COURSE DESCRIPTION:
A three day course that provides in-depth training on design, operation, and management of Recirculating Aquaculture Systems (RAS) for culturing fish species and practical training in the design and development of sustainable Aquaponic systems - which is a combination of aquaculture (fish) and hydroponics (plants). Topics cover design criteria and system construction, water reconditioning and management of water quality, solids removal, disinfection, biofiltration, hydraulics, pump selection and aeration. Provides practical engineering based design criteria for successful commercial Aquaculture and Aquaponic systems. At the conclusion of the workshop, individuals will have the essential information necessary to design, construct and manage their own RAS systems and have a fundamental knowledge of the principles influencing the numerous design options.

In addition, a tour of an Aquaponics Facility (educational venue) in Livonia, MI that is in full operation will be for further educational value.

LOCATION: Cabela’s in Dundee, Michigan
110 Cabela’s Boulevard East, Dundee, MI 48131
Phone: (734) 529-4700

To register, please contact Michele Wallace
michele@aquagrowers.com 248-756-8584

INSTRUCTORS:
Cornell University, Ithaca, NY
Dr. Michael B. Timmons: Aquaculture/Business Management
Aquaculture Systems Technologies, New Orleans, LA
Dr. James M. Ebeling: Aquaculture/Aquaponics

REGISTRATION:
Limited Enrollment Tuition $700 plus lodging
Early Bird Registration $600 if by September 30th, 2013
Register by October 20, 2013
Course: All registrants will receive the book “Recirculating Aquaculture (RAS)” by Timmons and Ebeling, a course packet, a 40 hour educational video set, and a USB Thumb Drive with all presentation materials and videos as a bonus.

FOR MORE INFORMATION http://www.bee.cornell.edu/aqua
Dr. Michael B. Timmons: mbt3@cornell.edu 607-255-1630
Michele Wallace: michele@aquagrowers.com 248-756-8584

ACCOMMODATIONS:
HOLIDAY INN - 100 WHITETAIL DR. DUNDEE, MI 48131
Tel: 734-529-5100  Full Service Hotel and Restaurant
$89.00 for single or double per night (discount voucher for meals)
Mention Group Code: AQUA GROWERS

Country Inn Suites – 665 Tecumseh, Dundee, MI 48131
734-529-8822  $90 for single or double per night
Free Continental Breakfast! GROUP CODE: AQUA GROWERS
Engineering Design of Recirculating Aquaculture Systems (RAS)
Featuring Dr. Michael Timmons and Dr. James Ebeling

SEMINAR REGISTRATION
Oct 31- Nov 2, 2013 — Space is limited—Please register early
To take advantage of the early bird discounts!!!
***PLEASE FAX REGISTRATION FORM TO 734-207-2092***

ATTENDEE INFORMATION  Please Print
Name: __________________________________________________________________________________________
Name (2): ____________________________________________Name (3):______________________________________
Company: ____________________________________________ City:__________________________________________
Address: ______________________________________________ State/Province:_______________________________
Main Email: __________________________________________________________________________________________
Phone No's: __________________________ __________________________ __________________________
Work Home Mobile (Circle one) Work Home Mobile (Circle one) Work Home Mobile (Circle one)

REGISTRATION FEE(S)
Early Registration: $600
Late fee after October 20th, 2013 $ 700
# of Attendees _______________
2 or more Attendees from the same company $600
TOTAL DUE _______________

Payment
☐ Check Payable to Aqua Growers, LLC
☐ MasterCard ☐ Visa ☐ Discover ☐ Amer Express
Cardholders Name___________________________________________
Card Number:_______________________________________________
Expiration Date:____________________________________________
Security Code:______________________________________________

CANCELLATION POLICY
Should you find it necessary to cancel your seat 30 or more days before the Seminar registration fees will be
refunded in full: Cancellations 5-29 days prior to the seminar will result in a 50% refund. Cancellations made
less than 5 days before a seminar or non-attendance without cancellation will not be refunded. Aqua
Growers, LLC reserves the right to cancel a seminar without liability to registrants except for full refund of
tendered payment. Thank You.

Signature ____________________________ Date ____________________________

PLEASE FAX ALL REGISTRATION FORMS TO: 734-207-2092
Or Mail to: Aqua Growers, LLC – Michele Wallace
12089 Merriman Road
Livonia, MI 48150

For further Information regarding registration, please call Michele Wallace 248-756-8584
## Schedule of Course Events

<table>
<thead>
<tr>
<th></th>
<th>Thursday October 31&lt;sup&gt;th&lt;/sup&gt;</th>
<th>Friday November 1&lt;sup&gt;st&lt;/sup&gt;</th>
<th>Saturday November 2&lt;sup&gt;nd&lt;/sup&gt;</th>
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<tbody>
<tr>
<td><strong>AM</strong></td>
<td>Day 1</td>
<td>Day 2</td>
<td>Day 3</td>
</tr>
<tr>
<td>Classes start promptly at 8:30AM on Day 2 &amp; 3</td>
<td>Registration at 9:00 am (Class starts sharp at 10:00 am)</td>
<td>Questions/Review</td>
<td>Questions/Review</td>
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<tr>
<td></td>
<td>Introductions</td>
<td>Water Quality</td>
<td>Fish Health Management &amp; Biosecurity</td>
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<td></td>
<td>Review of Handouts &amp; Text</td>
<td>Culture Tank Design</td>
<td>System Monitoring &amp; Control</td>
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<td></td>
<td></td>
<td>Experiences from the Tank (Aqua Growers, LLC)</td>
<td>Intro to Design Spreadsheets</td>
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<tr>
<td>Noon</td>
<td>LUNCH (ends at 1:00 pm)</td>
<td>LUNCH (Dutch treat)</td>
<td>LUNCH (Dutch treat)</td>
</tr>
<tr>
<td><strong>PM</strong></td>
<td>Engineering Design – Mass Balance, Loading and Growth</td>
<td>Solids Capture Design Example</td>
<td>Growout System Design – Boutique Aquaponics Systems</td>
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<tr>
<td></td>
<td>Omega Fish Design</td>
<td>Waste Management and Effluent Utilization</td>
<td>Questions/Discussion – Wrap up</td>
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<tr>
<td></td>
<td>Questions/Discussion – Adjourn</td>
<td>Biofiltration/MBBR Design</td>
<td>ADJOURN On the road 4:00 pm</td>
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<tr>
<td></td>
<td>Field Trip to Aquaponics Facility in Livonia, MI</td>
<td>Aeration/Oxygenation</td>
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<tr>
<td></td>
<td></td>
<td>Questions/Discussion - Adjourn</td>
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<tr>
<td>Evening</td>
<td>7:00 pm Dinner in Livonia</td>
<td>Dinner to be arranged Dutch Treat</td>
<td>Emails:</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>Wallace (<a href="mailto:michele@aquagrowers.com">michele@aquagrowers.com</a>)</td>
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<td>Timmons (<a href="mailto:mbt3@cornell.edu">mbt3@cornell.edu</a>)</td>
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<td>Ebeling (<a href="mailto:JamesEbeling@aol.com">JamesEbeling@aol.com</a>)</td>
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To register for the RAS Seminar go to [www.aquagrowers.com](http://www.aquagrowers.com) (Online Store) or contact Michele Wallace ([michele@aquagrowers.com](mailto:michele@aquagrowers.com)) or 248-756-8584