High Density Rotifer System

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Objectives of a Continuous High Density Rotifer System

• Cut costs associated with traditional systems through increased yields and decreased labor
• Reliably produce high quality, nutritious rotifers
• Improve larval fish nutrition by maintaining a continuous supply of rotifers
What Are the Design Criteria for a Rotifer Bioreactor?

• Cost effectiveness
  1. Labor resources
  2. Floor space
  3. Feed utilization
  4. Water usage

• Reliability
  1. Low crash incidence
  2. Rapid rebound

• Easy to use and maintain
• High yield
What is the Quality of Rotifers Grown in This System?

- Rotifers are active and hardy
- Little or no ciliates
- Fully enriched rotifers
- The total egg count averages about 55-65%
Components of the AES Rotifer System

- Culture tank
- Filter tank
- System pump
- Protein skimmer
- Aeration System
- Feed and ClorAm-X delivery system
System Overhead View
Rotifer Tank
In-tank Filter Mats
What Are the Savings With This Type of Rotifer System?

• Dramatically reduce labor costs
• Reduce potential risk of human error
• Reduce floor space and building costs
• Reduce water treatment costs
• The system is less capital intensive than traditional methods
What Is the Typical Yield of the AES Rotifer System?

- 1 billion L-Type rotifers per liter **Instant Algae** *(Nannochloropsis sp)*
- 1.13 billion rotifers harvested per day, every day from 450 L system
  A. Count = 5000 per ml
  B. Harvest rates = 50% per day
- Maintenance takes only 30-45 minutes per day
- The system has never failed except for human error
Mote Marine Rotifer Production Trials 2006-2007

- Rotifer strain - *Brachionus sp.*
- High density unit # 1
- Feed - Instant Algae Paste: Nannochloropsis
  - 500mls/day pulse fed over 16 hrs
- Temperature: 28°C
- Salinity: 30 ppt
- pH: 8.0
- Dissolved oxygen: 6.12 mg/L
- 25 % harvest/day
- **Average density: 1,428 rot/ mL**

- Rotifer strain - *Brachionus sp.*
- High density unit # 2
- Feed - Instant Algae Paste: Nannochloropsis
  - 1000 mls/day pulse fed over 18 hrs
- Temperature: 28°C
- Salinity: 30 ppt
- pH: 8.0
- Dissolved oxygen: 7.19 mg/L
- 25 % harvest/day
- **Average density: 3,142 rot/ mL**
Thank you!