

AQUACULTURE BIOSECURITY

VECTORS: WILDLIFE, PESTS, AND OTHER ANIMALS



HOW VECTORS CAN SPREAD DISEASE

Vectors are living animals that can transport pathogens onto and within aquaculture farms. They include predators, scavengers, pests (e.g., rodents), wildlife and wild birds, domestic animals, and aquatic organisms, such as non-production species of fish, snails, amphibians, and reptiles. Some vectors are hosts for diseases, shedding pathogens in their urine and feces and contaminating water sources or feed. Others may transfer pathogens on their bodies or feet to new locations. Animals that scavenge dead or sick animals can spread pathogens by dropping animals or animal parts into production areas. While keeping all vectors out of aquatic animal facilities is impossible, mitigation and control efforts can reduce their impact.



HOW TO MANAGE AND PREVENT PATHOGEN INTRODUCTION

- Determine potential vectors for your farm or geographical area.
- Monitor for vector activity (e.g., feces, animal tracks) in feed and production areas.
- Limit contact between farm stock and vectors as much as possible. Use nets, fences, shade cloth, underwater screens, and other barriers to prevent entry and access by wild animals and birds.
- Minimize areas where birds perch and nest, especially near or above animal production areas.
- Clean outdoor containment units regularly to reduce potential vectors, including amphibians and aquatic reptiles, that can spread disease.
- Keep feed in a secure, enclosed area or containers to prevent access by wild animals and birds. Clean up any feed spills promptly.
- Remove trash frequently to reduce the attraction of wildlife vectors.
- Consider using integrated pest management (IPM) procedures to control scavenger and pest species like rodents or birds.
 - Contact a county extension agent or specialist and/or pest control company to assist.
 - Use rodent bait according to label directions.



- When implementing vector control activities:
 - Comply with all local, state, and Federal regulations.
 - Ensure the targeted species - wildlife, birds, or other animals are not endangered, threatened, or protected in your area. Many wild birds are federally protected.
 - Contact your USDA APHIS Wildlife Service Regional Office for assistance with predator management and control options.
- Keep domestic animals – dogs, cats, livestock – out of aquatic animal production areas.



BIOSECURITY ASSESSMENT CHECKLIST

Use the following checklist to identify biosecurity actions you currently use or can use to manage and reduce risk for pathogen introduction by various wildlife and wild bird vectors.

Vector Management and Prevention

YES	NO	BIOSECURITY QUESTION
Y	N	Do you know the possible disease vectors for your farm or geographical area?
Y	N	Do you monitor for potential vector species?
Y	N	Are nets, fences, and other barriers installed and maintained to prevent entry and access by wild animals and birds?
Y	N	Are areas where birds perch and nest minimized?
Y	N	Are outdoor containment units regularly cleaned to reduce potential vectors?
Y	N	Is feed kept secure and enclosed to prevent access by wild animals and birds?
Y	N	Are feed spills in storage areas or around production units cleaned up promptly?
Y	N	Is trash removed often to reduce the attraction of wildlife vectors?
Y	N	Do you have a plan to control scavenger and pest species?
Y	N	Have you contacted USDA APHIS Wildlife Services to determine the best vector or predator control options?
Y	N	Are local, State, and Federal regulations regarding predator control measures followed?
Y	N	Are domestic animals (e.g., dogs, cats, livestock, poultry) kept away from animal areas?

FOR MORE INFORMATION

Find additional resources on the [Aquaculture Farm Biosecurity website](#), including disease transmission pathway tip sheets, videos, biosecurity assessment questions, a biosecurity plan template, and farm biosecurity signs.



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