



# American Fisheries Society

# EDUCATION SECTION

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## President's Line

**"In the grand scheme of things, I gained understanding in no uncertain terms that people who dedicate their lives to the sciences and management of natural resources are givers, not takers."**

*- Donald Jackson (2010); Fisheries 35(4), page 192*

I love my job. No, I mean I really love my job! I love to think about problems, ask questions, and then figure out ways to solve those problems and answer those questions. I love spending time in the sun, and in the wind, and in the rain, and in the snow. I love crunching numbers and watching patterns emerge. I love to write (or at least edit). I love being able to share what I have learned with others. I love having the ability to influence natural resource management practices and I love making my corner of the world a better place for my friends and family. Most of all, I love working with highly intelligent, hardworking people who are passionate about fish! They challenge me every minute of every day and I can honestly say that my hands and mind are never bored. In this vein, the quote provided above by AFS Past-President, Don Jackson, is one of my all-time favorites because it fully characterizes my experience with fisheries professionals. I have found fisheries folks to be among the most giving, caring, and thoughtful people I know. Nowhere is this exemplified more than in AFS, and nowhere in AFS is this more obvious than in the Education Section. Education is by its very nature a selfless act that requires one to give of her or himself for the betterment of another. Those of us dedicated to education in all its forms know and experience this on a daily basis. We also know that although our efforts are focused on the student, it is often the educator who gains the most from the interaction. I am confident that I have gained more from my students than I have ever given. The same is true with AFS.

Every year we hear the same old thing from the leadership of the Society, Sections, Divisions, and Chapters—get involved! It is so common that I am afraid many of us have become desensitized and do not take pause to really think about our activity, or lack thereof, in AFS. For many, the benefits of being active in AFS are already known. The call to action is not directed at those individuals; they will likely always be active. Rather, the call is to engage those who have much to contribute (i.e., everyone), but for one reason or another have not become engaged in the Society. There are many reasons why people do not get involved—not enough time due to work and/or family, not knowing where to begin, or even being intimidated or shy. Regardless of whether you are someone who has never been involved in AFS or someone who has let their level of activity taper off in recent years, please consider making a commitment to get more involved in AFS. Speaking from experience, there is no better place to invest your efforts than in the Education Section. I am biased, but we undoubtedly have the best membership in AFS. The Section is



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Visit the Education Section of the American Fisheries Society online at: [www.fisheries.org/units/education/](http://www.fisheries.org/units/education/)

## President's Line (cont)

filled with unassuming members who value education and, therefore, understand that everyone has something to contribute. Equally important is that the Section is one, if not *the* most active Sections in AFS. Consequently, the Section provides a diversity of opportunities and has something for just about everyone. The Section has projects varying from large endeavors that require a major commitment of time and energy to those that may only take an hour of your time each month (sometimes even less). All of these projects help the Section function. So, please pause for a moment and seriously consider working with me and the rest of the Section to further advance our Section, AFS, and the fisheries profession.

As I stated above, the Education Section continues to be one of the most active Sections in AFS. This is a direct reflection of our membership and those who have chosen to give of their time and expertise. In addition to a new President-Elect (Craig Paukert) and Secretary-Treasurer (Katie Bertrand), several members have volunteered as new Chairs or Representatives for 2012 and deserve a special thank you: Julie Harris (Southern Division) and Jeff Jolley (Western Division) are new Division Representatives; Shannon Fisher and Melissa Wuellner are the new Co-Chairs for the Best Student Paper and Poster Symposium; Landon Pierce and Cari-Ann Hayer are taking over as editors of the newsletter; Jesse Fischer is Chair of the Membership Committee; and Mike Colvin will be the new Chair of the New Initiatives Committee. We are also excited to welcome Jeff Fore as President and Dan Dembkowski as President-Elect of the Student Subsection of the Education Section. A very special thank you goes to all of the Representatives and Chairs who have agreed to serve again in 2012: Steve Cooke (North Central Division) and Lisa Kerr (Northeastern Division) as Division Representatives; Dan Daugherty as Chair of the Skinner Award Committee; Jason Vokoun as Chair of the Excellence in Fisheries Education Award Committee; and Steven Ranney as the website coordinator. Lastly, I thank all of those members who have served on the various committees over the last year. The Section simply would not function without your efforts.

I would like to conclude this President's Line by telling you a little about the Section's activities and needs, and my goals for the upcoming year. The Section has supported several book projects in recent years. Some of these have been recently completed (i.e., *Standard Methods for Sampling North American Freshwater Fishes*; *Inland Fisheries Management in North America, third edition*; *Conservation, Ecology, and Management of Catfish: the second international symposium*), some are nearing completion (i.e., *Fisheries Techniques, third edition*; *Scientific Communication for Natural Resource Professionals*), and one is just getting off the ground (i.e., *Foundations of Fisheries Science*). I hope to work closely with the New Initiatives Committee to identify new book projects that serve to further the mission of the Section and AFS. If you have ideas, please send them my way or to the New Initiatives Committee (mcolvin@iastate.edu). As many of you know, the Section (under the leadership of Past-President, Tom Kwak) started an initiative to bolster the Skinner Fund by directly contributing funds and by matching contributions from individuals and other units within AFS. The effort was affectionately known as the "Great Skinner Challenge". Although the initiative has been highly successful (over \$51,000 has been added to the fund), we still have over \$10,000 remaining for match. I plan on working with the other Sections and units in AFS to help us meet our objectives on this effort. Lastly, the Student Subsection has undergone many changes with regard to their membership structure in the last year. The Subsection has also made enormous strides to increase their visibility and activity in recent time. The EXCOM and I will be working closely with the Subsection to ensure that it is given the support needed to remain successful.

As you can see from this newsletter, the Education Section is an active group. If you are not already active, please consider contributing your time and expertise to the Section. I promise that you'll receive more than you give. If you have any questions, comments, or ideas, please do not hesitate to send me an email (mcquist@uidaho.edu) or give me a call (208-885-4064).



## How to Successfully Approach Government Application Process for Employment in Fisheries Science

It is the spring semester of 2012 and congratulations are in order for many of you reading this article. This may be your final semester as an undergraduate or graduate student and that is an excellent thing. If you have reached the end of your education career you must be feeling some relief, but if you have chosen a career in fisheries science you may be feeling some uncertainty as well. With federal and state budget cuts and hiring freezes it is difficult to find suitable positions. Even if you are not graduating or applying for positions, if you are planning to apply for a fisheries job in the near future you should continue reading. I know this may be a dry topic and somewhat redundant but I am offering advice based on personal experience.

If any of you have applied for a federal fisheries job, you know the questioning can be fairly tough and you may wonder how you could ever get an interview right out of college. Many of us have asked that of ourselves, but there are tricks to having your resume forwarded to the hiring biologists for consideration. Before I go any further, let me say that the first step to gaining a full time, permanent biologist position is to have a fairly diverse resume. Experience is extremely important these days. If you are just finishing up a bachelor's degree or even high school this spring, I advise you participate in as much undergraduate research and on-campus fish laboratory experience possible. Also, don't be afraid to attend and present research at local, regional and national conferences. Not only is it a lot of fun, but the professional experience is priceless. Apply for seasonal technician position with local state agencies and non-governmental organizations such as The Nature Conservancy. On the federal side, the US Forest Service (USFS), US Fish and Wildlife Service (USFWS), National Parks Service (NPS), and the Bureau of Reclamation (BOR) typically offer term and seasonal positions that are still highly competitive, but offer a great opportunity to get your foot in the door. Another organization worthy of mention is the USFS Fish and Aquatic Ecology Unit Center for Aquatic Technology Transfer (CATT) stationed at Virginia Tech, Blacksburg, Virginia. CATT offers many seasonal positions at pay grades ranging from GS-2 through GS-5. If you are willing to travel, need experience and want decent pay you should contact the CATT office and inquire about upcoming summer positions.

For those of you with adequate experience, let's get down to business. I am currently a Fishery Biologist with the US Army Corps of Engineers (USACE) in Walla Walla, Washington and I have only been employed by USACE for three months. I have an extensive background in fisheries management and research spanning three state agencies, four universities and the US Forest Service. I received my bachelors' degree from the University of Connecticut in 2007, and my masters' degree from James Madison University in 2010. I began my fisheries career in 1999 when I got my first seasonal technician job with the Virginia Department of Game and Inland Fisheries. I started applying for federal jobs at the GS-7 level early in 2010 and my resume was not once forwarded to the hiring biologist until after I received my masters' in February 2011. What I learned from



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### Trumbo – Government Employment in Fisheries Science (cont)

this was to apply early and often and get into the groove of vigilance and mastering the application process. This allows the opportunity to get good at job searching and get a feel for the types of questions that you will be asked for the specific grade levels you are applying for. You should take notes while applying for jobs because you will find that federal listings and applications follow a trend. For example, many federal agencies have similar questions for all position with the same job title. The USFWS often posts application questions geared toward Section 7 and Section 10 of the Endangered Species Act (ESA). The BOR often asks questions about the National Environmental Policy Act (NEPA). What can you learn from this? Not all positions are created equal, although their applications questions may suggest that they are. Don't be discouraged if you continually apply for positions within a particular agency and the questions always seem to be the same, even if you don't know how to answer, or have no experience related to the questions. I could never get an interview with the USFWS because of my little experience with the ESA, but once I figured out how to apply, I was offered two interviews and my first biologist position from the USFWS within two months.

Ok, we have covered the "apply early and often" part. The next step is to remember not to sell yourself short. I conservatively answered questions about my experience for at least six months before the reality of the application process sank in. You need to carefully read each question and answer to the highest of your ability and don't feel bad about stretching it a bit. You need to brag here because the application and interview process are all about YOU. Also, keep in mind that for federal positions your application is forwarded to a human resources office that may not even be in the office in which you are applying for the position. The real goal of the application is to have your resume forwarded to the hiring biologist.

Now that you have the application covered, let's discuss your resume. If you remember anything you were taught at an earlier point in high school you have built your resume to be somewhat concise and simplified. Forget all that, you are a future fisheries biologist. Remember what I mentioned in the previous paragraph? Your application may not go to the hiring biologist, but instead to a human resources specialist who may know nothing about the requirements of the position. This is where having an extensive resume works in your favor. Key words are used to "grade" your resume for initial screening of qualified candidates, and those with enough of the appropriate key words are often referred (given the application reflects your experience as well). My resume was around four pages when I was in graduate school. I had every facet of my various positions broken down into categories such as "field duties", "office duties", etc., where the duties were listed in bullet form. After 12 months of applications I had no interviews scheduled and received notice that my qualifications were "unclear" for positions from the states of Wyoming, Washington, and at minimum four positions from the USFWS. The last notice I received in March 2011 from the USFWS regarding my "unclear" qualifications of bachelors' and masters' degrees in fisheries related fields with 11 years of experience aggravated me into a resume make-over. I made everything I had done in the past decade as clear as possible by expanding from bullet form to an explanation paragraph for every single duty I had listed for every position and grew from four to 13 pages overnight. By May 2011 I had interviews with the USFWS, USACE, the Oregon Department of Fish and Wildlife (ODFW) and the state of Wyoming. Is that clear enough?



### Trumbo – Government Employment in Fisheries Science (cont)

Now that you have the mechanics figured out I will leave you with a couple more scenarios to consider. When you get that first interview, take a deep breath, enjoy the victory (because this is a victory) and prepare yourself mentally, but stay relaxed for the interview. My first biologist interview was with the ODFW and I blew it. I studied for a week for that interview and stressed to the point that I poorly formulated answers to simple questions such as “describe two assumptions of mark-recapture studies”. I had just finished two years of mark-recapture studies on brook trout so I was not blind-sided by any means. My point is this; when it comes time to interview, treat the interview as though you are talking work with old friends, not being examined for character flaws. When I interviewed the first time for a USFWS position, I reviewed a few things relative to the position description the day before and called it good recalling my performance on the ODFW interview. The morning of the USFWS interview I rolled out of bed, threw on a t-shirt, made a cup of coffee and answered their phone call. I spoke very candidly and friendly with the two biologists I would have been working for as if we had known each other for years. It was fun and stress free and four weeks later I was offered the position. Remember, you are the expert. You are the candidate everyone wants to hire. Just answer the phone or step into the room happy and confident that you are their next employee because you know you have what they want. On that same thought, don’t be afraid to admit that you do not know something. In my current position I am lead fishery biologist in the USACE Walla Walla District on all things related to turbine passage survival for the Federal Columbia River Power System. When I interviewed in June 2011 for the position I knew very little about hydropower systems. Turns out the most important technical interview question was geared toward my knowledge of hydropower. The one question that was the most pertinent to my current position was the one I had no solid answer for, yet I was hired and I am good at what I do in a few short months. Although you may not have a particular skill or experience you must stress the fact that your experience and grasp of the principles of fisheries science and research is sufficient enough to allow you to do the job well in very short order.

Finally, when a position you are interested in offers contact information for one or more hiring biologists, take that information and give a phone call, or send an email to request a phone call. I have always called the hiring biologist prior to the interview and asked them whatever I wanted to know right down to “explain to me what qualities and skills you’re desired candidate would possess”. This is especially good advice when you have been offered an interview for a state fish biologist position. While the federal government may have more difficult initial screening process, state biologist interviews are far more rigorous and technical in my experience. My calls have always been well received and questions thoroughly answered. You can also use the information you get to formulate appropriate questions during the interview. When it’s your turn to ask the questions, make them work for you. It is gratifying to throw out a curveball and see the looks on the faces of the interview panel as they look at each other trying to decide who is most qualified to provide an answer.

Hopefully this quick bit of knowledge will be helpful in your job search and the application process. Be prepared, for you will be denied interviews, even for positions you are more than qualified for. You may even interview poorly, but you surely won’t let it happen twice. Simply put, be confident, friendly and persistent and you will gain employment.

# John E. Skinner Memorial Award

## 2012 CALL FOR NOMINATIONS

The John E. Skinner Memorial Fund was established in memory of John Skinner, former California-Nevada Chapter and Western Division AFS President. The fund provides monetary travel awards for deserving graduate students or exceptional undergraduate students to attend the AFS annual meeting. The 2012 meeting will be held in Minneapolis-St. Paul, Minnesota, August 19<sup>th</sup> through the 23<sup>rd</sup>.

Any student who is active in fisheries or related aquatic disciplines is eligible to apply. Awardees are chosen by a committee of the AFS Education Section. Selection is based on academic qualifications, professional service, and reasons for attending the meeting. In addition to financial assistance to attend the AFS annual meeting, award winners will receive a one-year paid membership to the American Fisheries Society. Applications forms for 2012 for the student and advisor (separate forms) are available at (<http://www.fisheries.org/afs/awards.html>). Completed applications (for both student and advisor) must be received no later than May 11<sup>th</sup>, 2012.

For more information about the Skinner Award, contact:

Dr. Dan J. Daugherty  
Texas Parks and Wildlife Department  
Heart of the Hills Fisheries Science Center  
5103 Junction Hwy.  
Mountain Home, Texas 78058  
Phone: (830) 866-3356 x 211  
FAX: (830) 866-3549  
Email: [Dan.Daugherty@tpwd.state.tx.us](mailto:Dan.Daugherty@tpwd.state.tx.us)

## NEW INITIATIVES COMMITTEE



Do you have ideas that you think the Education Section should be undertaking? Well, the Education Section has a surplus of funds, so these ideas just may happen! To identify potential initiatives the Ad-hoc New Initiatives Committee was formed to identify and solicit ideas for new initiatives that can be undertaken by the Section. Mike Colvin (Iowa State University) is the new chair of the committee and is soliciting your ideas. Feel free to email him ([mcolvin@iastate.edu](mailto:mcolvin@iastate.edu)) with your ideas; even if they are out in left field, the more input the better! This is your opportunity to shape the future endeavors of the Education Section.



## Excellence in Fisheries Education Award 2012 CALL FOR NOMINATIONS

The American Fisheries Society (AFS) Excellence in Fisheries Education Award was established in 1988. The award is administered by the Education Section and is presented to an individual to recognize excellence in organized teaching and advising in some aspect of fisheries education. Nominees may be involved in extension or continuing education, as well as traditional college and university instruction. Nominees must be AFS members, have been actively engaged in fisheries education within the last five years, and have had at least 10 years of professional employment experience in fisheries education. Two or more people may act as nominators, but at least one nominator must be an AFS member. The nominator(s) is responsible for compiling supporting material and submitting the application. The suggested format for applications can be found on the Education Section web site. Application materials should be sent to Jason Yokoun ([jason.vokoun@uconn.edu](mailto:jason.vokoun@uconn.edu)) in digital form.

Nomination deadline is April 15, 2012. Additional information can be obtained from:

Jason Yokoun  
Chair, Excellence in Fisheries Education Committee  
Dept. of Natural Resources and the Environment  
University of Connecticut  
Phone: (860) 486-0141  
Email: [jason.vokoun@uconn.edu](mailto:jason.vokoun@uconn.edu)



The 2011 recipient of the Excellence in Fisheries Education Award (above) was Dr. Scott G. Hinch of British Columbia.

## Win the honor of having YOUR writing published in Fisheries!

### Student Writing Contest Now Accepting Applications

The American Fisheries Society Student Writing Contest recognizes students for excellence in the communication of fisheries research to the general public. Undergraduate and graduate students are encouraged to submit a 500- to 700-word article explaining their own research or a research project in their lab or school. The article must be written in language understandable to the general public (i.e., journalistic style). The winning article will be published in *Fisheries*. Students may write about research that has been completed, is in progress, or is in the planning stages. The papers will be judged according to their quality and their ability to turn a scientific research topic into a paper for the general public and will be scored based upon a grading rubric. Check the AFS website ([http://www.fisheries.org/afs/awards/awards\\_applications/award\\_rub](http://www.fisheries.org/afs/awards/awards_applications/award_rub)) awards page for the grading rubric.

Submission deadline—April 15th 2012

Submissions and questions should be directed to: Walt Duffy (see contact inset)

Contact: Walt Duffy  
CA Coop Fish & Wildlife Research Unit  
Humboldt State University  
Arcata, CA 95521-8299  
Phone: (707) 826-5644  
Email: [walter.duffy@humboldt.edu](mailto:walter.duffy@humboldt.edu)

## For the Love of Fish

People can fall in love with cute photos of soft, furry animals. Animal welfare charities use that human tendency in their fundraising campaigns. But we are stewards of wet, cold, slippery, slimy creatures with bulging eyes and sometimes prickly parts or claws. That description sounds like an alien villain in a science-fiction movie. Who's going to love that? When we trade in our hip waders for artificial hips, who will love fish and be the next generation of fisheries professionals and stewards?



African environmentalist Baba Dioum said, "In the end, we will only conserve what we love. We will only love what we understand. We will understand what we are taught." This philosophy serves as the foundation for the Benton Conservation District "Salmon in the Classroom" program. Although you might not have salmon in your region, Benton Conservation District's "Salmon in the Classroom" can serve as a model for fisheries education anywhere. Why wait until the collegiate level to begin fisheries education?

Benton Conservation District's fisheries education program started as a vehicle to interest elementary students in local rivers. We started small, writing grants to purchase an aquarium for a few local schools. We gathered some teachers and trained them how to raise salmon and how to incorporate salmon into their existing lessons on biology, math, history, geography, reading and writing. As soon as we put an aquarium with salmon into a classroom, the students are immediately "hooked."

Students watch over the salmon eggs like expectant parents and thrill to see the fish begin to swim. The experience is so rich with possibility that it serves all kinds of students, whether they are struggling academically and need a hands-on reason to go school, or they are gifted, bored with traditional academics and eager to devour more challenging information. A fisheries biologist visits each class and conducts a salmon dissection demonstration, answering student questions and allowing students to touch all the fish parts. The program's grand finale is a field trip experience called "Salmon Summit." Benton Conservation District organizes the field day, recruiting partners and volunteers from agencies, non-profits, tribal and corporate organizations. The students release the salmon they raised at school and attend a series of learning stations staffed by natural and cultural resource experts. This experience motivates students to become river stewards, connects them to their local environment, exposes them to fisheries professionals and careers, and teaches about volunteerism. Benton Conservation District's program has grown over eleven years to include 38 schools across two counties.



Certainly not every participating student will become a fisheries professional. But perhaps some students will begin a lifelong love affair with a local fish, understanding it and striving to conserve its habitat.

For more information, see [www.bentoncd.org/programs/education](http://www.bentoncd.org/programs/education) or call (509) 736-6000.





## New Book Underway! *Foundations of Fisheries Science*

Fisheries science has become an increasingly popular, complex, and multi-disciplinary field. As students and fisheries professionals, there is a need to highlight seminal findings of the past that have helped shape the discipline of fisheries science. This new book project will be published by AFS and will be called *Foundations of Fisheries Science*. This book will compile seminal papers in fisheries science and reprint them in a textbook, with summaries and commentary from two editors and five section editors.

The goal of this book is to identify and bridge gaps in the field of fisheries science to help us move forward in tackling challenging and emerging issues in the management of fish stocks, populations, and communities. With the help of fisheries professionals from around the world, we plan to include about 40 total papers that have helped to mold the discipline of fisheries science. The book will be edited by Greg G. Sass (Illinois Natural History Survey) and Micheal S. Allen (University of Florida). Sass and Allen have assembled five prominent fisheries scientists to serve as section editors and to aid in the development of *Foundations of Fisheries Science*.

### Book Sections and Section Editors

Managing Fish Stocks, Carl J. Walters (University of British Columbia)

Managing People - Human Dimensions and Economics, Robert Arlinghaus (Humboldt-University at Berlin)

Managing Habitat and Ecosystems, Daniel E. Schindler (University of Washington)

Managing Fish Communities, James F. Kitchell (University of Wisconsin-Madison)

Managing Fisheries Enhancements, Kai Lorenzen (University of Florida)

Articles reprinted in "Foundations of Fisheries Science" will be determined through 1) an upcoming survey administered to the AFS membership, 2) our panel of editors, and 3) through journal citation reports when applicable.

The survey can be found at <https://www.surveymonkey.com/s/XTRKSWF>

Your input is needed to help make this book as comprehensive as possible!



Gregory Sass (left) is a fisheries scientist at Escanaba Lake Research Station in Boulder, Wisconsin. He can be contacted at [Gregory.Sass@wisconsin.gov](mailto:Gregory.Sass@wisconsin.gov).

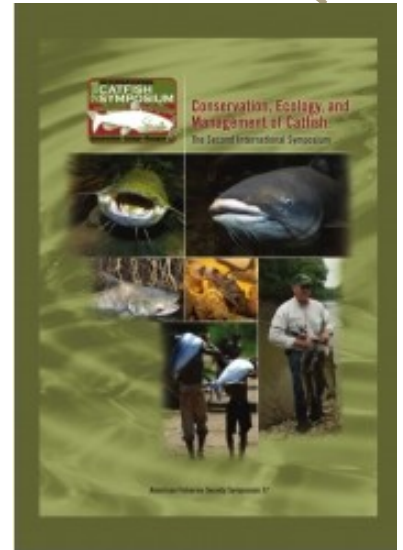


Micheal Allen (right) is a fisheries professor in the School of Forest Resources and Conservation at the University of Florida. He can be contacted at [meal@ufl.edu](mailto:meal@ufl.edu).

## Catfish Books Need a Good Home

As part of our financial contribution to the Catfish 2010 Symposium (*Conservation, Ecology, and Management of Catfish: The Second International Symposium*, held summer 2010), the Education Section was given two complimentary registrations that we awarded to two attending students (Rebecca Krogman and Steve Midway) as a travel award. We were also provided two copies of the Catfish 2010 Proceedings book (2011, AFS Symposium 77, edited by P.H. Michaletz and V.H. Travnichek, 800 pages in hardcover). So now we have two extra copies of this excellent catfish literature resource.

What to do with them? In an e-mail poll, the Section officers decided that it would be fitting to donate them to potentially needy and deserving libraries where catfish are important in the local environment (that doesn't exclude much of the globe — catfish are widespread!), but we failed to identify two such libraries. If you know of a deserving library that could make good use of one of these books, please e-mail me (Tom Kwak, [tkwak@ncsu.edu](mailto:tkwak@ncsu.edu)) with the name of the institution. If this doesn't work out, we may use the books in another way, so feel free to send your alternate ideas as well. Anyway, let's hear from you and get these books off my desk — Thanks!



## Past Education Section President Honored



Robert (Bob) Summerfelt, professor emeritus at Iowa State University, was awarded distinguished alumnus in October 2011 from the College of Letters and Science at the University of Wisconsin-Stevens Point ('57). As well as 35 years at Iowa State, where he was chair for the Department of Animal Ecology for nine years, Bob was on the faculty at Kansas State University and at Oklahoma State where for ten years he was employed by the U.S. Fish and Wildlife Service as leader of the Cooperative Fishery Research Unit. He also has been visiting professor at Utah State and taught summer session at Southern Illinois University and the University of Oregon's Institute of Marine Science. In his academic career, Bob was advisor to 600 undergraduates, and 42 MS and 8 Ph.D. students completed degrees under his supervision. His diverse research interests are represented by 186 publications covering topics on telemetry, age and growth, physiology, parasitology, aquaculture, aquatic toxicology, winterkill lakes, and lake aeration. In the last 20 years, he and his students have given over 100 talks at professional meetings, and produced 55 articles, 10 book chapters, and 4 major reviews on both pond and intensive culture of walleye, including the most recent chapter Culture of walleye, sauger, and hybrid walleye for the AFS special publication on Biology, management, and culture of walleye, sauger, and hybrid walleye. Bob was founding member of the Education Section and President, 1982-83.



## What Makes Fish Happy?

### *FREE Online Courses Let Fish Farmers, Producers & Culturists in on the Secret*

The courses were designed by Dr. Chris Hartleb, Professor and Co-Director of the University of Wisconsin-Stevens Point: Northern Aquaculture Demonstration Facility, along with Dr. Myron Kebus, Wisconsin Department of Agriculture, Trade & Consumer Protection, and Dr. Jeannette McDonald, Director of the Technology for Learning Center in the University of Wisconsin-Madison School of Veterinary Medicine.

“Fish farmers and pond owners are the first line of defense for preventing aquatic diseases from infecting their fish or spreading to other farms or ponds. With the recent occurrence of viral hemorrhagic septicemia (VHS), a deadly disease to many native fish in the Great Lakes, the importance of disease detection and prevention has never been greater” Hartleb says.

“Traditionally, disease detection and management was handled by trained fish veterinarians, but the process usually resulted in more questions than answers and a bit of skepticism by the fish farmers. By involving the fish farmer, producer and culturist in the fish health management process from the start, we hope to answer many of those questions and remove any mysticism” said Kebus.

(Ignore the prices on the website. Complete the pre-survey and you'll receive an access code for FREE access to the six courses.)

The six courses are available at [VetMedCE.org](http://VetMedCE.org) and include:

- Introduction to fish health for producers
- Risk management and biosecurity
- Water quality
- Preparing for fish health inspections
- Understanding fish health assessments
- Case studies

Instructions for accessing:

- Go to [VetMedCE.org](http://VetMedCE.org)
- Click “Sign up now” to create an account (this is free)
- Click on “Take a course”
- Navigate to the courses by clicking on “Fish Health Courses for Producers & Veterinarians” > “Fish Producer Courses”
- Click on the: “1052-Complete Fish Health for Producers Program” link at the bottom of the list
- To take the courses for FREE, click on the survey link on the course homepage labeled: Fish Health for Producers PRE-SURVEY
- Copy the access code from the bottom of the survey & click Done
- Back on the course website (original browser window), Click the “Register” button
- Paste or type the access code into the field on the Right side of the screen on the course homepage; in the box labeled Access Code, then click GO

The course links are now active and continue to become active as you complete each course

This new online program is the most recent addition to the UWSP Aquaculture Program that conducts applied research, demonstration, education and outreach to current fish farmers and those interested in aquaculture and raising fish. More information can be found at

<http://aquaculture.uwsp.edu>



**Fish Health for Producers**  
Certificate Program

<http://vetmedce.vetmed.wisc.edu/fhm>

# Northeastern Freshwater Fish Identification Seminar

JUNE 10TH - JUNE 16TH, 2012

*Humboldt Field Research Station-Eagle Hill Foundation*



Freshwater fish in the northeastern United States number over 150 species, inclusive of native and introduced forms, resident to ponded and flowing waters of varying habitats and water quality. Sportfish species (trout, salmon, bass, pike and perch) are most recognizable, while many of the vast minnow (one-third of the fish fauna) and non-game species are more difficult to identify, particularly in the field. This seminar will focus on the taxonomy and field/laboratory identification of 28 freshwater fish families, inclusive of diadromous (migratory) species. Through lectures, actual field sampling (minnow trapping, beach seining, and backpack electrofishing), examination of fresh and preserved-aquarium specimens, and use of technical keys, participants will gain an understanding of

the taxonomy, morphology, and ecology of freshwater fish. Fish origins, distributions, and conservation status will be emphasized and development of Indices of Biotic Integrity (IBI) and the Biological Condition Gradient (BCG) reviewed. There will also be an introduction to pre-Columbian fish remains found at Maine archaeological sites, and a listing of historical and current scientific literature will be provided. This seminar will be of great interest to aquatic-wildlife-conservation biologists-scientists, environmental consultants, natural historians, and others who wish to learn more about freshwater fish and resident fish species assemblages.

Dave Halliwell ([david.halliwell@maine.gov](mailto:david.halliwell@maine.gov)) is a certified AFS Fisheries Professional with a Ph.D. in Fishery Biology from the University of Massachusetts, Amherst, specializing in fish conservation, aquatic habitat classification, and vertebrate taxonomy. He has been employed as an Aquatic Biologist with Maine DEP (Augusta) since 1999. Dave has spent over three decades identifying and investigating the habitats of freshwater fishes while working with northeastern State and Federal fish and water quality agencies and has considerable experience teaching University and field courses related to New England fish and wildlife. Related interests include pre-European indigenous fish (archaeological) studies, aquatic habitat restoration, hydropower-flow issues, reservoir water levels, lake water quality assessment, and fish zoogeographic studies. Dr. Halliwell is a co-author of the *Inland Fishes of Massachusetts* (2002).

Rich Langdon ([rich.langdon@state.vt.us](mailto:rich.langdon@state.vt.us)) has a M.S. in Fisheries Science from Humboldt State University, CA and will co-instruct this seminar in 2012. Rich also provides over two decades of experience as an aquatic biologist with the Vermont DEC (Waterbury Lab), specializing in the study of resident fish assemblages in running waters. He has developed modifications for the Index of Biotic Integrity and Biological Condition Gradient analysis of New England wadeable streams. His research interests include the classification of running water fish assemblages and post-glacial fish distribution patterns. Rich is co-author of *Fishes of Vermont* (2006).

## 15% DISCOUNT FOR ALL AFS MEMBERS!

Information on lodging options, meals, and costs may be found at <http://www.eaglehill.us/programs/general/application-info.shtml>

There is an online application form at

<http://www.eaglehill.us/programs/general/application-web.shtml>

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## A selection of science education literature: Spring 2012

*Readers are encouraged to provide feedback on this section and to send citations of recommended readings for future newsletters to the newsletter editors.*

- Alters, B. J. and C. E. Nelson. 2002. Perspective: teaching evolution in higher education. *Evolution* 56:1891-1901.
- Andrews, T., S. Kalinowski, and M. Leonard. 2011. "Are humans evolving?" A classroom discussion to change student misconceptions regarding natural selection. *Evolution: Education and Outreach* 4:456-466.
- Bowen, G. M., W.-M. Roth, and M. K. McGinn. 1999. Interpretations of graphs by university biology students and practicing scientists: toward a social practice view of scientific representation practices. *Journal of Research in Science Teaching* 36:1020-1043.
- D'Avanzo, C. 2003. Research on learning: potential for improving college ecology teaching. *Frontiers in Ecology and the Environment* 1:533-540.
- D'Avanzo, C. 2003. Application of research on learning to college teaching: ecological examples. *BioScience* 53:1121-1128.
- Edge, W. D. and D. Sanchez. 2011. An online fisheries and wildlife degree: can you really do that?. *Wildlife Society Bulletin* 35:2-8.
- Hopkins, J. M., and R. J. Smith. 2011. An inquiry-based field & laboratory investigation of leaf decay: a critical aquatic ecosystem function. *The American Biology Teacher* 73:542-546.
- Knapp, A. K., and C. D'Avanzo. 2010. Teaching with principles: toward more effective pedagogy in ecology. *Ecosphere* 1: article 15.
- Lord, T. R. 1997. A comparison between traditional and constructivist teaching in college biology. *Innovative Higher Education* 21:197-216.
- McKeachie, W. J., Lin, Y., and J. Strayer. 2002. Creationist vs. evolutionary beliefs: effects on learning biology. *The American Biology Teacher* 64:189-192.
- Wei., C. A., and T. Woodin. 2011. Undergraduate research experiences in biology: alternatives to the apprenticeship model. *CBE—Life Sciences Education* 10:123-131.

## 2012 Best Student Poster Award from AFS FITS!

The Best Student Poster Award will be given to a student who demonstrates innovative use of technology in their undergraduate or graduate fisheries research. The award is designed to encourage the dissemination of knowledge gained from the use of cutting edge information technology in fisheries management and science. Examples of previous winning submissions can be seen at: <http://www.fishdata.org/PosterAward.htm>.

**Receive \$ 250 and an honorary plaque!**

Students presenting posters at the 2012 AFS Annual Meeting in Twin Cities, MN who wish to be considered for the award are encouraged to submit your poster's title and abstract by 9 March 2012 (same deadline as the AFS meeting) to President Jodi Whittier at [whittierj@missouri.edu](mailto:whittierj@missouri.edu).

## Black Bass Diversity: Multidisciplinary Science for Conservation

A special symposium is being organized to be held in conjunction with the Southern Division American Fisheries Society (SDAFS) Annual Meeting in Nashville, TN in February 2013. This symposium will emphasize the conservation need and diversity of black basses (genus *Micropterus*) in their native habitats. Of the nine described species or subspecies of black bass in North America, three were described in the past 12 years and more possibly exist as undescribed species (e.g., Bartram's bass and Cuatro Ciénegas bass). Many black bass populations have conservation issues related to genetic integrity and habitat degradation. Building on previous work, this symposium will highlight the conservation of native black basses in an AFS publication that contains accounts related to:

- Biology/ecology/life history requirements
- Habitat management and restoration
- Conservation genetics
- Fish populations, fisheries, and human dimensions

The symposium organizers will target scientists for invited submissions to the symposium, but contributed abstracts that fit the theme of the symposium are encouraged and will also be considered for the symposium and book. If you are conducting research on a black bass species or unique population that can contribute to the understanding or conservation of black basses, feel free to contact the steering committee at [BlackBassSymposium@myFWC.com](mailto:BlackBassSymposium@myFWC.com) for possible inclusion in the symposium. Authors of papers who want to be included in the publication must have their manuscript submitted by the date of the meeting.

Abstracts (in plain text or MS-Word) are to be submitted to [BlackBassSymposium@myFWC.com](mailto:BlackBassSymposium@myFWC.com) by 10/31/2012 and must include:

1. Type of presentation preferred (oral or poster)
2. To be considered for publication? (yes or no)
3. Presentation topic (select from below)
  - Biology/ecology/life history requirements
  - Habitat management and restoration
  - Conservation genetics
  - Fish populations, fisheries, and human dimensions
4. Title, in upper/lower case format
5. Author(s) name(s) and affiliation(s) as they should appear
6. Name of presenter, mailing address, phone, and email
7. Text of abstract in 300 words or less.



## Scientific Communication for Natural Resource Professionals

"Scientific Communication for Natural Resource Professionals" is a "how to" guide to most forms of modern scientific communication. The book was conceived originally as a replacement for John Hunter's (1990) "Writing for Fishery Journals", which was a guide to avoiding the common mistakes journal editors were encountering in manuscripts submitted for publication. In recent years, "Writing for Fishery Journals" has become dated because it does not address any internet-related topics such as online journals, citing emails, pod-casting, and web-related databases such as the Web of Science. As the book project grew from concept to reality, the title was changed to acknowledge that the communication issues faced by fisheries scientist are shared by our colleagues in the other natural resource-related professionals. Additionally, the scope of the book was broadened to encompass a range of web-related and other publication opportunities not addressed in Hunter's volume. Progress on the book has been excellent and the book is nearly complete. All of the chapters have been received by the editors and are in the final stages of copy editing. This book will be of interest to anyone who needs to communicate science. Students and young professionals may benefit the most from the book, but the even the most advanced professional will find this volume useful.

## 2010 Business Meeting Minutes

Minutes of the Annual Business Meeting -- Education Section  
2011 Annual Meeting of the American Fisheries Society  
Seattle, WA; Sep 4, 5-7 pm, Sheraton Hotel – Metropolitan A room

**Call to Order:** Meeting was called to order by President Steve Chipps at 5:15 pm.

**Introduction of Guests:** Chipps recognized current officers of the Education Section, including the immediate Past-President, Tom Kwak; President-Elect, Mike Quist; and the Secretary-Treasurer, Craig Paukert. Chipps then recognized Past-Presidents of the Education Section in attendance, including Brian Murphy, and Past Presidents of AFS Barb Knuth and Christine Moffitt.

**Determination of Quorum:** A quorum (10% of membership) was present and confirmed by Paukert. A total of 93 attendees were on the sign-in sheet.

**Approval of Agenda:** Chipps introduced agenda. Mike Allen moved to approve the agenda as written; Amanda Rosenberger seconded the motion. Motion carried.

**Approval of Minutes from 2010 Business Meeting:** Scott Bonar moved to approve the minutes from the 2010 Education Section meeting as written; Steve Cooke seconded the motion. Motion carried

**President's Comments:** Chipps mentioned the recent emphasis in AFS on education. In addition, Chipps mentioned the "Sphere of Influence" and indicated there are a lot of people that contribute to the Education Section through officer positions, committees, and general membership. He then thanked the membership to allow him to serve as President.

**Treasurer's report:** Paukert presented the Treasurer's report. Total assets of the Section as of August 31, 2011 were \$183,179.12. The balance forward from September 1, 2010, was \$190,288.59, income from the previous year was \$1,481.65, and expenditures were \$8,591.12. Paukert also noted that the Education Section has not received its 2010 book revenues from AFS, which are typically \$20,000-29,000 so the income is likely an underestimate.

**Comments by AFS officer:** President Wayne Hubert indicated this is the largest AFS meeting ever with over 4,000 registered, 2,600 oral presentations, and 29 concurrent sessions. The key business this past year was that journals are now published through Taylor and Francis, which should increase the distribution and prestige of our journals. Second, there has been concern primarily by state resource management agencies that there is a mismatch between agency needs and universities. Therefore, a conference will be held in late September in Denver that will focus on these issues and will be sponsored by the Coalition of Natural Resources Societies. The goal of this meeting is to better identify this mismatch problem and identify strategies to help solve the problem. Third, AFS spent \$25,000 to get an independent review of the AFS website. This review is complete and is currently being reviewed by AFS with the intent to improve the website in the coming years.

### Committee Reports

**Newsletter:** Jesse Fischer described the relatively new distribution timeline of the newsletter where there will be two newsletters: one during winter and one during fall. Jesse and Joe Gerken will be stepping down as co-newsletter editors and the Section will be looking for two new co-editors.

**Web page:** Steve Chipps spoke for Steve Ranney and thanked Ranney for his work, and asked the membership for any input/advise on the website.



## 2010 Business Meeting Minutes (continued)

**Excellence in Fisheries Education:** Jason Vokoun, the Chair of the Committee could not make the meeting so Mike Quist spoke about the award. This is a Society level award with the committee consisting of division representatives and a student representative. Committee members were Jason Vokoun, Dennis DeVries, Amanda Rosenberger, Tim Strakosh, Greg Whittedge, and Sarah Turner. The committee will be looking for new northeast and southern division representatives and a new student representative. The committee reviewed three nominations. Dr. Scott Hinch from the University of British Columbia received the award. Steve Cooke then introduced Dr. Hinch and summarized his impressive commitment to education and research.

**Skinner Committee:** Dan Daughtery was the chair of the committee but could not attend so Jeff Jolley spoke on his behalf. Committee members included Jolley, Katie Bertrand, Mary Bremigan, Andrea Johnson, Scott Bell, and Scott Gatlin. There were 70 applications this year and the committee awarded 10 Awards and 5 honorable mentions. Winners were: Paul Damkot (U. of Maine), Dan Dembkowski (S. Dakota State), Cari-Ann Hayer (S. Dakota State), Daniel James (S. Dakota State), Rebecca Krogman (Mississippi State), Brianne Lunn (U. of Alberta), Hilary Meyer (S. Dakota State) Bonnie Mulligan (Southern Illinois), Amy Spencer-Alford (Mississippi St), Samantha Wilson (Carleton U.). Honorable mentions were: Lindsay Glass-Campbell (North Carolina State), Kristen Homel (Montana State), Robert Parker (Humboldt State), Claire Stouthamer (Cornell), Shannon White (Virginia Polytechnic and State U.).

**Best Student Paper/Poster – 2010 Awardees** Rich Fulford presented the 2010 awards on behalf of himself and Jim Long, the 2010 poster chair. The best student poster was Michael Porta (Oklahoma State University). The honorable mention for best student paper was Renee Riley (Old Dominion University) and Lindsay Pierce (University of Toledo). The best student paper winner was Ben Wallace (North Carolina State University).

**Best Student Paper/ Poster – 2011 Symposia:** Tracy Galarowicz and Jill Leonard announced that there were 26 oral presentations and 16 posters that will be judged for the 2011 best student paper and poster.

**Membership – 2011 Young Professional Award:** Mark Fincel acknowledged the help of co-chair of the committee, Kristal Schneider. This is a new award that provided up to \$800 travel reimbursement for a young professional (within 3 years of graduating) to attend the national AFS meeting. There were 16 applicants that were evaluated by three judges. Julianne Harris, a post-doctoral researcher from North Carolina State, was the winner of the award.

**Nominating:** Tom Kwak indicated we had a good slate of candidates this year. Christine Moffit and Craig Paukert ran for President-Elect; Katie Bertrand and Tracy Galarowicz ran for Secretary/Treasurer; Jeff Jolley and Amanda Rosenberger ran for Western Division representative; and Julianne Harris ran for Southern Division representative. There were 122 members that voted and Craig Paukert was elected as President Elect, Katie Bertrand as Secretary/Treasurer; Amanda Rosenberger as Western Division representatives; and Julianne Harris as Southern Division representative. Of the 122 that voted two were randomly selected to receive an Education Section T-shirt: Bobbi May Adams and Chris Guy.

### **Ad hoc committee & Special projects**

**Catfish 2010** Tom Kwak briefly summarized the Catfish 2010 symposium and new proceedings that were available at the meeting. Because of the Education Section support, there was reduced registration for students at the meeting, and two students received travel awards to attend. In addition there were representatives from 27 universities in attendance and over 100 presentations. Kwak also explained that the Education Section supported the symposium and not the book so the Section will not receive any revenues from the book sales.



*2010 Business Meeting Minutes (continued)*

Inland Fisheries Management in North America (3rd edition): Mike Quist provided a brief update on this book that was published this past winter. Sales as of July 25, 2011 were about 500 copies for total revenue of about \$40,000.

Fisheries Techniques (3rd edition): Trent Sutton provided an update of the revised Fisheries Techniques book. Of the 21 chapters total, 18 are complete and three are in more challenging stages. However, they hope to have all the chapters to AFS by the end of 2011 with a spring 2012 publication date.

Writing for Natural Resource Journals: Cecil Jennings indicated the book will have 14 chapters and 11 have been sent to AFS for copy editing. One chapter is still outstanding but they hope to publish the book in spring 2012.

Foundations in Fisheries Science: Mike Allen provided an overview of the new proposed book project that will reprint classic fisheries papers into one book. The reprinted papers will be decided by a three tier process: a survey of fisheries professional and educators, the journal editors and journal citation reports. Mike is asking the Education Section for \$3,000 to offset the cost to compile the survey and travel for the editors. Tom Kwak asked if there was any way this book could be made electronic. Mike responded that is a possibility but is not determined yet. Mike also mentioned that they hope there will be no issues to obtain copyright for these already published papers. Another question was raised about the royalties of the book. What would the Education receive? Mike indicated that the Education Section would receive 2% of the royalties before the book recovered costs and 3% after they recovered the costs. Steve Cooke commented that we need to keep the book at a reasonable cost so students and biologists can afford the book. Cindy Williams had a motion for the Education Section to provide \$3,000 for this book project. Scott Bonar seconded the motion. Motion passed.

Standard Methods: Scott Bonar provided an update of this book that was published in 2009. A total of 284 biologists from 107 organizations contributed to the book, which included tables of various fisheries indices from over 4,000 standard sampling datasets of common fish species. Several studies are ongoing around the country to compare nonstandard methods to standard methods. Scott also mentioned a new website where a biologist could upload their data and can compare their fish metrics with standardized metrics used in the book. The website is under development.

New initiatives: Rebecca Krogman spoke on behalf of Derek Aday, the committee chair. The committee had a goal to better integrate the continuing education and certification programs. They are currently working on updating a database that includes all the continuing education courses that course leaders could upload and modify. This will help determine what courses are readily available to fisheries professionals.

**Additional Reports**

Student Subsection: Jesse Fischer indicated that a motion passed the governing board that all student members will now be a part of the Student Subsection. This will allow *all* students to be represented by the Subsection. In addition, the Student Subsection will host a student colloquium at this meeting on Tuesday from noon to 2 pm. The colloquium will include a panel of speakers discussing various career topics, as well as a student mentor lunch.

Hutton program update: Kathryn Winkler summarized the Hutton program and indicated that 18 scholars from 14 states were in the program this past year. Two thirds of those scholars were minorities. In addition, two previous scholars were part of the AFS meeting. There have been numerous donors to the program including the US Fish and Wildlife Service, US Forest Service, NOAA, Wisconsin DNR, Lake Superior State Fisheries and Wildlife Club, and University of Maryland Eastern Shore. Kathryn then requested the Education Section provide \$5,000 to the Hutton Endowment Fund. Kathryn mentioned that providing to the Endowment is particularly useful since many agencies cannot support endowments. Steve Cooke made a motion to provide \$5,000 to the Hutton Endowment Fund. Cindy Williams seconded. Motion carried.



## 2010 Business Meeting Minutes (continued)

**Awards and Recognition:** Rich Fulford was provided a certificate of appreciation for his work on the best student paper committee. Jim Long (who was not present) was also given the same award. Jesse Fischer was given a certificate of appreciation for his efforts to get all students part of the Student Subsection. Mike Colvin (who was not present) was also given the same award.

**Raffle Results:** Tom Kwak randomly selected two people from the audience (based on numbers drawn from an envelope) to receive Education Section t-shirts. Scott Bonar and Jesse Fischer received t-shirts.

**Old business:** There was no old business.

**Installation of New Officers:** The new officers are Mike Quist, President, Craig Paukert, President Elect, and Katie Bertrand, Secretary/Treasurer.

**New President's Address:** Mike Quist then gave Steve Chipps a plaque as outgoing President. In addition, Mike provided Steve with a Palouse Unit Student Chapter t-shirt. Chipps was a Palouse Unit officer when Mike Quist was an undergraduate at Idaho. Mike then gave a few remarks that focused on getting more members involved. Other issues that Mike wants to address are to continue with the new initiatives committee and generate new ideas for Education Section projects. We have the luxury to provide funding for new and innovative Education Section projects. In addition, Mike mentioned the Incredible Skinner Challenge. The Education Section promised to match up to \$25,000 that would be contributed by other AFS units. We are close, but there is no sunset clause on the challenge so we hope to continue to push for more funds donated to the Skinner Endowment. Finally, Mike wants to keep the Student Subsection active. They have taken enormous strides in the last couple years and we want to make sure that continues.

**New Business and Announcements:** Kwak announced that the plenary speakers have been moved to a new venue given the large size of the meeting.

**Adjournment:** A motion to adjourn was provided by Steve Lochmann. Amanda Rosenberger seconded the motion. Motion carried. The meeting was adjourned at 6:50.



*Craig Paukert is the leader of the Missouri Cooperative Fish and Wildlife Research Unit. He can be contacted at [paukertc@missouri.edu](mailto:paukertc@missouri.edu)*

*Respectfully Submitted by Craig Paukert, Education Section Secretary/Treasurer*

## NOMINATING COMMITTEE

Education Section members --- This year, we will be holding an election for our North-Central Division (NCD) Representative. Division representatives serve important functions in the Education Section as voting members of the Executive committee. Division representatives also assist on the Nominating Committee and with Newsletter contributions. Service as a Division Representative is a great way to get involved with the Education Section. Nominations for NCD representative are now open and we encourage Section members to consider service as a Division representative. Nominees must be a North-Central Division member as well as member of the Education Section. Please contact Steve Chipps [steven.chipps@sdstate.edu](mailto:steven.chipps@sdstate.edu) if you are interested in running for the NCD Division Representative.

## EDITORS' NOTE

Feel free to contact us with any suggestions and comments. We would like to encourage submissions and ideas for next issue (July 2012). Contributions, comments and suggestion may be emailed to either of us at anytime.

Sincerely,

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## YOUNG PROFESSIONAL TRAVEL AWARD

The Education Section of the American Fisheries Society is currently accepting applications for the Young Professional Travel Award for the 2012 Annual Meeting of the American Fisheries Society in Minneapolis, Minnesota. The Young Professional Travel Award was established to promote attendance of young professionals at the Annual Meeting who have made substantial contributions to the field through continued education, outreach, and AFS service. The award provides up to \$1,000 in travel support and a 1-year membership to AFS. Preference will be given to individuals presenting at the meeting, those involved in continuing education or outreach, and those in need of financial assistance for travel. All young professional members (within 3 years of graduation), including agency biologists, postdoctoral associates, and faculty are encouraged to apply. The award winner will be required to attend the Education Section business meeting (late afternoon; Sunday, August 19<sup>th</sup>) to receive the award and contribute to the Section's winter 2013 newsletter.

The application should consist of the following:

1. Letter of interest
  - a. Statement of service to the Society, Sections, Divisions, or Chapters and why you want to attend the meeting
  - b. Statement of continued education effort and outreach
  - c. Statement of financial need
  - d. Statement of career goals
2. Current resume, degree/s, list of publications, honors and awards, and presentations
3. Title and abstract of the contributed paper(s) or poster(s) being presented at the annual meeting

Applications should be submitted in electronic format (PDF or Word) to Jesse Fischer [fischer@iastate.edu](mailto:fischer@iastate.edu) and must be received by May 4<sup>th</sup>, 2012. The recipient will be notified by May 31<sup>st</sup>, 2012.