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Enclosures used to Protect Fish against Birds in Fish Farming

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SUMMARY

Birds can have a substantial economic impact on the aquaculture of fish, shellfish, crabs, and other invertebrates, among other things. Fish-eating birds are highly mobile and adaptable predators, capable of quickly exploiting situations of food abundance. Aquaculture facilities are ideal feeding grounds for these predators. The severity of bird problems will vary depending on the species and number of birds present, as well as whether the birds only visit the facility seasonally or stay all year.

INTRODUCTION

Fish-eating birds are highly mobile and adaptable predators, capable of quickly exploiting situations of food abundance. Birds can injure fish, disrupt their feeding activity, disturb broodstock, and contribute to the spread of diseases and parasites in aquaculture ponds and raceways in addition to consuming fish. Many birds roost on shellfish culture or holding structures in marine environments. Due to fecal droppings of birds roosting on these structures, shellfish lots failed to meet coliform bacteria standards set by health service agencies. Bird feces can contaminate water and reduce oxygen levels due to bacterial activity. The economic impact on farmers can be significant and, in some cases, disastrous. Crop and income loss are caused by bird depredation. Fish management and the ability to modify programs in response to changing bird habits are just as important as facility design. Because fingerlings are more vulnerable to bird predation, they should be kept close to human activity and near buildings that could be used as part of a bird exclusion system. Larger fish require less protection because they can avoid bird predators better.

Facility design and construction

Nets and wires are much easier to use on square or rectangular ponds than on round, oval, or irregularly shaped ponds. If anti-predator nets are to be used over artificial man-made ponds, the bodies of water could be constructed with the percentage that allows for standardized nets to be deployed over them. New aquaculture facilities should, ideally, not be built along known cormorant flyways.

Netting enclosures

- The most effective method of preventing predation by fish-eating birds, including cormorants, is to completely enclose a site with netting. Such netting enclosures, when appropriately designed, can allow people unrestricted access to enclosed waters, permitting fishery management or aquaculture tasks to be carried out. There are a few general things to think about when it comes to the effective deployment and use of netting enclosures.
- Netting should be strong enough to withstand wind and snow/ice accumulation, as well as weathering (e.g. exposure to sunlight). When the frequency and cost of repair and/or replacement are considered, more expensive, robust netting may be more cost-effective than cheaper nets, and these will be more visible to birds.
- Netting should be strong relatively tightly to prevent sagging from the weight of any birds standing on it.
- The netting should have a reasonably lesser mesh size (5 to 7 cm mesh size) to assure comprehensive exclusion of all birds, though bigger mesh sizes (15 to 50 cm) can be enough for bigger birds such as cormorants. To ensure maximum visibility for birds, dark-colored material is preferred.
- Netting should be checked regular basis and maintained as required. Poorly maintained nets may allow predators into the water but prevent them from escaping, potentially increasing fish losses.

Using ‘wires’

The term "wires" is used here as a catch-all term that could also refer to cords, ropes, or tapes. Wiring systems are a less expensive alternative to a full enclosure with netting. The fish-eating birds glimpsing for feeding likelihoods may be prohibited from utilizing waters conserved by wires because these differ from the birds'

capacity to land, feed, and take off. Wires can be deployed in a variety of ways to deter fish-eating birds from foraging at a site. Wires are commonly held taut above the water surface and secured to posts set into the banks, but ropes can also be drifted on the surface, and a variety of spacing and deployment habits can be used to encourage distinct uses of the water bodies.

Floating plastic balls

Covering a pond with floating plastic balls is an extremely effective way to prevent birds from landing on small bodies of water. This strategy has been evaluated as especially valuable in protecting water birds away from effluent ponds or bodies of harmful water where the birds could be injured. Because of the considerably high cost of this method, it may not be appropriate for fish breeding ponds unless the ponds are small or the fish are particularly valuable (such as broodstock or ornamental fish).

CONCLUSION

Exclusion techniques are widely accepted, highly effective, and have a high level of acceptability in most cases. Installing a full netting fence at a site will be expensive, and this must be balanced against the level of protection necessary and the value of the stock being protected.Nets and wires are widely available and can provide responsible, long-term, cost-effective explanations for eliminating or reducing cormorant predation at a site; their effectiveness is dependent on proper installation and maintenance.

REFERENCES

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