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President's Message

During my 13+ years working in wildlife and habitat conservation, I have both observed and participated in a diverse collection of initiatives toward our common goal of healthy native ecosystems. Some never had a chance to get off the ground. Some stuttered and collapsed mid-course, stymied by roadblocks. Those that succeeded, however, shared a critical asset: these efforts united multiple levels of stakeholders by recognizing the big picture. The result was then a stronger, clearer message, with elements that reached a wider constituency.

It is in this spirit that, this summer, after a review by Ben Ricks, our Environmental Concerns Committee Chair, and our EXCOM, NCAFS signed on to a letter supporting a recent [US Environmental Protection Agency \(EPA\) proposal](#) to redefine "Waters Of The United States." The letter, [included here](#), was drafted by the NC Wildlife Federation and garnered 60 co-signers, including NC State University's Student Fisheries Society sub-unit & the NC Chapter of the Wildlife Society. You can read the extensively-researched and well-written [Federal Register notice in its entirety online](#). In essence, a phrasing change in the Clean Water Act would restore a portion of wetlands and waters protection lost in [2001's pivotal Solid Waste Agency of Northern Cook County \(SWANCC\) decision](#). EPA has also requested feedback on all aspects of this effort and [the public comment period had been extended](#) from its mid-July deadline to October 20, 2014. Successful implementation of this proposal offers great potential to protection of aquatic habitats, both statewide and nationally.

Valuable Links

On a smaller time scale, several excellent opportunities to share and collect current fisheries science are on the horizon. The [Southeastern Fishes Council will host its 2014 meeting](#) at the Renaissance Hotel in Asheville, NC on November 13-14, 2014. The [Southern Division of AFS has also issued the first call for abstracts](#) for the spring meeting in Savannah, GA (Jan 28 – Feb 1, 2015). I hope that our Chapter's high-caliber work will be well-represented at both.

Additionally, I am pleased to announce that we are launching a brand new NCAFS website. It will offer improved, integrated functionality, as well as increased opportunities for member involvement and resource access. I have accepted the reins as web designer as President-Elect Kim Sparks is hard at work with the 2015 NCAFS Chapter Meeting coordination. There are some exciting features still in production, but you can explore the foundation at <http://nc.fisheries.org>.

As always, thanks to each of you for your continued dedication in all forms to the aquatic resources of North Carolina and the education of all our stakeholders in an ever-changing and challenging environment.

Brena Jones

2015 NCAFS Annual Meeting



Save the date for the 2015 NCAFS Annual Meeting at the [Marriot Courtyard Carolina Beach](#) on February 24th – 25th. You will enjoy two days of high quality technical presentations on a variety of North Carolina's fisheries research, with an optional technical workshop Tuesday morning. Tuesday evening we'll have the annual student

raffle along with our annual social. All rooms are ocean front, and we are getting a great rate of \$69.50 per night. Use this [booking link](#) to reserve your room, or mention NCAFS when you call 1-800-321-2211 to book your reservation.

First Call for Abstracts

Student and professional members are invited to submit abstracts for oral presentation at the Annual Meeting. Topics addressing any aspect of fisheries and related aquatic sciences are welcomed, including, but not limited to, management, research, conservation, outreach and education. Oral presentations will be limited to 20 minutes (including the question and answer period). [Visit our website](#) to view examples of past abstracts. The abstract deadline is **January 23, 2015**. Abstracts are limited to 250 words. Abstract title should appear in all caps and bold, and be followed by the author name(s), and affiliation(s). Please underline the name of the presenter. Please note if the presenter is a student. Abstracts should be written in Word utilizing Arial 11 point font. Abstracts should include clearly stated objectives, brief methods, general results, and the basic conclusion. Please list several keywords at the end for future search capability. Please send your abstracts via e-mail to **Kim Sparks** at kim.sparks@ncwildlife.org.

Meeting Registration

Watch your inbox for meeting registration information. Additional details will also be available in the winter newsletter. I am looking forward to seeing you at Carolina Beach!

Submitted by Kim Sparks, NCAFS President Elect

It's All in the Lips

In this day and age when people spend time and countless dollars trying to achieve those coveted, beautiful, full, sexy lips, suckers are born with them. That's right—suckers. This group of freshwater fishes has the large, thick, fleshy lips that so many people wish for, and they don't even use collagen! Sucker lips can be either plicate, papillose, or both. Plicate lips resemble vertical folds, while papillose lips have small, round projections. These complex structures and the shape of their lips are very useful features in distinguishing between species. Catostomidae is the Latin name of the sucker family, and *Catostom* means "under mouth", referring to the inferior position of the mouth on the underside of the head. The protruding, sensitive lips and position of the mouth enable it to be used like a vacuum cleaner to suction up prey, usually invertebrates.



*Robust Redhorse, White Sucker, and Shorthead Redhorse
Photographs by Gabriela M. Hogue*

Suckers vary in size with the largest measuring more than 3 feet in length and weighing more than 30 pounds. In some freshwater ecosystems, suckers can represent the majority of the biomass. In the US and Canada, there are at least 69 species of suckers. North Carolina has 29 documented species, with at least 5 of these that have yet to be formally described. Of special significance in our state is the diversity of suckers in Stokes County. This county already boasts of a mountain chain that rises and falls within its borders and of Hanging Rock State Park, but its real claim to fame should be as “Sucker Central”—Stokes County has more documented sucker species than any other county in the world. Within its borders, comprising 452 square miles of land and 4 square miles of water, can be found: Northern and Roanoke Hog suckers, Notchlip, Golden, and V-lip redhorses, Bigeye, Blacktip, and Brassy jumprocks, White and Rustyside suckers, and Quillback.

The most speciose river system in North Carolina is the Yadkin-Pee Dee with 17 species and the most depauperate is the New, with only 2 species (White Sucker and Northern Hog Sucker — [NC Division of Water Resources](#)). The Bigmouth Buffalo is the only species of sucker completely non-indigenous to the state. Other species, such as White Sucker, Creek Chubsucker, Northern and Roanoke Hog suckers, Smallmouth Buffalo, and Striped Jumprock, have been moved, intentionally or unintentionally, from one river basin to another within our state.



*Sicklefin Redhorse – State Listed Threatened
Photograph by Steve Fraley & Robert Jenkins, courtesy of [Southeastern Fishes Council](#)*

Unfortunately, almost 50% (13) of the sucker species within our state are imperiled. Siltation, habitat fragmentation, development, competition from exotic and invasive species, and pollution of our streams, rivers, and lakes have resulted in many of these incredible fishes becoming state listed as Species of Special Concern, Threatened, or Endangered; or listed as Significantly Rare by the [North Carolina Natural Heritage Program](#). It is up to us to diligently work to improve the health of our waterways and thus help ensure that this family of fishes, with their distinctive lips, continues to be a vital part of the amazing freshwater biodiversity of our state.

Species of Suckers Documented in North Carolina																		Status
Scientific Name	Common Name	Broad	Cape Fear	Catawba	Chowan/Pasquotank	French Broad	Hiwassee	Little Tennessee	Lumber	Neuse	New	Roanoke	Savannah	Tar	Watauga	White Oak	Yaokin	(31 Dec 2012)
<i>Carpiodes carpio</i>	River Carpsucker					X												Special Concern
<i>Carpiodes cyprinus</i>	Quillback					X					X							Significantly Rare
<i>Carpiodes sp. cf. cyprinus</i>	(no common name)	X	X														X	Significantly Rare
<i>Carpiodes sp. cf. velifer</i>	(no common name)		X	X													X	Special Concern
<i>Catostomus commersonii</i>	White Sucker	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
<i>Erimyzon oblongus</i>	Creek Chubsucker		X	X	X	X		X	X	X			X		X	X	X	
<i>Erimyzon sucetta</i>	Lake Chubsucker		X		X			X	X				X		X	X	X	
<i>Hypentelium nigricans</i>	Northern Hogsucker	X		X		X	X	X		X	X	X	X	X	X	X	X	
<i>Hypentelium roanokense</i>	Roanoke Hogsucker										X						X	Significantly Rare
<i>Ictiobus bubalus</i>	Smallmouth Buffalo			X		X			X								X	Significantly Rare
<i>Ictiobus cyprinellus</i>	Bigmouth Buffalo			X													X	
<i>Ictiobus niger</i>	Black Buffalo					X												Significantly Rare
<i>Minytrema melanops</i>	Spotted Sucker		X					X							X	X		
<i>Moxostoma anisurum</i>	Silver Redhorse					X	X	X										
<i>Moxostoma breviceps</i>	Smallmouth Redhorse					X	X	X										Significantly Rare
<i>Moxostoma carinatum</i>	River Redhorse					X	X	X										
<i>Moxostoma collapsum</i>	Notchlip Redhorse	X	X	X	X				X	X		X					X	
<i>Moxostoma duquesnei</i>	Black Redhorse	X				X	X	X						X				
<i>Moxostoma erythrurum</i>	Golden Redhorse					X	X	X			X							
<i>Moxostoma macrolepidotum</i>	Shorthead Redhorse		X	X	X				X	X		X					X	
<i>Moxostoma pappillosum</i>	V-lip Redhorse	X	X	X	X				X	X		X					X	
<i>Moxostoma robustum</i>	Robust Redhorse																X	Endangered
<i>Moxostoma sp. cf. erythrurum</i>	"Carolina" Redhorse		X														X	Threatened
<i>Moxostoma sp. cf. carinatum</i>	"Sicklefin" Redhorse						X	X										Threatened
<i>Scartomyzon ariommus</i>	Bigeye Jumprock										X							Threatened
<i>Scartomyzon cervinus</i>	Blacktip Jumprock								X	X		X						
<i>Scartomyzon rupiscartes</i>	Striped Jumprock	X		X								X					X	
<i>Scartomyzon sp. cf. lachneri</i>	"Brassy" Jumprock	X	X	X													X	
<i>Thoburnia hamiltoni</i>	Rustyside Sucker										X							Endangered
Total Species	29	8	10	12	5	12	8	8	3	9	2	12	3	8	3	3	17	13

Submitted by Gabriela M. Hogue, NC Museum of Natural Sciences and
Bryn H. Tracy, NC Division of Water Resources

Research Prompts Task Force to Take Action on Rapidly Spreading Invasive Plant in Eno River



Research by NC State University and the State Parks system suggests that a significant infestation of the invasive plant *Hydrilla* in the Eno River is spreading down river at a rate of up to one mile per year, according to the NC Division of Parks and Recreation.

The threat to the river basin is prompting a multi-agency task force to launch a broad public education effort to identify the best methods of treatment for the river within Eno River State Park. Those may be chemical treatment, removal of the plant by hand, introduction of Grass Carp, which feed on *Hydrilla*, or a combination of those methods. The task force hopes to initiate efforts to control *Hydrilla* in 2015.

Hydrilla is a submersed aquatic plant that can create nearly impenetrable mats of stems and leaves on the surface of lakes, rivers and other waterways. An invasive species from Asia, *Hydrilla* impedes recreational use of waterways, crowds out native vegetation and can ultimately harm fish and other aquatic species. The plant can also clog intakes where rivers or reservoirs are used for drinking water supplies and irrigation.

“This is a very real threat to the Eno River, both in terms of recreation and the vulnerable species in the waterway,” said Keith Neelson, Eno River State Park superintendent. “The Eno is not only a natural and cultural treasure for people in this

region, but a bellwether for the health of the river basin, including Falls Lake and other sources of drinking water.”

Nealson and 11 other officials are members of the Eno River Hydrilla Management Task Force that is launching the public education effort. The task force involves partners from the NC Division of Water Resources as well as other state and federal agencies, Durham and Orange counties, and the City of Durham and Town of Hillsborough. Members include land managers, researchers and agency administrators.

The *Hydrilla* infestation appears to be concentrated near Guess Road at the eastern end of the park. It originally appeared in Lake Orange and West Fork Eno Reservoir upstream. The plant readily fragments and those fragmented sections can grow into new plants. *Hydrilla* at Eno River State Park likely came from fragments that floated down from an upstream reservoir or was carried on boat trailers or bait buckets. With its rapid growth rate and the ability to grow a new plant from a tiny fragment, *Hydrilla* could eventually become a serious nuisance in Falls Lake. Research estimates the plant could reach the reservoir within 12 years, depending on water flow conditions.

Submitted by Charlie Peek, Public Information Officer, NC Division of Parks and Recreation

North Carolina’s Imperiled Fish Fauna, Part XVI

Submitted by Bryn H. Tracy on behalf of the NCWRC’s Scientific Council of Fishes

As mentioned in the Chapter’s [2010-2014 newsletters](#), there are approximately 215 indigenous, described, and undescribed species of strictly freshwater fishes in North Carolina. Of these, 26% are state or federally listed: Endangered (17), Threatened (17), or Special Concern (22) (Harris et al. 2010). It is the responsibility of the 15-member Scientific Council on Freshwater Fishes to submit its recommendations to the Nongame Advisory Committee of the North Carolina Wildlife Resources Commission (NCWRC) if changes in imperilment classifications for any species are warranted. To communicate our findings with the chapter membership, this is the 16th of 16 planned articles on the species that the Council believes have become more or less imperiled or changed status since the last listing in 2006. Thus acquainted, it is hoped that chapter members can serve as additional “eyes and ears” to expand our vigilance for these rare or highly localized fishes.

Atlantic Sturgeon, *Acipenser oxyrinchus* Mitchell
Current Status: Special Concern

Proposed Status: Delist (recommended by NCWRC’s Scientific Council of Fishes, eff. 11/30/2010)
Proposed Status: Endangered (listed by National Marine Fisheries Service, eff. 04/06/2012)



Photograph courtesy of Fred (Fritz) C. Rohde

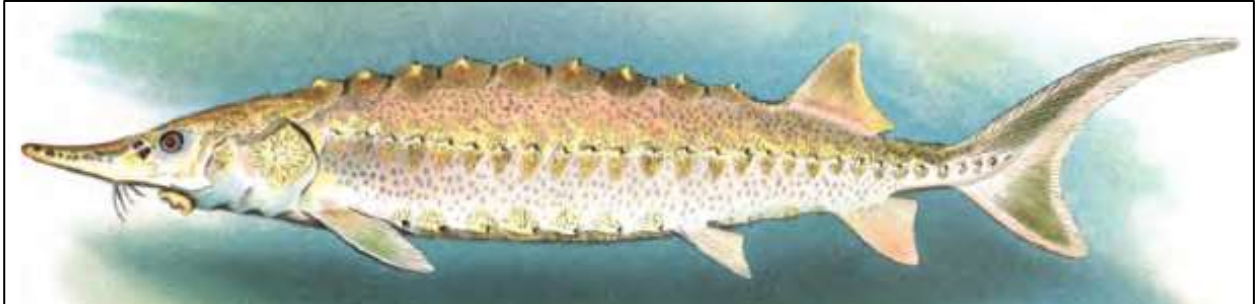


Illustration from Smith (1907)

Description – The Atlantic Sturgeon was described 200 years ago by Professor Samuel L. Mitchell (quoting verbatim):

“2. *Sharp-nosed Sturgeon. (Acipenser oxyrinchus). Having a pentagonal form, with scabrous asperities between the scales, and a sharp snout.*

Agrees in many respects with the preceding species [Round-nosed Sturgeon, Acipenser sturio, my brackets]; having, like it, five sides and as many scaly angles. Whether the individuals as now under consideration, differ from the A. sturio merely in sex and age, has been made a question. But the dissimilitude of the blunt-nosed and sharp-nosed sturgeon, is very obvious. The mouth, nostrils, and eyes, are different.

The number of scales on the sharp-nosed sturgeon, is not so great as in the blunt-nosed. On all the angles they are less numerous. The skin is more scabrous. The asperities between the scales, are very distinct, and scratch the finger like a grater when moved along them, especially from tail to head. The points resemble the spiculæ of minute crystals, occupying much of the space between the scales.

The scales themselves are bony, rough, and serrated behinds, and very distinct in their configuration. There are four scales between the vent and the anal fin; the two foremost of which make a pair; and four more between the anal fin and the tail, the two foremost of which lap over the based of that fin in some measure, and support it. But sometimes there are more, and at other times fewer.

There is osseous matter on the sides of the snout, and a strip of the same beneath it, reaching from the tip toward the mouth.

The boys remark, that the gristle taken from the sharp-nosed sturgeon, is much less elastic than that of the blunt-snouted, and that a ball made of it does not bounce so well.

Grows seldom to greater than five feet, Is found in the Hudson plentifully, in the neighbourhood of Albany. My friend Simeon De Witt, Esq. informs me, “they are

every year brought to the market of that city, under the name of young sturgeon. I suspect them to be of a different species, for two reasons. 1. Because there is no intermediate size between the largest of these and the smallest of the common sturgeon; and 2. The females of the smaller sort are filled with spawn” (Mitchell 1815, pages 462 and 463).

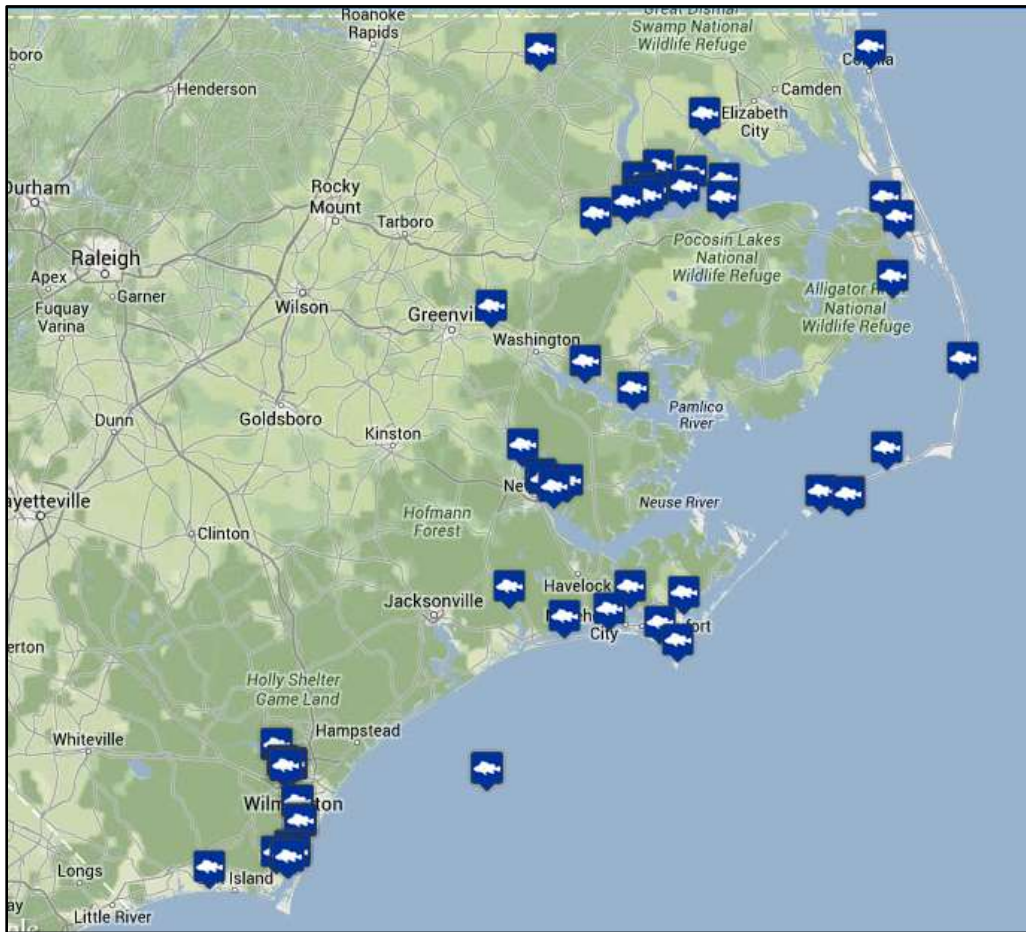
Easily confused with the Shortnose Sturgeon, *A. brevirostrum*, the Atlantic Sturgeon has scutes between the anal fin and the midlateral scutes, and the body cavity lining and intestine are pale. It also has an inner gape width of its mouth that is less than 60% of the interorbital width (Rohde et al. 2009). The Shortnose Sturgeon has no bony plates between the anal fin and the midlateral scutes, the lining of the body cavity and the intestine are dark, and the inner gape width is usually more than 62% of the interorbital width. Other characteristics for differentiating the two species are in the relative length of the snout, in the number of dermal scale rows between the pelvic and anal fin, and in the anal fin ray count (Menhinick 1991; Jenkins and Burkhead 1994). However, identification to species can be difficult, primarily because sturgeon morphology changes with age. Some previously published key characteristic are now known to be unreliable; for example, both coloration and pre-anal shield patterns can vary, and snout length changes with age. The only reliable means of identification (except for sheer size in the case of Atlantic Sturgeon) appears to be the mouth width:interorbital width ratio (Collins 2010).

Type Specimen and Type Locality -- The Atlantic Sturgeon was described in 1815 based upon an unknown number of specimens collected from perhaps the Hudson River near Albany, NY and given the common name “Sharp-nosed Sturgeon” (Mitchell 1815). No type specimens are known (<http://researcharchive.calacademy.org/research/ichthyology/catalog/fishcatmain.asp>) and a neotype has not been designated, perhaps because no one has believed it is necessary to designate one (W. C. Starnes, pers. com., April 09, 2014).

The genus name *Acipenser* Linnaeus 1758 is Latin for sturgeon, derived from *akis*, point and *pente*, five, referring to five rows of body scutes. Its specific epithet *Acipenser oxyrinchus* is derived from *oxy*, meaning sharp and *rhynchus* meaning snout, referring to the sharply V-shaped snout (<http://www.etyfish.org/acipenseriformes/>). This spelling of the specific name, *A. oxyrinchus* (versus *A. oxyrhynchus*) is the one used in the original species description by Mitchell (1815) and thus, by the rule of original orthography, the correct one (Nelson, et al. 2004). No longer referred to as the Sharp-nosed Sturgeon, the American Fisheries Society’s accepted common name is Atlantic Sturgeon (Nelson, et al. 2004).

Range – There are two allopatric subspecies of *A. oxyrinchus*: *A. o. oxyrinchus*, the Atlantic Sturgeon, and *A. o. desotoi*, the Gulf Sturgeon. As its common name implies, the Atlantic Sturgeon is found near shore and in coastal rivers from Hamilton Inlet, Labrador to the St. Johns River in northeastern Florida (Gruchy and Parker 1980). The Gulf Sturgeon is confined to the northeastern Gulf of Mexico, where it ranges from the Mississippi River delta in Louisiana eastward to the Suwannee River and Tampa Bay in Florida.

In North Carolina, the anadromous migratory Atlantic Sturgeon is found in large coastal rivers (e.g., Chowan, Roanoke, Tar, Neuse, White Oak, and Cape Fear), estuaries, and near shore from the Virginia to the South Carolina state lines (Menhinick 1991). Inland, it has been found as far upstream as the Town of Weldon on the Roanoke River (Northampton and Halifax counties) and near the City of Rockingham on the Pee Dee River (Anson and Richmond counties; Menhinick 1991). Historically, their migrations went further upstream, but have been blocked for many decades by the construction of dams near the Fall Zone (e.g., Roanoke Rapids and Blewett Falls dams) or by the construction of navigational locks (e.g., on the lower Cape Fear River).



Distribution of Atlantic Sturgeon in North Carolina. Map is based upon material vouchered and databased at the North Carolina State Museum of Natural Sciences; the database was queried March 07, 2014 and is based upon a sample size of 81 records.

Habitat – With its inferior protrusible mouth, this bottom-oriented species feeds in soft substrates but sexually mature adults, returning from marine coastal waters, may require hard clay, rubble, or gravel bottoms in well-oxygenated water for spawning (Ross et al. 1988). Juveniles may spend several years continuously in freshwater, but

may move downstream to brackish waters as temperature decreases in the fall (Jenkins and Burkhead 1994).

Life History and Ecology – Atlantic Sturgeon are slow-growing, long-lived, and late-maturing fishes. It is the longest-living, largest, and heaviest freshwater species in North Carolina. However, specimens larger than 2 m are now uncommon in North Carolina (Ross et al. 1988). The Atlantic Sturgeon feeds opportunistically on soft bottoms, ingesting benthic crustaceans, mollusks, annelids, small fishes, vegetation, and aquatic insects (Ross et al. 1988). The sexes are externally indistinguishable except during the spawning season when females are swollen with roe (Jenkins and Burkhead 1994). Adults tend to spawn at intervals of several years; the intervals (the period between successive spawnings) seem to increase with age (Jenkins and Burkhead 1994). The species is anadromous ascending from the Atlantic Ocean, estuaries, or sounds into the coastal rivers to spawn as early as February with peak spawning in March or April (Ross et al. 1988). However, as Atlantic Sturgeon populations rebound, additional spawning during fall has been documented in coastal rivers from Virginia to South Carolina. In NC, fall spawning has been recently documented by the collection of fertilized eggs in 2012 in the Roanoke River near Weldon by staff from North Carolina State University, the North Carolina Wildlife Resources Commission, and the North Carolina Division of Marine Fisheries (Miller 2013). Vital parameters of sturgeon populations show latitudinal variation with faster growth and earlier age at maturation in more southern systems, though not all data sets conform to this trend

(http://www.nmfs.noaa.gov/pr/pdfs/species/atlanticsturgeon_detailed.pdf). Fecundity is correlated with age and body size with the average age at which 50% of maximum lifetime egg production is achieved estimated to be 29 years, approximately 3 to 10 times longer than for other bony fish species examined (http://www.nmfs.noaa.gov/pr/pdfs/species/atlanticsturgeon_detailed.pdf; Boreman 1997).

According to Dr. Timothy King (U. S. Geological Survey, Leetown Science Center, Kearneysville, WV), presently there are at least five evolutionarily distinct lineages of Atlantic Sturgeon inhabiting the U.S. Atlantic coast based on the presence of at least four zones of genetic discontinuity. Demonstration of a shallow mitochondrial genealogy combined with preliminary coalescence-based historical demographic analyses suggests that in the past, population sizes must have been sufficiently large to allow gene exchange (e.g., straying) to occur among adjacent populations. In other words, the limited metapopulation structuring that appears to exist now in the Gulf of Maine, New York Bight, and the Southeast, likely existed throughout the species range. Given the apparent recency of the regional genetic differentiation that exists among contemporary populations, a long-term management goal should be to re-establish populations of sufficient size that gene exchange can again occur among adjacent river systems. This type of metapopulation structure is the best defense against extirpation and extinction (King 2013; pers. com. April 30, 2014).

Rationale for Designation – There are many causes for the decline of this species in North Carolina: overfishing, bycatch, ship strikes, water quality and habitat degradation, and the construction of navigational locks and hydroelectric and flood-control dams. Because of the species' slow growth and maturation (up to 30 years) and relatively long periods between spawnings, sturgeon populations were relatively easily overfished and have been slow to recover (Jenkins and Burkhead 1994; <http://www.ncwildlife.org/portals/0/Fishing/documents/atlsturg1.pdf>).

Three hundred years ago, John Lawson in 1709 reported: “*In May, they [sturgeon, which may have been either Shortnose Sturgeon or Atlantic Sturgeon] run up towards the Heads of the Rivers, where you see several hundreds of them in one day*” (Lawson 1709 and cited in Smith 1907). Two hundred years later, Smith (1907) reported that: “*This species is now much less abundant than formerly, and in North Carolina has undergone the same diminution seen in other states. Whereas it was formerly regarded as a nuisance, and ruthlessly destroyed and thrown away whenever caught, it is now one of the most valuable of the east coast fishes*”. Smith (1907) continues: “*In some of the large shad seines in Albemarle Sound it has sometimes happened during the past seven or eight years that not a single adult sturgeon has been caught during an entire season whereas 20 years ago sturgeon were abundant here and each season the shores were covered with dead fish for which there was no sale. Then the fishermen finally realized the value of the fish, they pursued the fishery so actively that the species was almost wiped out in a short time and has never been able to reestablish itself*”. Smith (1907) considered the Atlantic Sturgeon to be: “*by far the most valuable fish, individually considered, inhabiting the waters of North Carolina or, in fact, the Atlantic coast of the United States*”. Because of this: “*It is incumbent on the state to take prompt and radical measures to prevent the further diminution in the supply of this excellent fish and to restore it to something like its original abundance, if this is now possible. Besides prohibiting absolutely the killing of any example under 3 feet long, it will probably be desirable to stop the destruction of large fish for a term of years. Supplementary to these restrictive aids, the state of the general government should undertake the artificial propagation of the sturgeon on several of the rivers where the fish is still found*”.

In North Carolina, the Atlantic Sturgeon has been listed as a Special Concern species since 1977 (Cooper et al. 1977; LeGrand et al. 2012). However, Menhinick (1987) believed that the species was especially common in the lower Cape Fear River and with its wide distribution, warranted no special status. He proposed that it should be delisted due to range extensions and to re-identifications of records of Shortnose Sturgeon as Atlantic Sturgeon. However, there were also misidentifications of Shortnose Sturgeon as Atlantic Sturgeon, so the misidentifications have gone in both directions.

In 2010, the NCWRC's Scientific Council of Fishes recommended that the species be delisted, not because the species is no longer in need of protection, but rather because the Council believed the North Carolina General Statutes §113-331 to §113-334 that govern listing of animals were unclear on the listing of diadromous fishes. Animals that depend on coastal waters for a part of their life cycle are excluded from the animals that

the NCWRC can list. The Committee sought a legal opinion from NCWRC's Counsel to determine if such species can be listed at all, listed only in inland waters by the NCWRC, or listed only in inland waters by the NCWRC with the concurrence of the Marine Fisheries Commission. According to Fred Harris (pers. com. April 29, 2014), NCWRC Counsel advised that the NCWRC could list the Atlantic Sturgeon in inland and coastal waters with the concurrence of the North Carolina Division of Marine Fisheries. But, without such concurrence, NCWRC could list the Atlantic Sturgeon in inland waters only. NCWRC Counsel and NCWRC believed concurrence was unlikely and listing in inland waters only would not be particularly effective and would be confusing to most people. The Council's recommendation to delist the Atlantic Sturgeon on a legal technicality did not proceed any further and the species remained listed as Special Concern at the state level.

However, at the federal level, the Carolina distinct population of Atlantic Sturgeon (*A. o. oxyrinchus*) was listed on February 06, 2012, with an effective date of April 06, 2012, by the National Marine Fisheries Service as endangered under the Endangered Species Act (<http://www.nmfs.noaa.gov/pr/pdfs/fr/fr77-5914.pdf>). According to North Carolina General Statute §113-334(a), all native or resident wild animals which are on the federal list of endangered or threatened species pursuant to the Endangered Species Act have the same status on the North Carolina protected animals lists. Thus, the Atlantic Sturgeon must now also be listed as endangered at the state level.

Literature Cited and Recommended Readings

- Boreman, J. 1997. Sensitivity of North American sturgeons and paddlefish to fishing mortality. *Environmental Biology of Fishes*. 48:399-405.
- Collins, M. R. 2010. Essay: Endangered species. Problems associated with assessing the status of populations of Atlantic and Shortnose sturgeons in the Southeastern United State. *Fisheries*. 35:340-341.
- Cooper, J. E., S. S. Robinson, and J. F. Funderburg. 1977. Endangered and threatened plants and animals of North Carolina. North Carolina State Museum of Natural History. Raleigh, NC 444 pp.
- Gruchy, C. G. and B. Parker. 1980. *Acipenser oxyrinchus* Mitchell, Atlantic Sturgeon. Page 41. Lee, D. S., C. R. Gilbert, C. H. Hocutt, R. E. Jenkins, D. E. McAllister, and J. R. Stauffer, Jr. eds. Atlas of North American freshwater fishes. North Carolina State Museum of Natural History. Raleigh, NC. i-x + 854 pp.
- Harris, F. A., D. C. Coughlan, S. J. Fraley, R. J. Heise, G. M. Hogue, T. J. Kwak, R. W. Laney, S. E. McRae, G. B. Pottern, A. J. Rodgers, F. C. Rohde, W. C. Starnes, B. H. Tracy, S. Van Horn, and G. Vaughn. 2010. 2010 reevaluation of status listings for jeopardized freshwater fishes in North Carolina. Report of the scientific council on freshwater fishes. Submitted to the Nongame Advisory Committee to the North Carolina Wildlife Resources Commission. November 2010. North Carolina Wildlife Resources Commission, Raleigh, NC. 35 pp.
- Jenkins, R. E., and N. M. Burkhead. 1994. Freshwater fishes of Virginia. American Fisheries Society, Bethesda, MD. 1079 pp.

- King, T. 2013. Conservation genetics workshop. 2013 annual meeting of the North Carolina Chapter of the American Fisheries Society and the North Carolina Freshwater Mollusk Workgroup. February 26-27, 2013. Burlington, NC.
- Lawson, J. 1709. A new voyage to Carolina; containing the exact description and natural history of that country: together with the present state thereof. And a journal of a thousand miles, travel'd thro' several nations of Indians. Giving a particular account of their customs, manners, etc. London, England. 258 pp. (<https://archive.org/details/newvoyagetocarol00laws> and <http://docsouth.unc.edu/nc/lawson/menu.html>).
- LeGrand, H. E., J. T. Finnegan, S. P. Hall, A. J. Leslie, and J. A. Ratcliffe. 2012. Natural Heritage Program list of the rare animal species of North Carolina. North Carolina Natural Heritage Program, Office of Conservation, Planning, and Community Affairs, North Carolina Department of Environment and Natural Resources. Raleigh, NC. 150 pp.
- Menhinick, E. F. 1987. A numerical method for ranking of endangered species and its application to North Carolina freshwater fishes. *Journal of the Elisha Mitchell Scientific Society*. 102:54-86.
- _____. 1991. The freshwater fishes of North Carolina. North Carolina Wildlife Resources Commission. Raleigh, NC. 227 pp.
- Miller, H. 2013. Return of Carolina sturgeon? November 18, 2013. *The News and Observer*, Raleigh, NC.
- Mitchell, S. L. 1815. The fishes of New-York, described and arranged. *Transactions of the Literary and Philosophical Society of New York*. 1: 355-492.
- Nelson, J. S., E. J. Crossman, H. Espinosa-Pérez, L. T. Findley, C. R. Gilbert, R. N. Lea, and J. D. Williams. 2004. Common and scientific names of fishes from the United States, Canada, and Mexico. Sixth edition. American Fisheries Society. Special Publication 29. Bethesda, MD. 386 pp.
- Rohde, F. C., R. G. Arndt, J. W. Foltz, and J. M. Quattro. 2009. Freshwater fishes of South Carolina. University of South Carolina Press, Columbia, SC. 430 pp.
- Ross, S. W., F. C. Rohde, and D. G. Lindquist. 1988. *Acipenser oxyrinchus* Mitchell, Atlantic Sturgeon. Endangered, threatened, and rare fauna of North Carolina. Part II. A re-evaluation of the marine and estuarine fishes. *Occasional Papers of the North Carolina Biological Survey 1988-7*. North Carolina State Museum of Natural Sciences, Raleigh, NC. 20 pp.
- Smith, H. M. 1907. The fishes of North Carolina. North Carolina Geological and Economic Survey. Volume II. Raleigh, NC. 453 pp.

Submitted by Bryn Tracy, NC Division of Water Resources

Seen in a Foreign Land!

The recent AFS Meeting in Quebec City was a truly international event: passports, resident Quebecois speaking French almost exclusively, and fishery professionals uniting from around the world. While poutines, tartare, and pâté were common and BBQ only alluded to in reference to 'Carolina BBQ sauce' for use as a topping, some folks were still thinking about NC and their NCAFS roots. Christian Waters (NCWRC) and Jim Rice (NC State University) were proudly observed sporting the 'NCAFS Lanyard' while in Quebec! Thanks to these two fishery professionals for letting folks from around the world know about our chapter.



Christian Waters at the Grand Social by the St. Lawrence River

Submitted by Dave Coughlan, Normandeau Associates

Spotlight on Students and Young Professionals

Spotlight on Mary Henson

Mary Henson grew up all over the world. Boston born, she quickly moved to Mexico for a few years then England for a few years, not to arrive back in the states until she was 10 years old. Growing up out of the country, with family and friends spread around the globe, she was very lucky to constantly travel and have adventures with her parents and younger brother.

Her parents always supported her to follow her passion: animals. Whether it was house pets or exotic wildlife, it didn't matter. She followed her interest to Colorado State University studying Fish, Wildlife and Conservation Biology, with a concentration in Conservation and a minor in Applied Statistics. After several field technician positions in Colorado, Nebraska, Wyoming and South Dakota working on everything possible

from song bird migration to invasive fish removal, she decided to pursue her own research project.

Mary is now working on her Master's project at NC State University in the Fisheries Ecology and Aquatic Science lab with Jim Rice and Derek Aday, studying the potential impact of invasive tilapia on native sport fishes. The introduced tilapia survive in two reservoirs in North Carolina that have steam electrical power plants that keep the waters warm enough for the tilapia to survive. In an attempt to understand more about the two tilapia species in North Carolina (Redbelly Tilapia and Blue Tilapia), Mary and her advisors are investigating seasonal movement, prey consumption and potential competition between sport fishes of interest like black bass, crappie and Bluegill. Mary will also be investigating cold tolerance of commercially available tilapia to assess the potential for their survival in unheated waters in North Carolina.

Mary hopes to pursue her Doctorate after her Master's work, happily continuing to study and contribute to fish conservation science.



Mary Henson with one of her current favorite research subjects.

Submitted by Jim Rice, NC State University

News from the North Carolina Chapter American Fisheries Society Awards Committee

2014 Student Travel Awards Presented

The NCAFS Chapter established a Student Travel Award Program in 2005 for the specific purpose of encouraging professional growth of students and maximal

participation of undergraduate and graduate students at the annual meeting of the American Fisheries Society. Monetary support is provided to qualifying students via a travel award of \$200 to \$400 to help defer the cost of meeting travel, registration, and accommodations. The 2014 awards were presented to two students for the 144th Annual Meeting of the American Fisheries Society held August 17-21 in Québec City, Canada.

The 2014 award winners were both students from NC State University. Each student received a cash award of \$400 from the Chapter's Ichthus Fund account, which was established specifically to foster student involvement. The winners were Tomas Ivasauskas, advised by Dr. Tom Kwak, and Paul Rudershausen, advised by Dr. Jeff Buckel.



The 2014 NCAFS Student Travel Award winners, Tomas Ivasauskas (left) and Paul Rudershausen (right) pictured at the meeting in Canada.

These students represented the Chapter admirably at the meeting and expressed their sincere gratitude to the Chapter for helping to make their attendance and participation possible.

Submitted by Greg Cope, NC State University and John Crutchfield, NCAFS Awards Committee Chair

“Thank You!” Letters from the 2014 Student Travel Award Recipients

Dear NCAFS,

Sorry for the lack of communication since our return from Quebec! It was an excellent and enjoyable meeting! I learned a whole lot from talks, from other students tackling similar problems, and, especially, from talking to Ms. Vachon, an internationally recognized *Moxostoma* expert from Montreal. I also represented the interests of NC State University and students, in general, at several committee meetings. I really enjoyed the culture in Quebec City, but I must admit, it was a lot more French-y than I was expecting!

Thanks again for the support,
Tomas Ivasauskas

Dear NCAFS Members,

I was one of the recipients of the North Carolina student travel award to the American Fisheries Society meeting in Quebec last week. I wanted to thank you again for the award. I presented three talks; one on my dissertation, one on a collaborative research project with a commercial fisherman, and one non-technical session on a wilderness canoe trip I took this summer in northern Quebec. Additionally, I was able to network with a number of colleagues – both old acquaintances as well as people previously unknown to me.

Again, thank you for the award. I appreciate the support in helping defray the costs of travel to and attendance of this meeting.

Sincerely,
Paul J. Rudershausen

Worst Fishing Trip Ever!

At the 2014 NCAFS Chapter meeting last February in Durham, Greg Cope (NC State University Professor and Chapter member) entered the winning bid in the silent auction for a guided offshore marine fishing trip, generously donated by Neil Medlin (NC Department of Transportation Environmental Supervisor and Chapter member). Greg got around to scheduling the trip with Captain Neil for June 17, and Greg invited his son Bobby (East Carolina University undergrad) and NC State University colleagues and Chapter members Tom Kwak and Jesse Fischer. All were expecting a fantastic day at sea, but things don't always go as expected.

We all went down to Topsail Island the evening before the fishing trip, bunked in a ratty motel on the beach and had a fried seafood dinner — no one got sick. Then Neil made

us get up in the middle of the night and meet him on the boat dock before daybreak — couldn't even find a cup of coffee that early. Then we shoved off and motored for miles in the Intracoastal Waterway and eventually left the island through the inlet as the sun rose in our faces. The seas were rough, but Neil made us go on. His little boat was pounding and soaking us the whole way out.

We stopped a few miles offshore to try to catch some bait, but the bait fish weren't biting — a sign of things to come. Then, we headed out farther (about 8 miles) to troll for dolphin (*Mahi mahi*) for hours without a catch, so we motored even farther offshore, trolled some more, and when that didn't pay off, decided to try for bottom fish. Well, at least we caught something there — a few Pinfish and Lizardfish. So with our catch (bycatch) in the boat, we headed in — more pounding and soaking. Back at the boat launch, some other anglers saw our pathetic catch and offered to share theirs with us — mahi, grunts, and porgies! So we took a few photos, thanked Captain Neil, and headed back to Raleigh.

This was the worst fishing trip ever! So please take it from us, and learn from our mistake. If Captain Neil is so generous to donate an offshore fishing trip to our Chapter and the Student Subunit again, take our word for it — *don't no one go and get any ideas about bidding on this trip*. And if no one does, we just might bid again and write the whole thing off as being good Chapter members! You can thank us by staying away from this auction item! All kidding aside, many thanks to Neil for his long-time support of our Chapter and Student Subunit.

***Authors' Note:** *Just kidding, we had a great time — calm seas, deluxe boat, caught all those fish pictured ourselves, enjoyed great company, and Neil is the best captain and colleague!*



Greg Cope and Neil Medlin accept fish handouts from other anglers.



Neil Medlin supports our Chapter and Student Subunit with donated fishing trips — and also wears them on his back!



2

Greg Cope, Bobby Cope, Jesse Fischer, and Tom Kwak (L-R) survive the worst fishing trip ever with Captain Neil Medlin. Don't bid on this auction item next year!

Submitted by Tom Kwak, Greg Cope, and Jesse Fischer, NC State University

Another Imperiled Fish License Plate to Add to Your Life List

This past June, another member of North Carolina's imperiled fish fauna was shocked, netted, and released at several bridge crossings in Macon County (yes, as required by my collecting permits, sometimes I do release them unharmed, contrary to wild rumors and innuendos). Going by the scientific name *Erimonax monachus* (Cope 1868) (also known as *Cyprinella monacha*), Spottfin Chub (also known as Turquoise Chub) in North Carolina are now restricted to the Little Tennessee River basin; historically, its range included the middle and lower reaches of our French Broad River basin. It is state and federally listed as Threatened.



Fish photographs courtesy of Noel Burkhead and Robert Jenkins, courtesy Virginia Division of Game and Inland Fisheries (<http://www.sefishescouncil.org/>).



The owner and person who can be found sitting behind the wheel of this mobile biomonitoring field vehicle is none other than Dr. Bill McLarney. Bill was this year's recipient of [the Chapter's Fred A. Harris Fisheries Conservation Award](#). His innumerable and valuable contributions with citizen biomonitoring, fish conservation, watershed protection, and land acquisitions throughout the Little Tennessee River basin in North Carolina and Georgia have spanned several decades. It looks like Bill is also a fan of Thelonius Monk, a North Carolina endemic originally from Rocky Mount, and exercises his right to vote. He can't go wrong with either of those stickers.

This is the first spotting of a freshwater fish species in close proximity to its ancestral home. For previous sightings, please go to our Chapter's newsletter archives and download the [June 2009](#), [December 2012](#), and [Spring 2014](#) issues. There you will

learn about vanity license plates that carry hidden ichthyological meanings. In North Carolina, these scaly plates have already been spoken for: NCSMFISH (Dr. Wayne Starnes), ELASSOMA (Fritz Rohde), and # 1 P REX (Dave Coughlan); in Virginia SALMO T (Dr. Bob Jenkins) is spoken for. As more plates are discovered, there exists the possibility of de-listing or down-listing these species some day.

Submitted by Bryn Tracy, NC Division of Water Resources

Meetings of Interest

2014 NC State University Student Fisheries Society- First Tuesday of each month, Raleigh, NC. <http://clubs.ncsu.edu/sfs/>

2015 Southern Division American Fisheries Society Meeting- January 28-February 1, 2015, Savannah, Georgia. <http://sdafs.org/meeting2015/>

40th Annual Meeting of the Southeastern Fishes Council- November 13-14, 2014, Asheville, NC, <http://www.sefishescouncil.org/meetings/2014meeting.php>

Valuable Links

The American Fisheries Society Home Page offers a wealth of links to assist you in your fishery endeavors. Information on ordering AFS books, public outreach, annual meetings, chapter links and joining the AFS can be found at <http://www.fisheries.org/>.

This and archived NCAFS newsletters, along with links, chapter information, and upcoming meetings can be found on our website at <http://nc.fisheries.org>.
