



AQUACULTURE PROGRAM UPDATE

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ANIMAL AND PLANT HEALTH INSPECTION SERVICE

VETERINARY SERVICES

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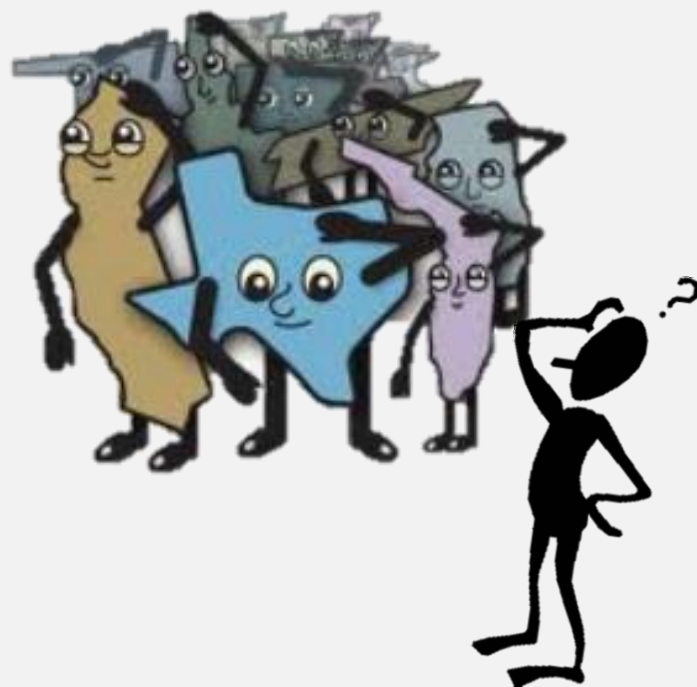


Program Activity Overview

- CAHPS
- Program Projects
- Import/Export Update

Challenges to U.S. Commercial Aquaculture

- Unrealized aquatic animal health plan
 - No leverage with trading partners
 - No regions or zones
 - Testing without long term meaning
- Complicated interstate movement
 - Diverse and complex requirements
 - Different authorities at the State level
 - Significant costs
 - Test results are often meaningless
 - And, hard to interpret
 - And, hard to compare

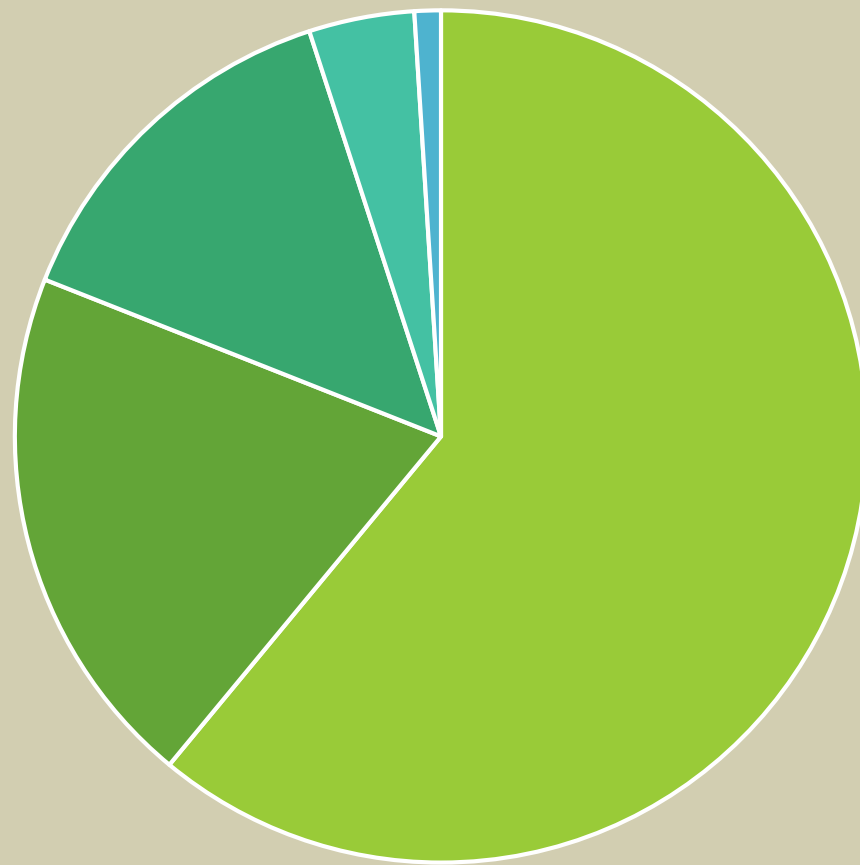


Commercial Bait and Sportfish Survey

- 498 regulations [86% state]; 13 renewals/yr [as many as 203/farm]
- Cost of current regulations
 - Direct costs 1%/Indirect costs 99%
- Economic benefit of standards
 - Recovery of foregone/lost sales
- Anticipated net benefit (sport and baitfish)
 - Annual regulatory costs reduced from \$150K to \$56K-\$66K
 - Savings per acre \$600 -\$1,900
- \$12+ million in annual regulatory costs reduced to \$5 million
 - Interstate movement



Representing 74% of U.S. bait and sportfish production



- Environmental Management
- Fish Health
- Legal and Labor Requirements
- Interstate Transport
- Culture of Harvested Species

% Cost of Regulations by Category

Engle and Van Senten



CAHPS

- Assuring aquatic animal health and facilitating safe animal movement
- Voluntary participation
 - Oversight, auditable documentation
- Science-based
 - Flexible and responsive to emerging pathogens, diagnostic technology, and scalable surveillance strategies
- Strengthened through Industry, State, Tribal, and Federal collaboration and partnership

Principles of Standards

1. Aquatic animal health team

- Knowledge & skills

2. Risk evaluation

- Science & method

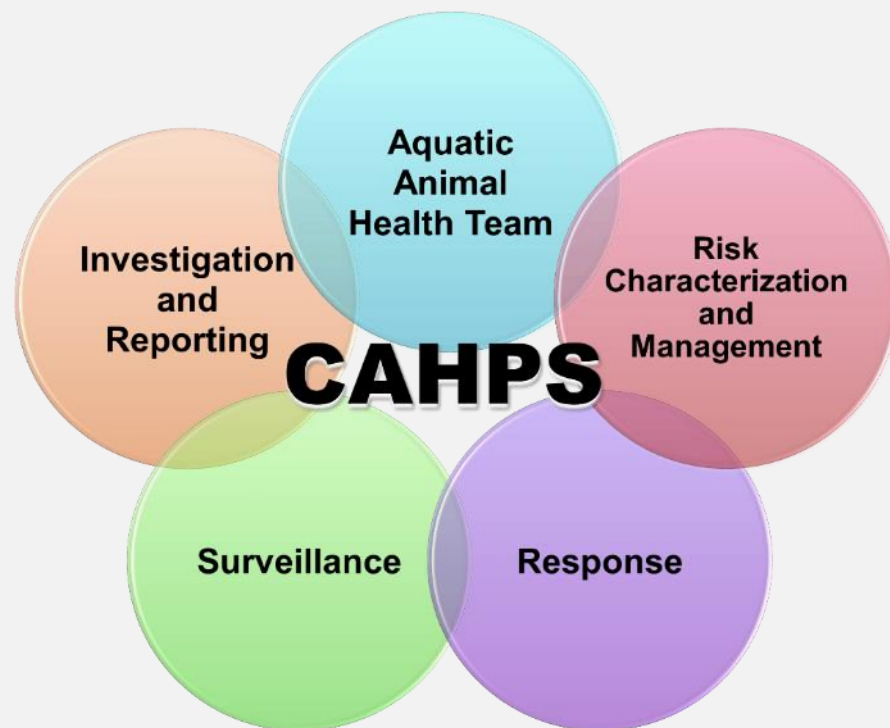
3. Specific Pathogen Surveillance

- Strategy and testing

4. Investigation and reporting

- Process & protocols

5. Response & Recovery



CAHPS Tilapia Pilot

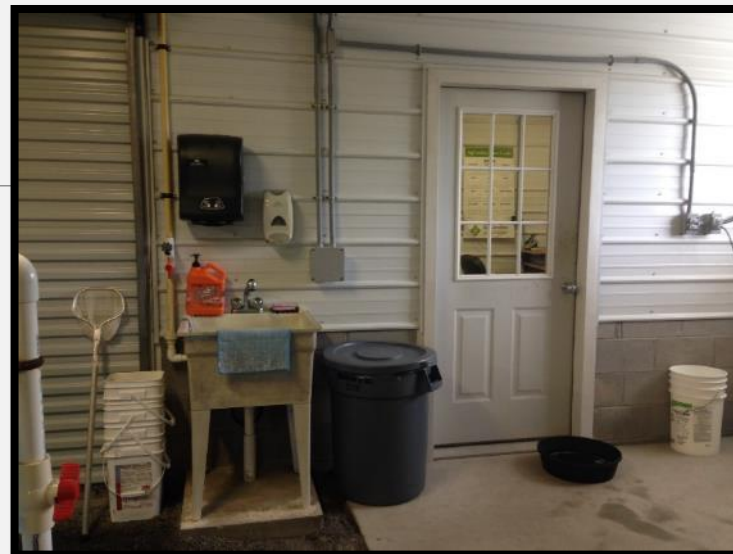
- Tilapia (all male hybrids)
- 5 farms in the cooperative – all indoor RAS
- Selling to international live markets
- Pathogens of concern
 - *Strep iniae*
 - *Francisella sp.*
 - *Flavobacterium sp.*
- Emerging pathogens
 - Tilapia Lake Virus (TLV)

CAHPS Process

1. Health Team ✓
2. Risk evaluation
 - Site visit ✓
 - Biosecurity plan
3. Surveillance
 - Approach ✓
 - Testing
4. Investigation and reporting
 - Thresholds
5. Response
 - Plans

Biosecurity

- Biosecurity practices in place
 - Animals
 - Separation of animal lots
 - Separation of life stages
 - Protected water sources
 - Commercial pelleted feed
 - Vectors
 - Limited access
 - Fomites
 - Dedicated equipment
 - Use of disinfectants



Quarantine, Nursery, Hatchery

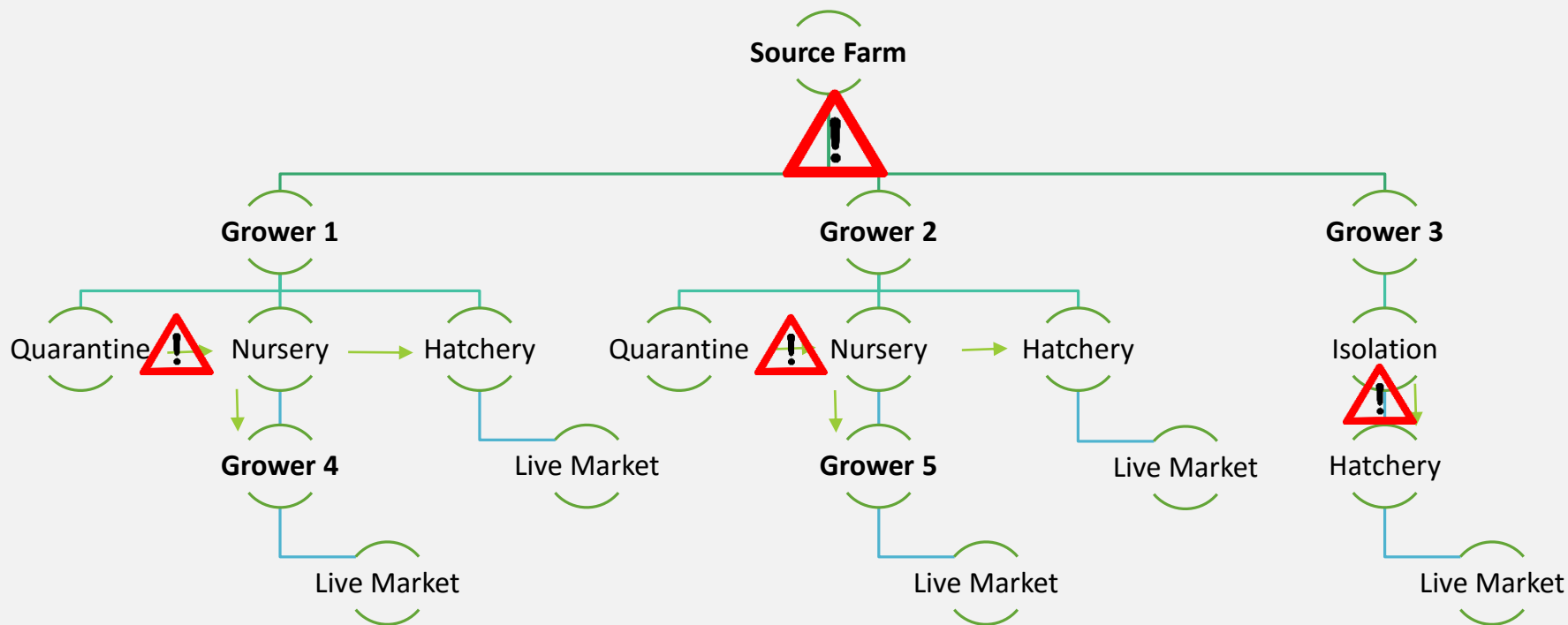


Surveillance Plan

- Presume an Se of 85% for diagnostic assays.
- Without testing at source farm –test all of the 5 receiving facilities ... **once**.
- Unreliable mortalities so need to collect healthy fish, which means we need to aim for a lower detection prevalence.
 - 1, 2 and 5% prevalence are common targets. The default is often 2%.
 - At 2% design prevalence, we'd need to collect 163 fish per facility.
 - Because population is naïve 5% is justifiable.
 - At 5% design prevalence, we'd need to collect 69 fish per facility. Ideally collections split over two seasons.
- May change with changing risks.
- Weak spot is the lack of testing for the source population
 - Continued testing of post-shipment moribunds
 - 10 moribunds from 3 facilities (95% confidence)



Animal Flow CCPs



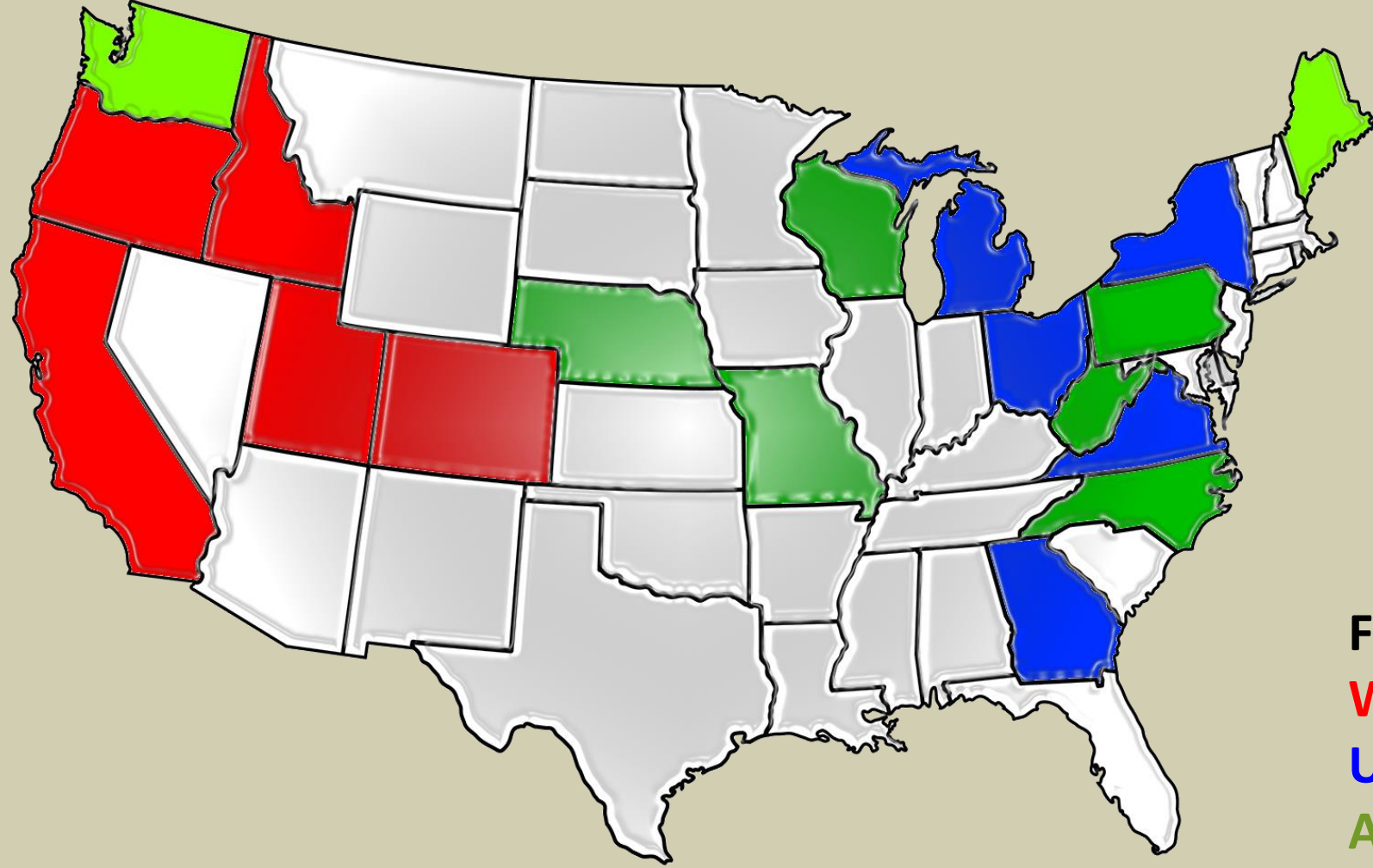
Because of CAHPS...

- Assurance of health of farm raised aquatic animals
 - Lower risk for specific diseases because of biosecurity and surveillance
 - Claims about population health status

- Facilitate animal trade and movement
 - Leverage international trade
 - Reduce hurdles for interstate movement

- Marketing and branding
 - Increase public trust, confidence
 - Demonstrates awareness of standards for consumers, builds a story

- Complement to other programs
 - Food system biosecurity/Food security
 - Certification programs
 - Animal welfare
 - Yield verification studies



Funded by:
WRAC
USTFA
APHIS

Trout and Salmon Survey 2016-2017

~99% of value of trout sold nationally & ~87% of the farms nationally

Shellfish Projects - 1

East Coast Workshop to identify design elements critical to a shared database for shellfish health

Designing a Participant Driven Surveillance Database for Regional Shellfish Health Management

- Annapolis, MD, July 26-27, 2016
- 11 participants
 - Government, database development, laboratory and industry representatives
- Identified objectives, critical features and incentives for participation
- Working to secure funds for development through grants and industry associations

Shellfish Projects - 2

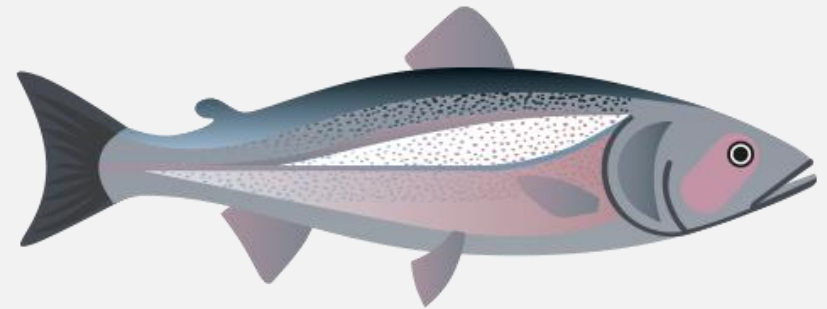
Shellfish Surveillance

Shellfish Health Zones

- Parallel Studies: Rhode Island and Maine
- Coupling industry and wild animal sampling to support disease freedom claims
- Survey for endemic pathogens to determine whether and how to establish zones

Pacific NW ISA Surveillance

- Testing completed
 - More than 4,000 samples tested from farm raised and wild/feral fish
- No positives found
- ISA Factsheet produced
- Publication planned
 - *Journal of Fish Diseases*



Other Program Activities

- Case definitions for listed pathogens
 - ISA, SVC

- 2018 NAHMS Aquaculture Survey

- NAHLN
 - ISA, SCV, VHS
 - Next?

- SCS CoreOne Master Program for CAHPS participants
 - Database

Import/Export Update

Update provided by
Dr. Christa Speekmann
NIES Senior Staff Officer

- Newly negotiated certificates
- Bilateral audit with Canada
- Expanding export markets
 - Finfish
 - Eastern Europe, Australia , Canada, Chile, Colombia, Israel, Japan, Korea, Mexico, Norway, Taiwan, Singapore and Serbia
 - Shrimp Broodstock
 - Vietnam, Korea, China



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