

Fish Health Management

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Fish Diseases

- Most common is Red Sore Disease in late winter or Spring
- Also, bacterial diseases after partial Oxygen Depletion
 - Stress brings on the diseases when the immune system slows down

Red Sore Disease



Red Sore on Frozen Fish



Controlling Red Sore in Recreational Ponds

- Fish regularly to keep the fish from over crowding.
- Install and use an aerator.
- Keep pond water level at the full point.
 - Fix seepage
 - Add water, if a well is available.
- Apply oxidizer only if pond volume is small and you are able to **handle the chemical safely.**

Handling Samples

- Get Live Fish if possible
- Images are okay
- To ship
 - Live fish is best
 - Or, wrap in paper two and ship UNFROZEN with **cool pack**. NOT FREEZER PACK or ICE
 - Frozen fish for pesticide testing only

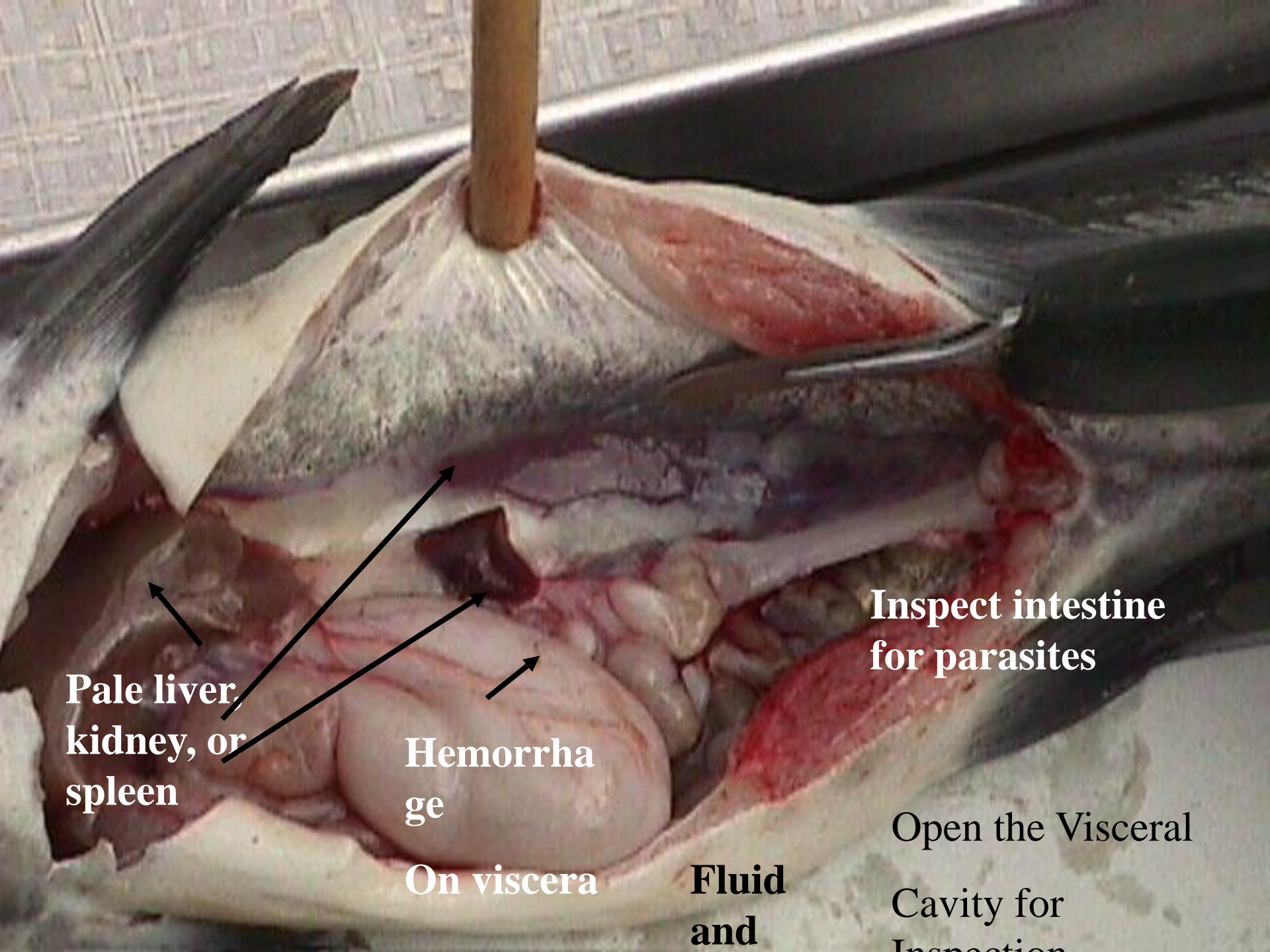
Making Images

- 1. Gross signs of outside of fish
- 2. A look at the gills
- 3. A look at the intestines
- 4. Any bloody areas
- 5. Wet mount under the microscope
 - Usually a gill clip in a drop of water



Remove Operculum and
Expose

The Gills



**Pale liver,
kidney, or
spleen**

Hemorrhage

On viscera

**Fluid
and**

**Inspect intestine
for parasites**

**Open the Visceral
Cavity for
Inspection**

How to make good water quality
work for you – start with the fish.

Management tips to better yields and
higher quality fish.

Selecting Broodstock

- Use disease resistant strains or strains resistant to low oxygen
- Stock at reasonable densities and move fish as they grow larger than market size
- Use fast growing and aggressive strains
- Sort your brooders each year for good traits
- Keep brooders well-fed and in good water quality

USDA 103 strain of channel catfish

Grows 10 to 20% faster so shorter grow-out and less risk
Selected for resistance to ESC disease, also



What is the history of your fish?



Parental History
Hatchery Records
Client Endorsements

What are you taking for granted?

Stocking Fry

- Choose an ending size and stock accordingly
- Never stock more than 200,000 per acre-
150,000 or less is better
- Consider vaccination
 - THIS IS IMPORTANT!
- Stock when pond is properly prepared

Selecting Fingerlings

- Plan ahead to buy when fingerlings are in good condition.
- **Buy the largest fingerling you can afford** and at least a 4 inch size.
- Know the health history of the fingerlings you use, **visit the hatchery.**
- **Inspect all fingerling deliveries** for health and size.

Stocking Catfish for Fast Growth

- Plan to harvest catfish within 5-6 months after stocking.
- Densities of 5,000 to 7,500 catfish per acre are most successful.
- Restock fingerlings only after most of the older catfish have been harvested.
- Stock in Feb-April or Sept-Nov if possible.

Harvest at 1.5 pounds or larger



Larger fish means holding for a longer time, increasing risk, and using resources.

Feed Catfish Carefully

- Use the best feed you can afford.
- Know the performance history of your feed from the experience of others.
- Feed as much as the fish will eat except in water above 85 F or below 70F.
- Consider that fish with full stomachs may not handle stress well.

Raising Small Catfish

- Less than $\frac{3}{4}$ pound – high demand in GA
- Cost is in fingerlings – 1.5 to 2 fingerlings to make a pound of production
- Stock at 15,000 per acre or more
- Harvest frequently, once each month
- ***Control your own fingerling supply*** – must have a steady supply of seedstock
- Demand a high market price by providing quality and service.

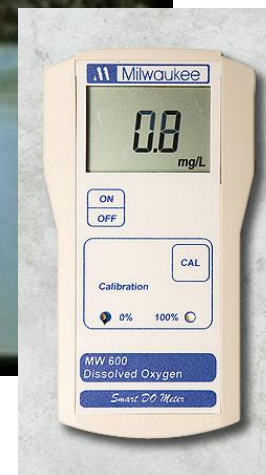
Use Experienced Workers for Feeding Duties



Reduce the Stress on Your Catfish

- Keep **dissolved oxygen** levels at 4.0 ppm or higher.
- Maintain a **chloride** level of at least 50 ppm by adding salt.
- Maintain at least 50 ppm **alkalinity** by liming.

Chemistry is part of Aquaculture

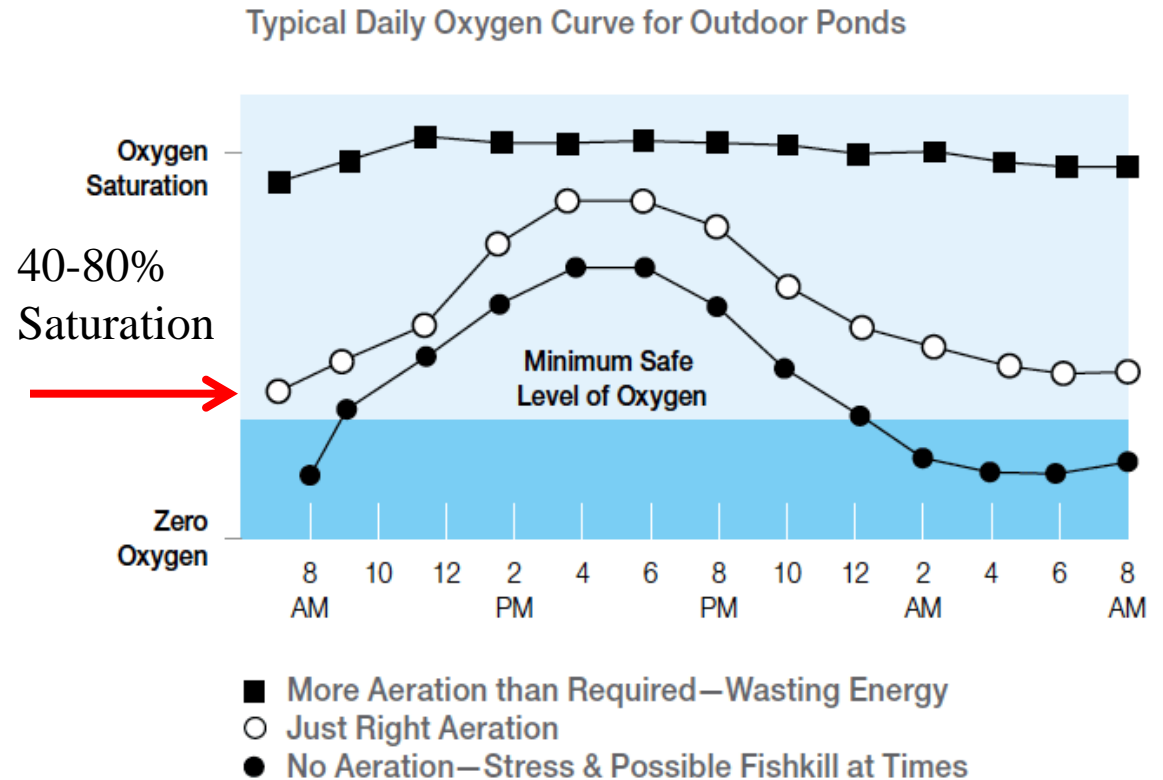


Oxygen
ORP
Ammonia
Carbon
Dioxide

Use Adequate Aeration – 1 to 4 HP/A



Monitors and Efficient Aeration



Other Chemical Treatments

- Copper - algae control and reduces parasite populations
- Diquat – aquatic weed control
- Potassium permanganate – bacteria and organic matter reduction
- Formalin – parasite control

Copper Treatments

- Use copper liquids for more safety in soft water
- Copper accumulates over time
- Vary copper use with other algicides to reduce acquired resistance
- 0.1 to 1.0 ppm depending on target

Alternative Algal Treatments

- Peroxide – GreenClean, PAK 27,
Phycomycin at 8 to 25 pounds/Acre-ft
- Diquat at 0.4 to 0.7 ppm
- Hydrothol-191 at 0.04 to 0.1 ppm

Potassium Permanganate

- On old treatment but not currently labeled for food fish
- Is the treatment as bad as the disease?
 - Toxicity at 4 ppm or higher
 - Variable permanganate demand
 - Do you know how it works?
 - NOT FDA approved



Other Water Oxidizers

- For between Fish Crops
 - Hydrated Lime
 - Calcium Hypochlorite
- For Hatchery Use
 - Peroxide – 35% Perox-Aid

Formalin

- This is FDA approved for parasite control.
- Use 15 to 25 ppm in ponds and tanks for warm water fish
- Kills phytoplankton
- Works better in clear water



Summary

- Fish farm management requires time and effort
 - ATTEND TO DETAILS, IT PAYS OFF
- Apply risk management to get higher yields by avoiding fish losses