

# Fish Tales Newsletter

West Virginia's Aquaculture Newsletter is produced to help inform, educate, and update those interested in producing quality aquatic products, in a sustainable manner, for the recreational and food fish markets.

## New Aquaculture Forum - New Aquaculture Format

The 2003 West Virginia Aquaculture Forum was held at WVU Jackson's Mill this past January 18. Many of the 110 attendees felt that it was a good place for the meeting. The change in location was not the only difference

### Ken's Corner

There has been need for an aquaculture newsletter for several years. At meetings of the West Virginia Aquaculture Association there have been discussions about how the need might be met. Much of the work was recently delegated to **Dan Miller**. In turn, he will be encouraged to delegate tasks to others as he sees fit.

It is not intended that this be WVU's aquaculture newsletter; rather, it should be a tool used by all who wish to see aquaculture grow in West Virginia. Regardless of whether you are a grower, a regulator, someone who buys and sells farm-raised fish, or someone just interested in fish farming, you are invited to partner in making this newsletter a useful tool for aquaculture development in West Virginia. Please help make things happen. If you have something interesting to contribute or a question to be answered, please let Dan know. He can be reached at [dmille31@wvu.edu](mailto:dmille31@wvu.edu) or phone 304-293-4832, ext.4465.

from previous forums. **Dr. Ken Semmens** (see *Ken's Corner* column) responded to previous forum comments by reducing the technical presentations and increasing discussions about practical problems and marketing.

Some technical information was presented in poster form and some was printed for take-home. Booths provided information on aquaculture-related products, and the vendors donated various items for a raffle at the end of the day. The quality fly-rod, generously donated by **Melick Aquafeeds**, went to **Inetta Fluharty**, who worked at the WV AgrAbility booth.

Lunch was a buffet-style event in a separate building. Besides the fresh fruit, drinks, and vegetables, the entrée was a lightly breaded fish called Arctic Char that was grown by **WV AQUA** in southern West Virginia. It is a fish that sells for a higher price than trout, and it has been grown in our own state since 2000. The char is processed in the state as well. This is what we are trying to promote with the forum....a sustainable aquaculture industry that creates jobs in rural areas where jobs are needed most. Hurray for WV AQUA.

The two featured speakers were **Robert Pitts and Renee Stevens**. Bob gave much practical advice on fish farming with rainbow trout. He showed graphic photos of flood conditions and told how the neighbors were picking his fish out of their fields and gardens. He has developed a large clientele and goes out of his way to satisfy his clients with a quality

Renee returned to the forum for a second time to remind us how fun it can be to let people, in her words, "keep giving me their money!" She has what some would call a legalized gambling carp fishing lake of about 3 acres. Her weekend events last all day or night, and bring in the largest number of people.

She has numerous ways you can give her your money, with the chance that you will walk away with more than you paid her. Ingredients for baits are sold at the canteen along with coffee and hot dogs.

It was clear to the audience that both of these successful people have focused on **marketing** as the way to make money and grow the business. We should all put that in our pocket and not forget it.

The afternoon break was a real treat. **Teresa Halloran** from W. Va. Department of Agriculture (WVDA) put out a dozen different appetizing aquatic products using her George Foreman grilling machine. As if lunch wasn't enough food, the participants lined up for treats including trout dips, smoked products, and grilled gastronomic delights. This break was sponsored by **Canaan Valley Institute and WVDA**. The president of the W.Va. Aquaculture Association, **Doug Grimes**, made a plea for board members and regular members.

They conducted their meeting in the afternoon while people were digesting lunch. All and all, the one-day meeting allowed prospective fish farmers to talk with actual farmers and one another. This may be one of the best results from the meeting. Planning takes knowledge and knowledge was flowing at the 2003 W.Va. Aquaculture Forum.

## Aeration Decisions

Oxygen is often the first limiting factor as density increases in a fish tank or pond. There are three approaches to getting more oxygen into the water. How do you know which method to use? It often depends on the value of your product (economics), the value of your time (maintenance), and the size of your operation. All three methods to aerate increase the contact between gas and water. Very briefly we will list the advantages and drawbacks of each method.

**Mechanical aerators:** These machines move water to increase the area that is in contact with air. They are more efficient when untreated water is continually being aerated to circulate in the pond or tank. Moving water can have positive and negative impacts on a pond. Machines need regular maintenance and require energy to keep them going. Paddle wheels are commonly used in the catfish industry on an as-needed basis.

**Underwater diffusers:** For small-scale aquaculture, diffusers are chosen because they are considered low maintenance, reliable, safe, and efficient. An important aspect of diffusers is the size of the bubble produced. Small bubbles are more efficient at getting oxygen into the water and at removing carbon dioxide, but they tend to clog often and they require higher pressures. Large bubbles resist clogging and work under low pressure, but they are less efficient and will require large volumes of air, which means more horsepower. For this reason medium-size bubble diffusers have become common in smaller systems, especially those that need many diffusers.

**Pure Oxygen:** Because air is only about 21% oxygen, the efficiency of aeration is greatly increased when pure oxygen is used. Pure oxygen can be generated on site or purchased in liquid form and distributed under pressure using flow valves. These systems are generally used in intensive systems and with trained personnel. A problem with excessive carbon dioxide can occur with systems using pure oxygen. This results when there is a lack of surface area between the water and the air. The added pure oxygen increases the availability of oxygen, which allows more carbon dioxide to be produced through fish respiration.

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Note: If an aerator runs 24 hours a day, it is probably removing oxygen from the pond during sunny afternoons. Do you know why? The answer will be in our next newsletter.

## Did YOU KNOW?

The famous *Georgia Giant* hybrid bluegill will be stocked into a Harrison County pond this spring as a demonstration project.



Dr. Ken Semmens will assist the WVDNR in spawning paddlefish at the Palestine hatchery this April.



WVU researchers will be harvesting hybrid bluegill from an experiment during the last week in April and the last week in May. If you wish to learn about harvesting fish from a pond call 293-6131x4211



The 2003 U.S. Trout Farmers Association meeting will be held in Shepherdstown on Oct. 16-17. (Make plans to attend!)



Algae (phytoplankton) is the largest consumer of oxygen in a fish pond.



**West Virginia University's research raceways use a lightweight experimental material.**

## **Trout on Acid?**

The raceways pictured to the left have been stocked with rainbow trout since the fall of 2002. The water source is from an acid mine discharge site in Monongalia County, operated by Consol Energy.


### **Transformation**

As water is pumped from the voluminous underground Pittsburgh coal seam to a small surface pond, it is aerated to help precipitate dissolved iron. The aerated water then flows by gravity past an automated liming silo, where lime is added to raise the acidic water to a pH above 8. It then flows to another small surface pond and after being aerated again, the water drops into a 15-acre polishing reservoir. A valve at the far end of the reservoir controls the discharge.

Only a portion of the discharge water flows through the raceways seen in the photo. As of March 2003, survival has been excellent. There is a surprising difference in growth between the three strains of trout in the experiment. All four strains will be analyzed for metal accumulation in May of 2003.

The transformation from poor-quality water to trout-quality water occurs on site before it is discharged into local waters.

Numerous mine discharge sites in West Virginia produce flows large enough to support commercial aquaculture.

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### **NEWS FLASH!**

The **West Virginia Aquaculture Association** welcomed seven new members to the Board of Directors for the year 2003. They are **Amy Cimarolli** (Divergent Natural Interests), **David Cooke** (WVU Extension Agent, Boone Co.), **John Fitzgerald** (Pocahontas Co.), **Fred Hays** (Divergent Natural Interests), **Paul Lovett** (Monroe Co.), **Mike Nardella** (Harrison Co.), and **Morgan Sheets** (Pocahontas Co.).

This newsletter is available on the WVU Extension web site: <http://www.wvu.edu/~agexten/aquaculture/index.htm>

Questions, comments and contributions can be sent to:  
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