FISH SOUP

AZ-NM CHAPTER AMERICAN FISHERIES SOCIETY

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Outgoing President's Message for Members

Pam Sponholtz, President

Hello! It is hard to believe that a full year has already passed. Yet when I think about what we, as a Chapter, have accomplished this year, the time seems more real. Below I summarized some of the highlights. Be proud of what you've done and the time you've donated to your Chapter as it is reflected in our accomplishments! While this year has been filled with all sorts of fun challenges, I am excited about what the future holds for our Chapter and AFS under our incoming President, Amy Unthank, when she takes office this month. We have another strong leader coming in as President-Elect, Marianne Meding, please help me in welcoming these two in their new roles. Thank you again for electing me and making this year such a good one! Hope to see you all in Prescott in February and Best wishes, Pam.

Aquatic Stewardship

The Chapter created a new subcommittee this year called Environmental Affairs, headed up by Jason Kline. To date, the chapter has submitted letters commenting on renovation projects in the headwaters of the Verde River, barrier construction in the Blue River drainage and National issues such as the re-registration of Antimycin A and Rotenone. Nice job Jason!

Information Transfer and Outreach

The Chapter welcomed two new subchapters this year. The New Mexico State University Chapter had its bylaws accepted by the Governing Board earlier in 2007 and the Arizona State University chapter has submitted its bylaws to be reviewed and accepted by the Governing Board at the upcoming National Meeting in September in San Francisco. Our third subchapter, University of Arizona, had their bylaws accepted at the mid-year Governing Board meeting.

The Chapter put in a successful bid to host the 2009 Western Division meeting in Albuquerque, NM.

Member Services

The Best Paper/Poster and Awards Committees recognized the accomplishments of Chapter members at the 2007 Annual Chapter Meeting in Albuquerque in February.

In conjunction with our Chapter meeting in February 2007, we organized two training classes at a significant cost reduction to members. The first class titled "GIS and raster-based analysis for Fishery Professionals" was a huge success and built on previous offered courses. The second

course titled “Rotenone and Antimycin Use in the Southwest” was also a huge hit and covered project development and planning and provided case studies as examples.

As a result of Anne Kretschmann, Marianne Meding and Bill Stewart’s efforts, the Chapter published its quarterly publication “Fish Soup” which provides informational articles, updates on chapter activities and a forum for volunteers.

We updated the webpage (www.fisheries.org/units/aznm), including a 2007 member list and provided forms for interested individuals to download to become members.

Under our new Membership Chairman, Jeremy Voeltz, began a regularly updated email list to send members information.

In cooperation with Aquatic Consultants Inc. we awarded a total of $2000 in competitive scholarships undergraduate students in New Mexico and Arizona as part of their Miles McInnis Scholarship program.

The Chapter invested a total of $3,000 in the Western Division Investment Fund. Additional funds will be invested following the 2008 Annual Chapter Meeting.

We helped support the U of A and New Mexico State Student Subunits financially by paying for National AFS memberships for all officers and providing lodging for our annual chapter meeting.

2008 Joint Annual Meeting

The 41st joint annual conference of the Arizona and the New Mexico Chapters of the Wildlife Society and the Arizona and New Mexico Chapter of the American Fisheries Society will be held February 7-9, 2008 at the Prescott Resort in Prescott, AZ (www.prescottresort.com). Rooms will cost $60+ tax single occupancy with $20 per night per extra person. Hotel reservations are due by January 16, 2008 for the conference rate.

In keeping with our conference location, we’ve decided that the conference focus will be “Providing water for urban growth: Challenges for managing terrestrial and aquatic wildlife” and expect that the Plenary Session will be an engaging and insightful look at the water issues that are relevant to the entire Southwest.

Please check the AZ/NM chapter website at www.fisheries.org/units/aznm as this site will be updated frequently as more information about this conference develops. Registration and abstract submittal will also be accessed via this site. Please feel free to contact Chuck Benedict (General Chair, cbenedict@azgfd.gov , 928-774-5045) or Pam Sponholtz (Registration Chair, pam_sponholtz@fws.gov, 928-226-1289 x113) for any questions.

Bright Angel Creek Trout Reduction Project, Grand Canyon National Park

The Arizona Fishery Resources Office (AZFRO) is working with Grand Canyon National Park (GCNP) on a project to restore native fish populations in a small tributary to the Colorado River. This project occurred in Bright Angel Creek, a second-order tributary in the Colorado River drainage within Grand Canyon National Park.

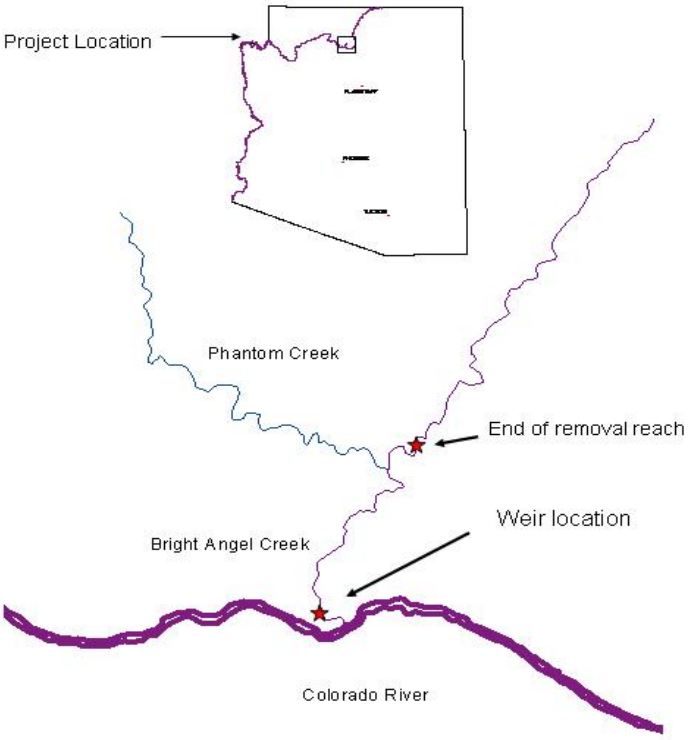
Angel Springs is the source of Bright Angel Creek, located 19 km upstream from its confluence. From here, the creek flows southward to the Colorado River, dropping 1,068 m in elevation, with an average gradient of 55 m/km. A number of other springs contribute to the flow of Bright Angel Creek; however, the largest is Roaring Springs located 16 km upstream from the mouth of the Bright Angel Creek. Roaring Springs provides water for the facilities on both the north and south rims of the National Park that varies between 0.2 to 0.7 m^3/s.

Under the National Park Service Organic Act of 1916, GCNP is responsible for preserving and protecting natural resources within its jurisdictional boundaries. The Act also calls for management and conservation actions designed to protect and re-establish native species that are part of GCNP's aquatic heritage. Reducing threats to federally protected fish and wildlife species is required under the Endangered Species Act of 1973 and is consistent with management policies that require parks to maintain natural plant and animal communities and work to remove established invasive/exotic species.

The purpose of this project is to enhance native fish populations and restore natural ecosystem values in Bright Angel Creek. While quantitative data are lacking in the years prior to trout stocking in Bright Angel Creek, the fish community has likely shifted towards non-native salmonids and has impacted the native fishes that historically used this creek for spawning and rearing habitat. To try and restore the native fish community in Bright Angel Creek, AZFRO is working with the Park to reduce nonnative trout populations using a dual approach where a weir is placed near the confluence of the Colorado and Bright Angel Creek to intercept migrating fish and electrofishing to mechanically remove nonnative trout.

Weir installed in Bright Angel Creek

Location of weir and the end of the electrofishing removal reach in Bright Angel Creek, Grand Canyon National Park.



The approach of restoring native fish populations using mechanical means is becoming more and more common as indigenous fishes continue to decline, especially in the arid Southwest. Non-native fish dominate significant portions of Arizona's streams and if natives exist, recruitment rates are often reduced or eliminated. Following a long history of habitat loss and degradation, the spread and establishment of non-indigenous aquatic organisms, especially fish, is increasingly viewed as one of the most serious long-term threats to the status and recovery of native aquatic vertebrates. Direct impacts of non-native fishes to native forms include predation, competition, hybridization, and parasite and pathogen transmission. Predation on early life stages (eggs, larvae, juveniles) is considered the primary avenue by which non-native fishes depress and often eliminate what are considered "predator naïve" native species. Evidence suggests that to survive and persist, even in physically degraded habitats, native species need habitats free of and protected from established populations of non-native species.

It is interesting how management focus has changed over the history of stocking in Bright Angel Creek. Prior to 1920, when the Park was still managed by the Forest Service, nothing appears to be recorded about fish in Bright Angel Creek. However, Williamson and Tyler (1932) state that "the Forest Service made some planting in the more accessible streams prior to the creation of the National Park in 1919". Since at that time, Bright Angel Creek was used as a camp for miners and was fairly accessible, we can assume that stockings occurred here. Some 5,000 fingerling brook trout were introduced into Bright Angel Creek by the National Park Service in 1920. Between 1923 and 1964, the Park Service repeatedly planted rainbow trout (*Oncorhynchus mykiss*) in Bright Angel Creek. Brown trout (*Salmo trutta*) were also introduced into Bright Angel Creek by the Park Service in 1930.

Currently, Bright Angel Creek is home to nonnative brown and rainbow trout and native species such as speckled dace, bluehead and flannelmouth sucker. There is some evidence that endangered humpback chub use the inflow areas of Bright Angel Creek during some parts of the year. The hope is that as trout removal continues that more humpback chub will use Bright Angel Creek and perhaps even use it for spawning in spring and in the fall.

Implementing this project is logistically challenging due to the remote area and the National Park status which prohibits most forms of transportation. One exception is the Park Service's new helicopter which allowed us to transport all of our sampling gear to the removal reach. However, even though the gear got a ride down, all the sampling crews had to make the 7 mile trek into the bottom of the Grand Canyon, which is almost a mile difference in elevation.

In fall 2006, 54 brown trout and 36 rainbow trout were captured in the weir and 158 brown trout were removed from the sampling reach in Bright Angel Creek located from the weir to river kilometer 3.35 using electrofishing. This represents an average of 55% of the estimated number of brown trout present in this reach. Most surprising from these initial surveys were the high numbers of rainbow trout relative to the brown trout. Rainbow trout densities in the removal reach were 3 and 1.6 times higher than brown trout.

Pam Sponholtz, and Jim Walters, USFWS, measure fish captured in the weir in spring 2007

To test the effectiveness of the removal in Bright Angel Creek, the weir was put back into place this spring to catch native suckers migrating into the creek to spawn. We hope that spawning success of these native species will be higher after removal of the nonnative trout and the effectiveness of this management action can

be further tested using young-of-year recruitment rates that will be measurable later this summer. However, it remains to be seen as to whether or not removal of trout on a small scale (project currently only covers first 3 km of Bright Angel Creek) and the lack of a permanent barrier on the downstream end will contribute to native fish recovery in Bright Angel Creek. With free access to Bright Angel Creek when the weir is not in place, both rainbow and brown trout can move into the creek from the Colorado River mainstem. Despite the challenges of this project, both biologically and politically, AZFRO is excited about this unique opportunity to work with a sister DOI agency on the potential restoration of native fish in Grand Canyon National Park. In addition, the work completed in Bright Angel Creek will help in other restoration projects both in the Park as well as in the Southwest by providing critical data on the efficacy of mechanical removal efforts.

Flannelmouth sucker captured in the weir

~Pam Sponholtz, David R. VanHaverbeke, Arizona Fishery Resources Office

Year 1 of the Rio Costilla Trout Restoration project

Over 30 biologists, many from NMDGF, but also from USFWS, FS, and the BLM, showed up in the Valle Vidal on the Carson National Forest in mid-August to help begin implementation of this multi-year project to restore Rio Grande cutthroat trout, Rio Grande sucker, and Rio Grande chub to over 130 miles of stream and several lakes in the Rio Costilla watershed.

Culverts recently re-installed on the Carson NF with gradient, length, and an apron to provide a barrier to upstream fish passage in Comanche Creek.

The primary partners for the overall project are NMDGF, Vermejo Park Ranch (Ted Turner's Enterprise), Rio Costilla Cooperative Livestock Association, USFWS, and the Carson National Forest, with significant additional support by Trout Unlimited's Truchas Chapter. This year's field work, following an Environmental Assessment completed through the USFWS and several years of planning and public outreach, was led by Kirk Patten, Rio Grande Cutthroat Trout Biologist, and Eric Frey, the Northeast Area Fisheries Manager, (both with NMDGF). Their immediate assistant was James Dominguez, a Fisheries Technician with NMDGF. An excellent job of logistical planning was carried out by Frey, Patten, and Dominguez.

Eric Frey and James Dominguez of NMDGF discuss logistics during project implementation.

Approximately 25 miles of stream were treated with rotenone in this first year. Extensive efforts to remove fish by electrofishing, as well as liberal angling regulations, were also utilized prior to rotenone. Many of the salvaged native fishes were returned to the watershed downstream of this year's treatment area, including some huge long nose dace. Fish remained to be killed by rotenone (many non-native white suckers, some trout, and long fin dace) despite the many hours of mechanical removal effort prior to the chemical treatment in this primarily meadow system.

Yvette Paroz and Kirk Patten of NMDGF measure out rotenone for later application

If chapter members want further information on the project or to be put on Kirk's list of potential helpers for 2008, please contact Kirk Patten at kpatten@state.nm.us.

~Amy Unthank, USFS, Fisheries Program Manager, Albuquerque, NM

Fresno Canyon Native Fish Restoration Project

Fresno Canyon is a major tributary to Sonoita Creek which is a major tributary of the Santa Cruz River located in Southern Arizona approximately 15 miles northeast of Nogales Arizona. Fresno Canyon is located within the Sonoita Creek State Natural Area and is managed by Arizona State Parks (AZSP). The canyon currently contains Gila topminnow, Sonora mud turtles, and canyon tree frogs. Non native species found within the canyon include green sunfish, bullfrogs and crayfish. In an effort to remove non native aquatic species from the drainage, Arizona Game and Fish Department (AZGFD) in cooperation with Arizona State Parks planned a chemical renovation of the canyon to restore aquatic habitat to conditions suitable for native species conservation.

During the week of June 18th, 2007 a chemical renovation was completed within Fresno Canyon to remove the green sunfish. The piscicide Prentox® Synpren-fish™ was used to treat approximately 1.40 acre feet of standing water in a series of pools of various depths throughout a 600 meter wetted section of the canyon.

Jeff Sorensen (AGFD) and Suzy Ehret (AGFD) apply rotenone in Fresno Canyon

To date, no green sunfish have been observed in the treated portion of the canyon and we are working now to re-establish the topminnow population in this location and expect that without green sunfish, this population will be greatly enhanced once they become established.

~ Don Mitchell, AGFD, Fish Program Manager

Sonoran Mud Turtle Mortality during Fresno Canyon Renovation

During completion of the Fresno Canyon renovation several Sonoran mud turtle mortalities were observed during the second day of treatment with rotenone. The mortalities were isolated to several small steep sided bedrock pools and observed treatment wide. Turtles located in other pools within the treatment site located in pools with shallow sides and greater amounts of aquatic vegetation were not affected by the rotenone and were in fact observed feeding on the carcasses of the green sunfish and appeared to be doing fine two days after the initial treatment. Because the mortalities were an isolated incident and not project wide as one might expect, it's difficult to say for certain that rotenone was the cause of death in this case. Currently only a small amount of anecdotal evidence speculation and casual observation is available to support that rotenone is toxic to turtles and to my knowledge there has not been any research conducted on the impacts of rotenone on Sonoran mud turtles. However it is important for mangers to recognize that these impacts may be real and take precautions when planning rotenone treatments in areas occupied by Sonoran mud turtles.

~ Don Mitchell, AGFD, Fish Program Manager

Southeastern Arizona Native Fish Field Surveys

As the new Native Fish Specialist 1 out of the AGFD Tucson office, I have been busy conducting native fish field surveys across southeastern Arizona. List of sites surveyed during the spring and summer of 2007 with reports associated with them:

*International Wildlife Museum, Pima Co., Tucson
*Davidson Canyon, Pima County near Cienega Creek and I-10
*Pima County Regional Park Wetland, Oro Valley
*Fresno Canyon, Santa Cruz Co., NE of Rio Rico
*Carl Anderson's Pond, Cochise Co., Portal
*Gardner, Cave Creek, Sawmill Canyons, Santa Cruz Co., NW of Sonoita
*Temporal Gulch & Mansfield Canyon, Santa Cruz Co., north of Patagonia
*Josephine Canyon on the Bowden's Property, Santa Cruz Co., east of Tumacacori
*Post Canyon, Welch Springs, Freeman Springs and Canyon, Santa Cruz Co, near Canelo
*West Turkey Creek, Santa Cruz Co., near Canelo
*O'Donnell Creek, Santa Cruz Co., near Canelo

*Coal Mine Canyon & George Wise Spring, Santa Cruz Co., north of Patagonia
*Alamo Canyon, Santa Cruz Co., west of Nogales
*Neighbor Spring, Santa Cruz Co, near Parker Lake
*South, North, Main Forks of Cave Creek & E.
*Turkey Creek, Cochise Co., west of Portal

If you are interested in volunteering on future surveys in southeastern Arizona or an electronic version of the survey reports for these sites please email me at sehret@azgfd.gov.

~Suzy Ehret, AGFD, Region V, Native Fish Specialist

Mexican Stoneroller Translocation

Only two populations of Mexican stoneroller (*Campostoma ornatum)* occur in the US, Rucker Canyon in the Chiricahua Mountains, and Big Bend, TX with none found in Texas since the 1980's. On June 14th, 2007 members of AGFD, USFWS, USFS, and a private landowner translocated stonerollers from Rucker to West Turkey Creek. The addition of Mexican stoneroller was a crucial step in assembling a native fish population in West Turkey Creek, while establishing a second population of stoneroller in AZ.

Three teams split into three reaches in Rucker creek below Rucker Dam to capture fish. We electro-fished more than 200 stonerollers, removed an estimated 300 rainbow trout and found the Yaqui form of longfin dace in all reaches sampled. We double sorted all fish, moved 40 stonerollers above the Dam to supplement that population, and transported 160 stonerollers to W. Turkey Creek. The remaining stonerollers were returned to Rucker. We treated the stonerollers for parasites, including Asian tapeworm, for 24 hr.

Joe Austin (El Coronado Ranch) and Jacob Malcom (USFWS) stocking stonerollers at West Turkey Creek.

During the treatment, we sampled and constructed spawning structures for Yaqui Catfish (*Ictalurus pricei)* at Big Tank.

Jeremy Voeltz (USFWS) and Jason Kline (AGFD) constructing Yaqui catfish spawning structure.

I am happy to report we found a catfish ripe with eggs and are hoping to see young catfish in the fall surveys. After the treatment, we stocked stonerollers in seven locations on West Turkey Creek, both on private land and above on USFS property.

We will return in October to monitor the population. I thank everyone involved as this was a cooperative effort that resulted in a successful project.

Jason Kline (AGFD), Jeremy Voeltz (USFWS), Tom Skinner (USFS), and Suzie Ehret, sorting fish.

~S. Jason Kline, AGFD Region V Fish Program Specialist

Developing Conservation Priorities for the Lower Colorado River Basin

Identifying areas in need of protection is a critical step in native fish conservation. As part of a nationwide Aquatic Gap Analysis Program, the Lower Colorado River Basin Aquatic GAP (LCR-GAP) is an effort to provide conservation assessments based on native and non-native fish distributions and landscape-level habitat variables.

The LCR-GAP project has collected biological, physical, and environmental data for the entire basin through museum records, downloadable habitat data, and state, federal, academic, NGO, and private partners. See http://www.lcrgap.org for a list of partners. We have acquired >1.5 million fish records from >80,000 sites throughout the basin (Figure 1).

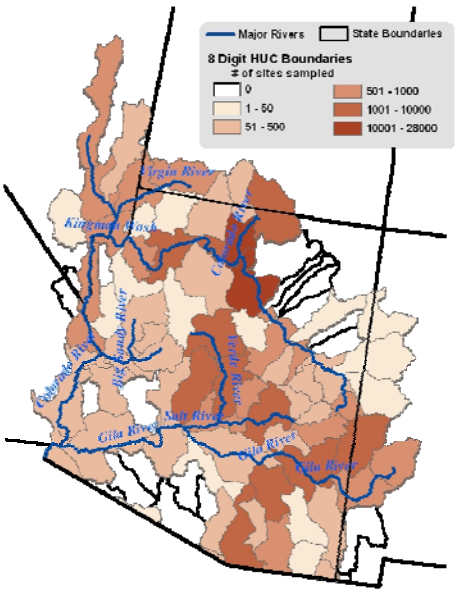


Fig. 1. The Lower Colorado River Basin depicting the number of sample sites per 8 digit HUC.

The habitat data has been used to develop metrics that are useful to predict fish distributions (gradient, landform, etc.), and will be used to develop predictive models of native and non-native fish presence. The distributions will be linked with land protection status to compare species rich areas with conservation status. We have acquired much of the fish location and habitat data and our next steps are to develop the predictive models and identify conservation areas. However, we can still add any fish location data so please contact us if you have data you are willing to contribute. We also have an online bibliography for the Lower Colorado Basin with many gray literature documents available as pdfs: http://www.lcrgap.org/search.htm. Please contact us if you have any reports to contribute to this database. We hope stakeholders in the Lower Colorado River Basin will use this information to aid in native fish conservation, and other efforts (e.g., National Fish Habitat Initiative, Desert Fishes Partnerships, State Wildlife Comprehensive Planning, etc.). More information can be found by going to the LCR-GAP website at www.lcrgap.org.

~Joanna Whittier, and Craig Paukert, Kansas Cooperative Fisheries and Wildlife Research Unit, Kansas State University

Native Fish Monitoring and Recovery Efforts in the upper Gila Basin

In late May and early June, Stephanie Coleman of the USFWS New Mexico Fisheries Resources Office led crews to monitor Little Creek and Black Canyon within the Gila National Forest. Both streams are dedicated to Gila trout recovery. Electrofishing efforts indicated that Gila trout in Little Creek were in excellent condition and fish up to 230 mm total length were sampled. Speckled dace were prevalent throughout the creek. In Black Canyon Desert sucker were abundant, in addition to speckled dace. Gila trout up to 308 mm total length were sampled. Biologists are trying to catch up on monitoring of streams that have not been visited for a few years due to priority work in the upper West Fork Gila River.

In mid-June an interagency crew of NMDGF, USFWS, and FS personnel saddled up for the 20 mile ride into the upper West Fork Gila River to check on previous piscicide efforts to eliminate non-native trout from about 20 miles of stream habitat. The crew was led by Yvette Paroz of NMDGF. Unfortunately numerous juvenile Brown trout were located in one site and a few adult trout were spotted upstream in an area that has been difficult to treat due to deep pool habitat in a narrow confined canyon. The repatriation of Gila trout to this area is critical to long term recovery of the fish, which was down-listed earlier this year. Another trip is in the works to treat portions of the area, while most of the tributaries have remained free of non-native trout for a couple of years now. Monitoring will take place until no non-native trout are documented, at which time Gila trout will be re-introduced into their native habitat in the upper West Fork Gila River.

In late June biologists from NMDGF (Dr. David Propst, Yvette Paroz), USFWS (Mary Richardson), AGFD (Codey Carter), and the Forest Service (Jerry Monzingo) collected over 100 loach minnow and approximately 400 spikedace from the Gila Bird area. The fish were transported to Arizona Game and Fish Department's new addition to Bubbling Ponds hatchery that is dedicated to native fishes. NMDGF

biologists, Stephanie Carman and Yvette Paroz, recently visited the Bubbling Springs facilities with Rob Clarkson of the Bureau of Reclamation to see the new facilities and discuss the use of the facilities for native fish recovery efforts in both Arizona and New Mexico.

~Amy Unthank, USFS, Fisheries Program Manager, Albuquerque, NM

CHAPTER NEWS!!!

The Environmental Review Committee allows AFS members to comment and provide input on controversial projects and EAs via the AZ/NM chapter. If you have any issues that AFS may want to comment on please send them to Jason Kline at: jkline@azgfd.gov

Environmental Review Committee!

Salt River Project has developed a Habitat Conservation Plan and applied for a FWS a permit to incidentally take sensitive and federally protected species that may result from the operation of Horseshoe and Bartlett Dams on the Verde River. Here is your opportunity to comment on this plan through AFS. Comments are due to Jason Kline (jkline@azgfd.gov) by September 10, 2007. Go to the AZ/NM website at www.fisheries.org/units/aznm to view or download the EIS and the supplementary information.

Thanks,
Jeremy Voeltz
Fishery Biologist/Project Coordinator
USFWS Arizona Fishery Resources Office
Office: (928) 338-4288 x23
e-mail: jeremy_voeltz@fws.gov

AFS Student Updates!

Student Sub-unit Contact Information

Jamie Evans, ASU, jammie_05@yahoo.com
Sonja Smith, U of A, hpssmith@email.arizona.edu
Justin Malupa, NMSU, jmalupa@nmsu.edu

University of Arizona Student Chapter

Officers for this year are:

Sonja Smith – President
Josh Lowry - Vice President
Erica Sontz – Treasurer
Jake Mundy – Secretary

We are going to hold our first meeting of the school year in the coming months. We are hoping to finalize plans for the year and are hoping to do the following activities: have involvement in the Aravaipa fish surveys, do some cattail removals, bring in guest speakers from the Fish & Wildlife Service and AGFD, and attend the AZ/NM joint Wildlife/Fisheries meeting and perhaps attend the Desert Fishes Council.

~Sonja Smith, President

Relating Fish Abundance and Condition to Environmental Factors in Desert Sinkholes

When relating fish populations to environmental variables, numerous studies have utilized a multiple-lake approach. These studies have largely been performed in north-temperate locations. Although some multi-lake studies have been conducted on tropical lakes, information on other warmwater fish communities, like desert species, is lacking due to scarce water resources and the rarity of multiple lakes within a relatively confined geographic region. We hypothesized that fish abundance is primarily determined by abiotic factors, as these can have extreme values in desert environments. We investigated abundance (mark-recapture and catch-per-unit-effort estimates) and condition (length-weight relationship) in 23 sinkholes in New Mexico and correlated those factors to physical, chemical, and biological factors. The sinkholes are located within a few square kilometers on Bitter Lake

National Wildlife Refuge and provide habitat for 6 native fish species. Despite their proximity, the sinkholes differ greatly from each other in terms of abiotic factors. For example, total depth varies between 0.5 and 15 m, Secchi depth lies between 0.25 and 4 m, and salinity between 4 and 120 ppt. Using regression analyses, we found that fish abundance and condition are primarily influenced by biological factors, particularly the presence of other fish species and chlorophyll a.

~Kristin M. Swaim and Wiebke J. Boeing,
Department of Fishery and Wildlife Sciences, New Mexico State University, Las Cruces, NM

VOLUNTEER OPPORTUNITY

Gartersnake/ Aquatic Studies

We are conducting long-term monitoring of narrow-headed gartersnake in Oak Creek and recent surveys in the White Mountains region. We need people to help with our standard search/demography work, to fish, sample fish with hoop traps and nets, conduct extensive gartersnake/ frog/ turtle surveys in the regions we will be working, and generally help us. During each 5-day camping trip, we will conduct intensive trapping for snakes, fish, and crayfish using minnow traps, as well as repeated walking surveys for gartersnakes in and along intensive mark-recapture study areas along creeks. We will also collect a suite of site-specific ecological variables that reflect habitat quality.

Upcoming trip dates are:
September 12-16: Oak Creek
September 19-23: Black River
September 26-30: Oak Creek
October 3-8: Blue or San Francisco River

Please pass this info to any interested volunteers. We could use any help for any amount of time: a day, a trip, whatever. Please Contact: Erika Nowak, Erika.Nowak@NAU.EDU; NAU; (928) 523-7760 (phone); (928) 699-6722 (cell); or Philip C. Rosen; UofA; pcrosen@u.arizona.edu; (520)-621-3187; (520)-404-2366 (cell)

PH.D. GRADUATE RESEARCH ASSISTANTSHIP

Responsibilities: Conduct a dissertation project related to recruitment and ecology of large river fishes in the Kansas River. The overall objectives are to relate recruitment dynamics to biotic and abiotic factors, and to aid in the development of minimum flow requirements for fishes. The project will build on current and past work on the Kansas River evaluating sampling protocols for river fishes, food web structure, and fish population dynamics. See the webpage for recent and ongoing Kansas River work. The study is funded by Kansas Department of Wildlife and Parks and Kansas State University, and the student will be expected to collaborate with agency biologists. Project is contingent upon final funding approval.

Data and resources available to the student include:
- Kansas River fishes database with >2,500 samples and 50,000 fish since 2004 including stable isotopes, diets, tag, and growth information.
- Standardized electrofishing sampling at 36 Kansas River sites five times/year since 2004.
- Access to the Kansas Department of Wildlife and Parks stream monitoring database.
- Possible collaboration with ongoing research and monitoring of fishes in the Missouri River.

Qualifications: MS in fisheries, ecology, or related program. A minimum overall GPA of 3.0, and verbal and quantitative GRE scores >50th percentile. Preference given to candidates with an interest and/or experience in large river ecology, fish conservation, and applied fisheries management.

Stipend: 22,781/year; includes tuition supplement.

Closing date: Until filled. Start date January 2008 (preferred) or May 2008.

Contact: Send letter of interest, resume, contact information for three references, and copy of transcripts and GRE scores (unofficial and email OK) to Craig Paukert, Kansas Cooperative Fish and Wildlife Research Unit, 205 Leasure Hall, Division of Biology, Kansas State University, Manhattan, KS 66506; 785-532-6522; cpaukert@ksu.edu; webpage: www.k-state.edu/fisheries/

Upcoming Meetings!

Oct 2-3—Second Thermal Ecology and Regulation Workshop, Westminster, CO. Contact Bob Goldstein, rogoldst@epri.com, 650/855-2593. See www.rd.tetratech.com/EPRIThermalWorkshop.com.

Oct 9-10—Symposium on Anadromous Salmonid Tagging and Identification Techniques in the Greater Pacific Region, Portland, OR. See www.rmpc.org/2007-marking-symposium.html Contact george_nandor@psmfc.org 503/595-3100.

Oct 9-12—International Symposium: Wild Trout IX, West Yellowstone, MT. Contact Dirk Miller, Dirk.Miller@wgf.state.wy.us, 307/7774556. www.wildtroutsymposium.com.

Oct 15-17—Aquaculture America 2008, Lake Buena Vista, FL. See www.sustainableaquaculture.org.

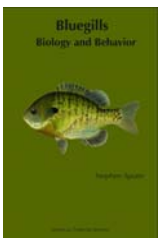
Oct 18-20—Recirculating Aquaculture Systems: Principles of Design and Operation, Fort Pierce, FL. See www.aquaculture-online.org. Contact Amber Shawl, ashawl@hboi.edu, 772/465-2400 x578.

Oct 21-24—Southeastern Association of Fish and Wildlife Agencies Annual Meeting, Charleston, WV. See www.seafwa2007.org.

Nov 4-8—2007 Estuarine Research Federation Meeting: Scienceand Management Observations/Synthesis/Solution, Providence, RI. See http://erf.org. Contact Charles Farris, Farrris@usace.army.mil, 978/318-8336.

New Books!

Bluegills: Biology and Behavior



Stephen Spotte; Publication date: June 2007; 214 pages; Price: $35.

The bluegill is arguably the most popular freshwater sportfish in North America – it has been introduced into every state but Alaska. Bluegills also have been exported worldwide for sport, aquaculture, or as forage for larger fishes. Spotte's book is a synopsis of what we know about bluegills. He discusses not just what bluegills do, but also how they go about doing it.

Salmonid Field Protocols Handbook: Techniques for Assessing Status and Trends in Salmon and Trout Populations

David H. Johnson, Brianna M. Shrier, Jennifer S. ONeal, John A. Knutzen, Xanthippe Augerot, Thomas A. ONeil, and Todd N. Pearsons, plus 37 contributing authors; Publication date: May 2007; 478 pages; Price: $35

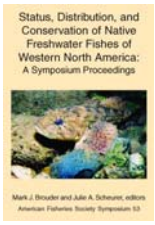
This is the first publication to collect, standardize, and recommend a scientifically rigorous set of field protocols for monitoring and assessing salmon and trout populations. Includes five additional techniques that can be used with any of the 13 principle methods to supplement information gathered. Over four dozen fisheries experts throughout the U.S. Pacific NW and beyond contributed their time to pick, write, and review the most reliable protocols for enumerating salmonids in the field. Presented in an easy to use format, each of the 18 peer-reviewed protocols covers objectives, sample design, data handling, personnel and operational requirements, and field and office techniques, including survey forms. The Handbook will also support consistency in data collection for salmonids at the international level.

Anadromous Sturgeons: Habitats, Threats, and Management

Jean Munro, Daniel Hatin, Joseph E. Hightower, Kim McKown, Kenneth J. Sulak, Andrew W. Kahnle, and François Caron, editors; Publication date: June 2007; 420 pages; Price: $69.

Because of their threatened status, sturgeons have been the focus of broad scientific interest. This book provides new information on freshwater, estuarine, and marine habitats of anadromous sturgeons; examines threats to habitats and populations; and reviews management and population trends in light of progress on recovery of U.S. Atlantic sturgeon populations since fishing was banned.

Status, Distribution, and Conservation of Native Freshwater Fishes of Western North America: A Symposium Proceedings.



Mark J. Brouder and Julie A. Scheurer, editors; Publication date: June 2007; 208 pages, Symposium 53; Price: $69.

Throughout the western United States, Canada, and northern Mexico during the past century, the status of many western native freshwater fish species has become questionable. Native fish have been adversely impacted by land and watershed development, habitat loss, direct human harvest, and increased competition from introduced non-native fish species. As population growth within the western region continues, understanding where remaining populations of native fish fauna occur and the threat presented to them is critical for conservation and restoration.

Bigheaded Carps: A Biological Synopsis and Environmental Risk Assessment

Cindy S. Kolar, Duane C. Chapman, Walter R. Courtenay Jr., Christine M. Housel, James D. Williams, and Dawn P. Jennings; Publication date: August 2007; 204 pages; Price: $60.

The book is a detailed risk assessment and biological synopsis of the bigheaded carps of the genus Hypophthalmichthys, which includes the bighead, silver, and largescale silver carps. It summarizes the scientific literature describing their biology, ecology, uses, ecological effects, and risks to the environment. Includes information on taxonomy and distinguishing characteristics, hybrids, native and introduced ranges, temperature and salinity tolerances, fecundity, sexual maturity and mating behavior, spawning, early development, feeding habits, growth rate and longevity, response to physical stimuli, associated diseases and parasites, human uses, environmental effects, potential range, population control measures. Summarizes United States federal and state regulations, and assesses the risk posed by these species in the United States.

OBITUARY

Richard Nelson Wiggins, 43 of Chandler, AZ went home to be with the Lord on June 17, 2007. He was born on March 15, 1964 at Fort Knox, KY, the first born child of Harry and Clarice Wiggins. As a youth he traveled with his parents and sister, Gina, to military stations in the United States and overseas. He lived three years in the Philippines when his father was assigned to the US Embassy in Manila. He graduated from Robert E. Lee High School in Springfield, VA in 1983; while in high school he was on the tennis team and earned his Eagle Scout rank. He then attended Humboldt State University, Arcata, CA, graduating with a BS in Fisheries Biology; Richard also received his commission as a 2nd Lieutenant through the California Army National Guard Officers' Candidate program while in college. He met his wife to be, Tanowo, at Humboldt; they were married in February of 1992. They lived in North Bend, WA for eight years where he worked for the National Oceanic Atmosphere Administration (NOAA) as a fisheries biologist. His sons, Andrew (8) and Alex (6) were born in WA. Richard and his family moved to Phoenix in 2000 when he was hired by the Arizona Game and Fish Department as a fisheries research biologist. He was a wonderful son and grandson and a devoted husband and father. He was an avid fisherman and enjoyed hunting, camping and collecting insects and butterflies. He was a Deacon at Mission Del Sol Presbyterian Church, Tempe, AZ, and a member of their mission to Honduras in 2005. As a fisheries biologist at the Arizona Game and Fish Department he conducted numerous fishing clinics W for adults and youth of the greater Phoenix area. Richard also volunteered his time teaching handicapped youth, Cub Scouts, other youth organizations and Native American youth the joys of fishing; he also gave many lectures on fishing at elementary school assemblies. He leaves his wife, Tanowo and two sons of Chandler, AZ, his parents Harry and Clarice Wiggins of Watsonville, California, his sister, Gina Kennedy, her husband Sean and nephew Declan of Rome, Italy and his mother-in-law, Linda Hornbuckle of Chandler, AZ. A memorial service to celebrate the life of Richard will be held Saturday, June 23, 2007 at Mission Del Sol Presbyterian Church, 1565 E. Warner Road in Tempe. In lieu of flowers, donations may be made to the "College Trust Fund" for Richard's sons, Andrew and Alex in c/o Andrew J. Wallace, CPA, 1713. Boston St., Chandler AZ, 85224.

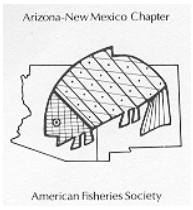
Notes From the Editor…

We would also like to thank members who contributed to this newsletter. We strongly encourage every member to contribute to the newsletter. We appreciate all articles, photos and input! This is a great opportunity to let the rest of the chapter know about the work that you are doing.

The theme of the fall newsletter is **Sport Fish Research and Management**. The deadline for submissions is **October 1**. ***Articles*** should be approximately 250 words long. We would love to see any ***photos*** of fish, or of you working! Also, this is a great place to post ***job and volunteer listings*** and other ***announcements***.

~Your editors
Anne Kretschmann
AKretschmann@azgfd.gov
Bill Stewart
BStewart@azgfd.gov

Special thanks to Bill Stewart who volunteered to take over duties as assistant newsletter editor with Marianne Meding's election as the 2008-2009 Chapter President.



Anne Kretschmann
Primary Newsletter Editor
AFS AZ/NM Chapter
AKretschmann@azgfd.gov

AFS Arizona-New Mexico Chapter Officers

Webpage

If you have any comments about the webpage or have items you would like to see on the webpage, please contact:
Scott Rogers at: srogersagf@qwest.net
or 928-226-7677

Visit our webpage at:
http://www.fisheries.org/aznm