

# Education Section of the American Fisheries Society

## President's Line

This will be the last President's Line of my Education Section Presidency. As always, I have really enjoyed my time as your President. It has been more work than I originally realized but I am still very glad I ran a few years back. I thought this might be a good time to reflect on some of the rewarding aspects of the position and my opinion on some of the challenges that lie ahead. Many of these do not have easy answers, but all will require engagement of the membership.

For some reflection:

- We have new leadership at AFS with the hiring of Doug Austen as Executive Director. This affected the Education Section by increasing interaction with AFS. I have been very impressed by how much Doug and his staff care about what the members and Section have to say. The Education Section has provided input on many items but the most notable was the hiring of a new Professional Development and Continuing Education Coordinator, Beverly Pike.
- I have enjoyed my time on Governing Board and interacting with the various other sections, divisions, and other leaders. I won't say every governing board meeting was 100% captivating, but they were useful and entertaining.
- I have seen a very large push to engage more students and young professionals. This has come from the Education Section, Student Subsection, as well as AFS and other sections. AFS now puts out a student newsletter, and Andrew Carlson (Student Subsection President) and I have had regular calls with Sarah Gilbert Fox at AFS on how to better engage students.
- I am increasingly impressed with the Student Subsection. It has come a long way since the time in the 1990s when I was President of the Subsection. Their motivation and vision to become more engaged at AFS has not gone unnoticed. I believe they are more visible than ever and that is in large part from the leadership over the last five years or so. As my beard gets grayer I believe the future of AFS is in good hands.

## Inside this issue:

Education Section & Student Activities in Portland.....	3
Funding Requests and Process.....	4
Make a Difference...Help Our Students.....	5
Funding Requests:	
1. Hutton Junior Fisheries Biologist Program.....	7
2. Undergraduate Travel Assistance Needed.....	9
3. Equal Opportunities Section Travel Award.....	10
Education Section Election Candidate Bios.....	11
Fostering Citizen Scientists.....	15
Student Subsection Update.....	17
Discover Life in West Virginia.....	18
Mississippi State Student Sub-unit.....	21
Highlighting Excellence in Education.....	23
BSPP 2014...Where are they now?.....	24



## President's Line (cont'd)

I also believe we have some challenges ahead. Some of these are not new, but likely will need to be addressed within our section, in other sections, or with AFS as a whole:

- How do we retain and/or engage undergraduates and young professionals? There has been substantial support for both of these groups but finding a way to get undergrads started early in AFS, and keep the young professionals as they morph into professionals is key.
- What is the Education Section's long term revenue stream? We have been fortunate to have substantial book sales that have carried us through. That is still going (32k this year), but I suspect in this digital age we will need to consider our next big revenue streams.
- Related to the above, we need to consider our funding requests and carefully balance those requests against incoming revenue. We have been fortunate to have the funds to have another Incredible Skinner Challenge. However, what is the best use of our funds? Do we invest in a similar push for undergraduates? Young professionals? Both of those ideas have been suggested. We could afford to do a large push now, but will we have enough for our future endeavors?

Models of educating fisheries professionals are changing. We see fewer 'traditional' programs (whatever that means) and there have been concerns within AFS and agencies about making sure universities are teaching the materials needed to be successful in the future fisheries world. Couple that with changes in many university models that are emphasizing less fish and wildlife management and ecology programs and more towards high-overhead research that makes universities 'rank' better in various metrics. I am not sure where all this is going but it's something that needs to remain on our radar screen.

Thanks again for your support and I look forward to a wave of younger generation educators and professionals coming up in the Education Section.

Craig





**AMERICAN FISHERIES SOCIETY**  
**PORTLAND, OREGON**  
**145TH ANNUAL MEETING**  
**AUGUST 16-20, 2015**

Education Section and Student Activities:

**Sunday, August 16**

8:00 AM – 12:00 PM	Leading at All Levels in AFS	HH D	Senate Suite
5:00 PM – 7:00 PM	Education Section – Business Meeting	OCC	Broadway Rooms I & II
6:30 PM – 9:00 PM	Welcome Networking Event	HH D	Galleria

**Monday, August 17**

4:00 PM – 5:00 PM	AFS Hutton Oversight Committee Meeting	HH D	Directors Suite
6:00 PM – 8:30 PM	Trade Show and Poster Networking Event	OCC	Exhibit Hall B & C
1:20 PM – 5:00 PM	Best Student Paper Session 1	OCC	B-115
6:00 PM – 8:30 PM	Best Student Poster Session	OCC	Exhibit Hall C

**Tuesday, August 18**

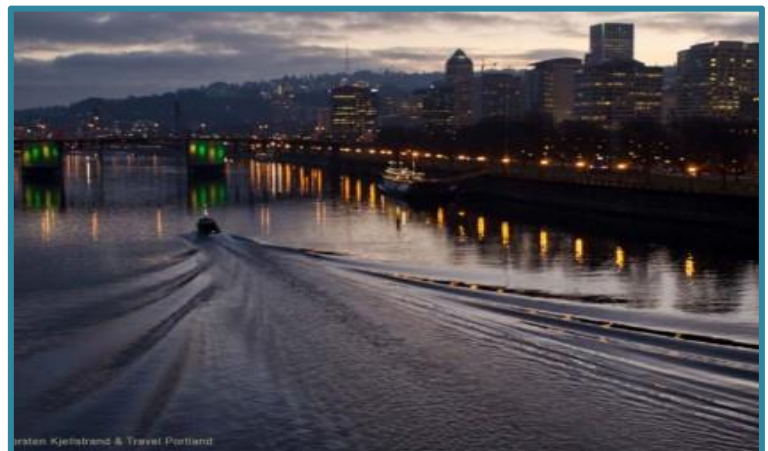
8:20 AM – 12:00 PM	Best Student Paper Session 2	OCC	B-115
12:00 PM – 2:00 PM	Best Student Paper/Poster Judge’s Luncheon	OCC	A-103
12:00 PM – 2:00 PM	Student-Mentor Lunch and Career Fair	OCC	D-131
2:00 PM – 3:00 PM	Student Subsection of the Education Section Meeting	OCC	E-147
6:30 PM – 9:30 PM	Student Networking Event (Students only)		Portland

**Wednesday, August 19**

4:10 PM – 5:30 PM	AFS Business Meeting (Announcement of BSPP)	OCC	Oregon Ballroom 203
6:00 PM – 10:00 PM	Grand Networking Event		South Park Blocks

---

HH D = Hilton Hotel Downtown \* OCC = Oregon Convention Center \* DT H = Double Tree Hotel





## ATTENTION MEMBERSHIP!

Education Section Members:

The Education Section EXCOM would like the membership to be aware of couple items we will be discussing at our annual meeting in Portland Sunday, August 16 from 5-7 PM in Broadway Rooms I & II in the Oregon Convention Centre. We are proposing three (3) funding requests, which require a membership vote at our Annual Meeting. Each can be found in this newsletter but also on our website:

<http://www.fisheriessociety.org/education/>

### **Reminder about the Education Section Funding Request Process**

The Education Section regularly receives funding requests for various activities and projects typically from another Unit of AFS. We encourage these requests and try to help AFS Units and interested parties further the mission of the Education Section. Below are some points to consider if you choose to request funding from the Education Section:

- See our website for the funding request application and process (<http://education.fisheries.org/funding-requests/>)
- Note there is a different form the funding student colloquia (found on the website link above)
- All funding requests over \$2,500 need to be submitted by July 1 for consideration by the annual business meeting held in conjunction with the Annual AFS meeting (in August 2015).
- No request over \$2,500 will be considered at the annual business meeting (even from Education Section members) unless it was submitted before July 1.

# ***Make a Difference ... Help Our Students!***



**The Education Section has generously contributed \$25k to the Skinner Memorial Fund to help our students attend the Annual Meeting  
*And guess what?***

**They will match *dollar for dollar* any other donations - up to \$25k more!**

***So Come On! Make a Difference and Donate!***

***Help Deserving Students Attend the Annual Meeting.***

**[fisheries.org/donate](https://fisheries.org/donate) > click on the black tab for the Skinner Memorial Fund**



## **Funding requests:**

The Education Section has received three funding requests that will require a membership vote at our Annual Meeting. Below are brief descriptions of those requests, but both can be found in this newsletter and on our webpage:

<http://www.fisheriessociety.org/education/funding.htm>

### **Hutton Junior Fisheries Biology Program (\$6,680)**

The Education Section has a tradition of funding the Hutton Program and we have a request again this year. Because it's over \$1,000 it requires a membership vote.

### **Undergraduate Travel to the International Congress on the Biology of Fish (\$5,000)**

Support for undergraduate students who are interested in travelling to San Marcos, TX, to present their research results at the Undergraduate Research Symposium that is being held at the 12<sup>th</sup> International Congress on the Biology of Fish.

### **Equal Opportunities Section Travel Award (\$5,000)**

Assist with travel expenses to attend the AFS Annual Meeting (Portland, OR) for women and minority students in fisheries.

## **Procedures and Evaluation Criteria for Funding Requests:**

The objectives of the Education Section of the American Fisheries Society are to: (i) improve the quality of college and university education for fisheries scientists; (ii) promote exchange of post-secondary education information, techniques, and materials among educators and among educational institutions; and (iii) foster improved communication and information exchange among fishery educators, employers, fisheries specialists, students, and the public.

To obtain the greatest value from the limited Section resources, projects that meet the objectives of the Education Section will be prioritized for funding over those that do not.

The Executive Committee will consider the following project elements when making grant funding decisions:

### **Does the proposal:**

1. Promote the objectives of the Education Section?
2. Elevate the visibility of the Education Section?
3. Appeal to a broad audience?
4. Have potential for generating revenue for the Education Section?



## Hutton Junior Fisheries Biology Program Funding Request

**Contact:** Beverly Pike, Director of Student and Professional Development

Address: 5410 Grosvenor Lane, Suite 110 Bethesda, MD 20814

Phone: (301) 897-8616, ext. 213

Fax: (301) 897-8096

Email: [bpik@fisheries.org](mailto:bpik@fisheries.org)

**Project description:** The Hutton Junior Fisheries Biology Program is a summer scholarship and mentoring program for high school juniors and seniors sponsored by AFS. The mission of the Hutton Program is to diversify fisheries science and management by stimulating career interest among young people from underrepresented groups. Known as "Hutton scholars," students accepted into the program are mentored by fisheries professionals for eight weeks and enjoy a hands-on fisheries science experience in a marine and/or freshwater setting. Each 2016 Hutton scholar will receive a \$4,008 scholarship award. The Hutton Program falls into the Education Section objective iii), "foster improved communication and information exchange among fishery educators, employers, fisheries specialists, students, and the public."

## Hutton Junior Fisheries Biology Program Funding Request (cont'd)

**Time to completion:** Funds will be used for a scholarship provided and administrative support to a Hutton Program scholar in summer 2016. The student's Hutton experience as well as all related administrative responsibilities will be completed by fall 2016.

**Amount requested:** \$6,680 (*Please note: The cost to AFS per Hutton Program scholar has been adjusted based on the rate of inflation between 2001 and 2015*)

**Other funding sources:** BLM/NFWF; NOAA/NMFS; USDA Forest Service; Wisconsin Dept. of Natural Resources; AFS members

**How the contribution of the Education Section will be acknowledged:** The Education Section will be acknowledged as a Hutton Program supporter in *Fisheries* magazine, on the 2016 Hutton Supporters webpage on the Hutton Program website, and on the 2016 Hutton Program t-shirt. The Director of Student and Professional Development will attend the Education Section meeting at the AFS 145<sup>th</sup> Annual Meeting in Portland, Oregon to show appreciation for the Education Section's continued support, provide a brief update on the 2015 Hutton Program as well as introduce the new Educational Program Coordinator, Cynthia Oboh.

**Disposition of unused funds:** There will be no unused funds. The \$6,680.00 donation will be used to support one Hutton Program scholar in 2016 (a \$4,008.00 scholarship provided and \$2,672.00 for administrative expenses associated with supporting one Hutton Program scholar).





## Support for an Undergraduate Research Symposium at the 12<sup>th</sup> International Congress on the Biology of Fish – San Marcos, TX

**Project description:** I am requesting \$5000 in funding to help support undergraduate students who are interested in travelling to San Marcos, TX, to present their research results at the Undergraduate Research Symposium that is being held at the 12<sup>th</sup> International Congress on the Biology of Fish (June 12<sup>th</sup> – June 16<sup>th</sup>, 2016). Involving undergraduates in research is a great way to solidify their interest in fisheries biology. Providing them with support to participate in an international conference (albeit one held in the United States) on fish biology (with an emphasis on fish physiological ecology) will expose them to, and allow them to interact with potential graduate advisors, employers, and their peers.

The funds would be disbursed to up to 10 undergraduate students who would be competitively selected. The selection process will require undergraduate students to send in their abstracts and confirmation of the undergraduate status to the congress organizers and the top 10 undergraduate authors would be selected by a 3-member selection committee composed of members of the AFS Physiology Section. The top 10 students would then receive \$500 awards to help cover the costs of conference registration, lodging in the Texas State University dormitories, and travel to the conference.

This project meets the 1<sup>st</sup> and 3<sup>rd</sup> objectives of the AFS Education Section. It addresses the first objective, improving the quality of college and university education for fisheries scientists, by providing the next cohort of developing fisheries scientists with an opportunity to present their results at an international meeting and get valuable feedback from fisheries professionals. It addresses the 2<sup>nd</sup> objective, fostering improved communication and information exchange among fishery educators, employers, fisheries specialists, students, and the public by bringing a group of fisheries undergraduates into contact with a dedicated group of fisheries scientists, employers, and educators.

**Time to completion:** The proposed funds would be used by the end of June, 2016.

**Amount requested:** \$5000 – these funds will be allocated to the students who present their results at the conference, at up to \$500/student, with a maximum of 10 awards.

**Other funding sources:** The principal investigator (Chris Myrick) is also requesting funds from the AFS Physiology Section (who hosts the conference), and will seek other sources of funding as well.

**How the contribution of the Education Section will be acknowledged:** The contribution of the AFS Education Section will be acknowledged publically during the conference introduction (i.e., during the plenary session) and, if permission is granted, the AFS Education Section logo will be included on the conference program as one of the contributors to the conference. Additionally, the contributions of the Section will be acknowledged during the introductory presentation in the Undergraduate Research Symposium (delivered by C. Myrick).

**Disposition of unused funds:** I do not anticipate having unused funds at the end of this project. However, if we do not get at least 10 qualified undergraduate applicants, then the remaining funds would be used to support the travel of graduate students who are presenting their results at the 12<sup>th</sup> International Fish Biology Congress.

**Contact:** Christopher A. Myrick  
Department of Fish, Wildlife, and Conservation  
Biology  
Colorado State University  
Campus Delivery 1474  
Fort Collins, CO 80526  
Email: [chris.myrick@colostate.edu](mailto:chris.myrick@colostate.edu)  
Phone: (970) 491-5657; Fax: (970) 491-5091

## Equal Opportunities Section of the AFS Travel Award Donation Request

**Contact:** Marybeth Brey, PhD

President, Equal Opportunities Section of AFS

USGS-UMESC

Address: 2630 Fanta Reed Road, La Crosse, WI 54603

Phone: (608) 781-6243; Fax: (608) 783-6066

Email: mbrey@usgs.gov

**Project description:** Money (\$5000) is being requested to assist with travel expenses for women and minority students in fisheries. Travel awards are given to deserving students to attend the AFS Annual Meeting (Portland, OR). This year we have a plethora of qualified applicants, but have not received our typical amount of donations, thus we are requesting some assistance. In addition to our own funds, we have received assistance from the Estuaries Section, the Southern Division of AFS, and the Michigan Chapter to date. Allowing for additional qualified students to attend the annual meeting supports all of the Education Section's objectives by promoting the exchange of post-secondary education information, techniques, and materials at the AFS meeting, as they will be required to attend sessions, present a poster or paper, and attend the EOS and Education Section business meetings. The potential to recruit new and diverse members to the sections is high. Awardees will be exposed to educators, employers, fishery specialists, as well as other students and future collaborators. We also hope to foster improved communication and information exchange by having each student attend our business meeting and luncheon and say a few words about their experience.

If permitted, any remaining funds will be saved for additional student travel awards to attend next year's meeting in Kansas City and to help with costs associated with our annual (EOS) section meeting. This year we will be hosting a distinguished speaker and hosting a luncheon to disseminate information to our members. The Education Section will be recognized on our website, in our quarterly newsletter, and at our section meeting for their donation.

Sincerely,

Marybeth K. Brey

## Education Section Elections

### It's election time and every vote counts!

Participating in the Education Section election is important and all members are encouraged to vote for President-Elect and Secretary Treasurer positions. Members of the Southern and Western divisions will also elect representatives to serve on the Executive Committee. As an incentive to vote, we will be holding a raffle for Education Section t-shirts.

Winners will be announced and presented a t-shirt at the Education Section business meeting in Portland (winner need not be present to win). Please read through the biographical sketches below and use the link to place your vote. **Elections will close on August 14, 2015.** If you have any questions, please contact Mike Quist ([mcquist@uidaho.edu](mailto:mcquist@uidaho.edu)).

To vote, please go to: <https://www.surveymonkey.com/r/PKHK55Y>

### Candidate Biographies: President-Elect

(All members vote for one)

#### Mark Fincel

I grew up outside of Dayton, OH and attended Ball State University in Muncie, IN where I graduated with a B.S. in biology (fisheries and ecology emphasis in 2004). For three years during my undergraduate program, I worked part-time with the Muncie Sanitary District - Bureau of Water Quality. There, I worked with biologists sampling local streams and evaluating effects of point- and non-point source pollutants on fish and invertebrate assemblages in eastern Indiana. I also completed an undergraduate research project looking at morphology of spotfin shiners from Illinois and Indiana. I then went to Eastern Illinois University in Charleston, IL and received my M.S. in Biology (fisheries emphasis in 2006). My thesis was titled "Spatial and temporal differences in fish assemblages in the Sangamon River, Illinois: methods for community comparisons and documentation of species range expansion." I left academia for a short time period thereafter and worked for the USGS (based out of Columbia, MO and Yankton, SD) where I was in charge of a couple projects examining pallid sturgeon reproduction. Our end goal was an attempt to document natural reproduction in the Missouri National Recreational River. I then left for SDSU in Brookings, SD where I received my Ph.D. in Natural Resource Management in 2011 with a dissertation "Productivity and trophic interactions of the Missouri River impoundments." Soon after finishing, I left for Pierre, SD where I accepted a position with South Dakota Game, Fish and Parks as Senior Biologist and have held this position ever since. Throughout my fisheries travels, I have been actively involved in AFS. I have held multiple offices at the university and state levels. Recently, I have become more involved with various sections of the parent society. From 2009 to 2011, I was co-chair of the Membership Committee of the Education Section, since 2013 I have been a co-chair of the Best Student Presentation Committee of the Education Section and have been on the Young Professional Committee of the Management Section since 2014. The American Fisheries Society has proven invaluable to my professional accomplishments and I am dedicated to supporting the society in any way possible. I am excited about the potential to increase my involvement with the AFS by serving as the president-elect for the Education Section.

## **Candidate Biographies: Secretary-Treasurer**

(All members vote for one)

### **Ty Wagner**

Tyler Wagner is the Assistant Unit Leader – Fisheries at the Pennsylvania Cooperative Fish and Wildlife Research Unit and Adjunct Professor of Fisheries Ecology in the Department of Ecosystem Science and Management at The Pennsylvania State University. He also has an adjunct appointment in the Department of Fisheries and Wildlife at Michigan State University. He received his B.S. and M.S. degrees in Fisheries and Wildlife from the University of Idaho, and his Ph.D. from Michigan State University. Prior to joining the PA Coop Unit, he worked as a postdoctoral researcher at the Quantitative Fisheries Center at Michigan State University. The primary focus of his research program is on understanding ecological patterns and processes in aquatic systems across broad spatial and temporal scales, and how they interact with, or emerge from, processes at finer spatial scales. Within this broader framework the primary research interests that direct the types of projects he develops are (1) fisheries and lake ecology and management, (2) the study of cross-scale interactions and their management implications, and (3) monitoring and assessment of freshwater resources, including trend detection and design evaluation. Tyler is committed to education and mentoring. He sits on many graduate committees, advises M.S., Ph.D., and postdoctoral researchers, and teaches graduate courses and seminars, with a focus on Bayesian hierarchical modeling.

## **Candidate Biographies: Western Division Representative**

(Western Division members; vote for one)

### **Jeff Falke**

Jeff Falke is the Assistant Unit Leader – Fisheries at the Alaska Cooperative Fish and Wildlife Research Unit (AKCFWRU) and holds a joint appointment as Assistant Professor of Fisheries in the Institute of Arctic Biology and the School of Fisheries and Ocean Science at the University of Alaska Fairbanks (UAF). He received his B.S. degree in Fisheries and Wildlife from the University of Missouri, his M.S. in Biology from Kansas State University, and his Ph.D. in Fisheries Ecology from Colorado State University. Prior to joining AKCFWRU Jeff was a post-doctoral fellow with NOAA Fisheries/National Research Council and Oregon State University. During his graduate work Jeff TA'd or taught courses in Introductory Biology, Fisheries Management, Design of Research Studies, and Ichthyology. His research focuses on the population and community ecology of freshwater fishes, linking environmental stressors to freshwater fish population and assemblage dynamics across a variety of aquatic ecosystems. His research bridges the gap between basic and applied fisheries ecology, integrating quantitative ecological analyses, spatial statistical methods, landscape ecology, and conservation biology to address conservation and management issues. Jeff currently mentors 6 M.S. students, and 1 postdoctoral researcher, and sits on numerous other graduate committees. He teaches graduate-level courses in Stream Fish Community Ecology and Physical Processes in Freshwater Ecosystems at UAF. Jeff spends his free time with his wife, daughter, and son, and enjoys fishing and flatpicking acoustic guitar (not usually simultaneously).

## **Candidate Biographies: Southern Division Representative**

(Southern Division members; vote for one)

### **Mike Colvin**

It is an honor to be nominated to serve as the Southern Division representative to the Education Section of the American Fisheries Society. While I am relatively new to the Southern Division—I have recently started as an assistant professor of fisheries at Mississippi State University—I believe my AFS and academic experiences provide the context necessary to serve as the Southern division representative. Specifically, I have served AFS at several levels. In the past, I have served as president of the Palouse Student Subunit, webmaster of the Oregon and Iowa Chapters, president of the Student Subsection, Fisheries Management Section Western division representative and on the Education section's new initiatives committee. I received a Ph.D. majoring in fisheries resources from Iowa State University, a M.S. from the University of Idaho, and a B.S. from Unity College, Maine. I believe these experiences have prepared me to effectively represent the interests of Southern Division Education Section members.

### **Josh Perkin**

Josh is currently an Assistant Professor in the Department of Biology at Tennessee Tech University in Cookeville, TN. Before joining the faculty at Tennessee Tech he earned his B.S and M.S. at Texas State University-San Marcos and Ph.D. at Kansas State University. Josh has been a member of the American Fisheries Society since 2006 and has maintained society involvement at multiple levels, including states (Texas, Kansas, Tennessee), sections (Education Section, Student Subsection of Education), and the Kansas State University Student Subunit (President 2010-2011). Josh is currently one of several faculty that provide mentorship for developing fisheries professionals through the Tennessee Tech University Student Fisheries Association. During his involvement with the AFS, Josh has received awards from both the Texas and Kansas chapters as well as a 2010 Skinner Memorial Award. His research related to fish-flow relationships, effects of habitat fragmentation on fishes, and fish reproductive ecology are published in Fisheries, Transactions of the American Fisheries Society, and North American Journal of Fisheries Management. These privileges supplied by the AFS provide proof of concept that student and young-professional involvement with the Society are mutually beneficial to fisheries science and those that study it. Josh looks forward to serving the Education Section in our shared goal of improving and promoting fisheries education while disseminating fisheries information.

### **REMEMBER TO VOTE!**

To vote, please go to: <https://www.surveymonkey.com/r/PKHK55Y>

Elections will close on August 14, 2015



# *EDUCATION SECTION AMERICAN FISHERIES SOCIETY*

---

*Annual Business Meeting  
August 16, 2015; Portland, Oregon (5-7 pm)  
Broadway I and II, Portland Hilton*

---

- I. Call to Order
- II. Introduction of Guests
- III. Determination of a Quorum
- IV. Approval of Agenda
- V. Approval of Minutes from 2014 Business Meeting
- VI. President's Comments (Craig Paukert)
- VII. Treasurer's Report (Trent Sutton)
- VIII. Comments by AFS Officer
- IX. Committee Reports
  - a) Newsletter (Hilary Meyer, David Schumann)
  - b) Web Page (Steven Ranney)
  - c) Excellence in Fisheries Education Award (Greg Whitledge)
  - d) Skinner Award (Julie Harris)
  - e) Best Student Paper-Poster 2015 Symposia (Katie Bertrand, Matt Catalano, Mark Fincel)
  - f) Membership and Young Professional (Rebecca Krogman)
  - g) Nominating (Mike Quist)
- X. Ad-hoc Committees, Special Projects, and Student Subsection
  - a) Student Subsection (Andrew Carlson)
  - b) Undergraduate Travel Award (Andrew Carlson)
  - c) Incredible Skinner Challenge-Take 2 (Craig Paukert)
- XI. Funding Requests
  - a) Hutton Program (Beverly Pike)
  - b) Equal Opportunities Section Student Travel (Marybeth Brey)
  - c) International Congress on the Biology of Fish, Undergraduate Research Symposium (Chris Myrick)
- XII. XII. Other Awards and Recognition
  - a) Out-going Division Representatives and Officers
    - a. Brian Irwin (Southern Division Representative)
    - b. Phaedra Budy (Western Division Representative)
    - c. Trent Sutton (Secretary-Treasurer)
  - b) Election of new Division Representatives, Secretary-Treasurer, and President Elect
- XIII. Old Business
- XVI. New Business and Announcements
- XVII. Adjournment

# Fostering Citizen Scientists

By: Mike Malon  
Resource Conservationist, CPESC  
Jo Daviess County Soil and Water  
Conservation District

On Saturday, May 9, 2015, a citizen scientist training program was held at Apple Canyon Lake's Owners Club. The training was sponsored by the Jo Daviess County Soil and Water Conservation District (SWCD), National Great Rivers Research and Education Center (NGRREC), and the University of Illinois Extension. A total of twelve citizens attended the training, titled "RiverWatch". The training was led by NGRREC River Watch Coordinator Matt Young.

Apple Canyon Lake is a 400 acre lake in Northwest Illinois with a 10,000 acre watershed. The Apple Canyon Lake Property Owners Association is currently in the process of developing a watershed plan for their lake under collaboration with the Illinois Environmental Protection Agency (IEPA), Jo Daviess County Soil and Water Conservation District (SWCD) and University of Wisconsin, Platteville, environmental engineering department. The plan is partially funded by a Clean Water Act Section 319 grant. This planning process has three major components: education, monitoring, and planning.

The RiverWatch Program is a major component of the Apple Canyon Lake watershed planning process. In 2014, prior to starting the watershed plan, eight sites were selected around Apple Canyon Lake to give some baseline information about the streams. The eight sites around Apple Canyon Lake were monitored in early June to catch the larval hatch, especially noting crucial EPT taxa. From the sampling, stream discharge, taxa richness, and MBI are determined. These sites will again be monitored this June, and in coming years. By monitoring the same sites year after year managers will be able to better understand trends and stream conditions, as well as track progress as the final watershed plan is implemented. The sites were selected as the river flowing out of the lake, and the major tributaries which feed the lake.

The Illinois RiverWatch Network is a volunteer stream monitoring program that seeks to engage Illinois citizens by training them as Citizen Scientists. Each year at adopted stream sites in their communities, Citizen Scientists conduct habitat and biological surveys, including the collection and identification of macroinvertebrates. The program strives to collect consistent, high-quality data on the conditions of local streams and provide citizens with a hands-on opportunity to be better stewards of our watersheds.

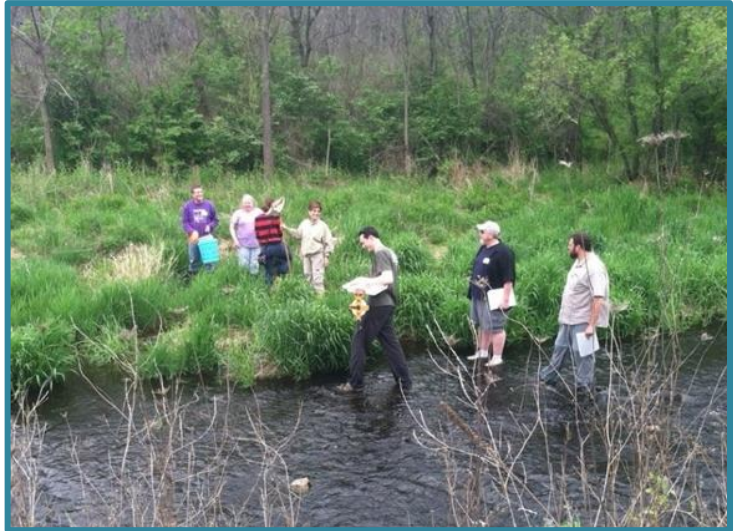
RiverWatch is a collaborative river-monitoring network of citizens, organizations, agencies, private interests and governments working together to ensure the health and beauty of Illinois streams and watersheds. Apple Canyon Lake has been working in collaboration with the SWCD to develop a watershed plan for the waters affecting Apple Canyon Lake, and this is the second year of using RiverWatch as a way to get residents involved while simultaneously collecting data on the health of our waters.



## Fostering Citizen Scientists (cont'd)

RiverWatch was initiated in 1995 as part of the Critical Trends Assessment Project (CTAP), an Illinois Department of Natural Resources (IDNR) project designed to conduct a long-term, comprehensive assessment of the environment in Illinois. In February of 2006, responsibility for RiverWatch was officially transferred to the NGRREC with support from the Office of Lieutenant Governor.

The RiverWatch program at Apple Canyon Lake combines education, stakeholder collaboration, and planning in this watershed effort. The program gets residents out in the water and helps them understand the value of aquatic habitat, as well as what makes it higher or lower quality habitat. On May 9, 2015, a RiverWatch training was held at Apple Canyon Lake and 12 volunteers attended.

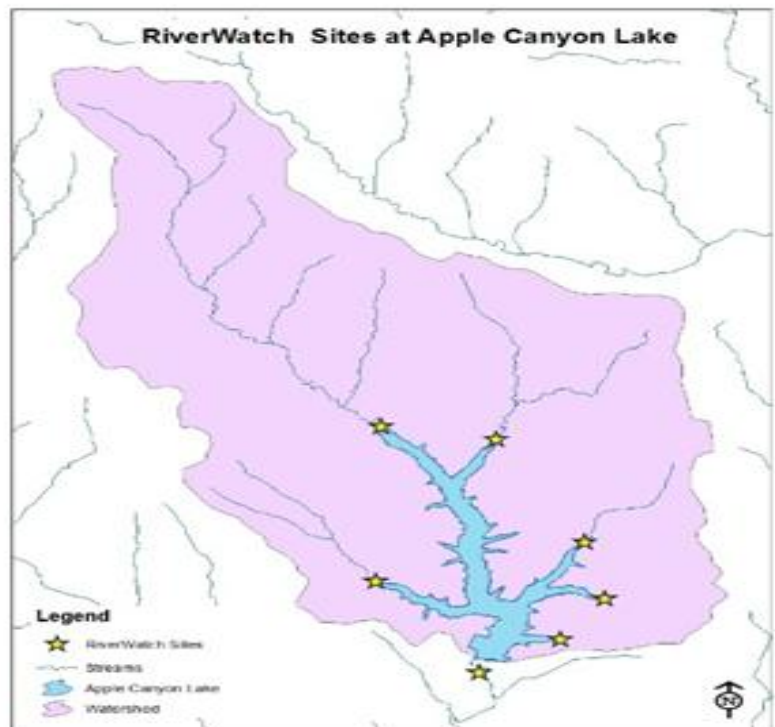


As the planning process continues, the same stream sites are monitored for nutrient levels, as well as in-lake testing. From year to year the results from all of these tests are compiled allowing the watershed planning group to assess trends as well as monitor the outcomes of implementation projects on the plan.

By looking at the results year to year they will be able to tell if conditions are improving or where further work is needed in the watershed.

This project also fosters other individuals and groups in the area and outside the watershed to take on their own sites and make a similar effort in their areas. The RiverWatch program can be a seed to expanding stream health throughout the state.

To learn more about the RiverWatch program, visit [www.ngrrec.org/riverwatch/](http://www.ngrrec.org/riverwatch/), and visit [www.applecanyonlake.org](http://www.applecanyonlake.org) to learn more about the watershed planning process.







# Student Subsection News

By: Andrew Carlson

President, Student Subsection of the Education Section

The Student Subsection of the Education Section (Subsection) is continuing its mission to enhance the student experience in fisheries in three focal areas: student education, communication, and recruitment and retention. Subsection EXCOM members developed a series of “How To ...” documents for undergraduates, graduate students, and young professionals. These documents address important steps in fisheries education and employment, including how to conduct undergraduate research, prepare for graduate school, write scholarship applications, analyze data, write and defend a thesis/dissertation, publish in graduate school, write a résumé/CV, secure employment, and become a young professional. See the May issue of *Fisheries* for a publication describing the “How To ...” series and how to access it. EXCOM members are currently writing additional documents in preparation for the Annual Meeting in August.

Other notable activities this year include publication of an article on the purpose, history, and importance of the “Student Angle” (see February issue of *Fisheries*); completion of an informative Subsection brochure; continued work on a comprehensive student award list; website updates, including conversion to the user-friendly WordPress format. Like most sections, the Subsection is concerned about the lack of young professional recruitment and retention in AFS. This year, the Subsection has become involved in a collaborative effort with the Fish Management Section and Education Section to help identify potential bottlenecks to young professional involvement in AFS and ways to overcome these issues.

## *Undergraduate Travel Assistance Award*

The Undergraduate Travel Assistance Award (UTAA) is designed to introduce undergraduate students to the American Fisheries Society (AFS) and increase participation in AFS activities by providing travel assistance to Annual Meetings. Since 2012, the UTAA has provided travel funds for 13 students, 11 of whom are still AFS members and active at the university and Society level. Funding for the UTAA recently was renewed at the 2014 AFS meeting in Quebec City, Quebec (\$2000/year from 2015–2017). However, there is some disagreement within AFS regarding the need for and utility of the UTAA. As a result, Education Section and Student Subsection members initiated an *ad-hoc* committee to review the present and future status of the award. Committee members include Julianne Harris (USFWS), Dan Daugherty (Texas Parks & Wildlife Department), Steve Lochmann (University of Arkansas at Pine Bluff), Craig Paukert (University of Missouri), Jesse Fischer (North Carolina State University), Ross Boucek (Florida International University), and Andrew Carlson (South Dakota State University).

Since January the committee has held multiple discussions regarding UTAA objectives, recipient criteria, and funding sources. Notably, members discussed a cost-sharing program whereby the Education Section and each AFS Division would provide matching funds for four students (one from each Division). Although only two Divisions agreed to the program this year, all expressed interest for the future. The committee will provide a final statement of activities for the Annual Meeting in Portland.

## Discover Life in West Virginia

Discover Life in West Virginia (DLiWV) is a citizen science program developed through the West Virginia University Student Subunit. The program is a tool to gather valuable species distribution data and at the same time engage the public in hands-on activities that both encourage understanding of natural resource sciences as well as foster an appreciation of local flora and fauna. DLiWV funding was provided by the West Virginia DNR and activities were undertaken at Coopers Rock State Forest (CRSF) near Morgantown, WV. In the fall of 2014 the DLiWV program entailed sampling for fish and aquatic macroinvertebrates as well as collecting basic water quality parameters. These efforts were expanded upon during the spring of 2015 to include birds and herpetofauna in an effort to encourage greater participation from the public and nurture integration among graduate students outside of fisheries science.



Species distribution data is important for managers and citizens alike, as it allows for appropriate measures to be taken to ensure the long term viability of our natural resources. In citizen science programs the scientists act to connect non-scientists with the tools and knowledge for gathering scientific information, allowing for the public-turned-scientists to collect data for the project at hand. For the purposes of DLiWV, the citizen scientists were encouraged to fully participate in all aspects of collecting and recording data on species distribution within CRSF. This included electrofishing (fish), kicknetting (aquatic macroinvertebrates), mist-netting (birds), and coverboard inspection (herpetofauna) in four streams (fish and aquatic macroinvertebrates), two bird fly-through areas, and one watershed (herpetofauna). In the field, fish, birds, and herpetofauna were identified to species. Macroinvertebrate samples were investigated streamside but official samples were returned to the lab for identification to genus.



## Discover Life in West Virginia (cont'd)

In total our collections included three species of fish, 50 genera of aquatic macroinvertebrates (2014 data only), four species of salamanders, and 25 bird species heard, seen, or collected. Over the course of four days (two days in each of 2014 and 2015) there were 83 individuals who participated as citizen scientists in the DLiWV program. Many of the participants were WVU students and it is the hope of the DLiWV staff to increase participation from the general public as well as continue the success of engaging WVU student participation. In a post-assessment survey of the 2014 DLiWV event 100 % of the attendees indicated they would participate in the event in the future; however, the participants rated scientific knowledge gained as the lowest surveyed response (4.5/5). Our 2015 program aimed to increase our ability to deliver valuable and meaningful scientific information to participants through a combination of discussion, presentations, streamside talks, and hand-outs. A “post-test” survey was given to the 2015 participants and we are in the process of evaluating our new approach before moving forward with our next DLiWV event in the fall of 2015.

The WVU AFS Student Subunit hopes to establish DLiWV as an annual or biannual event, where its mission will be expanded to integrate fisheries science and education. The inclusion of still further taxonomic groups (e.g., trees, bats, terrestrial macroinvertebrates, etc.) will pique the interests of even more potential citizen scientists and thereby increase basic species distribution knowledge as well as encourage further appreciation for the work that natural resource scientists perform to understand and protect our natural resources. The long-term goal of the DLiWV program is to have a full inventory of all of the “kinds” of organisms within Coopers Rock State Forest, while fully engaging the community in the process of collecting important scientific information.

## AFS Units – Need Help with Bylaws, Running Meetings or More?

The outgoing and incoming Constitutional Consultants for the Society will be available at the AFS Annual Meeting during the afternoons of August 17th, 18th, and 19th to meet with AFS unit leaders who would like advice relating to developing or amending unit bylaws and procedures, or running a meeting according to Robert's Rules of Order.



If you would like to take advantage of this offer, please contact Jessica Mistak ([mistakj@michigan.gov](mailto:mistakj@michigan.gov)) or John Boreman ([John.Boreman@ncsu.edu](mailto:John.Boreman@ncsu.edu)) to set up an appointment during one of those afternoons.

### 2016 Aquatic Resources Education Association (AREA) Conference

The biennial Aquatic Resources Education Association (AREA) Conference will be at the U.S. Fish and Wildlife Service's (FWS) National Conservation Training Center (NCTC) in Shepherdstown, West Virginia, October 23-27. The conference is designed for fisheries and educational professionals from state, federal, and industry sectors involved in fishing and aquatic resource education programs and the recruitment/retention of recreational anglers.

AREA is a not-for-profit association dedicated to furthering aquatic education. Members participate in a national effort toward education, conservation, legislation, cooperation, science, research, information dissemination, restoration, evaluation, management, recognition, and other similar functions related to aquatics and aquatic programs. Incorporated in 1994, members represent local, state, and federal agencies, non-governmental organizations, and industry from across the nation.

For more information about AREA, visit AREA's website at [www.AREAnet.org](http://www.AREAnet.org).

## Mississippi State University Student Sub-unit Events

By: Clay Raines



Our student sub-unit has been very active during the transition from spring to summer. During April, we hosted the second annual “Fish Dish” competition, allowing our students to showcase their culinary skills as well as spreading awareness about sustainable aquatic resources.

The Month of May was equally productive as MSU AFS volunteered at a local youth fishing derby at Sam D. Hamilton Noxubee Wildlife Refuge. Graduate and undergraduate students alike participated by helping young anglers with knot tying and hook removal, as well as assisting MS Fisheries, Wildlife, and Parks personnel with fish weigh-ins. This event was opened to the public, and exposed a large number of youth to their first fishing experiences.

We also served as judges for Wildlife Management competitions at the 2015 Mississippi 4-H State Congress. High School aged participants were judged on their ability to determine effective management strategies for a landowner, given a pre-determined set of goals and species to be managed. Volunteers led a guided question and answer session as well as grading the written management plans.



## Mississippi State University Student Sub-unit Events (cont'd)

June marked the end of the first summer semester, but not the activity of MSU students. On June 9<sup>th</sup>, MSU students led a day of instruction at the Mississippi State Youth Conservation Camp. The goal of the camp was to expose high school aged participants to careers in natural resources. AFS students taught an aquatic management techniques course including: electrofishing, tagging methods, and macroinvertebrate sampling and identification. An additional group of AFS students headed-up a short-course on aquaculture, anatomy, and fish physiology. An additional fishing derby was hosted at the Noxubee Refuge, this time to benefit the Palmer Home (a local non-profit Children's Home). This derby afforded the youth the opportunity to fish, sample and observe macroinvertebrates, and make "fish print" artwork.

This is the start to many more summer events, stay tuned!



# Excellence in Fisheries Education

**Dr. Leandro E. (Steve) Miranda**, Fisheries Professor and Assistant Leader of the MS Cooperative Fish and Wildlife Research Unit, was the recipient of the *2014 Excellence in Fisheries Education Award*. Dr. Miranda was invited to share his teaching philosophy and style that has made him a highly respected educator in our field.



My teaching philosophy was shaped by my early college and work experiences. I majored in biology and chemistry at a small liberal arts university and soaked up a lot of basic knowledge. By the time I was a senior I panicked – how am I going to get a job?!?!?! I knew a decent amount of biology, was so-so in chemistry, but was clueless about what to do with the knowledge I had assimilated. Graduate school was my salvation – stall until I could find my way. I spent a stint in a marine biology program – but the ocean was way too big, and cruises on research vessels made me sick. Eventually I landed in an applied inland fisheries management graduate program, and subsequently in a job with a state fisheries management agency. My work experience was awesome, and it pushed me back into graduate school. This time I knew exactly what I wanted: a job in academia where I could train students to tackle applied fish and fishery management problems, and where I could do applied research oriented towards helping agency biologists do their job.

Because of these early experiences, my teaching focuses on practical applications that help students solve resource problems. Over the years I have taught fisheries science, fisheries management, and fish habitat management courses, and have done applied research for various resource management agencies. My goal is for students to have a broad understanding of management problems, and enough tools in their toolbox to solve common fishery problems. I use a lot of real-life examples in my classes, particularly from the years I spent working for the fisheries management agency, and I do my best to keep classes interesting and entertaining.

Don't get me wrong, I don't disavow a liberal arts education over an applied education. I advocate for balance, as the two sides have much to learn from each other. Most fisheries problems emerge from complex ecological and social interactions that are ambiguous. I believe understanding this complexity requires integrative thinking and the ability to see a problem from multiple perspectives. Without a liberal arts education that prepares students for lifelong learning, inquiry, and integrative thinking the fisheries management discipline would become stagnant, and incapable or slow to develop new approaches to existing or forthcoming problems.

## Excellence in Fisheries Education (cont'd)

I value my early liberal arts education, but I would not value it as much if I had not enhanced it with some “how to” skills. How can a liberal arts education coalesce with an applied education to produce a well-rounded fisheries professional? For starters offer more students a wider array of internship, co-op opportunities, and on-the-job study programs supporting the connection between classroom learning, real-world expectations, and problem solving.

On the first day of class I put everything on the table. I do my best to inform (scare) students about my expectations, goals, and what lies ahead. I warn them that I don't always stick to the syllabus and frequently detour to less travelled roads in search of answers to their questions. My grades are often high, but I don't give anything for free. My students have plenty of opportunities to make up for lost ground through extra readings, bonus questions, and going beyond my expectations by expanding on assignment topics. Whenever possible I try to get students involved in developing and publishing a journal article which they co-author, although we succeed infrequently. My labs usually involve a collaborative computational assignment due within a week – I have heard through the grapevine that these are the most difficult and rewarding parts of my classes. Teaching quantitative aspects of fisheries management is a passion. There are only a handful of other activities I enjoy more than seeing students' faces light up when they make connections they had not thought of before.

Dr. Leandro E. (Steve) Miranda

## Best Student Paper Presentation 2014

...Where are they now?

### Corey Eddy

Since winning the 2014 Best Student Paper Award for his presentation, “Capture-related mortality and post-release survival of pelagic sharks interacting with tuna purse seines in the Eastern Pacific Ocean”, Corey Eddy, an NSF Graduate Research Fellow from the University of Massachusetts Dartmouth, has submitted that manuscript for publication and is eagerly awaiting a decision. Beyond that, he is focused on his doctorate, which he expects to defend in May 2016. As part of a team funded by the UK's Department for the Environment, Food, and Rural Affairs through a Darwin Plus grant, he is studying the ecological impact of lionfish in Bermuda. His thesis focuses on their abundance, distribution, age and growth, reproduction, and feeding ecology. The latter subject is the keystone chapter of his work and will combine traditional stomach content analysis with the more cutting-edge stable isotope

analysis to document their feeding habits, most common prey items, the potential for resource overlap with competitors, and a variety of ecological relationships. Through this research, he hopes to develop an idea of the potential impact lionfish may have upon Bermuda's reef ecosystem and estimate the fishing effort needed to manage the population and minimize its impact. Recognizing the possible severity of this invasion, Corey works tirelessly to inform the Bermudian public of the problem. He has spoken at several schools across the island, as well as many local organizations and charities. As a volunteer for one such charity, the Ocean Support Foundation, he manages the Bermuda Lionfish Culling Program on behalf of Bermuda's Department of Environmental Protection, which provides residents a permit to hunt lionfish. Since the program was launched two years ago, he and his team have provided the necessary training for a small army of people to get underwater and hunt these invasive predators, and together they have caught nearly 2000 lionfish.



**Elizabeth Ng**, M.S. Candidate, University of Idaho  
As an Honorable Mention in the 2014 Best Student Paper competition, Elizabeth was invited to briefly highlight her current research.



Priest Lake, known as the Crown Jewel of Idaho, is nestled in the Selkirk Mountains in the northern reaches of the state. Glaciers carved the deep, clear lake from granite bedrock thousands of years ago. In comparison, it seems that there is little humans could do to alter such a pristine and wild place. But a great deal has changed below the surface since the 1900s when newly built roads enabled anglers to pursue two native trout species, Bull Trout and Cutthroat Trout.

Like many other lakes in the United States, Priest Lake has experienced a number of additions to the native fish assemblage in the hopes of improving or diversifying the fishery. One of the first occurred in 1925, when Lake Trout, native to the Laurentian Great Lakes, were introduced. Unlike Bull Trout and Cutthroat Trout, Lake Trout do not migrate up tributary streams to spawn. Instead, they spend their entire lives feeding and reproducing in the lake. This life history gives Lake Trout a competitive advantage, allowing them to reach trophy sizes unimaginable for Bull Trout or Cutthroat Trout. Such growth requires a great deal of high-energy prey—fish—and in the relatively unproductive waters of Priest Lake, the Lake Trout population languished for two decades without reaching its full growth potential.

Another introduction in the mid-1940s began to tip the balance. Like Lake Trout, kokanee, land-locked Sockeye Salmon, were also introduced throughout the United States. In Priest Lake, these abundant, delicious, and highly catchable fish became a staple not only for anglers, but also for Lake Trout, which finally began to reach trophy sizes. This miraculous mix of high yield and trophy fisheries lasted over a decade before rumors of decreasing catch rates began to circulate. Cutthroat Trout were declining. The final blow was the introduction of mysid shrimp in 1962. Although they were intended to enhance kokanee growth, mysids co-evolved with Lake Trout. This put juvenile Lake Trout in a unique position to capitalize on the new food source, likely removing a bottleneck in recruitment. Once this burgeoning cohort grew large enough, they were capable of consuming unprecedented amounts of fish prey, especially kokanee and Cutthroat Trout. Bull Trout, historically the apex predators of Priest Lake, declined also, as competition mounted. Today, the Priest Lake fishery is dominated by Lake Trout.

This is a familiar story across the western United States, where introduced Lake Trout, though desirable as a trophy fishery, have become problematic predators and potential competitors for a number of other fish species. Some managers have deemed Lake Trout incompatible with their goals, such as native fish conservation or maintaining a diverse fishery. On Lake Pend Oreille, located just 50 miles southeast of Priest Lake, one of the largest and most successful Lake Trout removal efforts has been underway for nearly ten years. Yet in other water bodies, Lake Trout are prized for their trophy status, and are often protected to promote growth. Though these paths seem mutually exclusive, neither is certain. Without sufficient removal effort eradication is a Sisyphean task; without sufficient prey resources trophy status is unattainable.

The future of Priest Lake's native fishes and local recreational economy rely on sound decisions regarding the Lake Trout population. Will Lake Trout remain dominant, but become stunted as prey resources dwindle even further? Would removing Lake Trout bolster native fish populations and promote a diverse fishery? My research aims to address these questions by building a model of the Lake Trout population at Priest Lake. The model will follow groups of Lake Trout as they grow from fry to juveniles to reproductive adults. Along the way, I will model the effects of fishing and natural mortality, with the hope of detecting the long-term trends in the growth potential of the population. More importantly, managers will be able to learn more about alternative decisions before making any changes. For example, by modeling population growth at varying levels of removal effort, I can estimate how much annual effort might be needed to reduce the population.

If we have learned anything from the history of Priest Lake, it is that unforeseen interactions can have drastic and irreversible effects on aquatic systems. My goal is to provide managers with the best information to reduce the uncertainty of future management decisions, and ultimately, provide the best possible outcome for the fish and people of Priest Lake.

Elizabeth Ng

## Editor's Note

If you have comments or suggestions, please feel free to contact us. We encourage submissions and ideas for future issues of the newsletter. Contributions, comments, and suggestions may be emailed to us at any time.



Hilary Meyer  
South Dakota Game, Fish and Parks  
20641 SD Hwy 1806  
Fort Pierre, SD 57532  
Hilary.Meyer@state.sd.us



David Schumann  
South Dakota State University  
SNP 138 Box 2140B  
Brookings, SD 57007  
David.Schumann@sdstate.edu



**AMERICAN FISHERIES SOCIETY**  
**PORTLAND, OREGON**  
**145TH ANNUAL MEETING**  
**AUGUST 16-20, 2015**