

Fish Farmer Perspectives On Fish Health Management And Veterinary Involvement

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Improving fish health in the NCR by integrating outreach with the development of alternative disease prevention methods

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⁸ Crystal Lake Fisheries, Inc.

⁹ Superior Fresh, LLC.



Outreach Activities

Presentations

Workshops

On-Farm visits

Consultation
(telehealth)

Fact sheets

Guidance
documents

On-line training

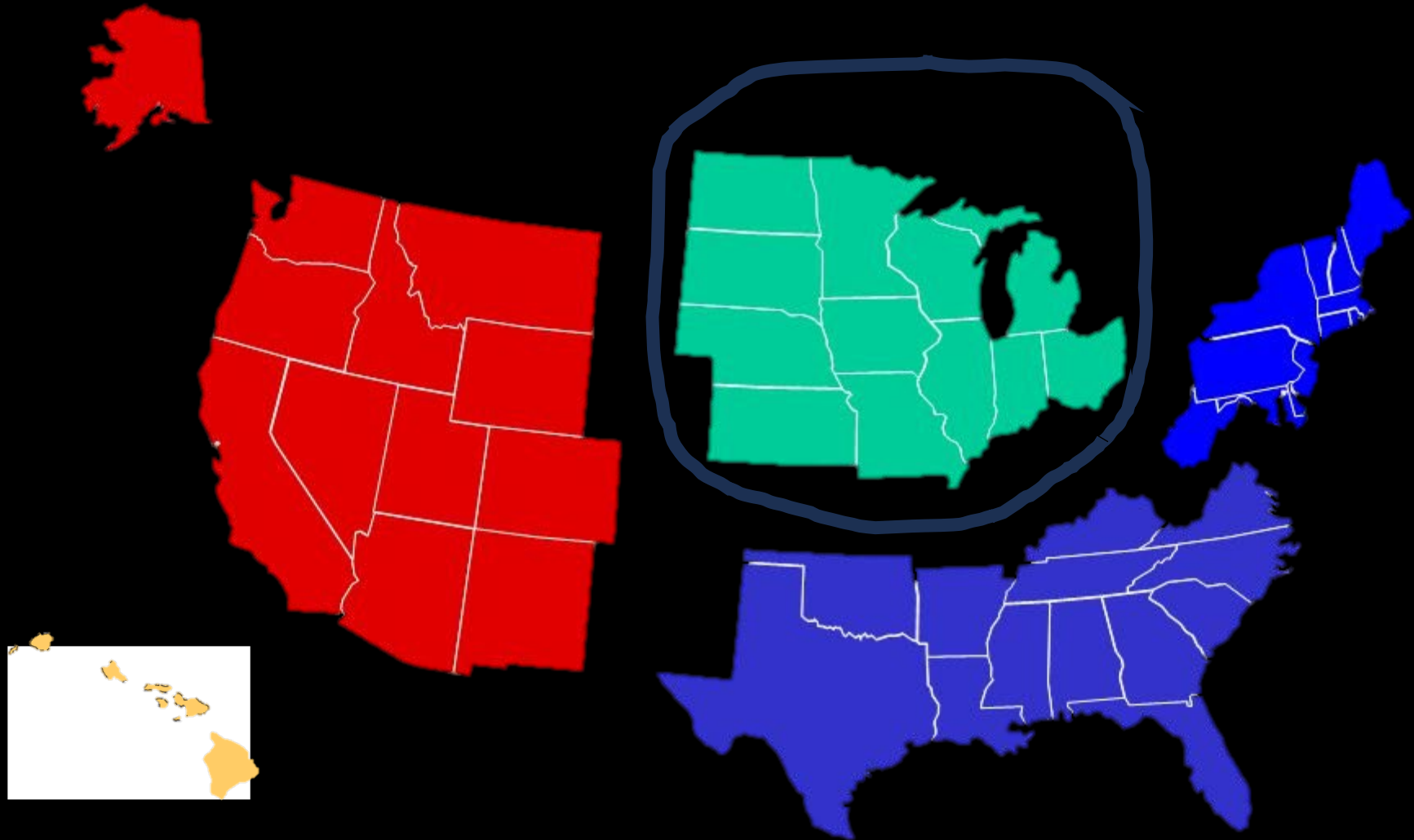
Focus groups –
NCR Fish Farm
Veterinary Group



Survey of Fish Health

- What are major fish health concerns?
- What sort of help would you like with fish health?
 - Disease prevention efforts?
 - Biosecurity plans, vaccination, disinfection?
 - How do you get a diagnosis?
 - Who do you call?
 - How do you treat?

USDA Regional Aquaculture Centers





Fish Farm Numbers

- NCRAC - 271 in the NCR (2022)
- [Introduction to Aquaculture in the North Central Region \(ncrac.org\)](http://ncrac.org)
- Identified and invited 71 fish farmers to participate
- 24 have participated
 - 6 yellow perch
 - 6 salmonids
 - 2 Baitfish
 - 6 Tilapia
 - 2 Coolwater
 - 2 Other

Veterinary Use

Fish Health
Inspections

Written Biosecurity
Plan

Vaccination

Disinfection Protocols

Veterinary Feed
Directive

Veterinary Use	45%
Fish Health Inspections	
Written Biosecurity Plan	
Vaccination	
Disinfection Protocols	
Veterinary Feed Directive	

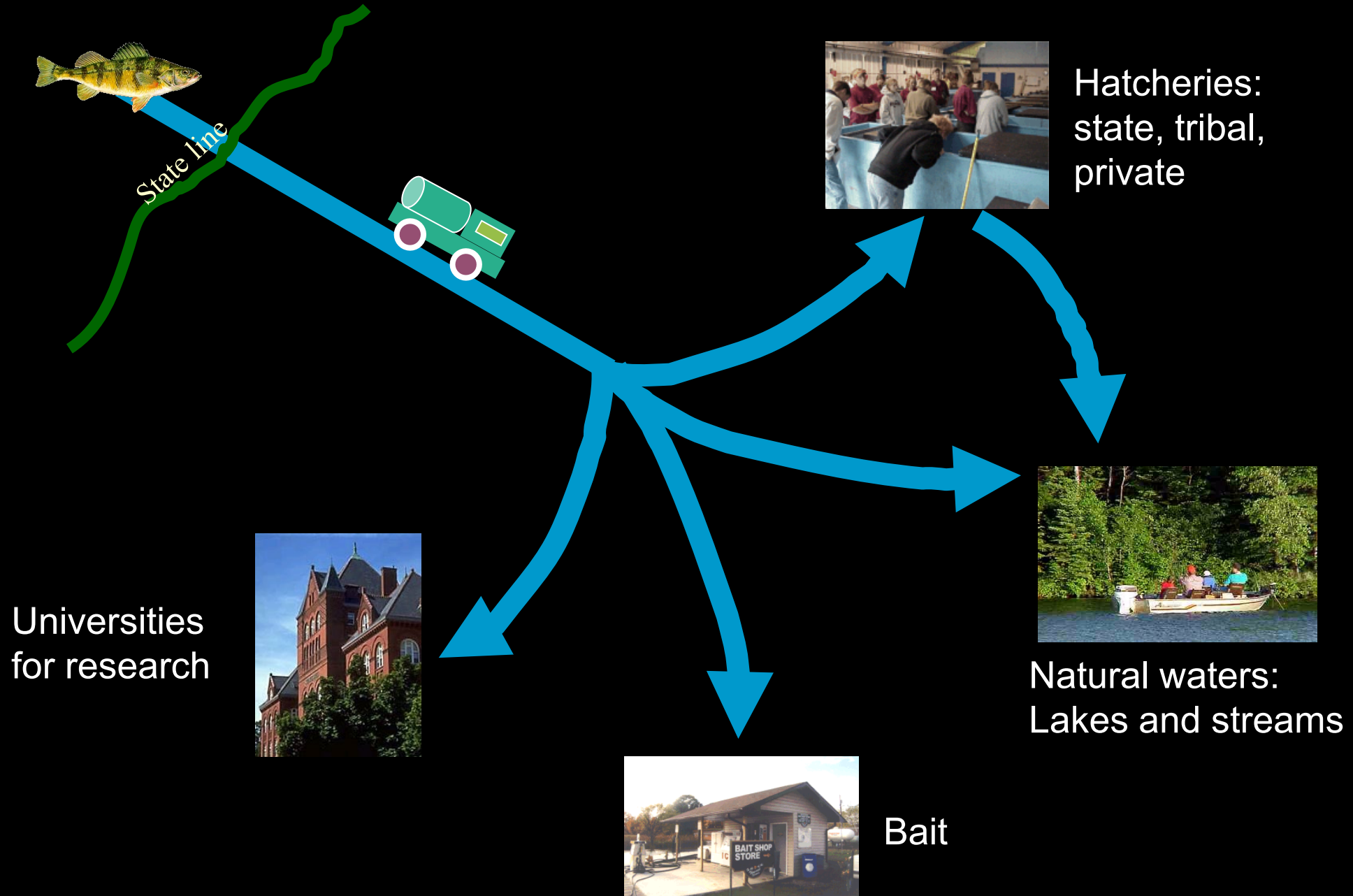
Aquaculture Veterinarians in the North Central Region (22)

- 14 are private practice (7 of the 12 NCR states)
- 3 are affiliated with national fish health companies
- 5 work for state agriculture or resource agencies



Veterinary Use	45%
Fish Health Inspections	65%
Written Biosecurity Plan	
Vaccination	
Disinfection Protocols	
Veterinary Feed Directive	

Fish health import regulations

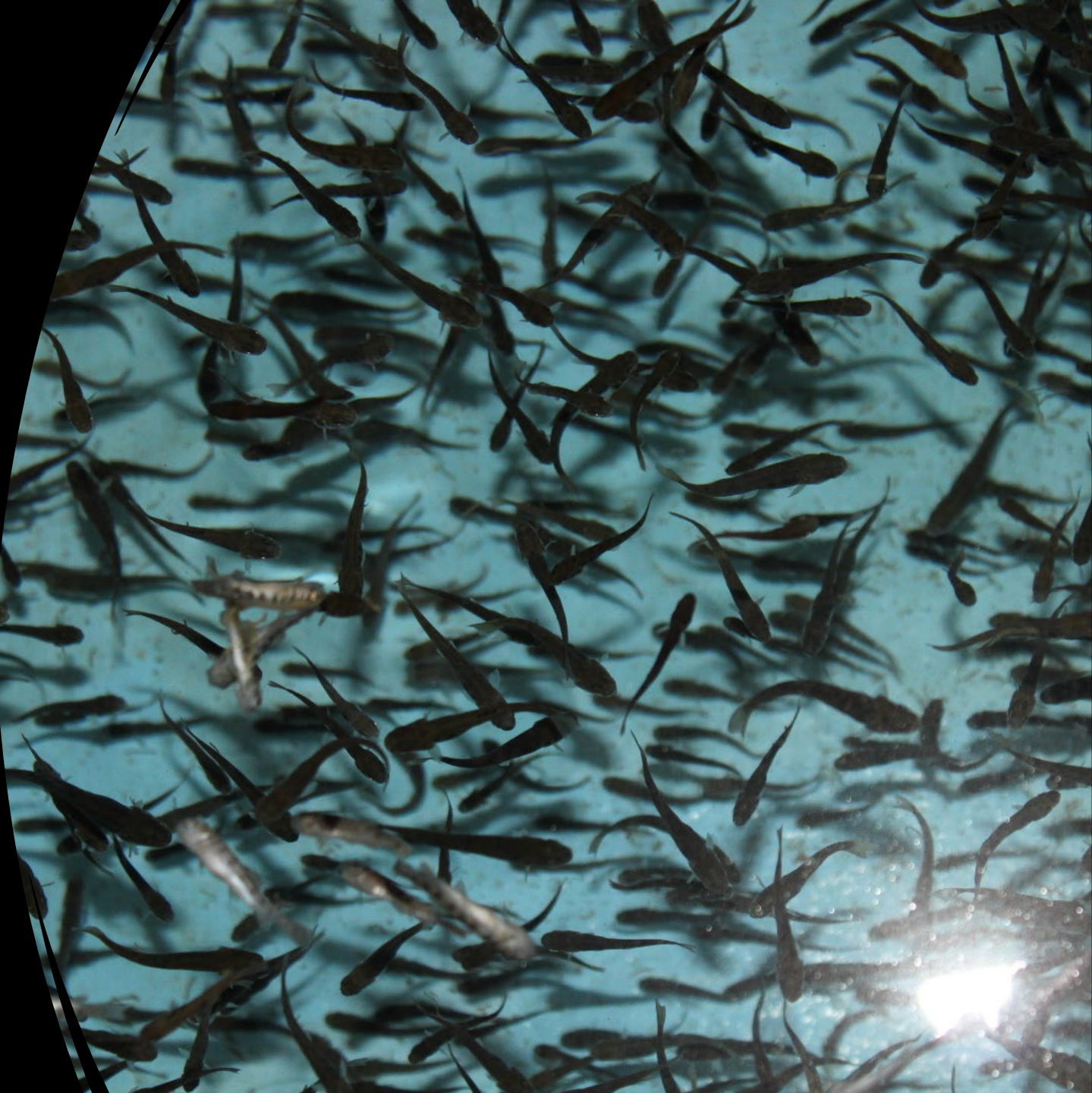


Veterinary Use	45%
Fish Health Inspections	65%
Written Biosecurity Plan	26%
Vaccination	
Disinfection Protocols	
Veterinary Feed Directive	



What is your Fish Disease Response Plan?

- Nothing
- Call a fish farmer friend
- Call the farm that sold you the fish
- Call your veterinarian
- or fish health professional
- Call Diagnostic Lab
- Call me
 - And I will facilitate connecting fish farmers with resources in your state

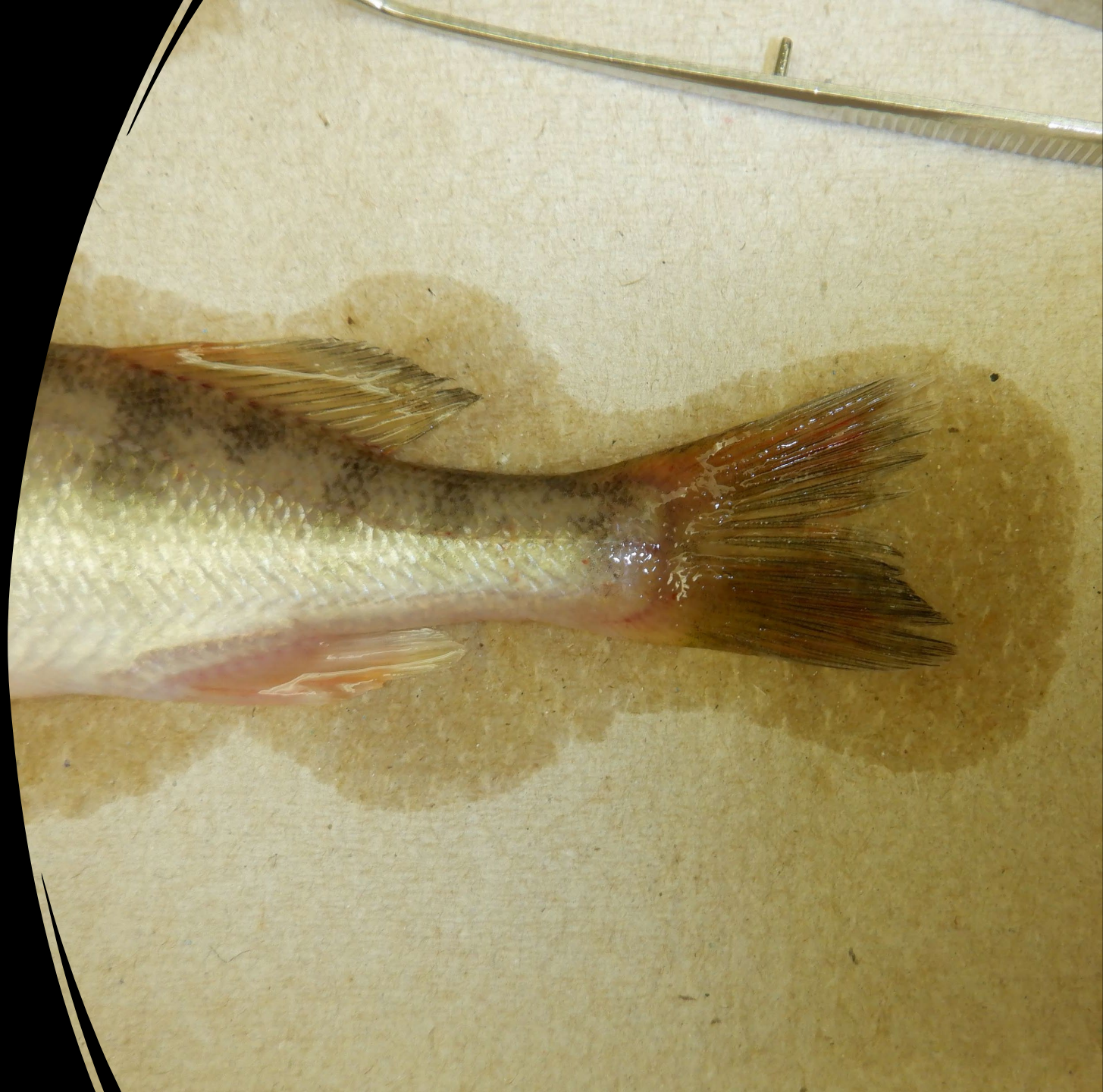


Veterinary Use	45%
Fish Health Inspections	65%
Written Biosecurity Plan	26%
Vaccination	11%
Disinfection Protocols	
Veterinary Feed Directive	

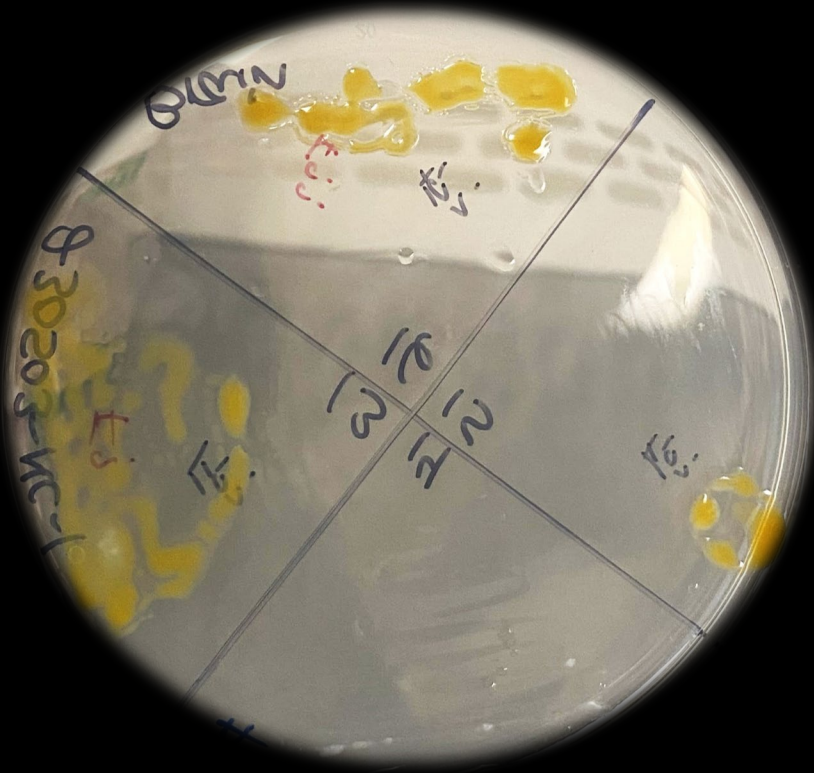
Vaccines

- *Aeromonas salmonicida*
- *Streptococcus iniae*
- *Flavobacterium psychrophilum*

- Immersion
- Injection
- Feed



Flavobacterium psychrophilum



Rainbow trout fry syndrome



Bacterial cold-water disease

Veterinary Use	45%
Fish Health Inspections	65%
Written Biosecurity Plan	26%
Vaccination	11%
Disinfection Protocols	47 %
Veterinary Feed Directive	

Foot Bath

Aquatic Virkon



Veterinary Use	45%
Fish Health Inspections	65%
Written Biosecurity Plan	26%
Vaccination	11%
Disinfection Protocols	47 %
Veterinary Feed Directive	4%

Veterinary Feed Directive (VFDs)

- Limited in NCR because our farms are smaller, need smaller quantities, and are far from feed manufacturers.
- Use in North Central Region is <5% among commercial farms, higher among State and Federal Fish Hatcheries.

Aquaflor® Veterinary Feed Directive
(Florfenicol)

Client: _____ Veterinarian: _____
Home or Business Address _____ Address: _____
Phone: _____ Phone: _____

Approximate Number of Animals: _____
Animal Location: _____

Indications: Circle the row with the treated species and indication, and initial the corresponding box.

Fish Species	Indication	Florfenicol (mg/kg body weight/day)	Florfenicol (grams/ton)	Initials
Freshwater-reared salmonids	For the control of mortality due to furunculosis associated with <i>Aeromonas salmonicida</i> .	10 – 15	182 – 2,274	
	For the control of mortality due to coldwater disease associated with <i>Flavobacterium psychrophilum</i> .			
Freshwater-reared finfish	For the control of mortality due to columnaris disease associated with <i>Flavobacterium columnare</i> .			
Catfish	For the control of mortality due to enteric septicemia of catfish associated with <i>Edwardsiella ictaluri</i> .			



Conditions of Concern



YELLOW PERCH

yearling small raised ulcers on lower jaw

Ulcers on body

Fatty livers

Tank banging bright lights

Right Feed

yellow grub

Yellow perch

- Columnaris
- *Aeromonas salmonicida* strains
- External parasites
- Stress
- Little disease surveillance and wild/feral sources (High Risk)
- Major diseases are poorly defined - they are syndromes
- Lots of known unknowns



Conditions of Concern



TILAPIA

small fingerling swollen abdomen mortalities

Small raised red lesions on mature fish

Slightly red adults dying in aquaponic RAS

Fatty Liver changes and excess fat in coelom

Tilapia

- *Francisella noatunensis*
- *Streptococcus iniae*
- *Aeromonas sobria*
- Tilapia Lake Virus (TiLV)

- Not wild but less known about source of fish, and high mortality pathogens
- Insufficient screening for the major diseases of tilapia
- Known knowns, plus unknowns



Conditions of Concern



TROUT

Fungus on eggs

Sac fry mortalities

Failure to feed swim up fry

Fingerling gill disease

Fingerling white fecal casts

BCWD

Red mark syndrome

Trout and Salmon

- Bacterial Coldwater Disease
- Bacterial Gill Disease
- Spironucleus
- Highest level of disease testing
- Introduce eggs not fry or fingerlings which reduces disease risk
- Most not wild source, and extensive pathogen screening (Lower Risk)
- The list of known pathogens is long, the list disease outbreaks are relatively low



Conditions of Concern



LARGEMOUTH BASS

Winterkill

Fatty livers

Fingerling 3" transition to RAS

Edwardsiella piscicida

Acknowledgements and Questions



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