

# North Carolina Aquaculture Association



*"Farming Fresh Alternatives"*

May 21, 2010

<http://www.ncaquacultureassociation.com>

Volume 3, Issue 2

## A MESSAGE FROM THE PRESIDENT

### Special points of interest:

- Letter from the President
- Recent Bylaw Changes
- Lacey Act
- Copper Sulfate as an Immunostimulant in Fish

Hello Fellow NCAA Members,

Spring has sprung here in NC, and with that, I know everyone is busy prepping for the summer. From spawning to pond preparation and courting new markets spring sure is a busy time of the year for all of us. I hope everyone caught up on their rest and sleep over the winter.

There are a few things I'd like everyone to be aware of. The first issue is being mindful of the Lacey Act. This will affect everyone that ships fish to markets across state lines. Please make sure you are following all aspects of the Lacey Act so you do not incur any unneeded fines. Matt has included an insert from a helpful fact sheet put together by the National Agriculture Law Center for you to look at for more information.

Secondly, everyone realizes water is essential for aquaculture production. Farm Bureau has been monitoring recent discussions on potential changes for water use regulations in our state. I hope everyone has filled out any water survey they have received from NCDA&CS. This information is very helpful in determining how much water is needed for agriculture and aquaculture in our state. A group has been put together to determine how much water is actually used in NC by agriculture, including aquaculture. Even though aquaculture tends to be a non-consumptive user of water, we have the perception of using quite a bit. By filling out water use surveys, we will be able to help show we don't use as much water as people think. This will also help insure all aquaculturist in NC have access to the water they need to grow their crops.

Thirdly, you may not know her name, but Roz Schnick retired this month from her position as the National Coordinator for Aquaculture New Animal Drug Applications. Roz has worked to help get various drugs and chemicals approved for use in aquaculture. She has informed me that several more should be approved in 2010. If you happen to run into her at a meeting, be sure to thank her for all her hard work over the last 15 years.

**Contact Matt Parker**

**to order a NCAA**

**License Plate for**

**your vehicles.**

Pres: Nancy Sugg Castle Hayne Fisheries  
VP: Sterling Davenport, Mill-pond Crawfish  
Sec: Matt Parker NCDA&CS  
Treas: William Small  
NCDA&CS

Sincerely,

A handwritten signature in cursive script that reads "Nancy Sugg".

President

## Excerpt From: Aquaculture and the Lacey Act

*Elizabeth R. Springsteen Staff Attorney National Agricultural Law Center*

One major statute with the potential to severely affect aquaculture is the Lacey Act, 18 U.S.C. §§41-48, a federal statute passed in 1900 to protect wildlife. It was originally intended to combat hunting to supply commercial markets, the interstate shipment of unlawfully killed game, the killing of birds for the feather trade and the introduction of harmful invasive species. The Lacey Act applies to all "wild" animals, specifically including fish and amphibians, even when those animals have been "bred, hatched, or born in captivity." It is unlawful to "import, export, transport, sell, receive, acquire or purchase" any fish or wildlife "taken, possessed, transported, or sold" in violation of laws or regulations (state, federal or foreign) that are fish or

wildlife related. In 2008, plants were added to the scope of the Act.

One of the ways in which the Lacey Act can be triggered is by the violation of a federal regulation. If this happens, the offender can be prosecuted under the Lacey Act even if no interstate shipment takes place. For example, the Endangered Species Act is a federal statute that protects certain species. If an individual "transport[s], sell[s], receive[s], acquire[s], or purchase[s]" a creature that has been "taken, possessed, transported, or sold" in violation of that law, that person may be prosecuted under either the Endangered Species Act or the Lacey Act even if they do not cross a state line.

However, the Lacey Act is also triggered when a state or federal

law regarding fish or wildlife is violated by a product that has been part of interstate commerce. Each state has its own protected, prohibited, restricted or approved exotic or game species lists, established by a state department of natural resources, fish and game, environmental protection or agriculture, and the creatures on the list can vary widely from one state to the next. For an example in this situation, consider Minnesota. As of this writing, in Minnesota it is illegal to transport "prohibited invasive species" on a public road, and violation subjects the offender to a \$250 civil penalty or a misdemeanor (up to 90

days and/or \$1,000).

As a result, a company based in Minnesota who transports one of these species to another part of the state may only be prosecuted under the state law. A company based in another state who transports one of these species on a Minnesota road, however, may be prosecuted under the Lacey Act. This is important, especially considering the disparity between the state and Lacey Act penalties.

Full article available from:

[http://www.nationalaglawcenter.org/assets/articles/springsteen\\_lacey.pdf](http://www.nationalaglawcenter.org/assets/articles/springsteen_lacey.pdf)



Workers at Castle Hayne Fisheries take a break from loading fish. Picture courtesy of Nancy Sugg.

## Freshwater Prawns Named "Best Choice"

The American Prawn Cooperative, APC, is proud to announce that freshwater prawn has been awarded "Best Choice" distinction by the Monterey Bay Aquarium's "Seafood Watch" program. This internationally respected program, which recognizes the best of the best in sustainability, helps consumers make "smart" seafood choices by offering safe recommendations.

The U.S. farmed freshwater prawn earned a green ranking in each of the criteria making it the very first shrimp/prawn to achieve a green ranking in every one of the five sustainability criteria since Seafood Watch began assessing seafood in 1999.

A 'Best Choice' ranking from the Monterey Bay Aquarium's prestigious Seafood Watch

program is the gold standard in the seafood industry. It's great to see freshwater prawn on a list with other great choices in sustainability.

Sixteen states throughout the United States house freshwater prawn operations. The members of the American Prawn Cooperative located in Walstonburg NC, could not be more appreciative of Seafood Watch and what they do as an organization for sustainable seafood's.

It is so important to know what you eat, and the Monterey Bay Aquarium devotes a significant amount of their efforts to educate the public on what's safe to eat - and also what's safe for the environment.

-Courtesy of APC

## Copper Sulphate As An Immunostimulant in Fish- Steve Gabel

In 2004, Dr. Noga, professor at the NCSU College of Veterinary Medicine, was working on a way to better manage Winter Kill. Winter Kill has been responsible for almost 8% of total catfish disease kills in the U.S. annually from 1999 to 2007, and has stymied most attempts at controlling it. Dr. Noga determined that many fish, when stressed, developed a syndrome characterized by the immediate and dramatic loss of their skin. This syndrome was called the Acute Ulceration Response (AUR). When a fish is affected by AUR, it is extremely susceptible to the water mold *Saprolegnia*. *Saprolegnia* is also the infective agent in Winter Kill. Dr. Noga then surmised that if a producer could determine when an environmental stressor would induce AUR in fish, preventative measures could be taken to limit the infective agent in the water. Thus even if the fish had a pathway for an infective agent to enter the fish, if the amount of the infective agent in the water were greatly reduced or even eliminated, the fish would be much less likely to become infected.

During continuing research dealing with AUR and Winter Kill, one of Dr. Noga's former graduate students, Dr. Anirudh Ullal, received a batch of channel catfish that were infected with the important protozoan parasite *Ichthyophthirius multifiliis* (Ich). While studying the immune defenses of these fish, he discovered

something very interesting – they unexpectedly had an enhanced innate immune response. After doing more testing, he discovered that this enhanced immunity was due to the fish producing antimicrobial peptides (i.e., host-produced antibiotics) that were derived from hemoglobin, the protein in red blood cells that transports oxygen. However, rather than being produced in the red blood cells, the antimicrobial peptides were expressed in the skin and gills of the catfish, which is not the normal site for hemoglobin production. Additionally, this response lasted for several weeks and was effective against several important pathogens. In other words, the fish produced compounds in the skin and gills that could help fight off many important diseases. Another important finding was that this response might be able to be stimulated artificially, in order to protect the fish from many pathogens at once.

With this information in hand, along with many reports by fish farmers in North Carolina that the use of copper sulphate seemed to cure fish or at least make them more resistant to infectious disease outbreaks, Dr. Noga began a search for other research that might support the idea that a fish's immune system could be enhanced with the use of copper sulphate. The result was that there were several references in literature that seemed to support that copper may indeed be an immunostimulant for fish. Several published studies indicated that copper levels as low as 0.01 mg/l protect fish from

many different pathogens. A major advantage of this approach over the use of conventional drugs is that since copper would be used as an immunostimulant rather than as a drug, it would not require approval from the FDA. However, many questions remain, especially what is the mechanism by which copper seems to protect fish from pathogens, from which pathogens might it protect the fish, what is the length of protection, and what dosages would be required? Dr. Noga suspects that stimulation of the antimicrobial peptide response might play a key role in this protection.

Dr. Noga hopes to answer these questions in a future research project. With fish mortalities due to disease causing about \$1 billion a year in losses in the United States alone, there is a dire need for improved ways to control these problems.

### Membership Form

Categories	Price
<input type="checkbox"/> Active Membership	\$ 65
<input type="checkbox"/> Support Industry	\$ 250
<input type="checkbox"/> Government/University	\$ 250
<input type="checkbox"/> Student	\$ 10
<input type="checkbox"/> Associate	\$ 25

Name

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Address

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Phone

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Email

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Make Checks Payable and return to:  
North Carolina Aquaculture Association

c/o NC Dept. Agriculture and Consumer Services  
P.O. Box 2066

## Recent Bylaw Changes

Members recently voted to amend NCAA Bylaws to include a attendance policy for board members as well as officers. Please visit the website to download the latest copy of the bylaws.

<http://www.ncaquacultureassociation.com>

### Officers

Pres: Nancy Sugg Castle Hayne Fisheries  
VP: Sterling Davenport, Millpond Crawfish  
Sec: Matt Parker NCDA&CS  
Treas: William Small NCDA&CS

### Board Members

Nancy Sugg (Expires 2012)  
Sterling Davenport (Expires 2012)  
Matt Parker (Expires 2012)  
William Small (Expires 2012)  
George Sullivan (Expires 2014)  
Randy Gray (Expires 2014)  
Dale Pridgen (Expires 2014)  
Gene Wiseman (Expires 2014)



c/o NC Dept. Agriculture and  
Consumer Services  
P.O. Box 2066  
Elizabeth City, NC 27909

<http://www.ncagr.com/markets/aquaculture/NCAA.html>

## Announcements

**Send Program Ideas for  
the 2011 NC Aquaculture  
Development Conference  
to Steve Gabel  
[steve\\_gabel@ncsu.edu](mailto:steve_gabel@ncsu.edu)**

Announcements:  
If you have any personal announcements, you would like to send out please send them to Matt Parker for the next newsletter. These could include births, deaths, or special events at your farms.

2010 NC Crawfish  
Grower's Association  
Promotional Boils:  
June 5th Raleigh  
Farmer's Market  
June 19th Piedmont  
Triad Farmer's Market

2011 NC Aquaculture  
Development Conference  
Tentatively Scheduled for Jan 28-29,  
2011 in Atlantic Beach  
NC