



Interfacing fish culture and fish health

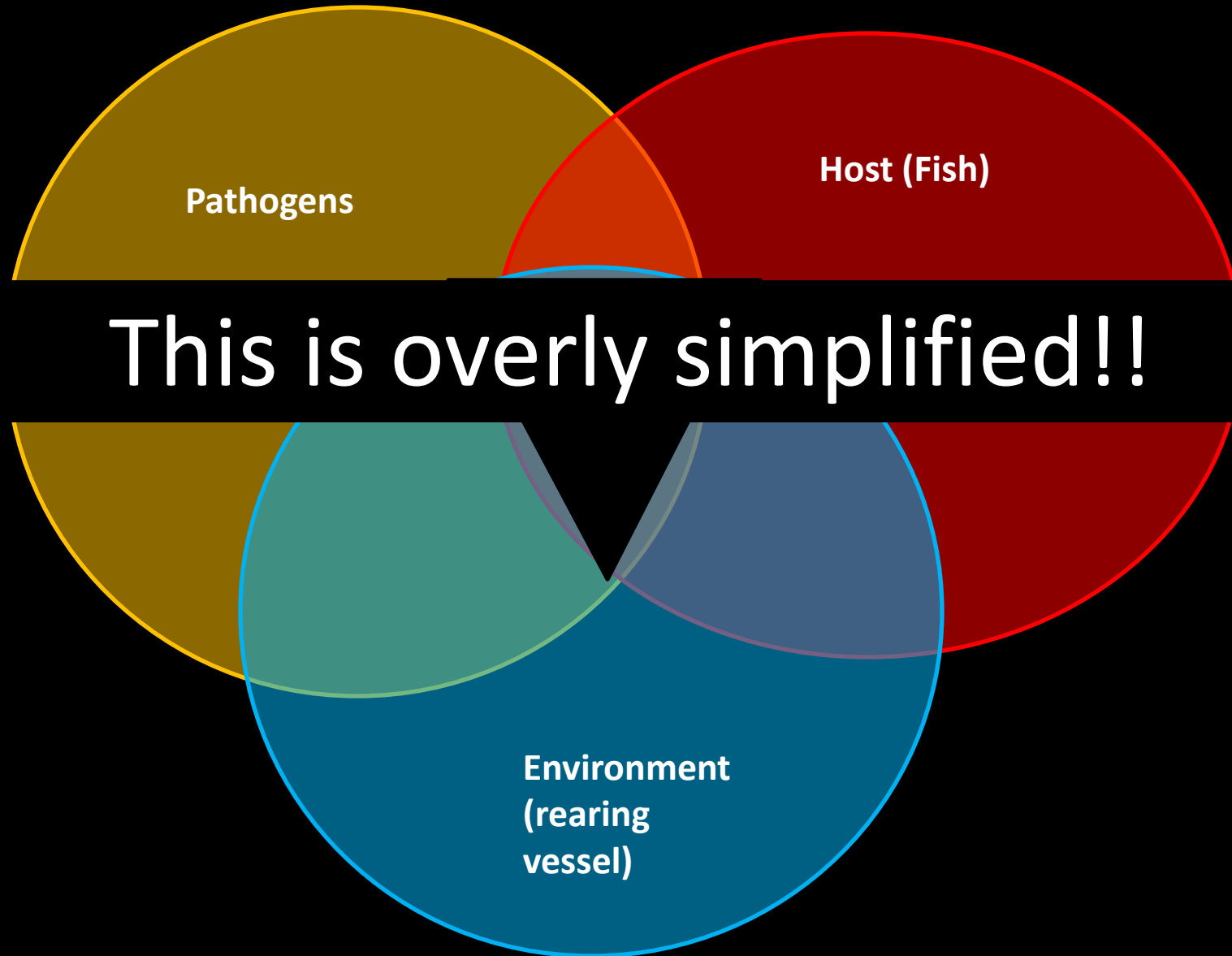


Bryan Quinton, MSc
Fish and Wildlife Health Specialist

Topics covered

1. Fish culture for healthy fish
2. Know your facility
 1. Institutional knowledge
3. Species differences
4. Pre-indicators to disease
5. Biosecurity
6. Scenarios

Components to fish health



Really more like this....

Fish meal/feeding



Predators



Diseases

Importance of husbandry in aquaculture

- **Most disease is related to husbandry**
 - **Density**
 - **Flow**
 - **Water temperature, quality**
 - **Oxygen (DO), other gases**
 - **Stress**
 - **Feed – over or under what fish need?**
 - **Species and stock**
 - **Age class**
 - **Etc . . .**

Courtesy of Australis Aquaculture
Csmonitor.com

Know your facility



Know your facility

1. Rearing vessels
2. Seasonal, predictable fish diseases????
3. Seasonal, predictable stressors
4. Develop guidelines for each species
 1. Rearing units
 2. Water quality
 3. Etc
5. What can be improved to minimize reliance on drugs??

Species differences . . . ???



1. Rearing conditions?
2. Feeding differences?
3. Susceptibility differences?
4. Etc . . .



Pre-indicators to disease??

- Eating well / general behavior
 - Where are the fish in the raceway?
- Past week's mortality
- Density, water temp, flow
- Any recent changes
- Feed type, size, %/day
- Other observations



Biosecurity – Things to consider

- Movement in facility
- Tools
- Staff



Overview of Good Aquaculture Practices

<http://pubs.ext.vt.edu/600/600-054/600-054.html>

Scenario #1 – Idiopathic concerns

Increase loss, overnight. Recently moved fish to new raceway.

- Split ponds yesterday
- Originating pond normal
- Thoughts??



Photo credit: Dr. Meg Baker

Scenario #2

Loss slowly increasing over 5 days, now at
~0.5%/day



Scenario #2 – Feeding issues

- Amount fed? $<1\%$ /day, 7 days week
- Density? \rightarrow High
- Flow per lbs? \rightarrow High

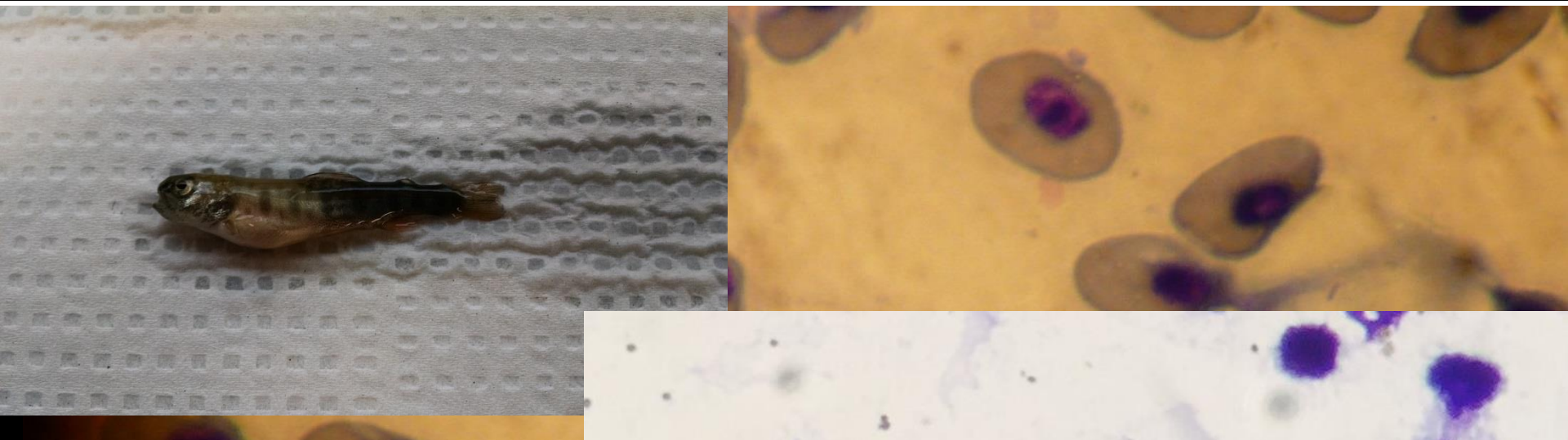
One week later loss up to 1% /day. . .



Photo credit: Dr. Meg Baker

Treatment options?

Scenario #3 – BCWD



- Clinical signs: dark tail, lethargy, swollen spleen
- Mortality often moderate (<1%/day), but chronic
- Is it really a primary pathogen??? Or indicator of other stressors??? → What other stressors??



Scenario #3 – BCWD

- Is BCWD preventable?
- Should we treat BCWD with antibiotics?
- Preventative steps to take . . . ???

Scenario #4 – External parasites

- Species differences?
- Stock differences??
- Facility differences?
- When should you treat or not?
- Etc. . .



Scenario #5 – Eyed egg loss

- Causes?
- What to look for?
- What to do about it??



Wrap-up and discussion



Questions?



Bryan.Quinton@dfw.wa.gov