7 | 6 | 6 | 4 | 3 | 3 | 4 | 5 |
| **35** | 4 | 4 | 4 | 4 | 3 | 3 | 4 | 6 | 4 | 4 | 3 | 3 | 2 | 3 | 4 |
| **36** | 5 | 5 | 5 | 4 | 4 | 4 | 4 | 5 | 3 | 4 | 4 |  | 4 | 4 | 4 |
| **37** | 4 | 3 | 3 | 8 | 3 | 3 | 3 | 6 | 3 | 8 | 3 | 3 | 3 | 3 | 4 |

| Section # | ME | CT | NY1 | NY2 | NJ1 | NJ2 | NJ3 | DE | MD1 | MD2 | VIMS1 | VIMS2 | SC1 | SC2 | FL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **38** | 6 | 4 | 4 | 4 | 3 | 5 | 5 | 5 | 4 | 4 | 3 | 4 | 3 | 4 | 4 |
| **39** | 8 | 6 | 2 | 4 | 3 | 3 | 3 | 5 | 3 | 4 | 3 | | 3 | 3 | 4 |
| **40** | 9 | 8 | 8 | 8 | 9 | 7 | 8 | 9 | 8 | 9 | 8 | 11 | 5 | 8 | 7 |
| **41** | 10 | 11 | 11 | 13 | 10 | 9 | 10 | 11 | 11 | 10 | 10 | 9 | 7 | 10 | 9 |
| **42** | 8 | 7 | 7 | 7 | 7 | 5 | 7 | 6 | 8 | 7 | 7 | 6 | 6 | 6 | 6 |
| **43** | 3 | 3 | 2 | 2 | 2 | | 2 | 2 | 2 | 2 | 2 | 3 | 2 | 2 | 2 |
| **44** | 22 | 18 | 25 | 19 | 18 | 21 | 22 | 9 | 8 | 28 | 8 | 10 | 4 | 15 | 21 |
| **45** | 4 | 4 | 3 | 3 | 3 | 2 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 4 |
| **46** | 5 | 4 | 5 | 4 | 4 | | 4 | 4 | 5 | 4 | 5 | 5 | 4 | 5 | 5 |
| **47** | 7 | 7 | 15 | 10 | 3 | 10 | 9 | 10 | 12 | 17 | 6 | 9 | 4 | 11 | 10 |
| **48** | 3 | 3 | 2 | 3 | 4 | 2 | 2 | 3 | 3 | 3 | 2 | 3 | 2 | 2 | 3 |
| **49** | 3 | 4 | 1 | 3 | 2 | | | 2 | 2 | 2 | 1 | 3 | 2 | 2 | 3 |
| **50** | 8 | 9 | 10 | 8 | 7 | 5 | 9 | 7 | 10 | 10 | 5 | 11 | 5 | 7 | 7 |
| **51** | 4 | 4 | 4 | 4 | 4 | 3 | 4 | 3 | 4 | 3 | 4 | 5 | 4 | 4 | 4 |
| **52** | 5 | 5 | 4 | 5 | 5 | 4 | 6 | 5 | 5 | 4 | 5 | 6 | 4 | 5 | 5 |
| **53** | 6 | 3 | 4 | 3 | 3 | 3 | 4 | 3 | 4 | 4 | 3 | 6 | 4 | 5 | 4 |
| **54** | 21 | 16 | 17 | 16 | 16 | 15 | 16 | 16 | 15 | 19 | 14 | 17 | 10 | 14 | 17 |
| **55** | 5 | 4 | 4 | 4 | 4 | 3 | 4 | 4 | 6 | 5 | 4 | 5 | 4 | 4 | 4 |
| **56** | 11 | 14 | 11 | 10 | 10 | 9 | 10 | 8 | 11 | 12 | 10 | 12 | 10 | 10 | 10 |
| **57** | 21 | 4 | 20 | 15 | 9 | 19 | 18 | 13 | 14 | 14 | 8 | 16 | 12 | 16 | 16 |
| **58** | 4 | 4 | 3 | 4 | 3 | 2 | 5 | 3 | 5 | 5 | 3 | 4 | 3 | 3 | 3 |
| **59** | 4 | 4 | 4 | 7 | 4 | 4 | 6 | 4 | 5 | 5 | 4 | 6 | 4 | 4 | 5 |
| **60** | 8 | 6 | 8 | 8 | 5 | 8 | 7 | 7 | 9 | 8 | 8 | 9 | 6 | 5 | 7 |
| **61** | 3 | 4 | 3 | 3 | 3 | 3 | 3 | 3 | 4 | 4 | 3 | 4 | 3 | 3 | 4 |
| **62** | 5 | 6 | 5 | 6 | 4 | 7 | 3 | 3 | 5 | 4 | 4 | 11 | 4 | 4 | 3 |
| **63** | 6 | 7 | 6 | 8 | 7 | 7 | 7 | 5 | 8 | 6 | 6 | 8 | 6 | 6 | 6 |
| **64** | 20 | 18 | 14 | 15 | 14 | 18 | 19 | 20 | 22 | 18 | 12 | 20 | 13 | 15 | 19 |
| **65** | 7 | 17 | 14 | 15 | 11 | 16 | 17 | 13 | 18 | 16 | 11 | 17 | 6 | 13 | 14 |
| **66** | 6 | 8 | 6 | 8 | 6 | 7 | 8 | 8 | 8 | 6 | 6 | 8 | 6 | 6 | 7 |
| **67** | 6 | 7 | 6 | 7 | 5 | 6 | 7 | 6 | 7 | 6 | 5 | 8 | 5 | 5 | 5 |
| **68** | 3 | 3 | 3 | 6 | 4 | 3 | 7 | 4 | 5 | 5 | 4 | 5 | 3 | 4 | 3 |
| **69** | 18 | 11 | 15 | 15 | 4 | 20 | 19 | 13 | 11 | 20 | 11 | 24 | 5 | 15 | 16 |
| **70** | 6 | 7 | 7 | 6 | 6 | 6 | 6 | 7 | 16 | 6 | 6 | 7 | 6 | 6 | 7 |
| **71** | 13 | 12 | 13 | 12 | 12 | 13 | 11 | 10 | 16 | 18 | 10 | 14 | 10 | 11 | 12 |
| **72** | 3 | 4 | 1 | 3 | 2 | | 0 | 4 | 4 | 4 | 1 | 3 | 3 | 3 | 3 |
| **73** | 7 | 15 | 6 | 7 | 6 | 7 | 8 | 6 | 8 | 6 | 8 | 12 | 6 | 7 | 7 |
| **74** | 8 | 10 | 11 | 9 | 7 | 10 | 8 | 8 | 10 | 10 | 5 | 11 | 5 | 7 | 9 |
| **75** | 5 | 3 | 5 | 5 | 3 | 4 | 5 | 3 | 4 | 4 | 4 | 4 | 2 | 2 | 3 |
| **76** | 6 | 7 | 5 | 5 | 5 | 4 | 6 | 4 | 8 | 6 | 6 | 9 | 5 | 5 | 6 |
| **77** | 4 | 4 | 2 | 6 | 4 | 4 | 4 | 5 | 5 | 5 | 4 | 6 | 4 | 4 | 5 |

| Section # | ME | CT | NY1 | NY2 | NJ1 | NJ2 | NJ3 | DE | MD1 | MD2 | VIMS1 | VIMS2 | SC1 | SC2 | FL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **78** | 5 | 5 | 6 | 6 | 6 | 5 | 6 | 7 | 8 | 8 | 7 | 7 | 5 | 5 | 6 |
| **79** | 7 | 7 | 7 | 8 | 7 | 7 | 7 | 7 | 9 | 6 | 6 | 7 | 4 | 6 | 6 |
| **80** | 7 | 8 | 9 | 8 | 8 | 7 | 8 | 6 | 8 | 8 | 8 | 9 | 7 | 8 | 8 |
| **81** | 15 | 8 | 10 | 19 | 9 | 8 | 23 | 18 | 11 | 12 | 21 | 15 | 9 | 11 | 14 |
| **82** | 5 | 6 | 5 | 6 | 6 | 6 | 7 | 6 | 9 | 5 | 6 | 8 | 6 | 6 | 6 |
| **83** | 8 | 9 | 8 | 10 | 8 | 11 | 10 | 10 | 11 | 8 | 8 | 12 | 7 | 8 | 8 |
| **84** | 21 | 10 | 8 | 20 | 19 | 21 | 8 | 17 | 23 | 22 | 9 | 25 | 7 | 15 | 17 |
| **85** | 4 | 6 | 1 | 6 | 3 | | | | 4 | 6 | 3 | | 5 | 4 | 6 |
| **86** | | 4 | 4 | 3 | 3 | 3 | 4 | 4 | 4 | 4 | 3 | 5 | 3 | 4 | 4 |
| **87** | 6 | 4 | 6 | 5 | 6 | 3 | 4 | 6 | 6 | 6 | 6 | 6 | 6 | 6 | 7 |
| **88** | 5 | 4 | 4 | 6 | 4 | 4 | | 5 | 5 | 4 | 6 | 4 | 5 | 4 | 4 |
| **89** | 3 | 7 | 2 | 6 | 2 | 2 | 6 | 3 | 2 | 4 | 3 | 3 | 2 | 3 | 3 |
| **90** | 7 | 7 | 7 | 7 | 7 | 6 | 7 | 7 | 7 | 7 | 8 | 8 | 7 | 7 | 7 |
| **91** | 5 | 11 | 2 | 7 | 7 | 6 | 9 | 8 | 9 | 8 | 5 | 10 | 4 | 2 | 7 |
| **92** | 2 | 3 | 1 | 6 | 1 | 0 | 3 | 3 | 2 | 3 | 1 | 2 | 1 | 1 | 1 |
| **93** | 5 | 5 | 6 | 6 | 6 | 5 | 6 | 7 | 6 | 6 | 6 | 7 | 6 | 5 | 6 |
| **94** | 17 | 18 | 13 | 16 | 11 | 15 | 13 | 14 | 18 | 19 | 15 | 14 | 4 | 16 | 15 |
| **95** | 8 | 11 | 9 | 13 | 8 | 0 | 11 | 9 | 8 | 8 | 9 | 9 | 8 | 9 | 8 |
| **96** | 15 | 18 | 11 | 15 | 11 | 13 | 16 | 12 | 15 | 18 | 17 | 18 | 9 | 14 | 15 |
| **97** | 2 | 6 | 3 | 4 | 2 | 1 | 2 | 3 | 4 | 4 | 3 | 4 | 2 | 2 | 3 |
| **98** | 5 | 7 | 6 | 7 | 7 | 7 | 8 | 7 | 9 | 7 | 7 | 10 | 5 | 8 | 7 |
| **99** | 8 | 10 | 8 | 9 | 7 | 6 | 10 | 10 | 10 | 10 | 11 | 10 | 6 | 7 | 8 |
| **100** | | 11 | 9 | 12 | 8 | 8 | 10 | 7 | 8 | 8 | 9 | 11 | 7 | 7 | 8 |
| **101** | 9 | 11 | 12 | 11 | 10 | 12 | 10 | 12 | 13 | 12 | 3 | 14 | 4 | 7 | 11 |
| **102** | | | 25 | 19 | | | | | 21 | 22 | | | 2 | 11 | 21 |
| **103** | 13 | 8 | 6 | 12 | 9 | 15 | 11 | 13 | 6 | 12 | 8 | 14 | 6 | 6 | 12 |
| **104** | 4 | 5 | 4 | 7 | 3 | 5 | 4 | 7 | 5 | 4 | 5 | 5 | 3 | 3 | 4 |
| **105** | 3 | 3 | 3 | 3 | 1 | 2 | 3 | 3 | 4 | 2 | 2 | 3 | 2 | 2 | 3 |
| **106** | 5 | 6 | 4 | 5 | 4 | 4 | 5 | 9 | 6 | 4 | 4 | 5 | 3 | 4 | 5 |
| **107** | 6 | 7 | 7 | 7 | 2 | 6 | 7 | 7 | 8 | 7 | 7 | 9 | 6 | 6 | 7 |
| **108** | 7 | 14 | 8 | 8 | 4 | 8 | 9 | 9 | 9 | 8 | 6 | 9 | 4 | 4 | 8 |
| **109** | 20 | 16 | 20 | 18 | 17 | 18 | 16 | 20 | 16 | 18 | 18 | 21 | 10 | 15 | 20 |
| **110** | 19 | 9 | 16 | 17 | 16 | 15 | 15 | 10 | 15 | 17 | 16 | 15 | 11 | 14 | 16 |
| **111** | | | 2 | 2 | 3 | 3 | 4 | 4 | 4 | 4 | 2 | 5 | 2 | 3 | 3 |
| **112** | 21 | 13 | 23 | 20 | 18 | 22 | 19 | 13 | 21 | 17 | 17 | 21 | 6 | 12 | 21 |
| **113** | 16 | 10 | 19 | 15 | 11 | 14 | 15 | 12 | 19 | 15 | 11 | 17 | 10 | 15 | 14 |
| **114** | 6 | 5 | 6 | 6 | 5 | 5 | 6 | 6 | 6 | 6 | 6 | 7 | 6 | 5 | 5 |
| **115** | 8 | 8 | 8 | 9 | 7 | 8 | 8 | 5 | 8 | 8 | 8 | 10 | 7 | 8 | 8 |
| **116** | 3 | 5 | 3 | 4 | 3 | 3 | 4 | 4 | 4 | 4 | 4 | 5 | 4 | 4 | 3 |
| **117** | 8 | 10 | 9 | 6 | 8 | 6 | 8 | 5 | 11 | 4 | 8 | 10 | 4 | 5 | 8 |

| Section # | ME | CT | NY1 | NY2 | NJ1 | NJ2 | NJ3 | DE | MD1 | MD2 | VIMS1 | VIMS2 | SC1 | SC2 | FL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **118** | 12 | 9 | 11 | 9 | 8 | 12 | 8 | 10 | 12 | 7 | 7 | 11 | 3 | 4 | 8 |
| **119** | 19 | 14 | 9 | 16 | 11 | 20 | 12 | 14 | 13 | 11 | 12 | 12 | 5 | 10 | 19 |
| **120** | 8 | 8 | 8 | 7 | 8 | 7 | 8 | 6 | 9 | 9 | 9 | 9 | 5 | 5 | 8 |
| **121** | 7 | 6 | 6 | 5 | 5 | 6 | 6 | 5 | 6 | 6 | 6 | 7 | 5 | 5 | 5 |
| **122** | 9 | 8 | 8 | 6 | 7 | 6 | 7 | 10 | 6 | 8 | 8 | 8 | 4 | 6 | 7 |
| **123** | 9 | 11 | 7 | 8 | 7 | 10 | 7 | 5 | 9 | 4 | 5 | 9 | 2 | 4 | 7 |
| **124** | 7 | 9 | 4 | 5 | 5 | 7 | 6 | 4 | 6 | 6 | 4 | 8 | 5 | 5 | 6 |
| **125** | 22 | 20 | 21 | 17 | 19 | 21 | 21 | 15 | 20 | 17 | 19 | 15 | 9 | 14 | 19 |
| **126** |  | 2 | 2 | 2 | 2 |  | 0 | 2 | 2 | 2 | 1 | 3 | 0 | 0 | 2 |
| **127** | 6 | 5 | 4 | 6 | 5 |  | 4 | 5 | 6 | 5 | 5 | 7 | 5 | 5 | 6 |
| **128** | 6 | 6 | 5 | 6 | 6 | 5 | 6 | 6 | 6 | 6 | 6 | 7 | 6 | 6 | 6 |
| **129** | 4 | 4 | 3 | 4 | 3 | 4 | 3 | 3 | 4 | 3 | 3 | 6 | 3 | 3 | 4 |
| **130** | 4 | 7 | 1 | 7 | 1 |  |  | 4 | 1 | 1 | 1 | 9 | 2 | 1 | 3 |
| **131** | 13 | 9 | 17 | 12 | 10 | 12 | 10 | 8 | 13 | 14 | 8 | 12 | 6 | 6 | 10 |
| **132** | 7 | 6 | 7 | 7 | 5 | 5 | 6 | 6 | 7 | 6 | 7 | 10 | 5 | 8 | 5 |
| **133** | 4 | 5 | 3 | 4 | 4 | 4 | 4 | 3 | 5 | 4 | 4 | 6 | 4 | 4 | 5 |
| **134** | 16 | 16 | 19 | 16 | 9 | 15 | 10 | 7 | 15 | 21 | 8 | 19 | 6 | 10 | 21 |
| **135** | 6 | 7 | 5 | 6 | 4 | 4 | 5 | 4 | 5 | 6 | 6 | 7 | 3 | 3 | 4 |
| **136** | 5 | 5 | 5 | 6 | 5 |  | 5 | 5 | 6 | 5 | 4 | 7 | 6 | 5 | 6 |
| **137** | 8 | 6 | 7 | 8 | 6 | 5 | 5 | 6 | 9 | 8 | 7 | 10 | 5 | 3 | 8 |
| **138** | 8 | 7 | 10 | 9 | 8 |  | 9 | 8 | 8 | 8 | 9 | 10 | 6 | 7 | 8 |
| **139** | 8 | 7 | 6 | 6 | 6 | 4 | 6 | 6 | 6 | 6 | 6 | 8 | 5 | 4 | 6 |
| **140** | 3 | 4 | 2 | 2 | 2 |  | 5 | 2 | 3 | 3 | 5 | 6 | 2 | 2 | 3 |

**Table 2. Raw age data for whole otolith samples where s# refers to the sectioned otolith sample ID number and w# refers to the whole otolith sample ID number for paired samples.**

| s# | w# | ME | CT | NY1 | NY2 | NJ1 | NJ2 | NJ3 | DE | MD1 | MD2 | VIMS1 | VIMS2 | SC1 | SC2 | FL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **31** | **W1** | | | 6 | 5 | | 6 | 6 | 7 | 6 | 7 | 4 | 7 | 4 | 4 | 5 |
| **138** | **W2** | 5 | | 8 | 8 | 2 | 7 | 7 | 6 | 9 | 5 | 6 | 8 | 6 | 2 | 8 |
| | **W3** | 5 | 6 | 6 | 5 | 5 | 5 | 5 | 5 | 6 | 6 | 6 | 7 | 5 | 5 | 6 |
| **87** | **W4** | | 3 | 4 | 4 | 4 | | 4 | 3 | 4 | 4 | 2 | 6 | 3 | 3 | 4 |
| **56** | **W5** | | | 4 | 4 | | | | | 5 | 4 | 2 | 6 | 3 | 1 | 4 |
| **105** | **W6** | | | 1 | 3 | | | | | 3 | 3 | 1 | | 0 | 1 | |
| **46** | **W7** | | | 5 | 5 | | 4 | | 4 | 6 | 6 | 3 | 5 | 5 | 3 | 3 |
| **62** | **W8** | | | 4 | 4 | 2 | 4 | 3 | 3 | 4 | 4 | 2 | 6 | 4 | 2 | 4 |
| | **W9** | 2 | 3 | 2 | 2 | 2 | 2 | 2 | 2 | 3 | 3 | 2 | 3 | 2 | 2 | 3 |
| **11** | **W10** | | | 7 | 7 | 1 | 7 | 4 | | 10 | 8 | 7 | 7 | 7 | 2 | 6 |
| **41** | **W11** | | | 7 | 7 | | 7 | | | 6 | 7 | 5 | 8 | 5 | 4 | 6 |
| **75** | **W12** | 2 | 3 | 3 | 3 | 3 | 1 | 3 | 2 | 3 | 3 | 2 | 4 | 2 | 2 | 3 |
| **43** | **W13** | | 3 | 2 | 2 | | 2 | | 2 | 2 | 2 | 1 | 3 | 1 | 1 | |
| **67** | **W14** | 2 | | 7 | 6 | 4 | 5 | 4 | 5 | 5 | 5 | 2 | 6 | 3 | 2 | 7 |
| **90** | **W15** | 5 | | 7 | 8 | 3 | 6 | 6 | 5 | 7 | 6 | 5 | 9 | 7 | 2 | 8 |
| **97** | **W16** | 2 | 3 | 3 | 3 | 2 | 2 | 2 | 3 | 2 | 2 | 2 | 4 | 2 | 1 | 2 |
| **37** | **W17** | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 2 | 4 | 2 | 3 | 3 |
| **117** | **W18** | | | 1 | 3 | | 3 | 3 | | 5 | 3 | | | 0 | | 4 |
| **135** | **W19** | 4 | 5 | 4 | 4 | 3 | 3 | 3 | 4 | 4 | 4 | 2 | 6 | 1 | 2 | 4 |
| | **W20** | 3 | 4 | 3 | 3 | 3 | 3 | 3 | 2 | 3 | 3 | 2 | 3 | 2 | 2 | 3 |
| **27** | **W21** | | 7 | 10 | 14 | 9 | 13 | 9 | 10 | 13 | 12 | 11 | 13 | 11 | 5 | 12 |
| **115** | **W22** | | 5 | 8 | 8 | 4 | 7 | 5 | 4 | 7 | 8 | 4 | 8 | 7 | 4 | 8 |
| | **W23** | 6 | 8 | 6 | 6 | 6 | 6 | 7 | 7 | 6 | 6 | 2 | 8 | 5 | 7 | 7 |
| | **W24** | 3 | 4 | 4 | 3 | 4 | 4 | 3 | | 4 | 4 | 2 | 5 | 3 | 3 | 3 |
| **110** | **W25** | | | 12 | 12 | 7 | 9 | 9 | 5 | 10 | 9 | 6 | 12 | 5 | 3 | 8 |
| **126** | **W26** | | 2 | 2 | 1 | | 3 | 3 | | 2 | 2 | 2 | 3 | 1 | 1 | 0 |
| | **W27** | 1 | 2 | 2 | 1 | 2 | 1 | 1 | 2 | 2 | 2 | 1 | 3 | 2 | 1 | 2 |
| | **W28** | 11 | 10 | 10 | 10 | 10 | 10 | 10 | 11 | 11 | 10 | | 12 | 7 | 8 | 9 |
| **53** | **W29** | 3 | 3 | 4 | 3 | 4 | 4 | 3 | | 4 | 4 | 3 | 4 | 3 | 3 | 3 |
| **78** | **W30** | 5 | 6 | 6 | 4 | 4 | 6 | 7 | 5 | 6 | 6 | 10 | 7 | 5 | 4 | 6 |
| | **W31** | 2 | 3 | 2 | 2 | 2 | 2 | 2 | 2 | 3 | 3 | 3 | 3 | 2 | 2 | 3 |
| **2** | **W32** | | 4 | 5 | 5 | 4 | 7 | 6 | 6 | 7 | 6 | 4 | 9 | 4 | 3 | 6 |
| **103** | **W33** | | | 2 | 4 | | | | | 3 | 3 | | | 0 | | 1 |
| **122** | **W34** | 6 | 8 | 4 | 6 | 6 | 4 | 6 | 7 | 8 | 8 | 4 | 7 | 4 | 3 | 6 |
| | **W35** | 6 | 8 | 6 | 6 | 6 | 6 | 7 | 6 | 6 | 6 | 4 | 9 | 6 | 6 | 7 |
| **77** | **W36** | 3 | 4 | 3 | 4 | 4 | 3 | 3 | 3 | 3 | 3 | 3 | 4 | 3 | 3 | 4 |

| s# | w# | ME | CT | NY1 | NY2 | NJ1 | NJ2 | NJ3 | DE | MD1 | MD2 | VIMS1 | VIMS2 | SC1 | SC2 | FL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **22** | **W37** | 3 | 5 | 6 | 4 | 2 | 5 | 6 | 4 | 7 | 6 | 4 | 9 | 2 | 2 | 4 |
| **124** | **W38** | 4 | 5 | 4 | 4 | 4 | 3 | 4 | 3 | 4 | 4 | 2 | 9 | 2 | 1 | 5 |
| **3** | **W39** | 3 | 3 | 4 | 2 | 2 | 3 | 3 | 3 | 4 | 4 | 1 | 5 | 0 | 0 | 0 |
| **95** | **W40** | 4 | | 8 | 8 | 8 | 7 | 8 | 9 | 8 | 8 | 5 | 8 | 7 | 2 | 8 |
| | **W41** | 3 | 4 | 4 | 4 | 4 | 3 | 4 | 3 | 4 | 4 | 2 | 4 | 3 | 2 | 4 |
| **26** | **W42** | 4 | 11 | 11 | 11 | 7 | 12 | 9 | 9 | 12 | 12 | 7 | 12 | 7 | 6 | 9 |
| **89** | **W43** | | | 2 | 1 | | 2 | | 2 | 2 | 2 | 1 | 3 | 3 | 3 | 2 |
| **100** | **W44** | | | 7 | 8 | 3 | 6 | 3 | 4 | 7 | 7 | 3 | 9 | 5 | 1 | 7 |
| | **W45** | 5 | 6 | 6 | 5 | 4 | 5 | 5 | 5 | 6 | 6 | 5 | 6 | 5 | 5 | 6 |
| | **W46** | 4 | 5 | 4 | 4 | 3 | 4 | 4 | 3 | 4 | 4 | 3 | 5 | 3 | 3 | 5 |
| **106** | **W47** | 2 | 4 | 4 | 3 | 2 | 4 | 4 | 3 | 4 | 4 | 3 | 5 | 3 | 1 | 4 |
| **107** | **W48** | 2 | | 7 | 6 | 2 | 3 | 3 | 6 | 8 | 6 | 4 | 7 | 5 | 2 | 7 |
| **85** | **W49** | 2 | | 6 | 3 | 3 | 5 | 4 | 3 | 8 | 8 | 3 | 7 | 0 | 2 | 3 |
| **99** | **W50** | 6 | 7 | 7 | 6 | 7 | 7 | 8 | 7 | 8 | 8 | 5 | 9 | 4 | 5 | 5 |
| **101** | **W51** | | | 9 | 8 | 2 | 10 | 7 | | 4 | 5 | | 10 | 1 | 4 | 8 |
| **79** | **W52** | 2 | 6 | 6 | 6 | 5 | 6 | 6 | | 5 | 5 | 4 | 8 | 4 | 4 | 7 |
| | **W53** | 2 | 3 | 4 | 3 | 2 | 2 | 4 | 3 | 4 | 4 | 2 | 5 | 2 | 1 | 4 |
| **73** | **W54** | | | 6 | 6 | | | | | 6 | 6 | 6 | 7 | 6 | 5 | 6 |
| | **W55** | 12 | 13 | 13 | 10 | 4 | 11 | 9 | 12 | 12 | 12 | 8 | 11 | 9 | 8 | 11 |
| **20** | **W56** | 7 | 7 | 6 | 6 | 7 | 8 | 7 | 7 | 8 | 8 | 6 | 9 | 6 | 7 | 7 |
| **82** | **W57** | | | 6 | 6 | | | | | 5 | 2 | | | 2 | | 3 |
| **58** | **W58** | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 3 | 4 | 3 | 2 | 3 |
| **30** | **W59** | 4 | | 4 | 4 | 1 | 5 | 6 | 6 | 6 | 5 | 3 | 7 | 4 | 5 | 6 |
| **35** | **W60** | 2 | | 3 | 3 | 3 | 2 | 4 | 3 | 4 | 2 | 2 | 4 | 2 | 2 | 3 |
| **92** | **W61** | | | 1 | 0 | | | | | | | | | | | 0 |
| | **W62** | 4 | 5 | 5 | 5 | 5 | 4 | 5 | 4 | 5 | 5 | 3 | 6 | 4 | 5 | 6 |
| **14** | **W63** | | | 6 | 6 | | | | 10 | 6 | 6 | | | 5 | 6 | 7 |
| **39** | **W64** | | | 2 | 3 | 7 | | | | 3 | 3 | | 5 | 1 | 3 | |
| **71** | **W65** | | | 5 | 3 | | 8 | 7 | | 8 | 6 | 3 | 12 | 4 | 4 | 10 |
| **83** | **W66** | | | 2 | 5 | 2 | | | | 5 | 6 | | 11 | 2 | 2 | 9 |
| **10** | **W67** | | | 4 | 3 | | | | | 3 | 4 | | 6 | 0 | 0 | 5 |
| **34** | **W68** | 3 | 3 | 3 | 3 | 3 | 2 | 3 | 3 | 4 | 3 | 2 | 4 | 2 | 2 | 3 |
| **123** | **W69** | | | 3 | 3 | | | | | 2 | 2 | | | 0 | | 2 |
| **40** | **W70** | | 8 | 9 | 9 | 7 | 7 | 7 | | 8 | 5 | 6 | 9 | 7 | 4 | 8 |
| **42** | **W71** | | | 4 | 5 | | | | | 7 | 7 | | 7 | 4 | 3 | 5 |
| **88** | **W72** | 4 | 4 | 3 | 4 | 3 | 4 | 4 | 3 | 4 | 4 | 4 | 5 | 1 | 2 | 4 |
| **140** | **W73** | | | 1 | 1 | 3 | | 4 | | 3 | 3 | 3 | 4 | 0 | 1 | 3 |
| **1** | **W74** | | | 8 | 8 | | | | | 7 | 6 | | | | | 6 |
| **74** | **W75** | | | 7 | 7 | 7 | 7 | 7 | | 8 | 8 | | 9 | 5 | 2 | 8 |
| **98** | **W76** | 4 | 6 | 6 | 6 | 5 | 7 | 6 | 6 | 6 | 6 | 5 | 8 | 5 | 2 | 6 |

| s# | w# | ME | CT | NY1 | NY2 | NJ1 | NJ2 | NJ3 | DE | MD1 | MD2 | VIMS1 | VIMS2 | SC1 | SC2 | FL |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | **W77** | 4 | 5 | 4 | 4 | 4 | 6 | 5 | 4 | 5 | 5 | 3 | 5 | 4 | 4 | 6 |
| **33** | **W78** | | | 6 | 6 | | 7 | | | 12 | 11 | | 6 | 2 | 1 | 6 |
| **38** | **W79** | | | 3 | 3 | | | | | 2 | 3 | | 7 | 0 | | 2 |
| **66** | **W80** | | 7 | 7 | 7 | 6 | 6 | 6 | | 7 | 6 | 6 | 8 | 3 | 3 | 7 |
| **36** | **W81** | 2 | | 3 | 2 | 2 | 3 | 3 | 2 | 3 | 3 | 3 | 4 | 2 | 1 | 2 |
| | **W82** | 5 | 6 | 5 | 5 | 5 | 6 | 5 | 5 | 6 | 5 | 5 | 6 | 5 | 5 | 6 |
| **7** | **W83** | 1 | | 1 | 1 | 0 | 0 | 0 | | 2 | 3 | 2 | | 0 | 0 | 1 |
| **25** | **W84** | 3 | 5 | 4 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 3 | 6 | 3 | 2 | 4 |
| **50** | **W85** | | | 4 | 4 | | | | | 7 | 6 | | | 2 | 2 | 7 |
| **68** | **W86** | | | 1 | 1 | | | | | 1 | 1 | | 4 | 0 | | 0 |
| **108** | **W87** | | | 6 | 6 | 5 | 6 | 6 | | 5 | 7 | | 8 | 0 | 2 | 6 |
| **12** | **W88** | | | | | | | | | | 11 | | | 4 | 4 | 9 |
| **70** | **W89** | 5 | 7 | 6 | 6 | 5 | 6 | 4 | 7 | 6 | 6 | 6 | 7 | 4 | 3 | 6 |
| **116** | **W90** | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 3 | 4 | 4 | 3 | 5 | 1 | 2 | 5 |
| **120** | **W91** | | 6 | 6 | 5 | 5 | 7 | | | 6 | 6 | | 8 | 1 | 1 | 6 |
| **130** | **W92** | | | 1 | 1 | | | | | 2 | 2 | | | 0 | 0 | 1 |
| **139** | **W93** | 5 | 6 | 6 | 6 | 4 | 6 | 6 | 7 | 6 | 6 | 5 | 7 | 5 | 1 | 7 |
| **23** | **W94** | | 12 | 12 | 8 | 12 | 16 | 11 | 12 | 13 | 12 | 12 | 14 | 8 | 8 | 13 |
| **52** | **W95** | 4 | 5 | 4 | 5 | 4 | 4 | 4 | 3 | 4 | 4 | 4 | 5 | 4 | 3 | 4 |
| | **W96** | 3 | 4 | 3 | 3 | 3 | 3 | 3 | 3 | 4 | 4 | 4 | 5 | 3 | 2 | 4 |
| | **W97** | 4 | 6 | 4 | 4 | 4 | 5 | 4 | 4 | 5 | 5 | 2 | 6 | 3 | 2 | 5 |
| **16** | **W98** | 5 | 7 | 6 | 7 | 6 | 7 | 4 | 5 | 6 | 6 | 3 | 8 | 1 | 2 | 5 |
| **24** | **W99** | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 5 | 6 | 8 | 4 | 7 | 4 | 2 | |
| | **W100** | 6 | 8 | 6 | 6 | 6 | 7 | 6 | 6 | 7 | 7 | 4 | 7 | 6 | 6 | 7 |
| **94** | **W101** | | | 8 | 5 | | | 3 | | 2 | 6 | | 13 | 2 | 3 | 8 |
| **118** | **W102** | 4 | 7 | 3 | 3 | 4 | | | 4 | 5 | 5 | 3 | 7 | 4 | | 5 |
| **8** | **W103** | 3 | 3 | 3 | 3 | 3 | 6 | 3 | 3 | 4 | 3 | 3 | 6 | 2 | 2 | 4 |
| **76** | **W104** | | | 3 | 3 | 3 | 5 | 3 | | 5 | 5 | 3 | 6 | 5 | 4 | 4 |
| **17** | **W105** | | 8 | 8 | 8 | 8 | 11 | | | 9 | 9 | 5 | 10 | 8 | 4 | 7 |
| **137** | **W106** | | | 4 | 5 | 5 | 6 | 4 | | 4 | 5 | | 8 | 4 | 3 | 5 |
| **18** | **W107** | | 2 | 1 | 1 | 1 | 1 | 1 | | 1 | 1 | 1 | 3 | 1 | 0 | 1 |
| **51** | **W108** | 3 | 6 | 4 | 4 | 4 | | | 4 | 4 | 4 | 3 | 5 | 4 | 3 | 4 |
| **59** | **W109** | 4 | 5 | 3 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 5 | 4 | 4 | 4 |
| **104** | **W110** | 2 | 4 | 4 | 4 | 3 | 4 | 3 | 3 | 5 | 3 | 1 | 5 | 4 | 3 | 5 |