

In this episode, we talk about the impact of disaster events on shellfish aquaculture. Farmers grow shellfish outdoors in rivers, estuaries, bays, and the ocean. Like their land-based counterparts, shellfish farms are often at the mercy of Mother Nature. Hurricanes, floods, harmful algal blooms, and oil spills can all take their toll, leaving shellfish farmers wondering what disaster relief may be available to them.

## **The Impact of Disaster Events on Shellfish and Aquaculture**

Strong storms can damage or wash away a farm's infrastructure, gear, and crop - the shellfish themselves. For instance, it's estimated that the shellfish aquaculture industry in North Carolina suffered losses totaling nearly \$10 million due to storms in 2018. Powerful waves and storm surge damaged docks, waterfront buildings, and gear, and also had severe impacts at shellfish hatcheries and nursery operations.

Harmful algal blooms can also introduce toxins into the water, raising concerns over the safety of seafood that can result in prohibitions on harvest. Algal blooms are caused by phytoplankton, free-floating microscopic algae found in both marine and freshwater ecosystems. A small percentage of these algae species can produce biotoxins harmful to human health. Biotoxins from these algae can concentrate within the shellfish flesh, causing illnesses to humans who eat the contaminated shellfish and shutting down shellfish harvesting for weeks.

Accidents like the 2010 BP Deepwater Horizon spill can also have far reaching negative impacts on shellfish. Oil spills can harm shellfish populations directly due to compounds found within oil that bioaccumulate within the animals. Oysters, for example, cannot move away from oil because they are either cemented to their reefs or contained within aquaculture growing areas. Oysters are also less efficient at removing chemicals from their bodily tissues compared to other animals like fish or crabs. However, the different types of bacteria living in and around oyster reefs may have evolved over time to help oysters rid themselves of oil and oil-related chemicals.

The response actions meant to mitigate the negative impacts of an oil spill can also have undesirable consequences, such as the use of oil dispersant. Oil dispersant is a mixture of emulsifiers and solvents that helps break oil into small droplets. While breaking up the oil with dispersants may lessen exposure to marine life on the surface, it increases exposure for animals dwelling underwater. Additionally, oil that is mixed with dispersants may be more toxic to some species than oil alone.

One of the biggest losses a shellfish farmer can suffer from a disaster event is the loss of their gear. Many states have developed guidance to help prevent aquaculture gear loss. Florida, for example, encourages farmers to create a storm plan that helps ensure their operations are ready when a hurricane strikes. It also makes specific recommendations for shellfish farmers depending on what type of gear they use.

## Available Recovery Options

Despite adequate preparation, do shellfish farmers have any recovery options in the event that a disaster event negatively impacts their operations? Oftentimes, the answer is yes.

Crop insurance is one way in which shellfish farmers may be able to recover. The U.S. Department of Agriculture (USDA) offers several permanently authorized programs to help farmers recover financially from natural disasters, including droughts and floods. Crop insurance is generally available to growers of large commodity crops and varies by location. While there are some crop insurance plans available to certain shellfish growers, such as clam growers in Massachusetts or oyster growers in Louisiana, crop insurance is not available for many aquaculture operators.

Most aquaculture producers must instead use the Noninsured Crop Disaster Assistance Program (or NAP). NAP is administered by the USDA's Farm Service Agency (or FSA) and protects against natural disasters, including flooding, that result in lower yields or crop losses, or prevented crop plantings. Crops that are eligible for NAP include commercial crops that are grown for food but do not qualify for crop insurance coverage, making some aquaculture operations eligible for the program.

However, there are some additional requirements that limit the availability of NAP coverage for aquaculture operations. For instance, the operation needs to be located on private property that the producer leases or owns and which has clearly identifiable boundaries. Furthermore, the aquaculture species has to be "[k]ept in a controlled environment." NAP coverage is only applicable to future situations. For example, an oyster grower who had not previously enrolled in NAP for this year and who has already sustained damage to his or her oysters would not be eligible for a NAP payout and would need to talk to their local FSA agent to see what other aid may be available.

In addition to NAP coverage, aquaculture producers may get additional relief from disaster declarations made by the USDA, the Department of Commerce, or the President, from which they can receive emergency loans or Congressionally appropriated funds. States can also establish their own relief funds in the wake of catastrophic disaster events.

*Listen to the full episode for more details on the who, what, where, why, and how of shellfish aquaculture!*

**Key Words:** oil spill, HABs, crop insurance, Noninsured Crop Disaster Assistance Program

### Resources:

NSGLC- The Noninsured Crop Disaster Assistance Program and Aquaculture:

<http://nsglc.olemiss.edu/projects/ag-food-law/files/aflc-nap.pdf>

NSGLC- Emergency Assistance for Livestock, Honeybees, and Farm-Raised Fish Programs:

Aquaculture Provisions: <http://nsglc.olemiss.edu/projects/ag-food-law/files/aflc-elap.pdf>

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