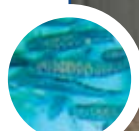
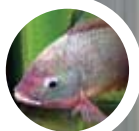


Focus on Standards Development

2005-2006 Conferences & Trade Shows

Review of Qualifications for the Board of Directors



# AES NEWS

○ Fall  
○ Volume 8  
○ Issue 2



Photo courtesy of Water Management Technologies, Inc.

## Message from the President

Four times a year, the AES President gets to write a letter for the newsletter. One objective of this is to fill up space in the newsletter so the newsletter editor doesn't have to harass others for text. In this Letter from the President, I would like to climb up on a soapbox and talk about standards for the evaluation of unit processes and for different types of production facilities. Standards for unit processes are needed to allow comparison of units from different manufacturers and to provide generally accepted design procedures. In Civil Engineering, two of the most important standards are for pumps (Hydraulics Institute Standards for Centrifugal, Rotary & Reciprocating Pumps, 1983) and aerator standards (ASCE, 1984. A Standard for the Measurement of Oxygen Transfer in Clean Water, New York). These two standards were developed by voluntary groups of professionals, and are revised and published on a periodic basis. While the standards may initially have been voluntary, they have been widely incorporated in contracts and performance evaluations.

As part of the Aquacultural Engineering Society Standards and Reporting Committee, reporting standards for biofilters have been developed. A draft of this reporting standard will be published in Aquacultural Engineering as part of a special issue on Biofilters (late 2005 or early 2006). The purpose of this standard is to suggest parameters that are needed for evaluation of biofilters, to present definitions and equations, and to recommend units for these parameters. These draft standards will be submitted back

to the membership for review, revision, and final approval. After approval by the general membership, it is anticipated that these preliminary standards will be made part of the Guide to Authors for the journal on a trial basis for 3-5 years. Based on experience with these preliminary standards, further revision may be necessary at the end of this trial period. After the end of the trial period, these standards will become mandatory for submission of biofilter manuscripts to the journal and may also be required for other journals in the fisheries and aquaculture field.

It is also time for researchers in the United States to step into the 21<sup>st</sup> century and eliminate the use of "English" units in technical publications. It is important to realize that complete conversion to the SI (Système International) system of units is not desirable or even possible. For example, the base unit of time is the second (s). Year, day, and minutes are not SI units (note that 1 year is equal to 31.54 Ms although I have been partial to the English units of velocity expressed in furlongs/fortnights). Also, some "English" unit parameters are actually categories or designations (a 1 inch Schedule 40 PVC pipe is not a 2.54 cm pipe).

Now, for the more interesting topic of facility or system evaluations: with increasing demand for water and energy, there has been pressure to increase the "efficiency" of all agricultural production systems. Some of this pressure has been purely economic while other pressures have had significant political or social components. For example, in the book "Murky Waters: Environmental Effects of Aquaculture in

the United States" (Rebecca Goldberg, 1997), the use of reuse systems was recommended because of reduced water usage and an assumed reduced environmental impact.

As one tries to evaluate the performance of different systems with a variety of performance criteria, it is critical to understand that the results depend strongly on where control volumes are drawn and which components are included or excluded. If we are interested in energy efficiency, the energy content of feed and energy used in treatment processes are likely to be included in any analysis. But what about the energy used to feed fish or haul fish to the processor? These two components might not be important in a serial reuse system in Idaho but could be very important for a net pen system located 50 km off the coast of Florida. While energy and water efficiency are obvious parameters, other parameters that can be used to evaluate different types of systems include environmental footprint analysis (amount of primary productivity area needed to support a unit of aquaculture production), fishmeal usage (kg of fishmeal/kg of fish produced), or equivalent human pollution impacts (equivalent to the untreated sewage of a town of 20,000).

On a preliminary basis, the parameters in the table below might be used to compare different production systems.

In systems where feed is the primary source of energy; it may be relatively straightforward (but operationally difficult) to compute many of the parameters noted in the table. In some of the

*Continued on page 3*

## 2005 & 2006 Conferences and Trade Shows

2005	October	2-7	Monterey, CA, USA	The Third Symposium on Harmful Algae in the U.S.	Judy Kleindinst (508) 289-2745 E-mail: jkleindinst@whoi.edu
		25-28	Colombo, Sri Lanka	6th Symposium on Diseases in Asian Aquaculture	Dr. Melba Reantaso: +39 06 570 54843 E-Mail: Melba.Reantaso@fao.org
		26-28	Guayaquil, Ecuador	8th Ecuadorian Aquaculture Conference	Ms. Camila Parra Alcivar E-mail: c.parra@cenaim.espol.edu.ec
	November	24-26	Lima, Peru	International Trade Fair of Fishing and Fish Farming	Guillermo Thais, Thais Corporation S.A.C. E-mail: thais@amauta.rcp.net.pe
		28-30	San Jose, Costa Rica	International Aquaculture Conference	E-mail: midrovo@cenaim.espol.edu.ec Website: www.cenaim.espol.edu.ec/sanjose
	December	5-7	Washington, DC, USA	Seafood and Health 2005	Email: info@seafoodandhealth.org Website: www.seafoodandhealth.org
2006	February	12-14	Bremen, Germany	Fish International 2006	Tel: +49 3505260 Email: info@mgh-bremen.de
		13-16	Las Vegas, NV, USA	Aquaculture America 2006	E-Mail: worldaqua@aol.com Website: http://www.was.org
		19-24	Puerto Varas, Chile	6th International Abalone Symposium	E-Mail: secretaria@abalone2006.cl Website: http://www.abalone2006.cl
	April	22-25	Dubai, United Arab Emirates	Middle East Aquaculture & Fishing Trade Show	Tel: 971 4 269 2004 E-Mail: mediac@emirates.net.ae
	May	9-13	Florence, Italy	Aqua 2006	Websites: www.was.org or www.easonline.org
	July	20-23	Roanoke, WV, USA	6th International Conference on Recirculating Aquaculture	Tel: (540) 231-6805 E-Mail: aqua@vt.edu

## Standards and Reporting Committee

### Reporting Standards for Biofilter Performance Studies

John Colt (Chair), Jonathan Lamoureux, Richard Patterson, and Gary Rogers

A draft of this standard has been submitted for publication as part of the special issue on Biofilter Design that will be published this year in *Aquacultural Engineering*. The objective of this subcommittee is the development of standardized rating and design procedures for biological filters. It is important that critical parameters are defined and reported in a standard manner, both in terms of definition, variable names, and units. Depending on the type and scale of an experiment, reporting of certain parameters will be either mandatory or optional. Basic principles of experimental design, statistical analysis, and randomization must be followed. Experimental protocols are recommended to ensure the accuracy of measured or computed parameters.

For more information, contact John Colt at [john.colt@noaa.gov](mailto:john.colt@noaa.gov).

### Reporting Standards For Aquaculture Studies

Roger Viadero (Chair)

In January 2005, AES established a committee to develop standards for use in reporting the findings from aquacultural studies. The focus of this effort is to establish guidelines that allow for the standard reporting and comparison of data in the literature. The committee is currently developing a set of criteria for each major aquaculture production format (recirculation, flow through, net pen, and pond). Examples of criteria include: general farm characteristics, water supply, feed and inputs, culture system performance, treatment system performance, and fish growth and productivity information. A priority for the reporting of individual criteria will then be assigned for each production format.

The subcommittee hopes to have a draft of the standards to submit for review and comment by AES members at the World Aquaculture Meeting in February 2006. Once the standards are approved by AES, other stakehold-

ers will be engaged as part of a wider review process. These standards may ultimately be incorporated into the "Guide to Authors" for fisheries and aquaculture journals and will serve as common reference for reporting and comparison of aquaculture systems.

Please contact Roger Viadero at [RCViadero@mail.wvu.edu](mailto:RCViadero@mail.wvu.edu) if you are interested in becoming involved in this effort.



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Parameter	Definition	Units
Annual Production	$Biomass_{end} - Biomass_{start}$	kg/y
Influent pumping energy	Measured, average annual	MJ
Service energy (monitoring, feeding, harvesting)	Measured, average annual	MJ
Treatment Energy	Measured, average annual	MJ
cvTotal energy (average yearly)	Computed from above parameters	MJ
Water Efficiency	$Annual\ production / 365 Q_{average}$	kg/L
Energy Efficiency	$Annual\ production / Energy$	kg/MJ
Space Efficiency	$Annual\ production / area$	kg/ha
Ammonia Removal Performance	$(N_{discharged}) / N_{in\ feed}$	%
Phosphorous Removal Performance	$(P_{discharged}) / P_{in\ feed}$	%
Nitrogen Transfer Efficiency	$(N_{animal}) / N_{in\ feed}$	%
Carbon Transfer Efficiency	$(C_{animal}) / C_{in\ feed}$	%
Energy Transfer Efficiency	$(Energy_{out} - Energy_{in}) / Energy_{in}$	%

newer photosynthetic-driven systems, this may not be the case and the noted performance parameters may need to be modified.

In comparison of different types of production systems, it is critical that the performance criteria and system boundaries are clearly defined. The prioritization of the performance criteria parameters is not as clear. For example, how would one compare a system that has low energy efficiency

and high carbon transfer with a system that has low water efficiency and high pollutional impacts? Which parameters are more important?

Roger Viadero (rcviadero@mail.wvu.edu) is heading up a subcommittee to development reporting standards for the comparison of different production systems. If you are interested in assisting with this work, please contact Roger directly.

## Announcements

### AES JOURNAL

Elsevier would like to announce to the members of the Aquacultural Engineering Society and readers of our journal Aquacultural Engineering a change in journal format. The format of the journal will be changed to a larger and more standard format starting with 2006. The number of issues will be reduced to from 8 to 6 issues per year but total number of manuscripts published will remain the same

### POSTDOCTORAL FELLOWSHIPS

Postdoctoral fellowships in aquaculture, marine biology/biological oceanography, marine mammal research, natural products chemistry, and ocean technology are available at Harbor

Branch Oceanographic Institution, Fort Pierce, Florida. Fellowships run from January 1, 2006 through July 31, 2007.

Applicants must have received their doctorate degree within the past 5 years. For more information and an application packet, visit <http://www.hboi.edu/marineed/pro.html> or contact Ms. Cathy Rossmell (postdoc@hboi.edu). Deadline for submission is October 8, 2005.



## AES / EAS SPONSORED WORKSHOP IN TRONDHEIM A SUCCESS

The Aquacultural Engineering Society (AES), together with the European Aquaculture Society (EAS), sponsored a workshop of recirculating aquaculture technology at the annual meeting of the EAS on August 9 and 10 in Trondheim, Norway. The two-day short course, held at the Norwegian University of Technology and Science, was presented by AES members Tom Losordo from North Carolina State University and Ep Eding from Wageningen University. This workshop was made possible with local sponsorships from AquaOptima, Norway and Oppdretts Teknologi.

The 70 participants from 25 countries received a 130 page workbook containing a copy of all of the PowerPoint slides presented and a few selected technical publications. Included with the workbook was also a compact disc containing eight excel spreadsheet mass balance models, four dynamic simulation models implemented in STELLA software, and five fact sheets published in Adobe Acrobat format ("pdf") by the USDA Southern Regional Aquaculture Center. Subjects covered in the workshop included the engineering aspects of water treatment and reuse, waste treatment and disposal, construction of recirculating systems, and operational considerations. The workbook and CD are only available to workshop participants.

Feedback from participants was overwhelmingly positive and plans are in being made to present the workshop at Aqua2006 in Florence Italy in May 2006. For more information on the upcoming workshop or any other AES or EAS sponsored event, go to either the AES or EAS webpage at: [www.aesweb.org](http://www.aesweb.org) and [www.easonline.org](http://www.easonline.org).

## Review of Qualifications for Board of Directors

Mike Timmons

When the AES was founded in 1995, we incorporated in NY State. Through our corporate attorney, Mr. Ed Crossmore of Crossmore Law, we filed our Articles of Corporation. The NY State Board of Education originally rejected the use of Engineering in our name as engineering is a registered profession that requires licensing to

practice. After Mr. Crossmore had several verbal conversations with the NY State Department, the IRS, and the Department of Education, he assured these entities that the organization was an organization whose leadership were engineers and the major purpose of the society was as a service and educational group. The only official paperwork filed on record is the AES Articles of Organization, which does NOT mention any restrictions on membership to the Board. Thus, the AES can have some flexibility in how we restrict or qualify members of our Board.

I think we should retain some qualification related to being an engineer and serving on the board and/or as an officer. My suggestion is that an

officer (which has the automatic progression) shall have either a professional license or have graduated with at least one degree from an engineering accredited institution. This would open the board membership to non-engineers (more inclusive) but retain some of the original restrictions. I think this will retain the spirit of how the AES was formed maintaining our solid legal status as an engineering organization, but also allow more flexibility and inclusivity in recruiting future board members.

The comments and recommendations of the membership on this issue are needed. Please e-mail Mike Timmons (mbt3@cornell.edu) or John Colt (john.colts@noaa.gov).

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*Micro IMF shown with Hydrotech Model 501 1P Filter Systems*

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Fax: (225) 755 0995

Email : [greg.beckman@w-m-t.com](mailto:greg.beckman@w-m-t.com)

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