Minnesota Chapter
of the American Fisheries Society

Professional Development Opportunities

The MN AFS Continuing Education Committee is pleased to offer two classes in the Twin Cities (exact location to be determined), each being offered individually but also being designed to complement each other: Estimating Age and Growth of Fish and Analyzing Age Data with R.
Choose to attend one or both, depending on your professional needs.

Estimating Age and Growth of Fish

Instructor: Dr. Daniel Isermann, Wisconsin Cooperative Fishery Research Unit

December 3—4, 2013

10am Tuesday – noon Wednesday

Participants in this course will learn to estimate the age and growth of fish. The course is designed for individuals with little to moderate experience with fish age estimation and will be very similar to other courses that Dr. Isermann has offered in recent years. Specifically, we will discuss sampling considerations including choice of calcified structure and sample sizes; demonstrate removal, processing, and annuli identification for otoliths, scales, and fin spines; and demonstrate how to develop protocols for assessing the accuracy and precision of age estimates. Participants should bring fish and structures so that we can help them with specific issues; if some of these require embedding in epoxy for sectioning, we could arrange this in advance if they are mailed to us (contact Dan at dan.isermann@uwsp.edu).

TOPICS TO BE COVERED:

1. Sampling considerations when collecting age and growth information
    a. Do we need age and growth information?
    b. What are we trying to measure (e.g., recruitment, growth, mortality)?
    c. Sample size considerations
    d. Other sampling considerations
        i. Time of year and annulus formation
        ii. Random vs. stratified-random (i.e., age-length keys)
        iii. Other considerations (i.e., sexual dimorphism, spatial differences)
    e. Choice of calcified structure
        i. Lethal vs. nonlethal
        ii. Do we need to back-calculate lengths at previous ages?
        iii. Structures used to estimate age for common Minnesota fishes
2. Removal, processing, and annuli interpretation (small group exercises set up at stations)
    a. Removal of structures
    b. Preparation of structures
    c. Annulus identification
        i. Structure gallery
        ii. Obtaining measurements for back-calculation using digital images
3. The big quiz- everyone will assign ages to 25-30 structures using digital images and we will review and discuss age assignments

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Analyzing Age Data with R

Instructor: Dr. Derek Ogle, Northland College

December 4—5, 2013

1pm Wednesday – 3pm Thursday

Participants in this course will learn to use R for typical manipulations and analyses of fish age (and length) data. Specifically, participants will back-calculate past fish length, derive and apply an age-length key, compute measures of precision and systematic bias from multiple age assessments, summarize age frequencies, and summarize and model mean length-at-age. Participants will need a solid understanding of the basics of using R (loading data, loading packages, basic functions) and will need to provide their own laptop computer.

TOPICS TO BE COVERED:

1. Very quick re-introduction to R

   * I am assuming that users have basic skills with R (loading data, loading packages, basic data manipulation, understanding R philosophy).

2. Precision and bias measures in age assessments

   * Computing age agreements percentages, APE, and CVs among readers or times

   * Detecting systematic bias among structures, readers, or times with age-bias plots and tests of symmetry

3. Applying an age-length key

   * Isermann and Knight method

4. Back-calculation

   * Fraser-Lee method

   * One other method as a demonstration of similarity

5. Growth modeling

   * Compute mean length-at-age

   * Von Bertalanffy

Cost for either course: $150 (includes one lunch)

Cost for both courses: $250 (includes two lunches)

To register, complete and mail the form on the next page. Space is limited so register early!

Registration deadline is November 22, 2013.

Payment must be received prior to the deadline to reserve your seat.

For more information, contact Karen Terry, kterry@umn.edu; 218-770-8297.

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Complete this form to register for Continuing Education offered by the Minnesota Chapter of the American Fisheries Society.

☐ *Estimating Age and Growth of Fish*, December 3-4, 2013 $150

☐ *Analyzing Age Data with R*, December 4-5, 2013 $150

☐ Both *Estimating Age and Growth of Fish* and *Analyzing Age Data with R* $250

Name _____

Employer _____

Job title _____

Mailing address _____

Email address _____

Phone number _____

Do you have any dietary restrictions we should consider when ordering lunches?

_____

Send completed registration form and payment to:

Karen Terry

c/o MNAFS Continuing Education

26156 Brekke Lake Road Fergus Falls, MN 56537

Make checks payable to MNAFS. You will receive a confirmation via email once your registration is received.

If you have questions, contact Karen Terry, kterry@umn.edu; 218-770-8297.