The Lateral Line

The Newsletter of the Utah Chapter of the American Fisheries Society

Volume 40 Issue 2 October 2014

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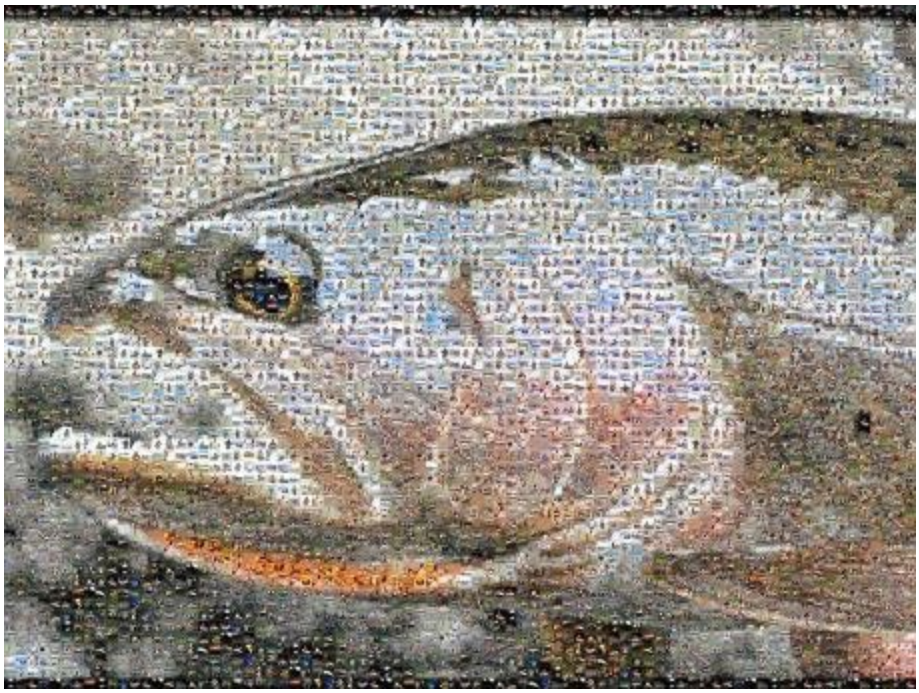
2015 Annual Meeting March 24-26, 2015

The Moab Valley Inn will be hosting the 2015 Utah Chapter Annual Meeting March 24—26, 2015. So mark your calendars and save the date! Registration and lodging information to come.



FIRST CALL FOR PAPERS!

The UTAFS Executive Committee invites abstracts for contributed oral presentations and posters. The meeting will include a poster session to encourage discussion between poster presenters and attendees. Symposia presentations, contributed oral presentations and poster abstracts must be received by March 6, 2015. All submissions must be made by emailing their abstract to calvinblack@utah.gov.

Suggested topics for contributed papers and posters include but are not limited to:

Fisheries Management and Monitoring, Recovery Programs, Stream Restoration and Aquatic Habitat Monitoring, Stream and Boater Access, Aquaculture and Aquatic Invasive Species.

Meet the Officers

At our 2014 meeting in Price two colleagues were voted to participate in the executive committee. Special thanks to all who volunteered to run for office. Here are your 2014-2015 Utah AFS Officers.

Past President—Jackie Watson, Utah Division of Wildlife

Jackie is currently working in the Central Region DWR office as the Blue Ribbon Fisheries Biologist. This new position brings a nice change of pace from Utah Lake and the June sucker project where she had worked for the last 8 years. Jackie is very excited about the variety of systems and fish species she will be working with as well as the opportunity to participate in stream restoration training. Jackie enjoys road tripping and traveling with friends to bowling tournaments.

President—Calvin Black, Utah Division of Wildlife

Calvin Black graduated from Utah State University in the fall of 2003. He has been employed with the Utah Division of Wildlife Resources for the past 13 years. He works out of the Southeastern Region Office in Price, Utah as the Assistant Aquatics Program Manager. He administers the sport fish program for the regional office. Calvin was previously employed as the Colorado River cutthroat trout Biologist in the Northeastern Region Office in Vernal and the June Sucker Biologist in the Central Region Office. Calvin is an avid outdoorsman spending his free time fishing, duck hunting, bow hunting and upland game hunting. One of his favorite hobbies is collecting princess stickers on the cabinets in his office and making stupid dares to win a pink dollar . I'm curious how many people will actually read this, so the first person to email me to make fun of the sticker or dollar, I will buy them a drink!

Meet the Officers

President Elect—Dr. Mark Belk, Brigham Young University

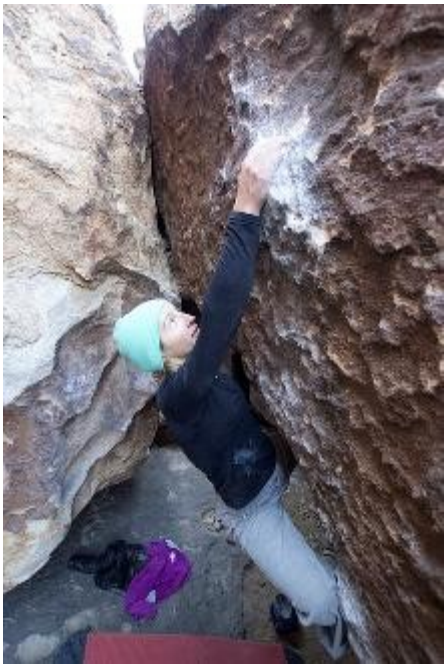
Mark C. Belk is a professor of Biology at Brigham Young University. Mark received his Ph.D. from the University of Georgia in Zoology in 1992. He has been on the faculty at BYU since 1992, and has been the editor of the *Western North American Naturalist* for 6 years. His research focuses on evolutionary ecology with a focus in the evolution of life histories and effects of predation. He also works on conservation biology of fishes, including freshwater fishes of the American West, Central and South America. He has published over 75 papers in 35 different peer-reviewed journals such as *American Naturalist*, *Ecology*, *Oikos*, *Oecologia*, *Global Ecology and Biogeography*, and *Ecology of Freshwater Fish*.

His published work and presentations cover a range of topics from basic natural history to experimental and theoretical work in evolutionary ecology. Most of his work involves a combination of experimental and observational field work and laboratory experiments. He spends several weeks each summer in lakes, rivers and streams conducting research, although some have suggested that he is just fishing.

Mark serves on several advisory boards for conservation of threatened and endangered species. His research work has been important in guiding the management of least chub, northern and southern leatherside chub, Columbia spotted frog, and June sucker. He is a longtime member of the "Friends of Trash Fish", and is prone to strike up a conversation about the wonders of fish, the politics of June sucker restoration, or the mating habits of livebearing fishes or burying beetles even in polite society.

Meet the Officers

Vice President—Cassie Mellon, Utah Division of Wildlife



I came to Utah from Alaska in 2006. I started working on the June sucker program in the Central Region and has since moved to the Salt Lake office where I am one of the native aquatics species coordinators. In 2011 my husband and I decided to quit our jobs, pack our van and travel around the U.S. and the world to pursue our passions of climbing and travelling. As amazing as that experience was, eventually the money runs out and after two years, I was thrilled to learn that my old job was open and I was able to return to a place I love. I enjoy working with the amazing native fish and amphibians in Utah as well as all of the other great people I get to work with here. Many weekends in the fall you can find me at Joe's Valley which in addition to being a great place to fish is one of the best bouldering areas in the world.

Secretary/Treasurer—Trina Hedrick, Utah Division of Wildlife

Trina has worked for the Utah Division of Wildlife Resources for 10 years this December, holding positions with both the native fish crew and now as Vernal's Regional Aquatics Manager. She has been a member of AFS since 2005 and has served the Bonneville/Utah Chapter as Secretary-Treasurer for two terms and as first and second year committee members for one term. She enjoys fishing for bass, walleye, and now wiper, but doesn't fish outside of the northeastern region as there is not need to go anywhere else! She also enjoys mountain biking single track and is very excited to go to Moab for the 2015 meeting.

Meet the Officers

1st Year Committee—Daniel Keller, Utah Division of Wildlife

I was born and raised in Price, Utah and for the past 7 years have had the good fortune to once more call Price home. After high school I joined the local Army National Guard Unit (1457th combat engineer Co.) and spent some time in training at Ft. Leonard Wood Missouri. Shortly after returning from training I spent 16 months on deployment to Iraq (2003-04) where we supported the 1st Armored Division. After coming home from deployment I attended both the College of Eastern Utah and later Utah State University in Logan, receiving a bachelor's degree in Conservation and Restoration Ecology with an emphasis in Fisheries. I began working for UDWR in 2007 as the aquatic invasive species biologist, in Price. I later moved into the native aquatics biologist position in 2010. I recently finished up a Masters Degree from USU working on a project evaluating the effects of tamarisk removal and flooding on formation of complex fish habitat on the San Rafael River. I have very much enjoyed working with Utah's unique native fish populations and striving to protect and enhance their habitat and populations. I have been a member of the Utah Chapter AFS since 2008 and have always enjoyed learning and networking with the many enthusiastic professionals dedicated to management and conservation of Utah's aquatic systems. I enjoy spending free time with my family and friends outdoors, running, and woodworking. My wife Magen and I have three boys, Koen (6) Kody (4) and Rob (2) whom I can't wait to fully introduce to my love of exploring the deserts, hunting, and fishing.

Meet the Officers

2nd Year Committee—Mike Fiorelli, Utah Division of Wildlife Resources

I am employed as a Native Aquatic Biologist for the Utah Division of Wildlife Resources in Vernal Utah. A majority of my work focuses on the three species conservation, but I also get to work with amphibians such as the boreal toad on occasion. I am currently pursuing my masters degree from Utah State. I am originally from Pennsylvania but moved out west five years ago and decided to stay. Some of my hobbies include fly fishing, duck hunting, upland hunting, and spending time outdoors.

USU Student President—Stephen Klobucar, Utah State University

I am a Ph.D. student in Phaedra Budy's Fish Ecology Lab, Department of Watershed Sciences, at Utah State University. Broadly, I am interested in aquatic ecology topics including, but not limited to, native species conservation, the role of predator-prey interactions influencing food web dynamics, and how aquatic communities and food webs respond to natural and anthropogenic disturbances. Throughout my undergraduate and graduate schooling thus far, I have developed an affinity for whole-system manipulations to address my research questions. My current research investigates climate change impacts on fisheries inland lake ecosystems on the North Slope of Alaska, with an ecosystem-level, lake warming manipulation in the works. I previously completed a M.S. project, funded by the Ute Tribe Fish and Wildlife Department, focused on predator-prey interaction and the limitations of growth of stocked tribal reservoirs in northeast Utah, and have worked on various other projects in Utah including: 1) native fish assessment and conservation with respect to seasonal movement and habitat usage in large rivers and tributaries (Green, Price, and White Rivers, UT); and, 2) investigating spawning habitats, interspecific competition, and potential removal of invasive burbot (*Lota lota*) in Flaming Gorge Reservoir, WY/UT.

When not in the field, lab, or office, I enjoy exploring, hunting, and fishing the waters and woods of Utah, most often with my three year old Labrador retriever, Trout. Otherwise, I may be found on the couch yelling at the TV during a Wisconsin Badger or Green Bay Packer game.

Meet the Officers

Web Guru—David Tinsley, Utah Division of Wildlife Resources

David currently works for the Utah Division of Wildlife Resources in the Central Region with the June sucker and carp removal programs. His hobbies include things he enjoys doing.

Western Division Update

Hello Utah Chapter Members! – And welcome to another year with AFS. I wish to express my thanks to the past and present officers of the Utah Chapter and their dedication to AFS. I am impressed by your Chapter's accomplishments and appreciate your active participation with Western Division AFS.

As for Western Division, I would like to thank our Past President, Pam Sponholtz, for all her hard work and dedication to AFS and her excellent role modeling as President. I would also like to welcome our new Vice-President Cleve Steward, new Western Division Student Representative Jane Sullivan and our new Tributary Editor Steve Ranney. AFS should be an enjoyable time as Donna Parrish, AFS President, takes office. And Thanks to our AFS Past President Bob Hughes for his past guidance and advocacy for the resource.

The new AFS strategic plan focus on species science, education communication, networking, advocacy and governance goals. As President I hope to focus work on all of these; however my priorities include how to recruit and retain AFS members, improving communication between AFS, Division and Chapters, learning the needs of Chapters and how the Division can best assist them, and promoting sound science as advocates for the resource. To be successful with any of these goals I will need your assistance. Please do not be shy in letting me know your thoughts on any of the AFS Strategic Plan goals or my priorities within.

At the Western Division EXCOM midyear meeting (December 6, 2014), EXCOM members will be reviewing my budget. If the budget passes there will funds available for professional and student travel to the Western Division meeting in Oregon (August 16 – 20, 2015), small grants, travel award for Western Division Awards winners (including but not limited to Riparian Challenge, Award of Excellence, and Award of Merit), and an increase in student scholarship funds. The call is out for small grant proposals and the deadline is December 1, 2014. These grants will be awarded in the spring of 2015.

And last, but not least, hold the date for our annual Western Division meeting. The 2015 meeting will be hosted by the Oregon Chapter AFS and will be a joint meeting with AFS. We are anticipating over 3,000 attendees. Check out the meeting website http://2015.fisheries.org and please consider submitting a symposia or presentation. The first call is out for symposia!

I'm very excited to be your Western Division President for the next year. Do not hesitate to contact me. And l look forward to seeing you in Portland if not sooner. Hilda

2015 Meeting—Portland, Oregon

Special Workshop—Evolutionary biology and taxonomy of the cutthroat trout (*Oncorhynchus clarkii*): Is it time to formally revise the currently recognized 14-subspecies biological classification of this species?

Purpose and Objectives of the Workshop

The purpose of this Special Workshop is to bring together a select panel of leading experts on trout evolutionary biology, systematics, and taxonomy to review and weigh carefully all evidence, both old and new, on which the present 14-subspecies biological classification of *Oncorhynchus clarkii*, as well as the several more recently proposed classifications of the species, are based. The panel's principal objectives will be to 1) decide if the 14-subspecies classification remains valid and defensible given the totality of the evidence; and 2) if it finds otherwise, define and provide the rationale for a new set of subspecies that in its collective judgment does satisfy both the old and newer evidence. A third panel objective will be to provide guidelines to those who may be charged with writing new formal subspecies descriptions as to what specific character descriptions and supporting information to include, given the array of new DNA-based methods now being brought to bear.

This Workshop will be staged as a special sponsored project of the Western Division American Fisheries Society (WDAFS), and will be held in conjunction with its 2015 Joint Annual General Meeting with the Society in Portland, Oregon.

The panel will produce a manuscript of its proceedings that will include its findings on the objectives above, as well as all reviews and deliberations of the evidence presented to and considered by the panel, along with the new guidelines for what to include in formally describing subspecies. We propose to seek publication of this manuscript by AFS either in its AFS Symposium Series, its Monograph Series, or as a Special Publication. A summary of the findings of the Special Workshop may also be prepared for publication in *Fisheries*.

Justification for the Workshop

Ever since it was first published by the late R.J. Behnke in 1979, a classification consisting of 14 subspecies (12 extant, 2 extinct) has been recognized for the species *O. clarkii* (Behnke 1979, 1988, 1992, 2002). Behnke wrote that he based his classification on an evolutionary history and sequence of radiations first proposed by David Starr Jordan back in 1894. Jordan (1894) believed that ancestors of all modern Cutthroat Trout traveled up the Columbia and Snake Rivers. From there they reached the Lahontan and Bonneville Basins, the Yellowstone River, the Green and Colorado Rivers, and then, via headwater transfers, the basins of the South Platte, Arkansas, and Rio Grande Rivers. Behnke believed that much of the present diversity, especially at the subspecies level, is the result of events that occurred in the last million years (Behnke 1992). He utilized the fossil record and early chromosome studies, but relied on meristic character differentiation to hone his classification. Although differences of opinion did occasionally arise, he believed that the later allozyme electrophoresis studies of others largely corroborated his classification (Behnke 1992).

However, workers examining levels of genetic divergence and diversity among subspecies using more recently developed DNA-based methods have increasingly called the validity of this classification into question. Also, management agencies charged with making listing decisions and executing recovery actions under the Endangered Species Act (ESA) have increasingly been lumping subspecies together on their own, without

http://www.westernnativetrout.org/content/yellowstone-cutthroat/

2015 Meeting—Portland, Oregon

For example, in 2001, the U.S. Fish and Wildlife Service lumped the Fine-Spotted Snake River Cutthroat, a separate subspecies in the Behnke classification, together with the Yellowstone subspecies as a single distinct population segment (DPS) when it issued its decision not to list the Yellowstone Cutthroat as threatened under the ESA (Kaeding 2001). The Service based its decision on the lack of genetic distinction found in allozyme and mtDNA markers. A spokesman for the Service later wrote that the Service considers the Yellowstone Cutthroat to comprise but a single DPS everywhere across the subspecies range including the Fine-Spotted Snake River enclave, and that taxonomic validation of the Fine-Spotted Snake River Cutthroat as a separate subspecies was the role of taxonomists, geneticists, and other qualified scientists, not the Service (Kaeding 2006). So the question remains, are there two subspecies in that area as per Behnke's classification, or are these two forms merely spot-size and ecological variants of a single Yellowstone Cutthroat subspecies as the Fish and Wildlife Service and the other management agencies treat them? In 2006, Idaho Chapter AFS held a symposium to tackle this question, but reached no resolution (Van Kirk et al. 2006).

In the Lahontan and Willow/Whitehorse basins of the Great Basin region, what Behnke recognized as three subspecies based on morphological and meristic character distinctions (i.e., the Lahontan subspecies of the western part of the basin, the Humboldt subspecies in the eastern part of the basin, and the Willow/Whitehorse subspecies in its own contiguous basin) have been lumped into just one subspecies, the Lahontan (ESA-listed), based on results from DNA methods (Coffin and Cowan 1995). Is this really justified, based on the totality of evidence? A fourth similar-appearing subspecies now believed extinct in pure form existed in the contiguous Alvord basin; would this subspecies also be lumped with the Lahontan? And how should the long-recognized but rare (and also ESA-listed) Paiute Cutthroat subspecies fit into this classification? It is also a western Lahontan Basin subspecies. Based on DNA evidence available to date (Nielsen and Sage 2002; Peacock and Kirchoff 2004), there is about the same amount of genetic divergence between the Paiute and western-basin Lahontan as there is between the western Lahontan and Humboldt forms that the agencies have already lumped into one. So again, is this lumping justified based on the totality of evidence, and if so, should it be extended to also absorb the rare Paiute subspecies?

http//www.westernativetrout.org/content/paiute-cutthroat/

Most recently, mtDNA and microsatellite DNA studies of Cutthroat Trouts of Colorado (Evans and Shiozawa 2001; Metcalf et al. 2007) raised doubts about the genetic purity of Colorado River and Greenback Cutthroat populations being used in recovery programs, and effectively stalled the recovery program for the ESA-listed Greenback subspecies. Then, in 2012, came a publication that makes a case for seven subspecies (two extinct) in the southern Rocky Mountain region historically rather than the four subspecies (one extinct) we have long recognized from Behnke's classification, but with substantially different distributional boundaries, particularly for the Greenback (Metcalf et al. 2012; see also Bestgen et al. 2013). In 2013, the Fish and Wildlife Service convened a panel of taxonomic experts similar to the one being proposed here to examine this latest evidence with a focus on the taxonomic status of just the Colorado subspecies. Although that panel hasn't completed its work, it serves as a model for the much broader Special Workshop we propose here.

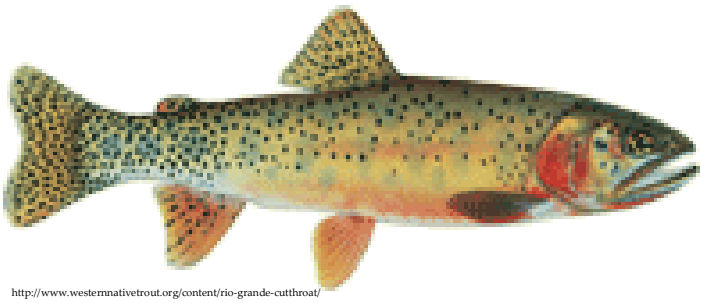
These examples illustrate the extent to which lumping (or in the Metcalf et al. [2012] case, splitting) of Cutthroat Trout subspecies has either been proposed or put into practice without regard for recognized taxonomic classification in recent years. Three additional papers, one published in 2009 and the other two in 2012, but each based on sequence comparisons of mtDNA genes, offered revised subspecies classifications of *O. clarkii* (Wilson and Turner 2009; Loxterman and Keeley 2012; Houston et al. 2012).

2015 Meeting—Portland, Oregon

Wilson and Turner's (2009) results support Behnke's original classification in part, but they do group Behnke's Lahontan, Paiute, Humboldt, and Willow-Whitehorse subspecies together as a single Lahontan subspecies, and they do consider the Fine-Spotted Snake River and Yellowstone subspecies to be just one subspecies, the Yellowstone. Loxterman and Keeley (2012) propose an 8-clade classification for the extant subspecies, in which the Coastal, Westslope, Colorado River, Greenback, and Rio Grande subspecies are the same as Behnke's, but, like Wilson and Turner (2009), their Lahontan clade now includes Behnke's Lahontan, Paiute, Humboldt, and Willow-Whitehorse subspecies. But these authors propose two new clades: a Bonneville-Yellowstone clade that includes the majority of Bonneville Cutthroat sampling locations plus all the Yellowstone and Fine-Spotted Snake River Cutthroat locations; and a distinct Great Basin clade that comprises the remainder of the Bonneville locations that did not cluster with the Yellowstones. This new Great Basin clade appeared to the authors to be more closely related to the Colorado River clade than to the other Bonnevilles in their Bonneville-Yellowstone clade, but nevertheless they considered it a distinct subspecies (Loxterman and Keeley 2012). The paper by Houston et al. (2012) was focused on discovering diagnostic single nucleotide polymorphisms (SNPs) for each subspecies, but in so doing these authors proposed a 10 subspecies classification for the extant subspecies. Like Behnke, they recognized the Coastal, Westslope, Colorado River, Greenback, and Rio Grande forms as distinct subspecies, and they also recognized the Lahontan of the western basin and Humboldt of the eastern basin as distinct subspecies. But unlike Behnke, they folded the Paiute subspecies into the western basin Lahontan subspecies owing to genetic similarity, and the Willow/Whitehorse form into the Humboldt subspecies as Trotter and Behnke (2008) had done earlier. They also lumped the Fine-Spotted Snake River form together with the Yellowstone as a single Yellowstone subspecies. As for the Bonneville subspecies, they recognized it as a distinct subspecies but split out the Bear River strain, which they set apart as its own distinct subspecies (Houston et al. 2012). The bottom line from these three papers is that each of these newly proposed classifications shows some congruence with Behnke's original classification of *O. clarkii*, but not always the same congruence; and, where they differ from Behnke's classification, they also differ among themselves as to what the new subspecies classification should be. These differences highlight issues that beg resolution in a Special Workshop setting

http://www.westernnativetrout.org/content/greenback-cutthroat/

And finally, we point to a paper published in 2002 that proposed an entirely different evolutionary history and sequence of radiation for the modern cutthroat subspecies—one centered around an inland, Bonneville Basin origin of Cutthroat Trout much earlier in geological time than Behnke had believed, followed by an outward radiation of the various Cutthroat lineages that spanned about the last 4 million years (Smith et al. 2002). The authors of this paper reached their conclusions from their own interpretation of the fossil record coupled with mtDNA analysis of modern specimens and molecular clock estimates of divergence times based on that analysis. Although this work did not offer a new classification for the species, it did challenge Jordan's basic evolutionary and radiational history assumptions that provided the underpinning for Behnke's classification.



http://www.westernnativetrout.org/content/rio-grande-cutthroat/

2015 Meeting—Portland, Oregon

These examples highlight issues that have cropped up in recent years regarding the proper biological classification of the Cutthroat Trout species. All could have direct bearing on ESA listings and recovery programs, in addition to their importance for land and aquatic habitat managers, fisheries managers, and scientists engaged in research on cutthroat trout. We submit that these are all issues that should be addressed and resolved by experts in trout taxonomy in face-to-face working sessions, not by operating remotely from one another or by corresponding back and forth via the scientific journals. We believe it is high time that a panel of such experts is convened to critically review all the evidence and, if deemed necessary, come up with a new, agreed-upon classification at the subspecies level for the entire cutthroat trout species. As noted above, the Fish and Wildlife Service convened a panel to consider the taxonomy of the cutthroat trouts of the southern Rocky Mountain region. That panel should be reporting soon, and its findings will be incorporated into the deliberations of this Workshop.

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Potential Panel Members and/or Presenters

Gerald R. Smith
University of Michigan (emeritus)
Ted M. Cavender,
Ohio State University (emeritus)
R.F. Stearley
Calvin University
Richard L. Mayden
St. Louis University
Marlis Douglas
University of Illinois
Jeffrey Olsen
U.S. Fish and Wildlife Service
Dennis Shiozawa
Brigham Young University
Andrew R. Whiteley
University of Mass. Amherst
Fred Allendorf
University of Montana
William Eschmeyer
California Academy of Sciences
Sheldon J. McKay
Simon Fraser University

Ruth B. Phillips
Washington State Univ., Vancouver
Gary Thorgaard
Washington State Univ., Pullman
Bob Gresswell
USGS Bozeman
Jennifer Nielsen
USGS Anchorage
Louis Bernatchez
Laval University, Quebec
Peter B. Moyle
University of California Davis
Wade D. Wilson
University of New Mexico
Mary Peacock
University of Nevada Reno
J.L. Metcalf
University of Colorado
Kevin B. Rogers
Colorado Parks and Wildlife
Ernest R. Keeley
Idaho State University

Douglas F. Markle
Oregon State University
D.A. Hendrickson
University of Texas
John G. Lundberg
Academy of Natural Sciences,
Philadelphia
Michael K. Young
U.S. Forest Service, Missoula

Treasurer's Report

Utah American Fisheries Society FY14 Summary
October 1, 2013 – July 2, 2014

Savings Balance	
	$ 25.09
Money Market Balance	
	$ 1,625.70
Starting Business Checking Balance	
	$ 2,949.65
Income	
Meeting Income	
Fundraising	
	$ 5,096.35
Registration	
	$ 7,611.84
Membership	
	$ 1,943.93
Cash return	
	$ 152.00
Trap Shoot	
	$ 313.51
Interest	
	$ 1.74
Sponsorship	
	$21,207.74
Rolling Reserve Reimbursement	
	$ 675.35
Total Income	
	$37,002.46
Expenses	
Meeting Expenses	
USU	
	$ 4,226.26
Greenwell	
	$16,440.00
Programs	
	$ 550.99
Misc	
	$ 187.02
Beverages	

Balance of UTAFS funds in WDAFS Endowment

6/30/14	$3,664.96
5/31/14	$3,635.73
4/30/14	$2,483.05
3/31/14	$2,516.04
2/28/14	$2,542.16
1/31/14	$2,424.46
12/31/13	$2,438.28

Thank you Trina Hedrick for providing this financial summary. If you have questions about Chapter finances please do not hesitate to contact Trina by email at trinahedrick@utah.gov.

President's Message

As I sit in my office writing my first Lateral Line President's Message I am distracted by the sunshine and beautiful weather outside. Like many of you I got into this career to be in the field and not in the office. As your field season is wrapping up I encourage and hope everyone has time to get out and enjoy the outdoors. It is fall and there's great fishing, hunting, hiking and biking opportunities out there and that's where my priorities are at right now! So my first president's message is to ditch work and go fishing! I'm off to adhere to my own advice.

I would like to remind everyone that Utah Chapter dues can now be paid online with your Society memberships. This process makes it easier for you to maintain your membership and voting status as well as for the Chapter to get credit for your membership. Even if you don't pay your Chapter dues through the Society please be sure to mark that you are both a Utah Chapter and Western Division member so our rebates are accurate..

Finally, if you have any ideas, suggestions, comments, questions or concerns please do not hesitate to contact me or any Executive Committee member. This is your Chapter, make sure you are being represented well. Take care and have a great summer!!

Utah State University Subunit

The Utah State University Subunit will be hosting the

Western Division American Fisheries Society's

2015 Student Colloquium

This is an annual meeting for students hosted by students. Student colloquium is a great opportunity to present research, receive feedback from your peers, and network with other student subunits.

This event is being planned for Spring 2015, details will be provided

Featured Fisheries Projects

With the revival of our Lateral Line we decided to feature ongoing fisheries projects conducted by Utah Chapter members. In each issue we hope to highlight projects from each student subunit and at least one project from a Utah professional. As the year goes on, please keep your Executive Committee aware of interesting projects occurring in our state. In addition, encourage your colleagues to present their findings at our annual meeting. Many thanks to our first contributors!

Featured Fisheries Projects

Utah State University Student Sub-Unit Update

It has been a whirlwind end of summer and beginning of the fall semester for the Utah State University AFS student sub-unit! Summer field seasons wrapped up for our many members throughout the Intermountain West, and students are gearing up for the first round of midterms here on campus.

Event Highlight

Right Hand Fork Stocking

On September 17th, several volunteers from USU's student chapter of AFS assisted the Utah Division of Wildland Resources with stocking fingerling Bonneville cutthroat trout into Right Hand Fork, a tributary to the Logan River. Last year, with help from the USU student subunit, UDWR stocked around 450 fingerling last year, and this year, with much better survival on the eggs collected from Temple Fork, nearly 3,000 fingerling were stocked. These restocking events follow years of mechanical removal, and a more recent chemical treatment to remove invasive brown trout. Right Hand Fork holds the potential to serve as important rearing habitat and a source population for the mainstem Logan. With beautiful weather and numerous volunteers, the task was accomplished quickly-- in addition to helping stock 3,000 fish, the student volunteers helped to weight and measure a small subset of the fingerlings. This information will contribute to the long term monitoring of the population with regards to growth rates and population structure.

Future Events

Guest Speaker

We look forward to Dr. Jereme Gaeta presenting his past research and future research plans with our sub-unit at a club meeting in the coming weeks. Dr. Gaeta is new faculty within the Watershed Sciences Department at USU, and is excited to get involved with the USU student sub-unit as well as the Utah Chapter. He comes to us from the Center for Limnology at the University of Wisconsin, where he was a part of many innovative and exciting lake research projects.

Featured Fisheries Projects

Volunteer/Field Experience

We look forward to helping out as needed with a variety of projects throughout Utah! If you or your agency needs volunteers to help in the field, our members greatly appreciate the opportunity for hands-on experience. Contact Stephen Klobucar (stephen.klobucar@gmail.com), and we can get organized to help! Currently, we are looking forward to heading over to Dutch John in the coming months to assist with UDWR annual burbot surveys and the Burbot Bash.

Western Division Student Colloquium

As a sub-unit, we will be hosting the annual Western Division AFS student colloquium in February 2015. Planning is already underway, and we hope to get some Utah Chapter members involved. Details to come! The colloquium is open to all students in the Western Division and centers on student research. The goals of this event will be to promote both undergraduate and graduate student research, as well as share research ideas, different fisheries perspectives, and knowledge of students among the subunits of the Western Division. By bringing future fisheries professionals from different states together, we hope to provide a forum for young people in the field to network and expand their perspective on fisheries.

Research Highlight

Strawberry Reservoir: Pelican and cutthroat trout dynamics

Kevin Chapman, a Master's student in Phaedra Budy's Fish Ecology Lab and USU student sub-unit member, recently wrapped up his first field season at Strawberry Reservoir. Kevin provided this summary of his work this past summer:

At Strawberry Reservoir, Utah, predation by seasonal flocks of pelicans on Bonneville cutthroat trout (*Oncorhynchus clarkii utah*) raises concerns about trout spawning and survival. For my Master's research, I am working alongside the UDWR to quantify the magnitude, timing and location of pelican predation on the fishes of Strawberry Reservoir. To this end I am using PIT-tags, spawner counts, and field cameras to track movement of cutthroat trout into and out of spawning tributaries to the reservoir, as well as determine strength of pelican predation pressure on the spawning tributaries. Furthermore, I am using pelican stomach contents to determine the species composition of pelican diets. I will use this diet composition in order to construct a consumption model that will provide an estimate of the total number of fish eaten over the course of the cutthroat trout spawning run, and the entire season.

Between May and August 2014, I tagged over 800 cutthroat trout with the assistance of undergraduate field technician Jamie Reynolds, and UDWR personnel. Additionally, we Floy-tagged over 1000 Utah chub and Utah sucker trapped. We captured 30 Pelicans with the assistance of Frank Howe and numerous volunteers from USU, the UDWR and the Tracy Aviary, using a combination of bow-nets and hand-nets. We then collected blood and diet samples from these pelicans. Furthermore, we were fortunate enough to recover several dozen other diet samples that were regurgitated by pelicans that were startled during our capture efforts.

My field research will resume in May 2015. My primary goals for the next field season are to continue trapping both cutthroat trout and pelicans, in order to increase my sample sizes. I will continue to search shoreline areas for PIT and Floy tags from fish consumed by the pelicans, as well as monitor the

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excellent data and refined techniques that will prove very useful in the future.

As Kevin mentions, Jamie Reynolds, USU undergraduate and USU student sub-unit member, served as a field and laboratory technician this past summer at Strawberry Reservoir. When asked to respond to: 1) What was the best/most rewarding part of your work at Strawberry?; 2) What was the most challenging?; and, 3) What was the best thing you learned?, Jamie replied:

"Everything was the best part!! I had a blast, and I learned so many new skills this summer. I love to learn, and I felt like I learned something new every day. I really enjoyed seeing concepts I learned in the classroom come to life in the field. Other than fly fishing, I hadn't really worked with fish before, so setting trap nets and gill nets, PIT and Floy tagging, and doing spawner counts was all new to me. Growing up, my family didn't have boats or trailers, so I had fun learning to drive the boat and back trailers. I only made a complete ass of myself on the boat ramp once this summer. :) I really just enjoyed being outside every single day. I felt very fortunate to be able to "play" with fish and pelicans all day. The most rewarding day, I think, was a long one, but a good one! I went home that evening covered in/smelling like pelican, pelican vomit, pelican feces, live fish, dead fish, slime from both live and dead fish, mud, blood, and sweat.

The most challenging part was definitely scanning for PIT tags in the pelican loafing areas in muck up to (and sometimes higher than) my knees. That was hard work, and I love manual labor. It was satisfying, though, to look back after a while and see how much ground we had covered, particularly near the mouth of Strawberry River. We rigged up one of the larger scanners so we could drag it behind us like a plow. After scanning an area, it reminded me of a freshly plowed field, which I found incredibly satisfying.

It's really hard to pick a biggest/best thing I learned because I learned so many new things. I did learn that I really love fish and I want to continue to study them. I also learned a lot about project implementation, which will help me when I am working on my own projects. I learned that pelican, pelican vomit, and pelican feces are three distinctly different

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Least Chub Coming Soon to a Pond Near You?
By Cassie Mellon, Utah Division of Wildlife Resources

Least chub (*Iotichthys phlegethontis)* is one of the very specialized fish that are endemic to the Bonneville Basin of Utah. This little fish has weathered many changes in the Bonneville Basin. Historically its habitat consisted of all of Lake Bonneville and its environs but it is now only found naturally in six isolated spring systems. Least chub are a pretty resilient little fish that reproduces rapidly and can tolerate water conditions that many other species cannot, but there are a few things that they just can't handle. If mosquitofish (*Gambusia affinis)* are introduced, they rapidly prey upon and outcompete least chub and least chub quickly are excluded from the habitat. Since least chub occur in so few places, there has understandably been much concern about it status by the Division of Wildlife (UDWR) as well as the conservation community. Least chub has had an on again off again history with the Endangered Species List. It was petitioned and found not warranted for listing in 1995, petitioned again and determined to be warranted for listing but precluded by higher priorities in 2010, and most recently found not warranted and removed from the candidate list in 2014. We view this final ruling as a huge success for Least Chub conservation efforts.

Least Chub is doing better now than it has been for many years. UDWR, in cooperation with multiple partners, formed a voluntary conservation agreement to determine how the partners could work together to conserve least chub and prevent the need for listing. One of the conservation strategies the team decided to implement was establishing additional populations of least chub as backups to the wild populations. Since 2005, we have introduced least chub into 23 new locations in the Bonneville Basin. Ten of these populations have persisted for long enough and are considered secure enough that the Fish and Wildlife Service (FWS) determined these populations could be considered in their decision of whether least chub should be added to the endangered species list. To our knowledge, this is the first time that FWS has evaluated introduced populations in this way.

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Our refuge populations occur in a variety of locations, including on private land, a local elementary school, Bureau of Land Management (BLM), Department of Defense, a UDWR wildlife management area, and Utah State Parks. We sometimes hear of complaints of endangered species and that people don't want them on their land or if they do occur, people may have concerns about how their property management could be restricted if the species were to become listed. Many steps were taken to ensure that an introduction would be mutually beneficial to the landowner as well as UDWR and least chub. Introductions were done at sites that were already determined to have a low level of existing threats, so restrictions on or changes to management were not necessary. Introductions were always done with full disclosure of the conservation status and the listing potential to the landowner. We entered into an agreement with the landowner where if they ever decided they didn't want least chub on their property anymore, they just had to ask us and we would come remove them without any repercussions. This helped address many concerns. Once people see this little fish with its brightly colored fins, learn about how many mosquito larvae it can eat and then go out to their pond or take a group of school children out where they can see them swimming around, we never hear any more concerns.

What's next now that least chub are no longer a candidate for federal listing? Even though we've had this big success, we have even bigger plans for the future. We'd like to develop a way that least chub can be used in backyard ponds for mosquito control rather than the commonly used nonnative mosquitofish. We are entering into a partnership with Salt Lake County where they will be building a pond at the county jail where we can stock least chub. The County plans to use this as an educational tool for the inmates and if the project is a success,

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THE BLUE RIBBON PANEL
ON SUSTAINING AMERICA'S DIVERSE FISH AND WILDLIFE RESOURCES

Blue Ribbon Panel on Sustaining America's Diverse Fish & Wildlife Resources Launched!

Last month, there was a big announcement in Missouri, the same state where the Bridge to the Future Conference 20 years ago highlighted the need for fish and wildlife diversity funding.

John L. Morris, Founder and CEO of Bass Pro Shops, and Dave Freudenthal, former Governor of Wyoming, announced that they will be co-chairing the Blue Ribbon Panel on Sustaining America's Diverse Fish and Wildlife Resources. The Panel will bring together two dozen leaders from the outdoor recreation, energy, agricultural, automotive, financial, educational and conservation communities to discuss and offer recommendations on how to achieve greater and sustained funding for fish and wildlife conservation.

Under the leadership of the co-chairs- John L. Morris and Dave Freudenthal- the Panel will answer one of the most important questions facing fish and wildlife today...

What is the best and most equitable way to fund fish and wildlife conservation to ensure their sustainability?

Conservation means balancing the sustainability of fish and wildlife with the many needs of humans for clean air and water; land; food and fiber; dependable energy; economic development and recreation," said Morris. "By assembling this Panel of highly regarded leaders and problem solvers, we will find a way forward that safeguards not only vital natural resources, but also our nation's economic prosperity and outdoor heritage." Freudenthal added, "with fish and wildlife species and natural resource-based enterprise at stake, we can't afford an 'us vs. them' mentality. It is time to create certainty for both industry and the conservation community by building a 21st century funding model."

State hunting and fishing license dollars, federal excise taxes on hunting and fishing gear and motorboat fuel taxes have provided the backbone for funding states' fish and wildlife conservation programs over the past century. However, there has always been a significant gap in dedicated funding for conserving the 95 percent of all species that are neither hunted nor fished. Only partially filling that gap is the State and Tribal Wildlife Grants Program, the sole federal source of funding to state agencies to prevent new endangered species listings. Since 2010, the program's funding has been cut by more than 35 percent while petitions for federal endangered species listing has skyrocketed by 1,000 percent. Over the next year, the Panelists will work together to produce recommendations on the most sustainable and equitable way to fund the conservation of the full array of fish and wildlife species..

John L. Morris, Bass Pro Shops Founder
Blue Ribbon Panel Co-Chair
"I strongly believe that the future of our industry, the outdoor sports that we serve, and the outdoor sports we personally enjoy, is absolutely more dependent upon how we manage our natural resources than anything else."

This day has been in the making since the 1990's when the Teaming With Wildlife Coalition called for dedicated funding for state fish and wildlife diversity funding. Your work has brought us to this next stage in the campaign for funding. We will be keeping you regularly informed of the Panel's progress and will need your help to ensure the Panel's recommendations are implemented.

To kick things off, AFWA's Teaming With Wildlife Committee hosted an input session that included six Panelists and over 90 conservationists to begin gathering ideas on funding options. A website to solicit ideas from the public will be launched in the coming weeks.

Dave Freudenthal
former Wyoming Governor - Blue Ribbon Co-Chair
"We've reached a point where inaction will only dig us a deeper hole of controversy, litigation, lost business opportunities and declining fish and wildlife. The Blue Ribbon Panel will help to ensure wildlife and business prosper and divisiveness and reactionary conservation are a relict of the past."

To find out more about the Blue Ribbon Panel and the need to create a 21st century model of fish and wildlife diversity funding go to http://teaming.com/blueribbonpanel or contact Mary Pfaffko,mpfaffko@fishwildlife.org.

Fish Tails or Fish Tales?

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