



Invasive Species Bulletin

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Welcome!

Welcome to the inaugural issue of AFWA's Invasive Species Committee newsletter. This newsletter was designed to communicate activities of the Invasive Species Committee and AFWA's member agencies. The articles are meant to offer timely and brief updates on important invasive species issues.

One of the charges of the Invasive Species Committee is to provide a national forum for coordinated action among state and federal agencies, other invasive species committees, and conservation organizations to address high-priority invasive species issues. One way the Invasive Species Committee coordinates with federal agencies is by representation on national committees and advisory groups. Tom Remington, Chair, represents AFWA on the Invasive Species Advisory Committee, and Kim Bogenschutz, Vice-Chair, represents AFWA on the Aquatic Nuisance Species Task Force. To assist in coordination and communication between states and provinces, the Invasive Species Committee hopes to work directly with their invasive species coordinators to document their needs and to convey coordinated recommendations to others, particularly Capitol Hill.

We would like to receive your comments and thoughts about the newsletter to help us fulfill its goal of increased communication and coordination among Invasive Species Committee members. Please let us know what you found useful and additional information you would like to see. **Please send your feedback to Dr. Arpita Choudhury at achoudhury@fishwildlife.org.**

AFWA Invasive Species Committee: Invasive Species and State Wildlife Action Planning

By Ron Dent

At the most recent AFWA Invasive Species Committee meetings, a discussion evolved around the State Wildlife Action Plans (SWAP) revision and how invasive species issues and management / policy tools might be incorporated into the documents.

Currently, there is an effort underway to bring SWAP coordinators together in July to discuss how Climate Change can be incorporated into SWAP revisions. This is in relation to AFWA's state guidance document on incorporating Climate Change into SWAPs which will be completed in September.

One approach to better incorporate invasive species issues into SWAPs might be to hold a similar meeting of Invasive Species Coordinators (ISC) and SWAP Coordinators in the near future. It may be worthwhile to bring this concept up at upcoming Regional

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Director's meetings to garner their support for travel to a future invasive species SWAP workshop. It may also be worthwhile to draft an NCN (for the Multi State Competitive Grant Program) for an ISC / SWAP effort to offset travel and associated workshop costs. An alternative to one large national meeting may be several smaller regional workshops to build capacity for this effort.

Either way a structured decision making approach should be used to help states deal with invasive species threats within their state or region. This would be the ultimate goal of a workshop or a series of workshops. The benefits of this approach would be to foster communication and collaboration among ISCs and SWAP coordinators regionally and nationally and provide a context in which invasive issues are discussed in a facilitated manner that culminates in a written product at the end of the workshop. **If you think this would be a useful effort or have suggestions on this concept, please provide them to Dr. Arpita Choudhury, achoudhury@fishwildlife.org.**

Control Techniques: ARKANSAS

Operation Mongoose: Northern Snakehead *Channa argus* Eradication Piney and Little Piney Creeks, Arkansas

By Lee Holt, Fisheries Management Biologist

On April 14, 2008, a single northern snakehead *Channa argus* was documented on a farm road in Lee County, Arkansas. In the days following the initial discovery, Arkansas Game and Fish Commission (AGFC) fisheries biologists sampled irrigation ditches that were in proximity to that road. The sampling yielded an additional 90+ northern snakeheads (NSH). During this sampling event AGFC biologists also confirmed the presence of NSH in Piney Creek. During the following weeks, a large-scale, multi-agency sampling effort was conducted to evaluate the extent of the NSH infestation. While NSH were collected throughout the Piney Creek drainage, none were observed in the adjacent drainages. This indicated that the NSH population was confined to Piney Creek and its associated tributaries (including Little Piney Creek).

It was the objective of AGFC to take a pro-active approach and attempt to control the spread of the existing NSH population from the Piney Creek drainage. A complete eradication of all fish in the drainage using the fish toxicant rotenone was proposed by the AGFC Fisheries Division and approved by the agency's board of commissioners. The eradication effort was operated according to the Incident Command System (ICS) created by FEMA and other federal agencies to provide communications and logistics structure to large-scale operations, which involve large incident areas, numerous task forces, and multiple agencies. The ICS facilitated this operation very well and is recommended for other agencies that may encounter such situations.

The eradication consisted of aurally applying 11,355 L of liquid rotenone and hand-distributing 8,172 kg of powdered rotenone to over 700 km of creeks, ditches, and backwater areas within the 20,250 ha Piney Creek watershed over the course of eight days. At any given time, there were up to 110 individuals actively involved in the eradication, assessment, or support of the project. GIS technology was a crucial tool throughout the planning and implementation process. As many as 250 tactical maps were produced daily to guide the eradication and assessment crews. The U. S. Fish and Wildlife Service (USFWS) was an essential partner of the AGFC in this effort as well as the University of Central Arkansas (UCA), the Tennessee Wildlife Resources Agency (TWRA),

Arkansas Tech University (ATU) and the University of Arkansas (UA). Post-treatment assessments indicated that the eradication was a success. Hundreds of dead NSH were collected and no live fish were observed in any of the treated areas. **Please contact Lee Holt for more information, rlholt@agfc.state.ar.us.**

Control Techniques: CONNECTICUT

Picking the INVASIVE Plants BATTLE

By Peter Picone, Habitat Management Program Biologist

Resource managers, land managers, landscapers, landowners, and gardeners are all too familiar with the exhaustive work needed to manage invasive non-native plants that are crowding out native species. When faced with limited resources, one has to pick which invasive species should be managed first. This challenge can be a bit over-whelming because of the number and types of invasive species involved. On State wildlife management areas, biologists have to make decisions of which invasive to manage by looking at which species can be best managed given the resources on hand to deal with the problem.

In forest environments, invasive non-native trees such as Tree of Heaven (*Ailanthus altissima*), Black Locust (*Robinia pseudo-acacia*) and Norway Maple (*Acer platanoides*) create large biomasses of wood that changes the upper, middle and lower canopy of the forest. Management of these invasive non-native trees requires them to be felled or harvested and then stumps can be herbicided to prevent resprouting. For stump sprouts, late summer herbicide treatments (Triclopyr or Glyphosate) can be effective because translocation of herbicide to roots is enhanced.

Over the last several years, the State of Connecticut Wildlife Division biologists have implemented invasive plant management projects on several wildlife management areas with very good results. One example is an invasive plant management project at the Housatonic River Wildlife Management Area in Kent, CT. The invasive non-native Tree of Heaven (*Ailanthus altissima*) (Illustration 1) was invading several fields and crowding out the natural plant communities. This invasive non-native tree was managed using the following four strategies:

- 1) Cutting the invasive trees using clearing equipment such as large drum-chop mowers (a.k.a. Brontosaurus)
- 2) Girdling or cutting stems and applying herbicide to prevent re-sprouting
- 3) Tractor-mounted mowers or hand cutters such as pruning shears, loppers and weed whackers are used help keep down any saplings or runners of Tree of Heaven.
- 4) Spot herbiciding is done at the end of the summer to root-kill the Tree of Heaven regrowth.

Managing Tree of Heaven on a wildlife management area such as Housatonic River Wildlife Management Area has shown to be effective using the four strategies mentioned above.

Habitat managers have to pick their battles when it comes to invasive species management especially with tightening operating budgets. By prioritizing which invasive

species will be managed, some success can be achieved through thoughtful consideration and planning. Targeting invasive tree species in forested patches and invasive shrubs in herbaceous fields can be a prudent and viable way to reduce the impact of invasive non-natives on our natural habitats. **Please contact Peter Picone for more information, peter.picone@ct.gov.**



Illustration 1

Tree of Heaven patch at Housatonic River Wildlife Management Area in Kent, CT. Tree of Heaven was drum-chopped by Brontosaurus and larger standing trees were girdled and herbicided.

Control Techniques: HAWAII

The Super Sucker and its Fight against Hawaii's Alien Invasive Algae

By Jonathan Blodgett, AIS Senior Field Technician

The Hawaii Division of Aquatic Resources (DAR) has been conducting visual surveys for five major invasive marine macroalgae species (*Gracilaria salicornia*, *Kappaphycus/Euchema* spp. complex, *Acanthophora spicifera*, *Avrainvillea amadelpha*, *Hypnea musciformis*) around the state since 2005. Surveys typically extend straight from shoreline to the reef crest of habitats and are conducted by snorkel. Portable global positioning (GPS) system devices are used to record spatial data along with relative algal abundances. GPS points are made every 50-80ft or at any time notable changes in algal species assemblage/abundance are seen. The algal abundance is rated on a 4 point system: 0=absence, 1=present, 2=matting, 3=clumping. Data points are imported into ArcGIS software allowing the generation of accurate maps that project algal abundance and distribution. These data can also be projected with NOAA's benthic habitat maps for further validation. These maps are essential for determining further invasive algal management strategies.

Kappaphycus/Euchema spp. complex was brought to Hawaii 30 years ago to be used for aquaculture research. The project was discontinued, but this fast growing alga continued to smother many of the patch reefs in Kaneohe Bay, Oahu and has recently been discovered to have moved north of Kaneohe Bay where it will continue to spread without the development of a more long-term management plan.

In 2006, the Super Sucker was developed and since then has removed over 50,000 pounds of algae from Kaneohe Bay's reefs. This 40-horsepower diesel engine runs on bio-diesel and uses a venturi pump to create an underwater vacuum to remove the algae. While the Super Sucker is an effective tool to eliminate the bulk of *Kappaphycus/Euchema* spp. there needs to be another means to remove the small fragments that grow within the reefs cracks and crevices. Although healthy herbivorous fish populations do help in the fight against invasive algae, their populations have been reduced by overfishing and are not capable of controlling the algae's growth.

Therefore, the DAR Aquatic Invasive Species team plans to use the native urchin *Tripneustes gratilla* as a biocontrol agent to feed on the invasive algae and hopefully diminish the growth of the algae within Kaneohe Bay. These urchins will be grown out from larvae, released onto cleared patch reefs and then monitored for survival rate, movement patterns, and feeding habits. **Please contact Jonathan Blodgett for more information, jb88@hawaii.edu.**

Control Techniques: KANSAS

Asian Mussels and Dry Fire Hydrants

By Jason Goeckler, ANS Coordinator

Dry hydrants are non-pressurized pipes permanently installed in a surface water body that provide a dependable water source for fire suppression and can be found in all 50 states. Recently, a Kansas Fire Department used a dry hydrant at Cheney Reservoir and encountered some problems with an invasive species. As reported by Tim Millspaugh, Fire Marshall of the Sedgwick County Fire Department, Asian clams were drawn into their truck causing problems with their holding tanks, pumps, and distribution lines. Parts of the truck had to be disassembled to remove the shells. All toll, approximately five gallons worth of Asian clam shells were removed from the truck. As a result of this incident, it became obvious that invasive species can cause a problem for fire protection systems and the result could threaten human safety.

In addition to the effects to fire protection systems, the use of dry hydrants could be a vector for invasive species spread. Routine maintenance of dry hydrants includes a back-flush of the hydrant intake screens to remove debris. Through this practice, water is moved between hydrants and water bodies. This movement of water could aid the transport of Dreissenid mussels or other invasive species. It is recommended that protocols be established to protect the hydrants from fouling by invasive species and prevent the spread of invasive species through their use. In Kansas, an alert was sent to all Kansas Fire Departments making them aware of this issue including best practices for dry hydrant use in an attempt to prevent future issues with invasive species and dry hydrants. **Please contact Jason Goeckler for more information, jasong@wp.state.ks.us.**



Illustration 2

Asian mussels in dry fire hydrants can cost fire departments in damage to fire protection systems and threaten human safety.

Legislation/Policy:

The Nonnative Wildlife Invasion Prevention Act (HR669)

By Larry Riley, AGFD Wildlife Management Division Coordinator

Talk about a bit of legislation that stirs controversy, HR 669 certainly has all the potential. You may have heard about it in local news or in contacts with colleagues in the pet and aquaculture industries regarding their reservations about the bill.

The Nonnative Wildlife Invasion Prevention Act targets controlling importation of potentially invasive wildlife to the United States. It would require the establishment of a screening process for the importation of wildlife into the US administered by the Fish and Wildlife Service. Determinations by the Service as “Approved” or “Unapproved” would determine if an animal can be imported, significantly augmenting the Lacey Act’s Injurious Wildlife provisions. The bill would actually go far beyond just importation, and would also affect interstate commerce, transportation, possession, exchange of ownership, and export. The expanse of the bill is both good and bad, and you can probably see the reasons for controversy within the pet, aquaculture, and exotic animal industries. Folks are concerned about uncertainties regarding implementation of such a program, including how you screen for invasiveness to the “United States” when our nation covers Alaska to Puerto Rico and Maine to Guam. There are potential concerns as well about the degree to which this proposed law would affect state authorities to regulate wildlife within the boundaries of a state.

The bill was introduced into the US House of Representatives early this year by Ms. Madelyn Bordallo (Guam), and was heard in a House Natural Resources Subcommittee chaired by her on April 23rd. AFWA has actually been working with this since early 2008, and provided testimony to Congress last summer as well. AFWA testimony both in June of 2008 and April of 2009 has supported the concepts in the bill, but recognized that it needs to be improved. The bill has matured over the past year and is better in many ways than the version originally introduced in May of 2008. Some of our suggestions were taken to heart, and elements of the 2009 version of the bill do a much better job of assuring the States’ role and protecting State employees doing their jobs. AFWA has tried to work with all parties, from the environmental community to industry, to maintain the concepts in the bill while refining how it might be applied fairly. I think AFWA and State Wildlife Agencies are viewed as fair and stable influence on implementing this kind of invasive species policy.

The bill generated significant response from pet owners and the aquaculture industry.

Thousands of letters poured into the House Natural Resources Committee just prior to the hearing in April. Most of those letters came from concerned pet owners and aquaculturists. Among the recommendations to the Committee from the Pet Industry Joint Advisory Council (PIJAC) was an “all stakeholders” workshop to refine legislation and potential future implementation if it passes. PIJAC recently corresponded with the Committee recommending that the Fish and Wildlife Service host a series of regional workshops to review and refine the approach. Stay tuned, their may be a workshop coming to your neighborhood.

Download a copy of the bill from <http://thomas.loc.gov/> (search HR 669) and testimony from the April 23rd hearing [here](#).

Legislation/Policy:

Aquatic Invasive Species (AIS) Interdiction Legislation

By Tom McMahon, AGFD Invasive Species Coordinator

HB2157 has been sponsored by various members of the Arizona Legislature, both Senate and House members. If passed and enacted in 2009, it will provide:

- 1) A definition to include, “...any aquatic species that is not native to the ecosystem under consideration and whose introductions or presence in this state may cause economic or environmental harm or harm to human health.” However, it is also clearly defined as to, “...not include any nonindigenous species lawfully or historically introduced into this state for sport fishing recreation...by the Department...”
- 2) Establishment of an invasive species program by the Director of AGFD to include: establishing a list for AIS and affected water bodies; interdiction capabilities for movement/possession/transport of AIS and subsequent violations, civil penalties and cost recoveries; and,
- 3) Possible changes to Arizona Statute and Rules pertaining to watercraft funding usage for this aquatic invasive species program at AGFD.

As of July 1, this bill has been approved and passed by the Arizona House and Senate and is waiting for final signature by Governor Jan Brewer. **Please contact Tom McMahon for more information tmcmahon@azgfd.gov.**

State Legislation/Policy: COLORADO

Colorado ANS Program

By Elizabeth Brown, Invasive Species Coordinator

The State ANS Act, passed in May 2008, allocated over \$7 million to the State ANS Program and provided the legal authority to perform inspections, decontaminations and if necessary, impoundments of watercraft for ANS. On July 1, 2008, a full time coordinator was hired by the Colorado Division of Wildlife (CDOW) to oversee the statewide program, and to also work on terrestrial invasive species. ANS Regulations were recently adopted requiring all trailered watercraft to be inspected prior to exiting known positive waters. The regulations also require an inspection prior to entering any waters of the state, if coming from out of state waters. The regulations created a new

ANS list that is focused specifically on plant and animal species transported by boats - essentially managing the single largest vector of spread. Fish and pathogens were not included because they are already included in CDOW regulations. The CDOW has coordinated over 100 inspections stations statewide and has trained over 700 people to do inspections and decontaminations according to the new state standard protocol published in March. CDOW provides the following services to all inspection locations in Colorado: site specific planning, certification of inspectors and decontaminators, support materials (forms, boat seals, signage, etc.), law enforcement assistance, cost share and grant opportunities, educational materials and events, and early detection sampling and monitoring. The CDOW has three teams of sampling crews monitoring over 160 waters for zebra and quagga mussels, and other ANS. The CDOW processes the samples for identification at the Aquatic Animal Health Lab. For mussels, positive identification of veligers through both microscopy and 2 rounds of DNA analysis (PCR and gene sequencing) are required prior to classifying a positive water. In 2008, there were 7 waters classified as positive and 1 water classified as suspect for mussels. **For more information, please contact Elizabeth Brown elizabeth.brown@state.co.us for more information or go to www.colorado.gov/wildlife.**

State Legislation/Policy: MISSISSIPPI

Mississippi State Management Plan Revisions

By Dennis Riecke, Fisheries/Environmental Coordinator

Mississippi Department of Environmental Quality employees are trying to complete inclusion of revisions to the state Management Plan for final review and submission to Governor Barbour. On March 2009, lists of species for the approved, restricted, and prohibited species lists were proposed for inclusion in the State Management Plan document:

Approved Species List – no restrictions or permits required for the possession, use, culture, sale, import, export or transport within the State of Mississippi, unless otherwise required by State or Federal laws or regulations.

- 1) All Native Species
- 2) The following Nonnative Species:

Common Carp - *Cyprinus carpio*

Gold fish – *Carassius auratus*

Triploid grass carp – *Ctenopharyngodon idella*

Restricted Species List – permits are required for the possession, use, culture, sale, import, export, or transport within the State of Mississippi (those currently being cultured within the state):

- 1) The following Nonnative Aquatic Species:

Diploid Grass Carp - *Ctenopharyngodon idella*

Bighead Carp – *Hypophthalmichthys nobilis*

Silver Carp – *Hypophthalmichthys molitrix*

Black Carp – *Mylopharyngodon piceus*

Tilapia Species – all species of tilapia in the Genera – *Tilapia*, *Oreochromis*, and *Sarotherodon*

Australian Red Claw Crawfish – *Cherax quadricarinatus*

Malaysian Prawn – *Macrobranchium rosenbergii*

- 2) Other Nonnative Aquatic Species must go through the following process in order to be added to the Restricted Species List:
 - a. A scientific risk assessment conducted for the species using an approved methodology
 - b. The results of the approved scientific risk assessment are submitted to the Mississippi Aquatic Invasive Species Task Force for evaluation
 - c. The Mississippi Aquatic Invasive Species Task Force determines if that nonnative species is unlikely to be an invasive species (i.e. a species whose introduction does not cause or is unlikely to cause economic or environmental harm or harm to human health)
 - d. The Mississippi Aquatic Invasive Species Task Force recommends that the nonnative species be added by the MDWFP to the Restricted Species List.

Prohibited Species List – It is illegal to possess, use, culture, sell, offer for sale, import, export, or transport within the State of Mississippi live individuals or specimens of the following species (except as otherwise allowed by Federal and State laws and regulations):

- 1) All Nonnative Aquatic Species not listed on the Approved Species List or the Restricted Species List.
- 2) All Nonnative Aquatic Species listed as Injurious Wildlife Species in the Federal Lacey Act – U.S.C. § 42(a) (1).
- 3) All Nonnative Aquatic Species listed on the Federal Noxious Weed List at 7 C.F.R. § 360.200.
- 4) All Nonnative Aquatic Species listed on the Mississippi Noxious Weed List – Rule 41: Regulation of Noxious Weed under Sections 69-25-1 through 69-25-47, Chapter 380, and Laws of Mississippi 1974.

Please contact Dennis Riecke for more information, dennisr@mdwfp.state.ms.us.

Outreach/Collaboration: ARIZONA

Arizona Invasive Species Outreach

By Tom McMahon, AGFD Invasive Species Coordinator

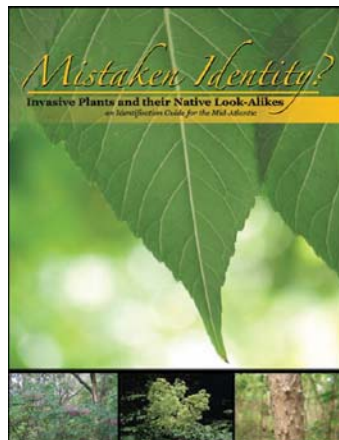


Through coordination with the Governor's Arizona Invasive Species Advisory Council, the Department has developed and printed a poster entitled, "Arizona's 10 most Unwanted Invasive Species." The posters are being distributed to government offices and outdoor recreation businesses throughout Arizona.

This poster illustrates and describes 10 species of high concern in Arizona for their various invasive tendencies, including: quagga mussel; northern crayfish; buffelgrass; yellow star thistle; New Zealand mud snail; red brome grass; red imported fire ants; silver carp; Asian tiger mosquito; and giant Salvinia. **Please contact Tom McMahon for more information tmcmahon@azgfd.gov.**

Outreach/Collaboration: DELAWARE

Mistaken Identity? Invasive Plants and Their Native Look-alikes: An Identification Guide for the Mid-Atlantic
 By Faith Kuehn, Delaware Department of Agriculture



The booklet: *Mistaken Identity? Invasive plants and their native look-alikes: an identification guide for the Mid-Atlantic* was recently published. Funded by NRCS, this booklet represents a cooperative effort between the Delaware Department of Agriculture, Delaware Invasive Species Council, Delaware State University, and Delaware Center for Horticulture.

A specially-printed draft version of the book was unveiled at the annual Delaware Invasive Species Council meeting, held in Dover, DE in early November 2008.

The booklet presents a side-by-side comparison between 20 common invasive plants and native plants, with which the invasives can be confused. The comparisons include trees, shrubs, vines, grasses and herbs. There is also a section on controlling invasives and species control recommendations. A pdf copy of the publication is available on the Delaware Invasive Species Council's website: <http://www.delawareinvasives.net/>. A very limited number of printed copies are available. **Please contact Faith Kuehn for more information Faith.Kuehn@state.de.us.**

Outreach/Collaboration: SOUTH CAROLINA

Invasive Seaweeds – Are Rhodophytes the “Red Menace” of the Day?

By David Knott, Southeastern Regional Taxonomic Center

Over the last decade, the Japanese seaweed *Gracilaria vermiculophylla* has become extremely common along the mudflats in several South Carolina estuaries. This red alga has been termed the 'perfect invasive' — it survives burial for days, will tolerate a broad range of temperatures and salinities, and grows year round.

The economic impacts of *Gracilaria* on the shrimp trawling industry of South Carolina have been felt for several years, but Dr. Erik Sotka at the College of Charleston's Grice Marine Laboratory is also concerned about the impact of the invasive species on the health of South Carolina estuaries. These seaweeds may outcompete or smother prey organisms (e.g., small crustaceans, worms, and clams) which serve as the base of the food web. Economically-important fishes and shrimp depend on this smaller prey for their own survival and growth, and any negative impacts on prey species may have long-reaching negative consequences for future recreational and commercial fisheries.

Dr. Sotka and two of his students in the REU program (NSF: Research Experiences for Undergraduates) have begun to document the extent of the *Gracilaria* blooms by compiling reports from a variety of sources (e.g., shrimp captains, surveys by the SC Department of Natural Resources, and their own surveys). It appears that these blooms are more geographically widespread than has been previously reported. He is also preparing for field experiments in several estuaries from Charleston Harbor to Savannah, which will assess ecological impacts that seaweed blooms are having on the health and function of local ecosystems, and specifically on the dynamics of the estuarine food web.

And as if one unwelcome algal species isn't enough, a second species, originally from the Mediterranean Sea, has recently been observed by shrimpers in the boom of a 'boom-and-bust' cycle that is poorly understood. David Knott, of the SCDNR identified the alga as *Polysiphonia breviarticulata*, which was confirmed by Dr. Reid Wiseman, an expert in algal taxonomy at the College of Charleston. This particular species has a history of trouble for offshore shrimp trawlers.

Similar to an event documented back in 1988, it recently bloomed extensively, concentrating largely outside of the estuaries in popular trawling areas within a few miles of the shoreline. The impacts of this spring bloom of *Polysiphonia*, which coincided with a period of cooler than normal surface seawater temperatures, have been dramatic. When tons of this invasive seaweed are trawled up by nets, the weight overwhelms the efficiency and capacity of shrimp nets, resulting in lost opportunities and damage that may cost thousands of dollars to repair. Although the alga is apparently established off the North Carolina coast, and perhaps even off South Carolina, its infrequent episodes of rapid growth and subsequent concentration near shore may spare trawlers from serious impacts. **Please contact David Knott for more information KnottD@dnr.sc.gov.**



Illustration 3

Gracilaria vermiculophylla on intertidal mud flat near Charleston Harbor, SC. Photo courtesy of Erik Sotka.

Call for More Submissions

If you would like to submit an article to the newsletter on topics such as legislation, research, innovative outreach and public awareness campaigns, new invasions, and/or new control methods please send your submission(s) to Dr. Arpita Choudhury achoudhury@fishwildlife.org by October 1, 2009.

