

# Florida Aquaculture

## David Heil appointed Assistant Division Director

Charles H. Bronson, Commissioner of Agriculture, recently announced the appointment of Dr. David Heil as Assistant Director of the Division of Aquaculture. Dr. Heil's appointment became effective July 11, 2008.

Dr. Heil received his Bachelors of Science degree in Biological Science from Florida State University, his Master of Public Health Degree in Environmental Health Sciences from Tulane University, and his Doctorate of Philosophy Degree in Public Administration and Policy from Florida State University.



Dr. Heil has been employed by the State of Florida for over thirty years in the fields of natural resource management, public health protection, and aquaculture.

Since 1999 when the Division of Aquaculture was established, Dr. Heil has served as Chief of the Bureau of Aquaculture Environmental Services. He has been directly involved in the implementation of new policies, laws and regulations on both state and national levels and

served on many state and national task forces and committees.

Commissioner Bronson commented at the time of the appointment, "I know that with his knowledge and experience, David will continue to be an asset to the Department."

Dr. Heil can be contacted at 850-488-4033 or 488-5471 or [heid@doacs.state.fl.us](mailto:heid@doacs.state.fl.us). Please join us in congratulating and welcoming Dr. Heil to his new position.

### Inside this issue:

Part 2: Watch out for that snake!	2
Funded ARC projects	2
Producing cobia in recirculating systems	3

### Please Note

The annual application fee for an Aquaculture Certificate of Registration is \$100 as of July 1, 2008.

## *Vibrio parahaemolyticus* Control Plan affecting oyster harvesting and processing announced.

As a result of action taken by the 2007 Interstate Shellfish Sanitation Conference, states where oysters are commercially harvested must conduct an annual *Vibrio parahaemolyticus* (*Vp*) risk analysis.

The Department of Agriculture and Consumer Services, Division of Aquaculture, conducted a *Vp* risk assessment for Florida's oyster harvesting areas and determined that a *Vp* Control Plan was required.

The Division determined that water temperatures for all commercial oyster harvesting

areas was the overriding trigger warranting a control plan; summer water temperatures for nearly all commercial oyster harvesting areas exceeded 81°F for the months June, July, August, and September.

Current Shellfish Harvest Area management for waters on the east and southwest coasts of Florida are closed seasonally to oyster harvesting during the months of July, August, and September; however, portions of the Apalachicola Bay System, Wakulla County, Dixie County, and Levy County are

closed during June, July, and August. Apalachicola Bay is the only commercial oyster harvesting area where summer harvesting in certain zones is allowed. Private leaseholders are allowed to harvest during the summer.

The Division's *Vp* Control Plan now requires that oyster harvesters on all commercial public and private leases must deliver oysters to a certified processor for refrigeration within 5 hours of harvesting. If the time limit is exceeded, then oyster shell

stock or shucked product must be labeled for post harvest processing or cooking only.

The Florida oyster harvesters and processors are voluntarily implementing the *Vp* Control Plan while the Division amends existing rules in the Florida Administrative Code to recognize these changes.

For additional information or copies of the Plan, contact Dr. Heil at 850-488-4033 or [heid@doacs.state.fl.us](mailto:heid@doacs.state.fl.us).

## Part 2: Watch for that snake! by Danny Merryman, Bartow Field Office

This article is the second of a series focusing on naturally occurring hazards on Florida aquafarms.

If you are bitten by a venomous snake the most important thing to remember is to remain calm and arrange for immediate medical attention at a hospital. DO NOT attempt to treat a snakebite yourself, regardless of what you've seen in the movies. There's a very good chance you'll make it worse and you'll be wasting precious time when you



should be getting the professional treatment you need.

Because snakes are such an integral part of our environment, they deserve our respect. There is no good reason to harm a snake unless it poses an immediate threat to humans or pets. Almost all snakebites occur when a snake is aggravated in some way. It's hard to place blame on a snake when its bite is its only means of self defense when provoked. Also, please remember the importance of conservation. The

global geographic range of our six venomous snakes is the United States. If they disappear from the U.S., they will disappear from the Earth.

For more information on Florida's snakes, including identification, visit [www.my.fwc.com](http://www.my.fwc.com) and type in key word 'snakes'. Also, visit <http://edis.ifas.ufl.edu/>, the University of Florida Institute of Food and Agricultural Science (UF-IFAS) website, where you'll find a wealth of informative publications; again, type in key word 'snakes'.

## Aquaculture Review Council projects funded

The State of Florida's 2008-09 budget includes funding for 11 Aquaculture Review Council (ARC) projects selected to facilitate Florida aquaculture growth.

The ARC, an advisory group to the Commissioner of Agriculture, is composed of a cross-section of aquatic farmers, a commercial fisherman, and the Chair of the Aquaculture Interagency Coordinating Council. The ARC recommended that the Commissioner of Agriculture include 11 projects in his agency budget that were selected through a process that began with a public request for Statements of Interest, and ended with the evaluation and ranking of final proposals based on their impact, project merit, project management, and budget. The Commissioner concurred with the ARC's recommendations.

This process creates partnerships between the public (universities, non-profits, State and Federal agencies) sector and the private sector in order to find solutions to industry needs and subsequently

transfer these solutions directly to the farmer.

The next funding request cycle begins in January 2009 with a request for Statements of Interest for projects to be completed in fiscal year 2010-11. Information and instructions can be found on the Division of Aquaculture's website at [http://www.floridaaquaculture.com/bad/bad\\_arc.htm](http://www.floridaaquaculture.com/bad/bad_arc.htm). Funding for projects selected by the ARC is not guaranteed but aquaculture projects will not receive State funding unless included in this process.

The ARC's fiscal year 2008-09 projects are:

- Aquaculture Career Choices in Middle Schools
- Aquaculture Education for Florida Teachers
- Aquaculture Small Learning Community (Development and Implementation)
- Aquaculture Marketing and Education
- Aquaculture Immersion Excur-

sion: A Teacher Workshop Series for Integrating Aquaculture Education into the Classroom

- Commercial Farm Production of the Florida Bay Scallop (*Argopecten irradians*, Lamarck 1819), an Alternative Molluscan Aquaculture Species
- Non-Native Aquatic Species and Aquaculture Research and Education
- Florida Aquaculture - In the Classroom, In the Community, and In the Future
- Education Beneath the Surface: Water Quality and Animal Behavior Relationship
- Mass Scale Production of Copepods for Marine Aquaculture
- Design and Evaluation of Marine Fish and Live Feeds Recirculating Systems for Inland Aquaculture – Year 2.

For more information, contact Kim Norgren at 850-488-4033 or [knorgren@doacs.state.fl.us](mailto:knorgren@doacs.state.fl.us).

## Producing cobia in recirculating aquaculture systems by Chuck Weirich and Paul Wills

Interest in cobia aquaculture in the United States has increased greatly due to their excellent consumer appeal, extremely rapid growth rate, and the observed success of rearing this species in Taiwan and other south-eastern Asian countries. Because most cobia are grown using offshore net pens or cages, only limited information exists with respect to using recirculating aquaculture systems (RAS).

Through funding provided by the U.S. Department of Agriculture - Agricultural Research Service (USDA-ARS) and the National Oceanic and Atmospheric Administration-Aquaculture Program, two rearing trials were conducted using commercial-scale RAS. Both rearing trials were conducted at the USDA-ARS Sustainable Tank Aquaculture Recirculating Research (STARR) Facility at Harbor Branch Oceanographic Institute, Florida Atlantic University, using four RAS, each consisting of four 2,100 gallon round fiberglass culture tanks. Temperature and salinity were maintained between 81-84° F and 25-28 ppt, respectively. Daily water loss from systems was < 4% of total system volume.

In Trial 1, the effect of feeding different commercial diets on the production of stocker size cobia was evaluated. Juvenile cobia (.06 lb) were stocked into three tanks of each RAS at an initial density of



Juvenile cobia stocked in Trial 1.

324 fish. They were fed one of three commercial diets: Zeigler Marine Grower, Zeigler Gold, or Zeigler Hybrid Striped Bass (HSB). Fish were fed twice daily at 4-5% of body weight.

After 56 days fish fed the Marine Grower diet weighed more than fish fed the Gold or HSB diets. Final total weight was .6 pound per fish. Feed conversion ratio (FCR) of fish fed the Marine Grower diet

was superior to FCR of fish fed the other diets. In addition, final density of cobia fed the Marine Grower diet was significantly greater than that for fish fed the Gold or HSB diets. Excellent survival (95 – 97%) was evident for fish fed each diet and there were no differences between feed types.

In Trial 2, the effect of rearing density on production of sub-adult cobia of potential market size was determined. Cobia juveniles were stocked into three tanks of each RAS, each at a different density: low, medium, or high. After stocking, fish were fed a commercial slow sinking pelleted diet (Cargill/Burris) twice daily at 3-5% of body weight.

After four months rearing density had no effect on production characteristics. Fish reared at all three densities exhibited excellent

growth (final weight 4.8 lb), FCR, and survival. Final biomass of low, medium, and high density treatments was .08, .15, and .23 lb/gal, respectively. Fillet yield was 42.1% and average total fillet weight was two pounds per fish.

Results of both trials clearly indicate that cobia juveniles can be reared to stocker and sub-adult sizes in RAS with growth rates equal to, or exceeding, those reported for fish reared in net pens.



A commercial scale recirculating aquaculture system (RAS) within the USDA-ARS STARR facility at Harbor Branch Oceanographic Institution at Florida Atlantic University.

These initial findings suggest that cobia may be an ideal marine species for RAS culture as an entire crop of harvestable fish may be produced in as little as 5.5

to 6 months after larvae are weaned to dry feeds.

Ongoing research is focusing on determining optimal feeding strategies and evaluating increased rearing densities. In addition, research must be conducted on the economic feasibility of producing cobia in RAS and the market acceptability of fish reared to a harvest weight of 4.4 to 6.6 lb.

For additional information contact Chuck Weirich, Research Fishery Biologist, USDA-ARS, and Paul Wills, Assistant Research Scientist, at telephone 772-465-2400 ext. 471 and 454, respectively.

Identification of commercial products does not imply endorsement by the authors or public agencies.



Terri Breeden, Research Technician, holding a harvest-ready cobia.

**Charles H. Bronson  
Commissioner of Agriculture**



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**Benefiting commercial aquaculture,  
Conserving natural resources**

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The Division of Aquaculture's responsibilities include certifying all legitimate aquaculturists through an annual registration, implementing on-farm Aquaculture Best Management Practices to meet the State of Florida's environmental goals, managing 1.4 million acres of coastal waters for the harvest or culture of wholesome shellfish, implementing the National Shellfish Sanitation Program through periodic inspection of shellfish processing plants and product, and managing sovereignty submerged land leases for aquacultural purposes.

Additional information about Florida aquaculture or Division programs can be obtained from the following offices.

Apalachicola Shellfish Center:	850-653-8317
Bartow Field Office:	863-519-8459
Cedar Key Field Lab:	352-543-5181
Palm Bay Field Lab:	321-984-4890
Punta Gorda Field Lab:	941-833-2552
Panama City Field Lab:	850-236-2200
Tallahassee Office:	850-488-4033 or 488-5471

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