



Fish Health for Producers

Certificate Program

<http://vetmedce.vetmed.wisc.edu/fhm>

Fish Health Certificate Program For Producers

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Producers View of Fish Health

- ❖ What are the current rules & regulations?
- ❖ How much will this cost?
- ❖ What's wrong with a few dead fish?
 - ❖ Uh-Oh!
- ❖ Where did the disease come from?
 - ❖ Birds, visitors, fish transfers, etc.
- ❖ I know more about these fish than a veterinarian who stops by once in a while...



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Educate, Inform, Alleviate

- ❖ Asynchronous, web-based learning
 - ❖ Self-paced
 - ❖ Accessible
- ❖ Knowledge = reduces anxiety + improves outcome
- ❖ Whole farm disease management
 - ❖ Biosecurity & BMP's
- ❖ Partnership = Producer & veterinarian



Module Program

1. General introduction to aquaculture
2. Risk management & biosecurity
3. Water quality overview
4. How to prepare for a fish health inspection
5. How a producer can understand a fish health assessment
6. Case studies



Module 1

- ❖ Introduction
 - ❖ Value of aquaculture products in the U.S.
 - ❖ Types of fish produced
 - ❖ Methods of production
 - ❖ Why do we have regulations?
 - ❖ Prevention



Most Common Methods of Production in North Central U.S.



System type	Farms	Number in NCR
Ponds	343	5,303
Flow through raceways	83	713
Recirculating systems	76	1,123

Source: 2005 Census of Agriculture
<http://www.agcensus.usda.gov>
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Module 2

- ❖ Risk management & biosecurity
 - ❖ Risk management tools
 - ❖ Loss & Risk
 - ❖ Definitions
 - Infection, disease, pathogen, contagious
 - ❖ Where do diseases come from?
 - ❖ Best management practices
 - ❖ Continuing education



Best Management Practices

1. Provide the best water quality
2. Invest in good facility design and construction
3. Introduce new fish carefully
4. Monitor fish regularly
5. Minimize stress in fish
6. Maintain best feeding practices
7. Keep accurate records
8. Maintain equipment
9. Use a careful approach to treatment
10. Develop a health plan
11. Follow state regulations
12. Minimize contact with predators
13. Provide guidelines for employees and visitors
14. Keep learning!

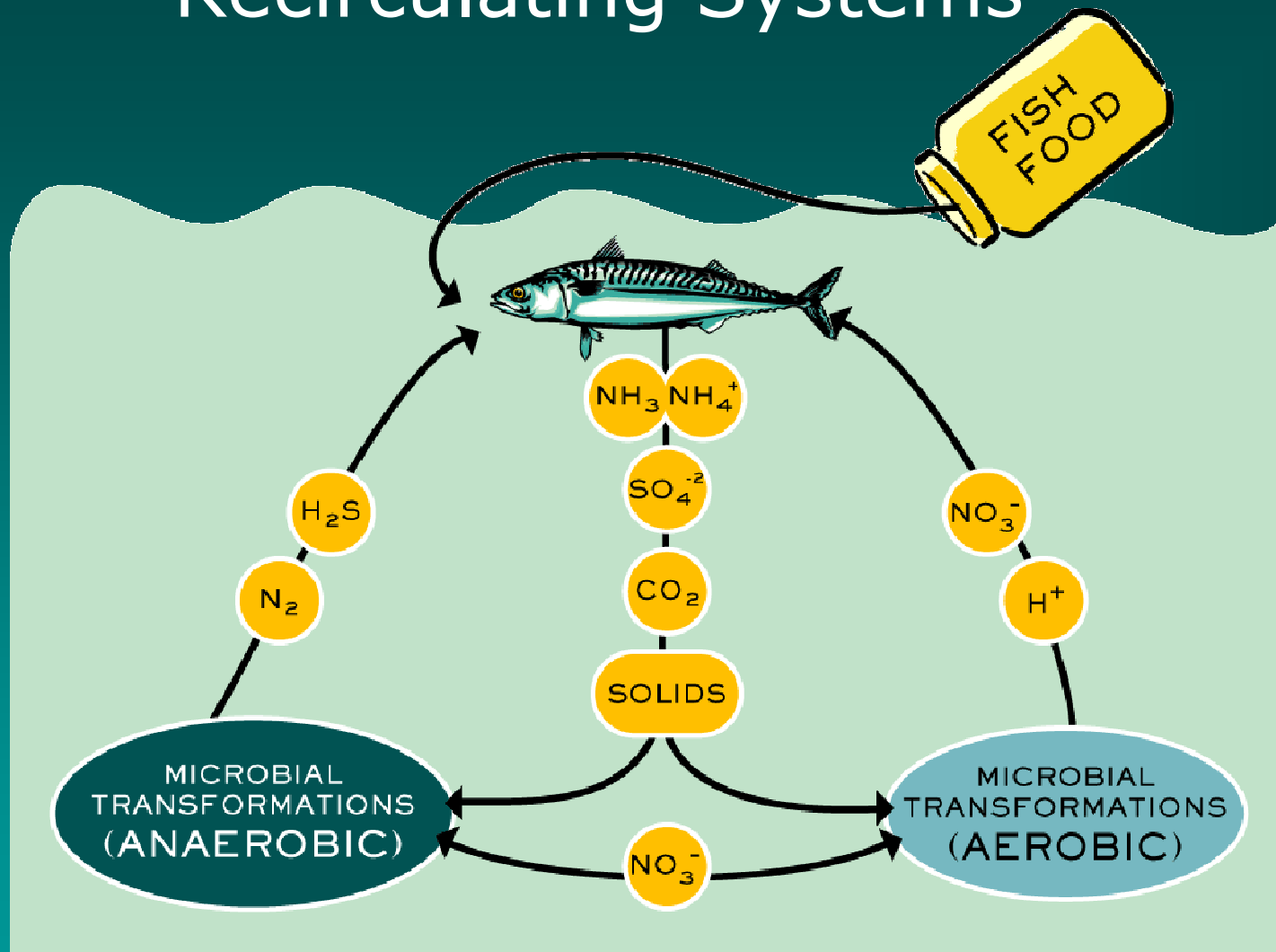


Module 3

- ❖ Water quality
 - ❖ Study fish to learn about water
 - ❖ Sources
 - ❖ Temperature
 - ❖ Types of systems
 - ❖ Overview of water quality parameters
 - Oxygen, pH, ammonia, nitrite & nitrate, solids, CO₂, phosphorus
 - ❖ Aeration
 - ❖ Interactions



Recirculating Systems



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Module 4

- ❖ Preparing for fish health inspections
 - ❖ Fish health certificate
 - ❖ Inspection report
 - ❖ Sampling procedure
 - ❖ What happens at the lab
 - Diseases tested
 - How are they tested?



Quality Samples = Quality Results

1. Sterile equipment
2. Prompt collection of samples after death of the fish
3. Immediate refrigeration of samples
4. Rapid transport to the laboratory



Module 5

- ❖ Understanding fish health assessments
 - ❖ Origin of veterinary health assessments
 - ❖ Fish health assessment vs fish health inspection
 - ❖ Step-by-step walk-through of the process
 - ❖ Overview of treatments & medications



Gills

Pale

Dark red at the margins



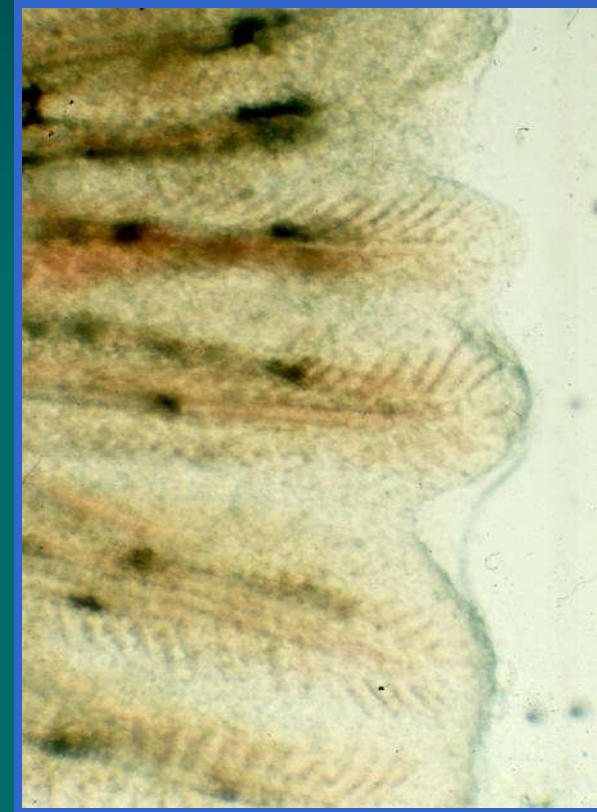
Module 6

- ❖ Case studies
 - ❖ Water quality problems: Catfish & oxygen
 - ❖ Feeding: Trout & malnourishment
 - ❖ Environmental disease
 - Trout & suspended solids
 - Yellow perch & new tank syndrome
 - ❖ Parasites: Goldfish & ectoparasites
 - ❖ Fungal: Trout & solids
 - ❖ Koi herpes virus
 - ❖ Largemouth bass virus
 - ❖ Infectious salmon anemia
 - ❖ Spring viremia of carp virus
 - ❖ Viral hemorrhagic septicemia



Case #2

Bacterial Gill Disease



Gross and microscopic view of trout gills



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Outcomes

- ❖ First line of defense
 - ❖ Awareness
 - ❖ Continuing education: Disease prevention
- ❖ Prepared, assist in identifying, manage
 - ❖ Biosecurity plan
 - ❖ Farm risk management
- ❖ Rapid response: disease control
- ❖ Team effort:
 - ❖ Prepared to cooperate & assist the veterinarian
 - ❖ Be part of the solution

Funded by the North Central Regional Aquaculture Center &
the USDA-National Institute of Food & Agriculture



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Aquaponics Education

- Aquaponics workshops at Nelson & Pade, Inc.
 - 3-day aquaponics & controlled environment agriculture
 - Aquaponics for educators
 - 1-college credit or 1 continuing education unit with UW-Stevens Point
 - Aquaponics.com for dates





Aquaponics Education

- Introduction to Aquaponics
 - 3-credit undergraduate/graduate course
 - Hybrid: online lectures, hands-on labs
- Online lectures began March 1, 2012
- 26 students
- Hands-on labs at Nelson & Pade, Inc. greenhouses May 21-23

