Workbook

Table-Top Simulation for Aquaculture Emergency Management:

What Goes Around...

SART Training Media

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Aquaculture Table-Top Simulation -- Workbook

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Other Aquaculture training units are available. All SART Training Media are available for download from the Florida SART Web site <www.flsart.org>.

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About Florida SART

SART is a multiagency coordination group consisting of governmental and private entities dedicated to all-hazard disaster preparedness, planning, response, and recovery for the animal and agriculture sectors in the state of Florida.

SART operates at the local level through county SART organizations.

SART utilizes the skills and resources of many agencies, organizations and individuals with its multiagency coordination group structure.

SART supports the county, regional, and state emergency management efforts and incident management teams.

SART Mission

Empower Floridians through training and resource coordination to enhance all-hazard disaster planning and response for animals and agriculture.

SART Goals

- Promote the active engagement of each county coordinator who is responsible for animal and agricultural issues
- Provide assistance in the development and writing of county ESF-17 plans
- Promote the establishment of a county SART to work as a multiagency coordination group to support emergency management and incident management teams
- Provide training for all SART and animal and agriculture personnel
- Identify county resources available for an emergency or disaster
- Work to comply with the National Incident Management System (NIMS) document

Subject: **This activity provides an opportunity to analyze a fictional emergency management and quarantine situation at an aquaculture facility. Participants can enhance their knowledge and critical thinking skills needed to assist in an emergency situation.**

Purpose of the Table-Top Simulation

The table-top simulation is an educational tool intended to provide an opportunity to apply knowledge gained from the SART aquaculture modules through formal discussion of a fictional scenario. To apply this knowledge, you will have to think through a series of situations by making decisions based on information in the simulation and your knowledge.

Table-tops are useful tools to test skills and knowledge when hands-on activities may be impractical to conduct or impossible to come by. The table-top provides a fictional situation in an interactive learning environment within the classroom. While hands-on experience in the midst of an emergency is high stress, table-tops provide a low-stress atmosphere more conducive for understanding and discussion. By getting involved, you canparticipants reduce or eliminate uncertainty about an emergency before the emergency happens.

Part 2: Narrative: *What Goes Around…*

Time: 20-30 minutes

Focus: The narrative provides participants with essential background for the exercise

[The following is the narrative for presentation to the participants. Depending on the size and background of the group, you may choose to let participants work individually or in small groups. If you select the small group method, sections of the narrative may be assigned to each group for them to analyze. Small group work may be a solution if the activity must be completed in a shorter amount of time.]

Bill's headlights illuminated words on a sign --- Exotic Ornamentals, Inc. --- as he pulled through the entrance to his family's business. Bill arrived at work especially early since he had additional shipments and receivables to process today. The hours were long with the family business. He began his routine by walking around the outdoor ponds at their facility near Ruskin, Florida. The facility dog, Buster, greeted him as he stepped out of his truck and then ran off to chase birds and cats away from the ponds.

Like most ornamental aquaculturists, the family specialized in several types of high-dollar fish. Exotic Ornamentals specialized in goldfish and had the largest koi facility in the United States. They made good money, with more than $4 million in sales annually, but the competition was intense. Bill was mentally reviewing his task list for the day when he spotted some ripped anti-bird netting above the ponds. He wondered when he would have the time to repair them. There always seemed to be something needing repairs; the netting did not seem to be an urgent problem since he had never seen a bird feeding on their valuable stock.

He continued by collecting water samples to evaluate pond aeration and other water quality measures in both the production ponds and holding tanks. All measurements were in the acceptable range for each species, although he noted mentally that the tank water temperature was cooler than the ponds by a few degrees. The tank water temperatures ranged between 64 and 67° Fahrenheit (17.7 to 19.4° Celsius). Completing his rounds of the farm, he returned to the main office to rendezvous with his father, Edward. The lists of tasks to complete today continued to multiply in his mind as he walked. He needed to prepare tanks 10 through 25 for the new incoming

shipment, clean the outgoing-shipment tanks, treat the female breeders with hormones, fill out the shipment documents and prepare a copper sulfate bath for a sickened batch of koi. He knew he should consult with a veterinarian prior to treating, but he did not have the time to do that now. How would he get everything done?

As he drank his coffee, he discussed the actionable items with Edward. The work was good for his father, but Bill felt guilty that his father had continued to work into his seventies to help support the family. Edward had become tired and a little forgetful in his old age. Bill decided to ask his father to prepare the tanks for the new shipment and he would begin filling out the necessary paperwork to sell fish to their primary customer, Pet Super-Duper World.

The morning chores progressed as usual. Bill bleached and rinsed the tanks that would contain the day's outgoing shipments until bagging and shipping. They constantly battled diseases and had developed an unwritten protocol based on what seemed to work in the past to prevent outbreaks. Bill and Edward had never kept daily logs of water quality or chemical treatments. After all, it was just the two of them, and if there was a problem, they dealt with it that day. Besides, there was already plenty of paperwork competing with real work for his time. He had become highly successful doing things this way and saw no sense in tasks that did not have immediate financial rewards.

The newest koi shipment from Asia arrived about 12 noon. Edward went to meet the delivery truck and Bill reminded his father, "Make sure you put the new batches in tanks 10 through 25 since they are on the same pump." Edward nodded. Bill, feeling Edward had the situation under control, walked away to start harvesting the koi for this afternoon's outgoing shipment.

Bill tugged the net across the pond to harvest the newest crop of koi. He quickly did the math in his head. 20,000 koi at $3.00 per fish would fetch about $60,000 from Pet Super-Duper World. After he got all the koi loaded, Bill drove the collection truck from the outdoor fields into the shipment facility located in the receiving building. Thankfully, it was late January and air temperatures were cooler so he was not worn out by the typical central Florida heat.

The day was almost complete when Bill noticed something of concern. The koi in tank 26 were swimming erratically. Had either he or his father placed koi in tank 26? Silently, he hoped his father had not confused the tank numbers again. Just to be extra cautious, he would put copper sulfate in the tank before the shipment left the building. Suddenly, he wished that he used separate nets and equipment for each of the ponds and had spent the extra

money to build separate quarantine and shipment facilities. He reassured himself that there had never been any problems in the past and to not worry about this.

As the sun dipped below the horizon, the final bag of koi was boxed and loaded and the last document signed. The shipment was bound for 100 stores across the United States to Pet Super-Duper World customers eagerly awaiting koi. Edward and Bill discussed the tasks for tomorrow and finally parted ways to head home. Bill started thinking about the items that needed to be addressed tomorrow morning as he navigated the truck up the driveway.

The phone rang about 7:00 AM. A manager Bill knew from a nearby Pet Super-Duper World was on the other line. Bill rubbed his eyes and responded groggily, "Hi, Helen, what seems to be the problem?" When Bill heard the answer, he nearly dropped the receiver in disbelief.

"Your fish arrived, but we noticed several bags had sick fish. We called in the vet. Based on the clinical signs we decided to submit samples from two bags for SVC detection at the state lab." Helen sounded angry and concerned.

Bill was speechless. The disease, SVC, or Spring Viremia of Carp, was frequently fatal to koi. The disease had wiped out entire koi operations. Ironically, this was the same disease that had allowed Exotic Ornamentals and other Florida facilities to become very profitable after it was detected in another production area. Any detection of SVC required immediate quarantine and culling of exposed fish. The disease was the worst-case scenario for any carp and goldfish aquaculturist and would likely result in the loss of all his customers, especially Pet Super-Duper World, and his family's aquaculture operation.

Bill contacted a local veterinarian and asked him to come as quickly as he could. The vet's arrival was too little too late. Nearly all the koi in the indoor tanks were swimming erratically and the new arrivals from the previous day were floating on the surface of their tanks. Then Bill noticed the root of the problem. Only tanks 16 through 20 contained fish from the incoming shipment from Asia. Edward had counted incorrectly and placed the new stock in the shipment system where all the water was shared and had circulated through all the facility's tanks. This had happened before.

The veterinarian asked to see the log books, but Bill explained that they had never kept written records. The vet began to look very concerned as he observed the sloppy biosecurity around the facility. The ripped nets, spotted the day before, had allowed several birds into the outdoor ponds. They were now hungrily feeding on the sickened and dying koi. The vet silently watched as

the family dog vaulted into pond after pond, chasing the birds before asking, "Don't you have any records besides the shipment papers?"

Bill shook his head. The biosecurity protocols recommended by aquaculture epidemiologists, industry specialists and government had seemed so useless and excessive in the past. He now desperately wished that he had heeded the advice.

The next day the Florida state veterinarian's office imposed a farm quarantine freezing all fish movement on or off the farm. The USDA recommended that Pet Super-Duper World destroy the koi from the shipment that had not already died and establish quarantine of the six facilities that had received fish from the infected shipment. In addition, the six facilities would be under quarantine until disease testing was negative for SVC.

Within one week of the confirmation of SVC in the shipment, all the ponds and tanks at Exotic Ornamentals were drained and the stock euthanized. By the end of the same month, the doors were closed to business and their reputation in the koi industry was tarnished forever.

EPILOGUE

A month after shutting down Exotic Ornamentals, Bill received a new issue of FishTODAY magazine. He thumbed to an article about how Asia's thriving koi industry was absorbing the demand from Florida's shutdown facilities. Bill wondered if the tainted shipment from Asia had been pre-planned, but how could he be sure?

Table-Top Simulation Discussion Questions

These questions are intended to help you analyze the narrative you have just read. Answer the questions to the best of your ability and be prepared to discuss these answers. Use more pages if additional space is needed.

1. What biosecurity practices could or should be adopted at Exotic Ornamentals?

_____

_____

_____

2. In your opinion, what was Bill's biggest mistake?

_____

_____

_____

3. List the biosecurity breaches that Bill and Edward committed.

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_____

4. How could the situation have been avoided?

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_____

5. What information would have been helpful to the veterinarians involved on both sides?

_____

_____

_____

6. How much would simple biosecurity measures have cost?

_____

_____

_____

7. What liabilities could Bill and Edward face?

_____
_____
_____

8. What agencies would respond to this situation?

_____
_____
_____

9. What was the source of infection in the fish that were shipped to Pet Super-Duper World?

_____
_____
_____

10. Provide at least one alternative outcome to this incident.

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_____
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11. How has this activity changed your view of security where you work? Are any changes in order?

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_____
_____

Table-Top Simulation -- Biosecurity Design Protocol

This exercise is designed to further your understanding of biosecurity protocol for an aquaculture facility. Following the guidelines provided below, please prepare a complete biosecurity protocol for Exotic Ornamentals, Inc. This activity will test your knowledge of aquaculture facility management. Additional paper for this exercise is available.

1. Given the time requirement for this activity, a full economic analysis is not necessary, however economics should still be considered when and where possible. Make sure to explain if a decision or assumption is made for economic reasons.

2. Include a facility schematic to make your security planning easier. Be sure to illustrate exit routes, loading and unloading areas, slippery spots, locations for chemical storage, disinfection stations, feed storage, quarantine/acclimation/isolation areas, etc. Multiple schematics may be used to illustrate different items. Make sure to note why these areas are important in biosecurity planning.

3. Design mortality, treatment, water quality and visitor logs. These need not be lengthy, just enough to show their proper use. Remember to include all areas that may be needed for sufficient documentation of the facility's management. Explain why each log's use is significant and how you designed it.

4. Describe the biosecurity/safety culture at the facility. A culture is the environment at a place of business that governs and describes the feelings and actions of all employees from top administration to floor workers and laborers. The biosecurity culture described in the narrative was one of indifference, denial and avoidance; a true "It-won't-happen-to-me" mentality. Cultures are difficult to change. With the implementation of your biosecurity protocol explain how you will attempt to change the culture to better suit the business and its goals.

5. Include instructions for dip-changes, equipment sharing, worker disinfection (i.e. washing hands, dipping shoes, clothes changes, etc.) and any other biosecurity practices you wish to implement with the biosecurity protocol that you feel are important. If you choose to include additional practices, make sure to fully describe them and explain why they are important to your biosecurity plan.

Description of Exotic Ornamentals

- There are five employees, including the owner, Bill, and his father, Edward.
- The entire facility sites on 10 acres.
- Therer are 18 ponds with a total of two acres of surface water.
- There are three buildings, each with systems of ten 20-gallon tanks.
- The only fish bieng raised are goldfish and koi.

Facility Schematic	

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Biosecurity Protocol

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