Knowing Your Risks: Aquaculture Farm Biosecurity

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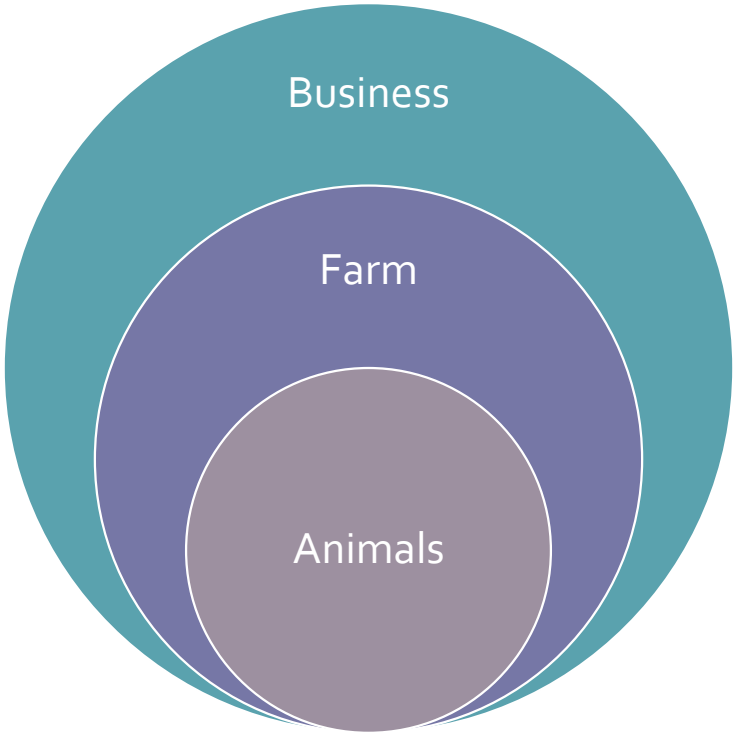
Biosecurity *IS…*

- About managing risks
- A preventative medicine tool
- A health management strategy
- A result of careful assessment and planning
- A 3 step process…

Managing Risks

- What are the risks…
  - To your farm?
    - Flooding, wind, urbanization
  - To your animals?
    - Pathogens, predators
  - To your business?
    - Costs, regulations, market access



Risks to Animals

- What species are you culturing?
- In what type of system?
- For what end-use?

3 Steps of Risk Evaluation for Biosecurity Planning

- Risk Identification
  - Specific pathogens for the species being cultured in a specific production setting
  - Prioritization of these pathogens
- Risk Characterization
  - Identify critical control points for pathogen entry and spread
- Risk Management
  - Practices implemented to prevent/control pathogen entry and spread
  - Documentation of these practices make the *biosecurity plan*

1. Risk Identification

- For the species you're culturing – which pathogens are of concern?
  - E.g., tilapia – TiLV, *Aeromonas* sp., *Mycobacterium* sp., *Flavobacterium* sp.
  - E.g., carp – SVC, *Aeromonas* sp.
  - E.g., baitfish – VHS, KHV, SVC, bacterial diseases, parasites
  - E.g., LMB – LMBV, VHS

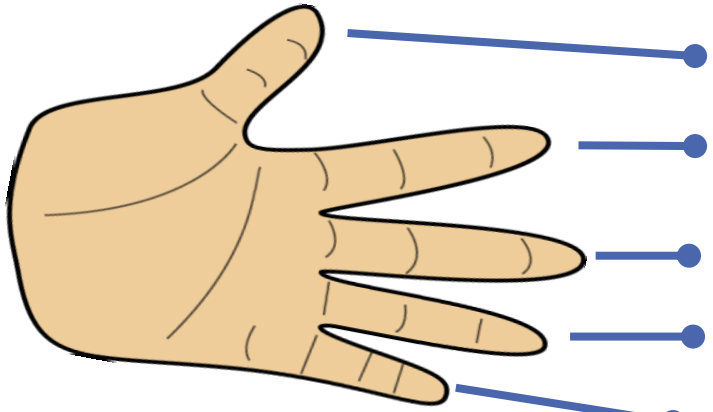
- Prioritize these pathogens from really bad to bad
  - E.g., VHS is a bigger problem than *Aeromonas*
    - Reportable, regulations, testing etc.
  - Rank by regulatory impact, production impact, management impact, market impact
    - E.g., If animals become infected with pathogen X – will I lose my market?
      - If yes, this is a high priority

2. Risk Characterization

- For each pathogen – what is the level of risk?
  - E.g., Do I trust my egg source?
  - E.g., Is water source protected?
    - If not, could VHS get onto the farm through the water?
  - E.g., if pathogen X gets onto farm – how will it spread?
    - Between ponds via seines? Personnel?

Aquaculture Biosecurity

- For each prioritized pathogen, for every production setting examine these 5 areas –



1. Animals

2. Water

3. Feed/Food

4. Vectors (animals, people)

5. Fomites (equipment, vehicles, boats)

- Develop management practices that match the level of risk for each pathogen

3. Risk Mitigation

- What practices are in place to prevent pathogen entry and spread?
  - These documented practices make up the biosecurity plan
  - Justify each practice –
    - E.g., Facility uses 1% Virkon for net dips due to risk of bacterial pathogen spread between tanks
    - E.g., facility treats incoming water with UV sterilization > 25mJ/cm^2 for VHS

Biosecurity is about managing risks.

What about managing animal health?

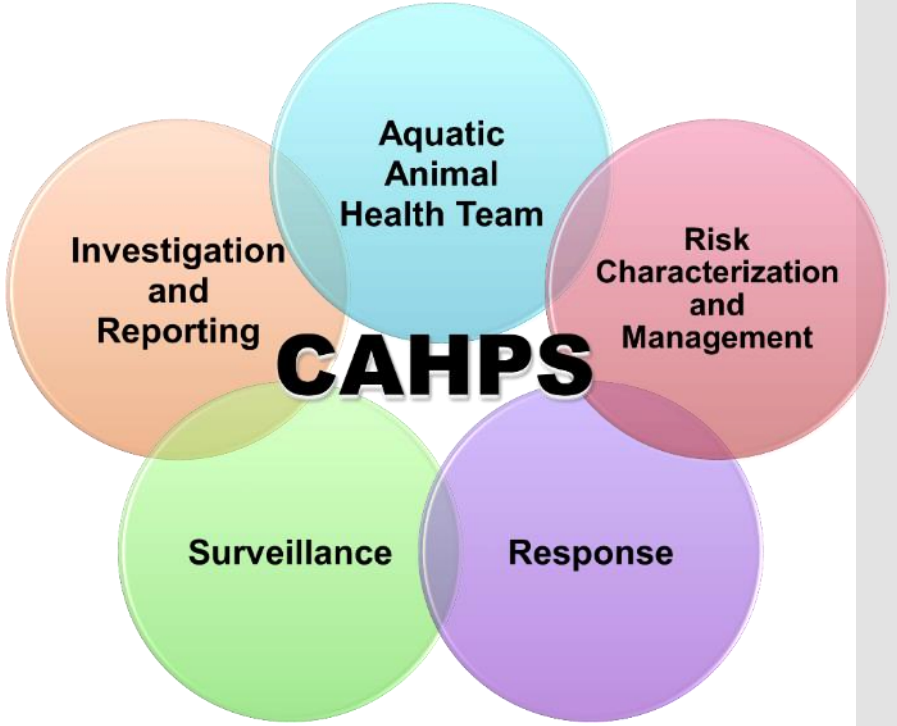
CAHPS Approach

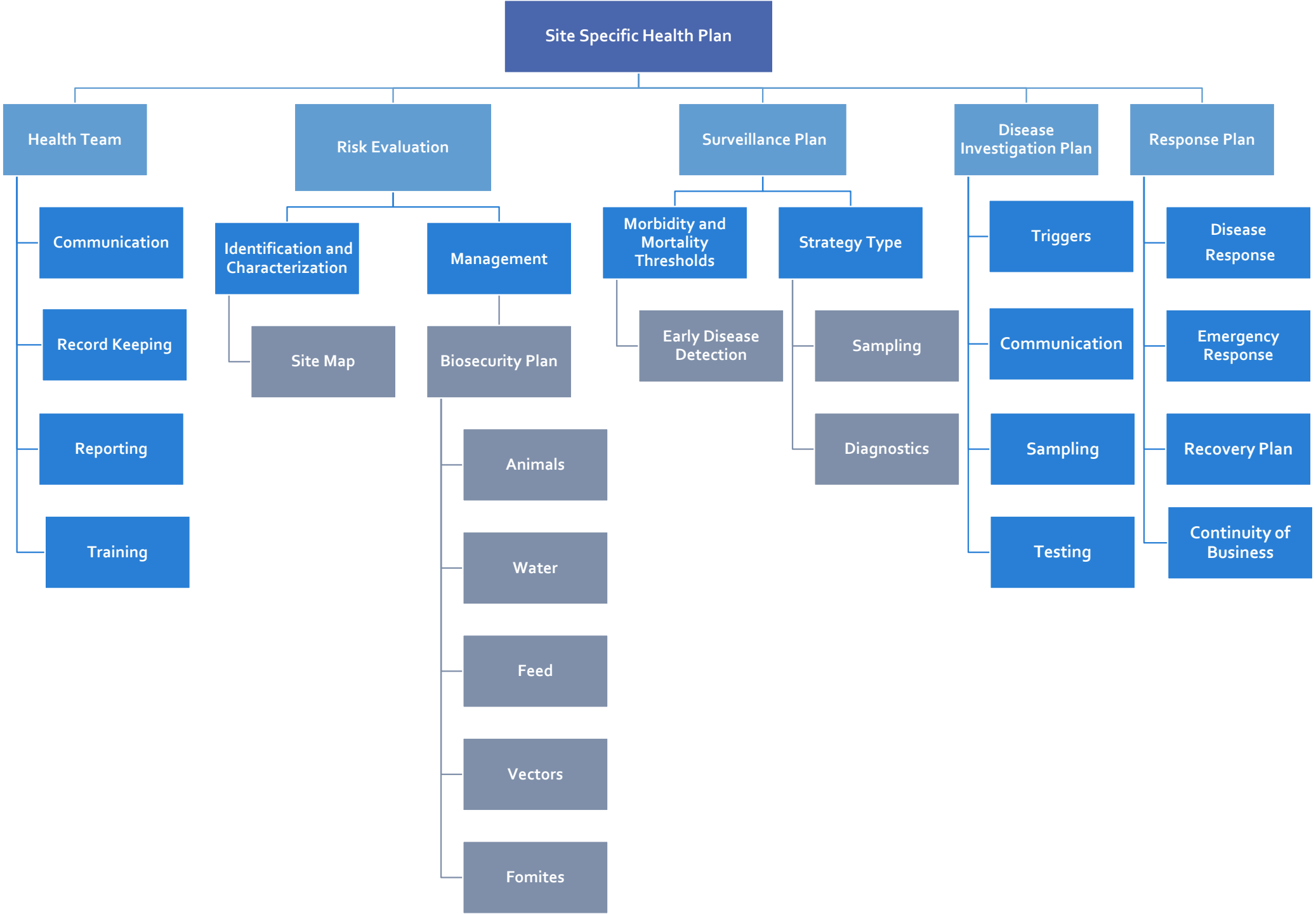
- Comprehensive health management of livestock
- Developed with industry
- Non-regulatory
- Auditable system
  - Oversight
  - Documentation
- Science-based & flexible and responsive
  - Scalable surveillance strategies
  - Emerging pathogens
  - Diagnostic technology

CAHPS
Commercial Aquaculture Health Program Standards

Principles of CAHPS

- **Aquatic animal health team**
  - Knowledge & skills
- **Risk evaluation**
  - Science & method
  - Biosecurity
- **Specific Pathogen Surveillance**
  - Sampling and testing
  - Early disease detection
  - Mortality/morbidity thresholds
- **Investigation and reporting**
  - Triggers & protocols
- **Response & Recovery**




Site Specific Health Plan
Health Team
Communication
Record Keeping
Reporting
Training
Risk Evaluation
Identification and Characterization
Site Map
Management
Biosecurity Plan
Animals
Water
Feed
Vectors
Fomites
Surveillance Plan
Morbidity and Mortality Thresholds
Early Disease Detection
Strategy Type
Sampling
Diagnostics
Disease Investigation Plan
Triggers
Communication
Sampling
Testing
Response Plan
Disease Response
Emergency Response
Recovery Plan
Continuity of Business

Why Do CAHPS?

- Assurance of health of farm raised aquatic animals
  - Animals are lower risk for specific diseases because of biosecurity and surveillance
- Facilitates animal trade and movement
  - Leverage international trade
  - Reduce hurdles for interstate movement
- Marketing and branding
  - Increase public trust
  - Demonstrates awareness of standards for consumers
- Complement to other programs based on business goals
  - Food system biosecurity
  - Food safety
  - Certification programs
  - Animal welfare

Impact of CAHPS

- Biosecurity **AND** surveillance practices establish farm health status
- National adoption of uniform standards minimizes redundancy and meaningless health regulations for animal movement
- Provides leverage for trade negotiations
- Offers branding and marketing

For More Info

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