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# VIRGINIA CHAPTER *of the* AMERICAN FISHERIES SOCIETY

Inland Fisheries and Aquatic Resources of Virginia

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## Pull up a chair for... **President Michaelson's Fireside Chat**

I don't really have a cool nickname like Jerky Boy, Sol or OD like our past-president. The best my peers have been able to muster is Blondie (a tribute to Clint Eastwood's spaghetti westerns I guess). What I do have is the great fortune of becoming president while the Chapter enjoys tremendous momentum. With the success of the 2005 Spring, Southern Division AFS meeting and the joint Virginia/West Virginia annual meeting in March, the chapter is on a roll. I will do my very best to make sure we keep up the pace and I am confident given the current EXCOM and our committee involvement we can make that happen. A professional society like the one we are involved in can be a powerful tool. It is a forum to fight for environmental issues, pass along good science and make life-long professional contacts and friends. I have been involved with Chapters on

both ends of the spectrum as far as their involvement and activity - consider yourselves lucky to be involved in the Virginia Chapter.

I would like to take some time to bring up some of this year's other highlights as well. Through the hard work of the Outreach committee headed up by Paul Bugas, we finally got several hundred of the Chapter brochures printed. Hopefully you got to check out a copy at the meeting in Winchester. Another excellent product for use in getting the message out about fisheries science is Chas Gowan's PowerPoint presentation "Being a Fish Biologist". Chas completed work on this fisheries science case history last fall and it is available for use for anyone interested. Those are just two examples off of a long list of things our chapter accomplished last year. If you want to be involved, just call me

and I'll put you to work!

This year promises to be another busy one. We're considering a couple of ideas for a continuing education topic and we'll do our best to offer something good. In addition, North Carolina has expressed interest in co-hosting an annual meeting next spring so we'll have to see what develops with that. Our committees stay busy and your EXCOM will work hard in the coming year.

Have a great spring and get away from your desk as much as possible.

- Dan Michaelson  
VA-AFS Chapter President  
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**The Virginia Chapter of the American Fisheries Society** is a subunit of the [American Fisheries Society](http://www.afs.org). The chapter was established in 1990 to provide fisheries professionals in Virginia with increased access to AFS; encourage the exchange of information among fisheries and other aquatic resource professionals; provide a forum for the discussion, debate, and resolution of aquatic resource issues within Virginia; and serve the Commonwealth by providing expert scientific knowledge to allow for informed decisions concerning the use and development of the state's natural resources.





## Unifying the Virginias: Annual Meeting Highlights 2006



### Virginia and West Virginia Chapters Co-host Successful 2006 Annual Meeting

The Winchester Holiday Inn was the site of the 2006 "Meeting of the Virginias" on March 15-17<sup>th</sup>. Eighty-four registrants (including 18 graduate and undergraduate students) participated in the three-day meeting marked by two special symposia. The meeting began on Wednesday afternoon with a half-day FAST fish modeling workshop taught by **Scott Smith** and **Vic DiCenzo** to 28 students from four states. The workshop was popular enough that two requests have already been made to take the show "on the road". The basic program occurred on Thursday and Friday morning and featured 25 oral and six poster presentations (including nine student presentations). The program began Thursday with a "Fish Health Issues" symposium, which was followed by a "Northern Snake-

head Fish Introduction" symposium; both of which had regional implications for attendees. The balance of the program was diverse and covered a variety of game fish, aquatic diversity and human dimension topics.

The Virginia Chapter business meeting was held Thursday afternoon and included the installation of new officers: **John Odenkirk** (VDGIF) from President to Past President, **Dan Michaelson** (VDGIF) from President Elect to President, and **Scott Smith** (VDGIF) to President Elect. Secretary (**Robert Humston**, VMI) and Treasurer (**George Devlin**, VDEQ) were unchanged. Annual award winners were **Dan Downy**, James Madison University (Outstanding Conservationist) and **John Kauffman**, VDGIF

(Professional Service Award). Best student oral presentation was awarded to **Carrie Peirce** (Randolph Macon College) for *Spawning behavior and hybridization of two darter species native to central Virginia*. Scholarships (\$500 each) were awarded to two deserving Robert Jenkins Undergraduate Scholarship candidates: **Morgan Hyatt** (Randolph Macon College) and **Tomas Ivasauskas** (VA Tech).

Socials were held both nights culminating in a comedic raffle event late Thursday emceed by **Tom Wilcox** and **George Palmer**.

A good time was guaranteed, and had by all.

- John Odenkirk



Counterclockwise from upper left: Dan Downey (JMU, on right) receives the Conservationist Award from Tom Hampton (DGIF). Tomas Ivasauskas (VPI) and Morgan Hyatt (RMC) each received Jenkins Undergraduate Scholarship awards from Steve Reeser (DGIF, sporting the blazer). Members enjoy camaraderie and ticket sales pitches at the Thursday social and raffle. Carrie Peirce (RMC) received the award for best student presentation. John Kaufman (left) received the Eugene Surber award for professional service, presented by Gary Martel (DGIF).

## New tools for stream fish biomonitoring in Virginia

More than ever, fisheries biologists are being called upon to explain how fishes indicate environmental quality in streams and rivers. Several states have developed stream fish biomonitoring programs to quantify the "biological integrity" goals of the Clean Water Act. However, to consider the feasibility of fish biomonitoring in Virginia, we will need to know more about how stream fish assemblages respond to degradation in this area, and how fish movement patterns affect our inferences. My dissertation research addresses these issues in streams of western Virginia and the mid-Atlantic highlands.

First, I am using fish and habitat data from the USEPA's Environmental Monitoring Program (EMAP) to explore fish assemblage responses to environmental degradation in the mid-Atlantic highlands. Second, I have conducted fish and habitat surveys in a subset of VDEQ "ProbMon" sites in western Virginia. By linking the state and federal fish biomonitoring datasets, we will be able to test fish metrics at the local and regional scales. Third, I am evaluating how the size and proximity of adjacent streams influences local fish assemblage structure and biomonitoring metrics as a function of dispersal.

Preliminary results show some important effects of adjacent stream size on local fish assemblages. In an analysis of western Virginia streams, I found significant effects of adjacent stream size on local species richness, mean reproductive age, and riverine species richness. At the mid-Atlantic highlands scale, adjacent stream size was less important, but the role of reservoirs as potential source populations

became apparent. Specifically, stream sites within 10 fluvial kilometers upstream from reservoirs tended to have fewer fish, fewer cyprinid species, and more piscivores than would be expected by chance. As such, it appears that fish dispersal from reservoirs may affect the taxonomic and functional structure of upstream fish assemblages. Importantly, these effects were not attributable to variation in local physical habitat conditions, but were instead consistent with a fish dispersal hypothesis. These preliminary results demonstrate why it is important to consider regional dispersal dynamics in fish biomonitoring applications.

Future work will explore the opportunities for increasing fish biomonitoring metric precision by calibrating metrics based on the proximity of potential source populations. Also, I will explore how watershed shape may be used to predict patterns of fish dispersal at smaller spatial scales. For instance, the narrow, trellised watersheds of the ridge and valley physiographic region may present different opportunities for dispersal than the rounded, dendritic watersheds of the Appalachian plateau.

Dr. Paul Angermeier serves as my major advisor in this research. Some of this work is currently in press with the AFS Symposium Series and was presented at the Association of South-eastern Biologists earlier this year. This research is supported by the USEPA Office of Wetlands, Oceans and Watersheds and a Cunningham Fellowship at Virginia Tech.



# Student Research Highlight

*"I found significant effects of adjacent stream size on local species richness, mean reproductive age, and riverine species richness."*

For more information contact:

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For others details about Than & his research, surf over to <https://filebox.vt.edu/users/than/main.htm>.

## Shenandoah Research Update: Intersex in Smallmouth Bass

*One of the talks at this year's annual meeting that generated a great deal of interest was presented by Luke Iwanowicz, and focused on the occurrence of intersex in Potomac River smallmouth bass. Recent research spearheaded by chapter members has identified this same condition in bass from the Shenandoah and Cowpasture rivers. The importance of the Shenandoah as a resource—including its ecological and historical significance—can not be understated. The non-profit organization **American Rivers** listed the Shenandoah as fifth on the 2006 rankings of 'most endangered rivers.' Shortly after our annual meeting, the Virginia DEQ released the following update on the findings of the Virginia Fish Kill Task Force:*

RICHMOND, VA. -- The Shenandoah River Fish Kill Task Force, as part of its ongoing effort to determine the cause of dead and ailing fish in the North and South Fork Shenandoah rivers, has resumed collecting fish and water samples this month in the Shenandoah River, the North and South Forks of the Shenandoah, and the Cowpasture River. This year's work will focus on:

- Scattered reports of dead fish and fish with lesions in March 2006.
- The discovery of fish with male and female characteristics in the Shenandoah, North and South Forks, and Cowpasture rivers.
- Daily water quality testing in the North and South Forks.
- "Real-time" monitoring of water quality on an hourly, around-the-clock basis on the North and South Forks.
- An extensive fish health study of the Shenandoah, North and South Forks, and Cowpasture to seek signs of chronic stress and immune system effects.

The task force, headed by the Department of Environmental Quality and the Department of Game and Inland Fisheries, is investigating what caused up to 80 percent of adult smallmouth bass and redbreast sunfish to die during spring 2005 in the South Fork, and a similar fish kill in the North Fork in 2004. Since mid-March 2006, the task force has received

reports of a small number of sunfish in the North Fork and the South River either dead or with lesions. Other affected species also have been found, especially in the South River.

"Virginia has put a lot of effort into learning the cause of these fish deaths and how they may be related to water quality," DEQ Director David K. Paylor said. "This work will continue, with the goal of determining how we can keep our fish and rivers healthy."

The task force is evaluating a recent study that found individual fish with characteristics of both sexes, usually identified through microscopic examination of fish tissue. Fish with these characteristics are known as "intersex" fish. The task force will help determine the steps Virginia needs to take to identify the cause and extent of this condition.

The affected fish are smallmouth bass analyzed by the U.S. Geological Survey in 2005 in connection with Virginia's investigation of the fish deaths. Fish from the North and South Forks, the Shenandoah and the Cowpasture had occurrences of intersex. The Cowpasture was included in the study to help determine background information on fish health.

The USGS conducted a similar study in the South Branch Potomac River in West Virginia in 2004 and found the same condition in smallmouth bass. Virginia is working in cooperation with the USGS Leetown Science Center in West Virginia, which has national experience in fish health studies.

Microscopic analysis of the testes of some male smallmouth bass revealed the presence of immature eggs. Scientists do not know yet whether this condition is related to the fish deaths.

"Despite the fish kills and the intersex condition, our fisheries biologists are still seeing good reproduction of smallmouth bass in these waters," DGIF Fisheries Division Director Gary Martel said.

Similar fish have been found in other parts of the country, mainly among largemouth bass. (The fish question and answer [web page](#) contains additional information about fish with this condition.)

"We want to know more about the intersex condition of smallmouth bass collected from the Shenandoah and Cowpasture rivers," said Steve Reeser, a DGIF fisheries biologist and co-chair of the fish kill task force. "But there currently is no known correlation between this condition and the fish kills Virginia has experienced. The focus of the task force will continue to be the cause of the fish deaths."

Among the key investigations under way this spring is a comprehensive DEQ water quality study in which daily samples will be collected at nine sites on the North and South Forks. Normally, samples are collected about once a month; this expanded effort will evaluate short-term changes in water quality and may identify stressors that are missed during routine sampling. This study will intensify during periods of heavy storm water runoff with the collection of samples several times a day at each site.

In addition, the USGS will conduct "real-time" monitoring to measure factors such as ammonia, pH, temperature and dissolved oxygen in the North and South Forks every hour around the clock. The DGIF and the USGS, along with the U.S. Fish and Wildlife Service's Fish Disease Laboratory, will conduct an extensive fish health study on the Shenandoah, the North and South Forks, and the Cowpasture. Fish will be evaluated for indications of stress in their organs, and their blood will be analyzed.

The Shenandoah River Fish Kill Task Force also is supporting additional research as part of its investigation. This summer, researchers from Virginia universities will begin investigating aquatic insects in the Shenandoah and testing for disease-causing microorganisms using DNA technology. The USGS also plans to begin an evaluation of algae in the North Fork and how algae may affect water quality.

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If you'd like more information on this research, you can contact Don Kain, (DEQ: 540-574-7815), Steve Reeser (DGIF: 540-248-9360) or Vicki Blazer (USGS: 304-724-4434).

## Report From the Field: An Exemplary Outreach and Education Effort

The following was submitted by Chapter Member Joe Hicks, a Clarksville, VA resident and angler. In it he describes a fantastic program he organized to increase student awareness about fisheries science and careers in fisheries. I'd personally like to thank Joe for taking the time to share this with the rest of us, and I hope he'll keep us posted on next year's events! - RH

In January, American Fisheries Society President Chris Kohler issued a President's Hook column designed to stimulate thinking on recruitment of future people to manage and conserve our fishery resources. Basically, when the baby boomer Fisheries experts retire there is concern for having an adequate stock of highly skilled individuals to replace them. Education in both primary and secondary schools is needed about the exciting responsibilities and career options available in Fisheries Management.

The Virginia Chapter of AFS has responded in one local area to this challenge with the initiation of Ecosystem awareness activities in several schools around Kerr Reservoir. Kerr is a 50,000 acre reservoir in Southern Virginia and Northern North Carolina. Thus far efforts have focused on the creation of a suitcase of educational material that can be seamlessly integrated into biology curricula and needs of the local school. This material provides students with direct hands-on exposure to the local reservoir. Content is split basically into thirds with a third about the riverine and lake

systems (lentic/lotic systems, contaminants, temperature, reservoir history and contribution), then a third about the local food chain, and finishing with a third about the health needs of the fish themselves. All along the course, emphasis is given to the fact that if what the student is doing seems exciting, that it is possible to actually make a career out of doing very similar activities.

At the Kerr-Vance Academy, located in Henderson NC, Va AFS members worked with the science department to help develop an in-class curricula integrating this effort into the normal student curricula. The students were hosted by NC State Park Rangers for educational suitcases on Kerr-Lake fishes and plants. On the same field trip students collected and viewed plankton from the bottom of the food chain, went out in a jet-boat to collect gizzard shad via a cast-net, and also released a 27lb bluecat from the top of the food chain. NC Wildlife Resources biologists Kirk Rundle and Bill Collart visited the classroom to discuss Striped bass management and the biologist's role in ecosystem management. The Wilmington District Corp of Engineers hosted the class at Kerr Dam for a session about the creation of the ecosystem and the Dam's role. The students had a really good time and were exposed to local science and Fishery Management at the same time.

At William-Campbell High & Middle School in Brookneal Va, AFS members

conducted a mini-course of this material which was tailored to unique holding tank management needs. The athletics dept there runs a sponsored two-day catfish tournament each year which in turn funds athletic programs. Va AFS seized this opportunity to train seven high-school students in holding tank and large catfish management issues including DO, ph, temperature and ammonia. The students then monitored the tank hourly across the two day event. This years event presented a special challenge to the students as two large bluecats destined for a NC aquarium were in the holding tank in addition to the top four tournament fish. At the tournament's end, six healthy flat-heads & bluecats (over 200lbs) were present in the holding tank. At around 2:00am on the last day of the tournament a William-Campbell HS student named Adam Holbrooks detected a serious ammonia spike which was quickly resolved by the student team after he detected it. From the student effort four of the big cats were released in very healthy condition and a 39 and a 36lb bluecat from the tank were transported to the NC aquarium at Pine Knoll Shores where they are featured fish for the freshwater displays in the newly remodeled aquarium.

Hopefully next year we can refine the curricula, expand, and repeat these experiences in order to promote both the AFS and the Fisheries needs among these potential future AFS members.

- Joe Hicks ([jfojoe@verizon.net](mailto:jfojoe@verizon.net))



Left: Kerr-Vance Academy students John Allen and Parker Smith transfer a Kerr Lake blue catfish with the help of John Mauser of Pine Knoll Shores (NC) Aquarium. Right: Kerr-Vance students released a 27 lb blue catfish during this unique Ecosystem Awareness course.

VIRGINIA CHAPTER,  
AMERICAN  
FISHERIES SOCIETY

**Attention Graduate /  
Undergraduate Advisors:**

I really want to hear from you about your students' research projects. I STILL have not received a single recommendation for contributions to the "Student Research Highlight." What's up with that?

Please drop me a note to tell me about the interesting studies your students are currently working on or have recently completed. The newsletter provides an excellent opportunity to communicate results and increase the exposure of their research.

Along those lines, please don't hesitate to bring recent papers, reports, or press releases of interest to my attention as well. I can never catch all of these things, and I'd like to make this newsletter as inclusive / comprehensive as possible. Hook me up.

Direct all communications regarding the newsletter to:

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## Upcoming Meetings:

- July 11-12: **Workshop on Gonadal Histology of Fishes.** New Orleans, Louisiana. <http://www.usm.edu/gcrl/events/workshop.php> Organized by the USM Gulf Coast Research Laboratory in conjunction with the ASIH and AES meetings (see below). Contact Nancy Brown-Peterson ([nancy.brown-peterson@usm.edu](mailto:nancy.brown-peterson@usm.edu)) or David Wyanski ([WyanskiD@dnr.sc.gov](mailto:WyanskiD@dnr.sc.gov))
- Jul 12-17: **American Society of Ichthyologists and Herpetologist Annual Conference,** New Orleans, LA. See [www.asih.org/meetings/meetings](http://www.asih.org/meetings/meetings). Contact Mark Pyron, [mpyron@bsu.edu](mailto:mpyron@bsu.edu)
- Sep 10-14: **American Fisheries Society 136th Annual Meeting,** Lake Placid, NY. [www.afslakeplacid.org](http://www.afslakeplacid.org).



## 60th Annual SEAFWA Meeting

Hosted by the Virginia Department of Game and Inland Fisheries  
November 5-8, Norfolk, VA

Mark your calendars for the annual meeting of the Southeastern Association of Fish and Wildlife Agencies, hosted this year by our own state agency at the Marriott and Sheraton Norfolk Waterside hotels. A full program promises a spectrum of talks, including special sessions on invasive species and oak forest ecosystems.

**Online registration starts May 15 at [seafwa2006.org](http://seafwa2006.org)**

## Recent / Upcoming Research and Publications of Interest

- Gowan, C., K. Stephenson and L. Shabman (2006) The role of ecosystem valuation in environmental decision making: Hydropower relicensing and dam removal on the Elwha River. *Ecological Economics* **56**: 508-523.
- Downey, D.M. and T.M. Hampton (2005) Effects of protective limestone treatment on water chemistry and fisheries management in Laurel Bed Lake, Virginia. *Lake and Reservoir Management*, **21**:411-422.
- Hitt, N.P. and P.L. Angermeier (*in press*) Effects of Adjacent Streams on Local Fish Assemblage Structure in Western Virginia: Implications for Biomonitoring. *AFS Symposium* vol. 48.
- McLaughlin, R.L. and 8 co-authors (2006) Effects of low-head barriers on stream fishes: taxonomic affiliations and morphological correlates of sensitive species. *Canadian Journal of Fisheries and Aquatic Sciences* **63**: 766-779.
- Beaumont, W.R.C., G. Peirson, and M.J. Lee (2006) Factors affecting the characteristics and propagation of voltage gradient fields from electric fishing anodes. *Fisheries Management and Ecology* **13**:47-52.
- Kondratieff, M.C. and C.A. Myrick (2006) How high can brook trout jump? A laboratory evaluation of brook trout jumping performance. *Transactions of the American Fisheries Society* **135**:361-370.
- Devine, J.A., K.D. Baker, & R.L. Haedrich (2006) Fisheries: deep-sea fishes qualify as endangered. *Nature* **439**(7072):29, with comment from Sims & Southward in *Nature* **463**(7077):29.