

Biosecurity

Awareness, Concerns and Practices
within a Hatchery and Between
Hatcheries

By Cassie Sundquist

LSRCP Meeting 2014

Thought Provoking

- My intent of this presentation is to get everyone thinking about their Biosecurity practices, to share ideas and to increase Biosecurity awareness throughout LSRCP hatcheries.
 - What does Biosecurity mean to you?
 - What does Biosecurity mean to your coworkers?
 - What does Biosecurity mean to employees at other hatcheries?

Overview

- Definition of Biosecurity and its importance in aquaculture.
- Do we really need another plan?
- Quick overview of how we developed Sawtooth's Biosecurity Plan.
- Review the results of the Biosecurity Questionnaire.
- Discuss the importance of a Biosecurity Plan.

What is Biosecurity?

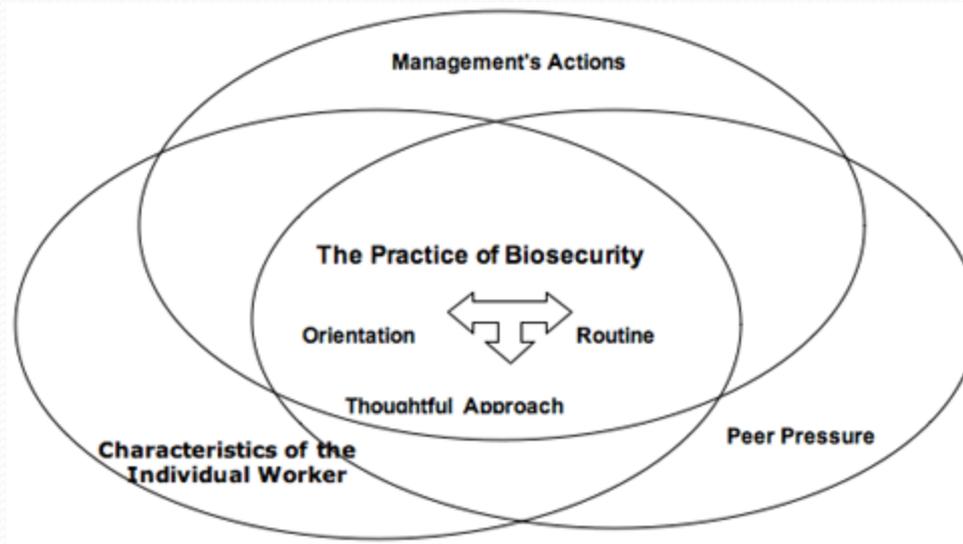
- Involves the practices, habits, procedures and policies used to prevent the introduction and spread of disease causing organisms as well as invasive species. It can range from simple practices such as daily cleaning of rearing units to hatchery policies concerning admission of visitors and equipment disinfection.

Biosecurity

- Consistent use of high quality biosecurity is essential
- Yet in many sectors of aquaculture, the practice of biosecurity is sporadic and of a variable nature.
- Some studies show that frequency and type of biosecurity practiced was not driven solely by levels of awareness but by species grown, staff size, water source as well as beliefs and attitudes of management about biosecurity and disease.

Workplace Environment Influences Biosecurity

- Management actions-very influential to the staff
- Peer Pressure-follow the leader
- Characteristics of the Individual-personality, experience, education, personal beliefs



Delabbio, Julie. "How Farm Workers Learn to Use and Practice Biosecurity". *Journal of Extension*. 44.6 (2006).

Do We Really Need Another Plan?

BMP

AOP

HACCP

QAP

STAFF

TRAINING

Sawtooth Fish Hatchery

Biosecurity Plan

- SFH staff was confident in their Biosecurity Protocols but there was not an actual written Biosecurity Plan.
- We decided to write one including all of the staff's comments. As questions and thoughts arose, we included the Complex Manager and the Fish Health Pathologist.

Biosecurity Plan

Sawtooth Fish Hatchery

December 12, 2013



Sawtooth Fish Hatchery Biosecurity Plan Process

- Began with a Biosecurity Audit from the Fish Health Pathologist.
- Then reviewed the draft Biosecurity Plan.

 Hatchery and Hatch House Biosecurity Audit

Hatchery/Hatch House: Sawtooth
 Auditor: MUNSON Date: 12/17/13

<input checked="" type="checkbox"/> Large entry signs	<input checked="" type="checkbox"/> Access Exclusion Fencing/Netting Operational
<input checked="" type="checkbox"/> Public entry limited to low risk areas	<u>Climate problems</u>
<input checked="" type="checkbox"/> Feet and hand baths functional	<input checked="" type="checkbox"/> Head box and tail race fish removed
<input checked="" type="checkbox"/> Cleaning and Disinfection Biosecurity Placard at entrances	<input checked="" type="checkbox"/> Mortality monitoring and diagnosis recorded
<input checked="" type="checkbox"/> Other Hatch House access doors locked to outside entry	<input checked="" type="checkbox"/> Density monitoring recorded
<input checked="" type="checkbox"/> Separate equipment for each raceway/trough/bank	<input checked="" type="checkbox"/> Culling procedure
<input checked="" type="checkbox"/> Inside disinfection receptacles functional	<u>ELISA Protocol in place</u>
<input checked="" type="checkbox"/> Outside disinfection receptacles functional	<u>Hatch House and facility monitored and normalizes picked and recorded each day</u>
<input checked="" type="checkbox"/> Feed storage	<input checked="" type="checkbox"/> Wood fixtures eliminated
<input checked="" type="checkbox"/> Feeding procedure	<input checked="" type="checkbox"/> All in / all out fish movements
<input checked="" type="checkbox"/> Fish feeding occurring on schedule	<input checked="" type="checkbox"/> Spawning Egg Handling and Disinfection Protocols in place
<input checked="" type="checkbox"/> Separate buckets	<input checked="" type="checkbox"/> Pathogen free water supply for spawning
<input checked="" type="checkbox"/> Gloves	<input checked="" type="checkbox"/> Personnel assisting with spawning or other culture practices not entering Hatch House unless clean and disinfected
<input checked="" type="checkbox"/> other	<input checked="" type="checkbox"/> Completion of Hatchery and Hatchery House logs
<input checked="" type="checkbox"/> Fish treatment chemical storage	Follow-up / Corrective action: <u>See below</u>
<input checked="" type="checkbox"/> Treatment regimes and chemical/drug concentrations recorded	Date: _____
<u>As by protocol</u>	

Well contamination

General observations or Best Practices: Wood Fixtures need to be replaced. Water exclusion. Blood Fish @ Spawning. Well H2O to Spawning area. UV disinfect/distance. Different floor → disinfect.

Five Risk Factors at Each Rearing Area



- Intake, Early Rearing, Final Rearing and Spawning Areas
 - 1. Fish Movement-marking, splitting, releasing
 - 2. Water Source-well or river
 - 3. Fish Health-due to water source, temperatures
 - 4. Equipment/Vehicles-movement in and around each raceway
 - 5. Vectors-tourists, staff, mink, birds

What We Learned

- We thought our plan was fairly solid but the more we discussed each rearing area in depth and allowed everyone to voice their opinions we saw that there were still areas that needed attention and some procedure changes.
 - We now know where the weak links are in our ability to control Biosecurity and where additional training and attention needs to be focused.
 - Have a written plan that can be used for consistent new and annual training of staff.
 - Most of all we increased everyone's **AWARENESS!**

Questionnaire



- Sent in early February and asked that at least two staff from each station complete the form.
- The purpose of the questionnaire was to investigate the current awareness, concerns and practice of biosecurity at LSRCF fish hatcheries.
 - All hatcheries practice Biosecurity....but does the entire staff at a facility have the same perception and awareness of Biosecurity?
 - Are there differing viewpoints on Biosecurity between hatcheries?

Question #1

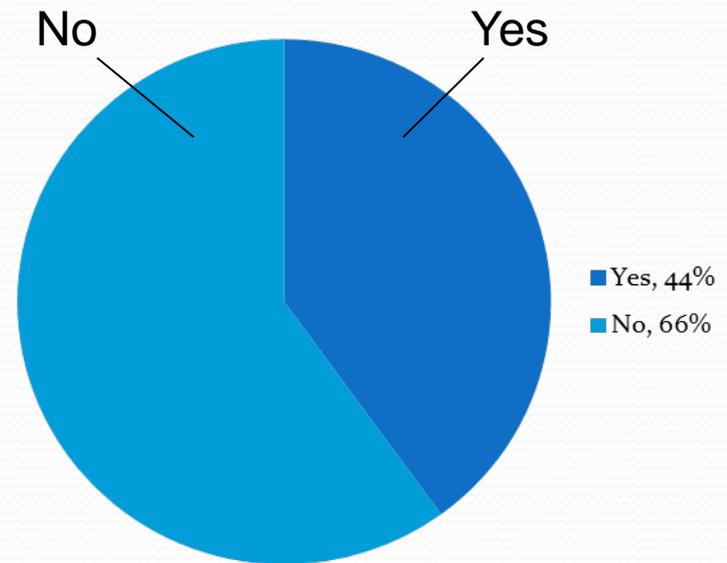
- Does your hatchery have an actual written Biosecurity Plan?
 - How often is it reviewed?
 - Who was it reviewed with? (Permanent staff, temporary staff, fish health pathologist)



Question #1 Results

- Nine hatcheries responded
 - 66% do not have a written Biosecurity Plan
 - BUT 100% have some sort of training for staff
 - Training sessions, QAP, BMP, HACCP
 - Everyone includes the entire staff in training sessions.

Written Biosecurity Plan?



Question #1 Results

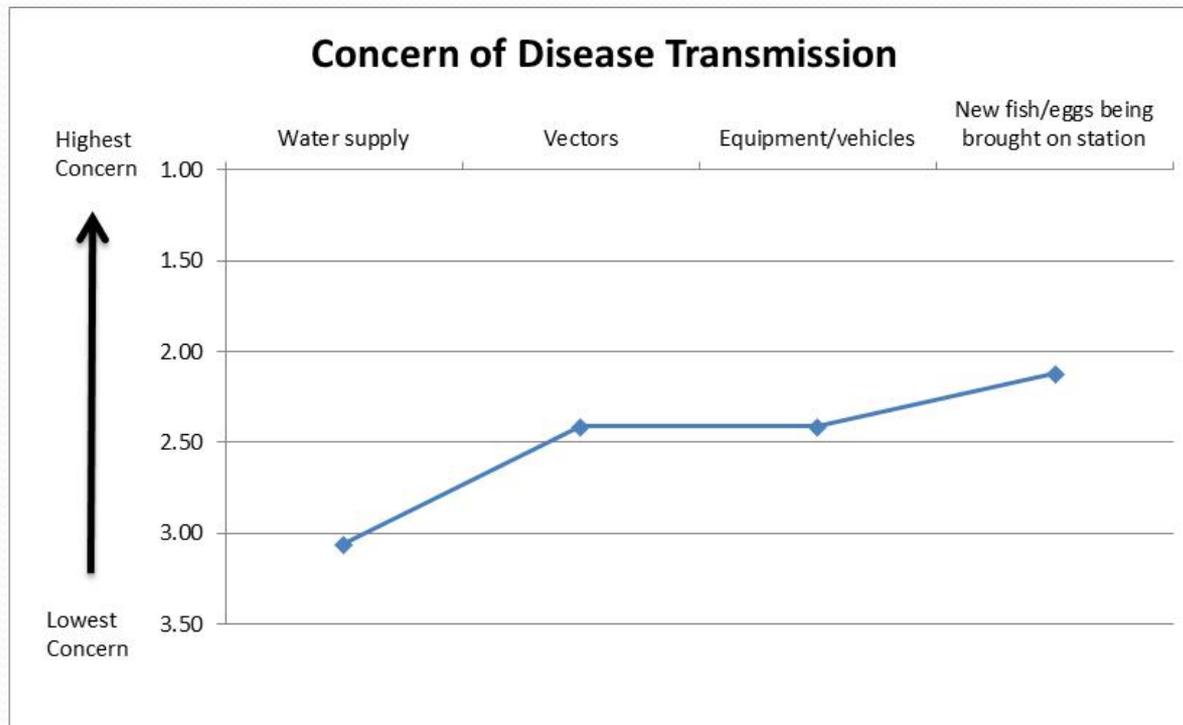
- Do you need another written plan? Isn't the HACCP, BMP, QAP and other trainings enough?
 - Hatchery A
 - Response 1- YES, actual plan, reviewed annually
 - Response 2-NO, but covered in BMP and QA, reviewed annually
 - Response 3-NO, does not have one, covers topics in training sessions when needed
- Awareness within a hatchery.

Question #2

- At your facility, what do you think is the most serious issue or concern regarding disease transmission? Please rank 1 (highest concern) to 4 (lowest concern).
 - Water supply
 - New fish/eggs being brought on station
 - Vectors (people/animals)
 - Equipment and vehicles

Question #2 Results

- The answers varied widely
 - Reasoning due to water source, hatchery program and structure.



Question #3

- When eggs are brought on station what is your hatchery's protocol for bringing them into the incubation room?
 - What concentration of iodine do you use to disinfect the eggs/equipment used?
 - What is the disinfection contact time?
 - What is the protocol for the movement of the person delivering the eggs around the hatchery?
 - What is the protocol for the movement of equipment i.e. coolers, buckets, that are used to transport the eggs to your hatchery?

Question #3 Results

- All answers were similar for ppm and disinfection time. **100ppm for 10-15 minutes**
- Differed a small amount on whether or not the person delivering the eggs has access to the incubation room or if they need to shower and change clothes before entering.
- Equipment movement was also slightly different. Some disinfect the outside of the coolers while others transfer to a completely new cooler before entering incubation.

Question #4

- When live fish are brought onto station what is your hatchery's protocol?
 - Does the outside of the vehicle need disinfected prior to entering the facility?
 - Is there a designated route they must follow?
 - Are there any other precautions taken?

Question #4 Results

- 66% of responses do not require the outside of the truck to be disinfected when delivering live fish onto the station.
- Top response: Live fish are never brought on station!
- Next best response: Truck steam cleaned, has a designated route and training is provided verbally to the driver before they enter the hatchery.

Question #5

- What is your hatchery's protocol for vehicles from other stations, research, boats, etc. that are entering your facility?
 - Does the vehicle need to be disinfected prior to entering?
 - Is there a restricted route for them to take?
 - How do you inform others of these rules? Signs posted, training?

Question #5 Results

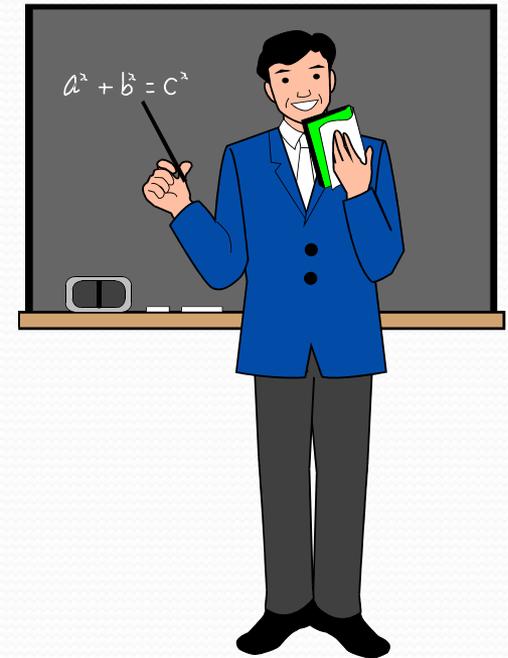
**44% Require Vehicle
Disinfection**



**44% Require Driver to
Take a Designate
Route**



**75% Have Some Sort of
Training**



Question #5 Results (Vehicle need disinfected?) VS Question #2 Ranking (Concern of vehicles entering hatchery)

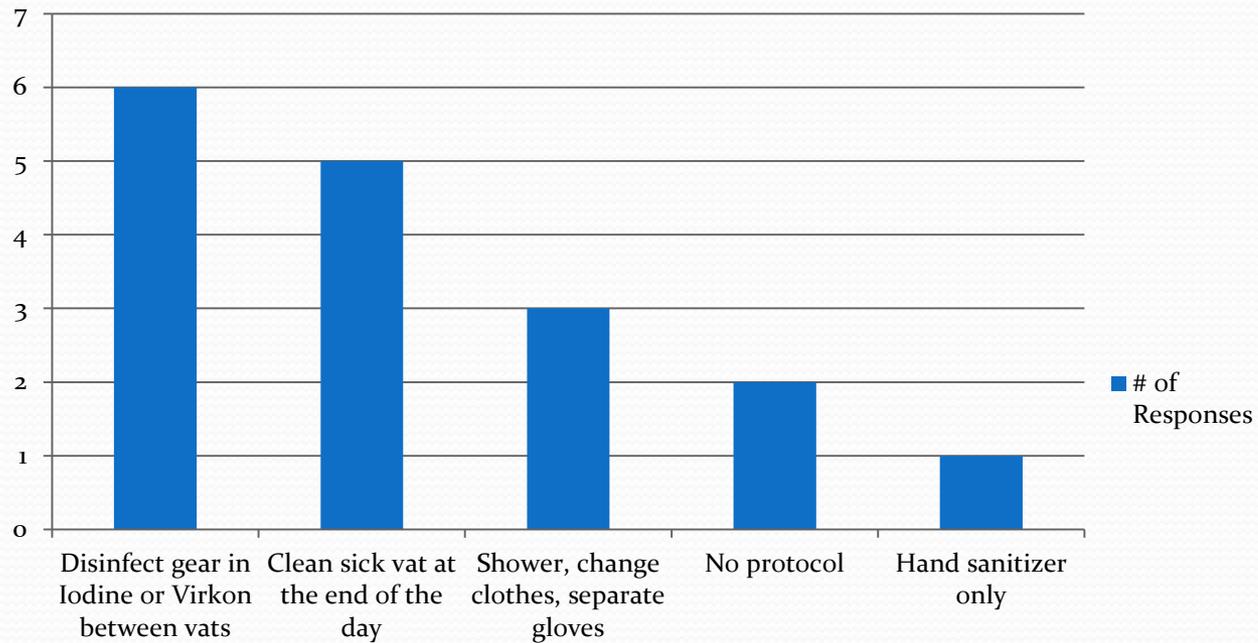
Vehicle/Equipment Ranking	Vehicle Disinfected	Designated Entry Route	Training	Hatchery
3	Yes	Yes	Training	A
3	Yes	Yes	Training	A
3	Yes	Yes	Training	A
1	Yes	Yes	Training	B
3	Yes	Yes	Training	B
2	No	Yes	Training	C
3	No	no	No	C
3	Yes	Yes	Training	D
3	Yes	Yes	Training	D
1	No	No	Signs	E
1	No	No	No	E
2	No	No	No	E
2	Yes	No	No	F
3	Yes	No	Training	F
2	No	No	No	G
2	No	No	Training	H
2	No	No	No	I

Question #6

- If a staff member cleans a tank of fish with a known outbreak of a disease, what is your hatchery's protocol for where and what that employee can do the rest of the day?
 - Are they allowed to work around other rearing units later in the day? If so, what is the protocol for the employee's disinfection? Do they need to wash their hands, shower, change clothes? Do they have restricted access to other areas of the hatchery. Are any other measures taken?

Question #6 Results

Protocol Working With Sick Vat of Fish



Question #7

- Do you believe your hatchery's Biosecurity Protocol is adequate or is there room for improvement and why? Please rate 1 (more than adequate), 2 (adequate), 3 (needs improvement).
 - 4 people said More Than Adequate
 - 7 people said Adequate
 - 6 people said Need Improvement

Question #8

- Has your facility had a Biosecurity Audit? If recommendations are made to improve biosecurity during an audit:
 - Are the recommendations documented?
 - Who follows up and implements the recommendations?
 - Once a task is implemented, who follows up on its success?
 - Is the whole hatchery staff informed when a major improvement is brought about by an audit?

Question #8 Results

- 4 hatcheries have never received a Biosecurity Audit
- Those that have ALL have a protocol in place for:
 - 1. Documenting Recommendations
 - 2. Implementing Recommendations
 - 3. Designated Person to Follow Up
 - 4. Informing All Staff of Changes

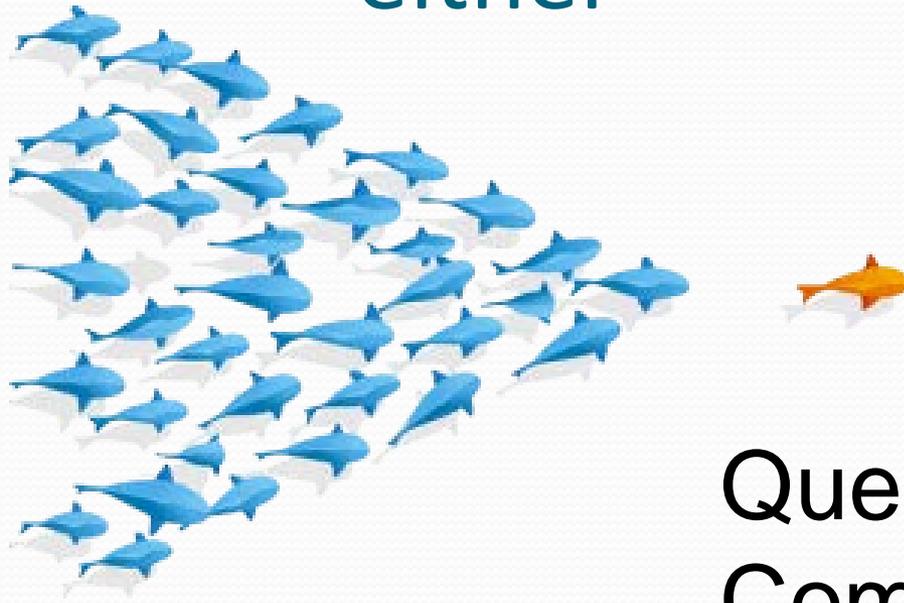
Questionnaire Summary

- All hatcheries have a high awareness of Biosecurity, but the characteristics of the individuals shows that additional training and awareness may be needed at some hatcheries.
- Sharing information between hatcheries on Biosecurity programs will not only improve your own hatchery but will increase everyone's mindset.

Final Thoughts

- Your Biosecurity Plan is only as good as you promote it to be.
 - Best results if you include all of your staff when making a Biosecurity Plan
 - Keep it fresh in their minds. Training must be often, not just when a new person begins.
 - Lead by example.
 - Enforce the plan.

“If your supervisor is in front of you and does not use the footbath, you are more likely to not use the footbath either¹”



Questions?
Comments?

1. Delabbio, Julie. “How Farm Workers Learn to Use and Practice Biosecurity”. *Journal of Extension*. 44.6 (2006).