

# WATER LOG

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## Aquaculture in the Gulf of Mexico

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*Cover photograph courtesy of Brian Jeffery Beggerly.*

*Table of Contents photograph courtesy of Juan Gonzalez.*

## • UPCOMING EVENTS •

### **Sustainable Infrastructure & Resilience (2019 NCSE Annual Conference)**

Washington, D.C.

Jan. 7-9, 2019

<http://bit.ly/ncse2019>

### **5<sup>th</sup> Annual Sustainability Summit (Green Coast Council)**

Mobile, AL

January 25, 2019

<https://www.joinacf.org>

### **Aquaculture 2019**

New Orleans, LA

March 7-9, 2019

<http://bit.ly/aq2019>

# Go Fish:

## A Setback in Finfish Aquaculture in the Gulf

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Kristina Alexander

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Many countries get most of their seafood from aquaculture. In fact, aquaculture is the fastest growing major food production sector this century, with China producing the most. The United States may be losing out. It imports \$20.5 billion of seafood, both captured and farm-raised, per year. Additionally, the United States misses its share of the 19.3 million aquaculture jobs worldwide, according to the United Nations.<sup>1</sup>

### Aquaculture Authority in the Gulf

Aquaculture is distinguished from catching fish in the wild by the fact that in aquaculture, the fish, be it shellfish or finfish, are grown and fed at the direction of a human “farmer” in containers suitable to their natural habitat. When mature, the fish are brought ashore for sale. They are farmed, not caught.

The problem for finfish aquaculture in the United States is that there is no enabling act that regulates all aquaculture activities in the United States. The regulatory authority over marine aquaculture depends on whether the operation is within state waters or the Exclusive Economic Zone (EEZ) governed by the United States’ federal government, which, generally speaking, is more than three miles from a state’s coast. The National Oceanic and Atmospheric Administration (NOAA) has stepped into the void, using the Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act or MSA) as the baseline authority for regulating aquaculture in the EEZ. In January 2016 NOAA finalized regulations to authorize finfish aquaculture in the Gulf of Mexico. The plan would require a permit from NOAA, as well as a permit from the U.S. Army Corps of Engineers (Corps) under Section 10 of the Rivers and Harbors Act to confirm that the

operation will not interfere with navigation, and a permit from the Environmental Protection Agency (EPA) under the Clean Water Act to verify that the operation will not contaminate the surrounding waters.

### Court Battles over Aquaculture

However, in September 2018, a court held that NOAA lacked the authority to issue the regulations, ruling them invalid. According to the court, Congress intended the MSA to govern the capture of wild fish, not fish farming. The dispute focused on interpreting the word “harvesting,” which is within the MSA’s definition of fishing. The MSA defines “fishing” as “catching, taking, or harvesting of fish.” The question is whether this definition of fishing includes aquaculture.

Typically, when the words of a statute are in dispute, courts turn to the common meaning of the word, such as how a dictionary defines it. That is what NOAA argued before the Eastern District of Louisiana: that the common meaning of harvesting is bringing in a crop. In this case, NOAA claimed the crop was fish. The act of fishing under the MSA would also include bringing in a crop of fish, argued NOAA, and therefore, the MSA applies to aquaculture. The parties who filed the suit, consisting of commercial fishing groups and food safety advocates, contended that “harvesting” could not be read independently of “catching” and “taking,” the two other elements in the definition of fishing. The federal district court for the Eastern District of Louisiana held that the MSA definition of fishing – “catching, taking, or harvesting of fish” – had to be read as a whole, and that catching and taking were words describing capturing a wild fish. According to the court, “harvesting should be read similarly to refer only to the traditional fishing of



wild fish.”<sup>22</sup> The court also considered the legislative discussions recorded when Congress crafted the MSA. Considering these factors together, the court concluded that fishing meant capturing wild fish, not bringing in a crop of fish.

That same dictionary argument yielded different results in a 2012 case before a federal district court in Hawai‘i. In that case, NOAA issued a permit for one aquaculture operation in which a boat towed a fish stock cage around federal waters off the coast of Hawai‘i. The plaintiffs argued that NOAA lacked jurisdiction under the MSA to regulate aquaculture. The Hawai‘i court reviewed the plaintiff’s argument that “harvesting” meant “catching and taking” fish. The court held that such a reading would make the definition of fishing internally redundant, i.e. it “would be equivalent to ‘the catching, taking, or the catching and taking of fish’.”<sup>23</sup> Thus, it ruled that the MSA authorized NOAA’s issuance of the permit. On appeal, the Ninth Circuit narrowed the holding, finding that issuing one permit for one specific operation did not function as a NOAA rule that aquaculture was a permitted activity under the MSA.<sup>4</sup> Under the law, NOAA may “review and issue special permits for proposals to fish ‘with any gear not normally permitted,’ [] under [NOAA’s] ‘generally conferred authority’.”<sup>25</sup>

It would be easier if “fishing” had been defined as “catching fish,” but Congress seldom makes the path clear. Because multiple words were used for one task, two courts journeyed through dictionaries to sort out congressional intent; trips that yielded different results. When the definition of “fishing” in the MSA is read as a whole, arguably only the Eastern District of Louisiana’s reasoning withstands scrutiny. The core problem with the District of Hawai‘i’s argument, that “harvesting” leads to redundancy, is that it overlooks the fact that in this context “catching” and “taking” mean the same thing, too. The word “taking” in wildlife law does not mean “stealing,” as it would commonly. Instead, it means capturing or killing. Certainly nobody considers taking fish while lawfully fishing a criminal act. Instead, “taking” in this context is interpreted to mean the same as “catching.” Thus, the whole definition of “fishing” is an example of Congress using multiple words to refer to one thing, which, as the District of Hawai‘i court itself points out, is not unusual: the MSA

also defines “fishing vessel” to include “vessel, boat, ship, or other craft.” As the Louisiana court points out “[i]t is a fundamental canon of statutory construction that the words of a statute must be read in their context and with a view to their place in the overall statutory scheme.” Thus, that court’s rationale, which is that the legislative history “shows an intent to read ‘harvesting’ as the catching of wild fish,” supports the rule that the law cannot be applied to authorize aquaculture. That court also notes that to support NOAA’s view would amount to finding that Congress intended to authorize NOAA’s management of aquaculture simply by using the word “harvesting” in the definition of fishing, but without making any other mention of it anywhere else in the MSA.

Despite different interpretations of “harvesting” by two courts, the decisions can be read in harmony due to the factual differences. The District of Hawai‘i allowed one permit to be issued for one aquaculture operation, issued under NOAA’s general authority to permit catching fish with different gear. The Eastern District of Louisiana found that regulations issued to allow widespread commercial aquaculture operations in the Gulf of Mexico were contrary to the authority of the MSA, which pertains to catching wild fish. It seems possible that if a single commercial aquaculture operation applied for a single aquaculture permit for one facility in the Gulf of Mexico, irrespective of the now-defunct regulations, a court could find the operation was sanctioned under NOAA’s “generally conferred authority.”

Notably, prior to issuance of the now-defunct regulations, the Corps and EPA issued permits to a company to site an aquaculture facility seven nautical miles south of Perdido Key, Alabama in 2012 and 2013. However, the site was never brought to function – no cages or pens were placed in the water. This suggests that an aquaculture facility in the EEZ could be permitted without a permit from NOAA.

### Practical Aspects of Finfish Aquaculture

Additionally, while the Louisiana court’s ruling will curtail finfish aquaculture in the Gulf, it applies only to those species managed under the MSA. EEZ waters are still open for business for other species provided the operator gets the other permits from the Corps and EPA.

Finfish aquaculture is an expensive enterprise, unlikely to appeal to small farmers in the same way that shellfish aquaculture has. NOAA estimated that the smallest economically viable aquaculture operation in the Gulf EEZ would require an initial investment of \$2.89 million. The smallest viable operation would require six cages. NOAA estimated the costs of the equipment needed: an aquaculture support vessel – \$1.5 million; six cages – \$0.96 million, land and onshore support facilities – \$0.33 million, and service vessels – \$0.1 million. Additionally, the costs of feed, the fingerlings, and trips to and from the cages are expected to cost \$1 million for one grow-out cycle.<sup>6</sup> This amount does not take into account the permit fees (the NOAA permit was \$10,000 under the defunct regulations), nor the expense of acquiring a permit, which involves mapping, obtaining a certificate of suitability of the brood stock, and proof of a contract with a veterinarian or a fish pathologist/health inspector. Additionally, the operator would likely be required to post an assurance bond that will cover the cost of removing all components of the operation, including all the fish.

The regulations contemplated large cages anchored in areas that were twice as big as those pens to allow water to circulate. It would seem that any permit issued by the Corps or EPA would seek guidance from those defunct regulations, which were nullified for procedural, not substantive reasons. Regardless of the type of fish raised, finfish aquaculture requires a facility, which is a large netted/caged structure that is anchored to the ocean floor, and is used to raise fish with fins (i.e. not shrimp, crabs, oysters, mussels, or seaweed) to maturity for sale. Finfish aquaculture cages may be surface containers (this style is used frequently in foreign aquaculture in the Pacific Ocean), but to avoid damage from hurricanes and tropical storms, facilities in the Gulf likely would require submerged cages with floating markers. It is anticipated that a finfish aquaculture facility would use a remote feeding device, via mechanical means, rather than by having a farmer travel to the site. Perhaps facilities in state waters, being closer to shore, would not require mechanized feeding systems.

Any federal permits issued would have to consider the environmental effects of the action, under the National Environmental Policy Act. One aspect of

environmental compatibility is the type of finfish allowed. It would be catastrophic to introduce an invasive species into the Gulf, and many consider genetically modified species, which could interbreed with native species in the case of escapement, also to be environmentally harmful. Thus, only certain fish likely would be allowed to be raised at an aquaculture facility in the Gulf: species native to the Gulf.

In addition to the type of fish posing an environmental threat, NOAA and the Corps also would have to evaluate the site location for environmental threats – such as the presence of endangered species, essential fish habitat, or marine protected areas; physical suitability – such as user conflicts with commercial or recreational fishing, oil drilling operations, and appropriate depth and currents; and navigability and national security – avoiding shipping lanes and military training or testing sites.

### Specific Aquaculture Projects in the Gulf

In addition to oyster farming, as discussed in *Oyster Aquaculture in the Gulf of Mexico*, there are two other aquaculture projects that the Mississippi-Alabama Sea Grant Consortium is working on: finfish aquaculture and blue crab aquaculture. The Mississippi-Alabama Sea Grant Legal Program (located in Oxford, MS) is working with the University of Southern Mississippi to assist an applicant with the finfish aquaculture permitting process. The grant from the Gulf States Marine Fisheries Commission for the project was issued before the court's nullification of the MSA permit. Despite lacking a general MSA permit for finfish aquaculture, the application process is continuing. The goal is to assist a commercial aquaculture operation in applying for the necessary permits. Although the MSA permit is not available, the Corps' permit would still be required, as would a Clean Water Act permit from the EPA.

At present, grant participants are mapping the areas in the Northern Gulf that would be suitable for aquaculture by this applicant. In addition to the environmental and safety factors discussed above, proximity matters in making an aquaculture enterprise practicable. For example, the hatchery fish must be transferred to the prospective site, so finding one that is just six miles away is much more practical than one that is

10 miles away, for example. Also, the mapping process considers proximity to fish processing centers to make harvest more cost-effective.

A separate finfish aquaculture pilot program is advancing in Florida near St. Petersburg. A first attempt at a novel floating cage structure for the project failed when it sank as it was being towed to sea. While the project is continuing, its exact status is unknown.

Additionally, as mentioned above, an aquaculture facility for federal waters south of Alabama received Corps and EPA permits in 2012 and 2013, but never placed any facilities in the water.

### Conclusion

While finfish aquaculture has significant economic benefits, operations in the Gulf of Mexico have been slow to start and were further delayed by an adverse decision nullifying the regulations for NOAA to issue permits for the activity. NOAA anticipates that starting an operation would require almost \$3 million, which limits the opportunity for small business owners to enter the market. Offshore aquaculture operations are complex; they must be large to be profitable, and they require

specialized innovative equipment, specific brood stock, and the capability to make transfers to and from shore. Such an operation must be permitted, a process that requires time and money. The Mississippi-Alabama Sea Grant Legal Program is continuing its work on a grant to advance an operator through the application process. As the project advances, updates will be posted on its website: <http://masglp.olemiss.edu>. 🐟

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### Endnotes

1. Food and Agriculture Organization of the United Nations, [The State of World Fisheries and Aquaculture](#), p. 5 (Rome, 2018).
2. Gulf Fishermens Association v. National Marine Fisheries Service, 2018 WL 4587652, \*4 (E.D. La. Sept. 25, 2018).
3. Kahea v. National Marine Fisheries Service, 2012 WL 1537442, \*10 (D. Haw. Apr. 27, 2012).
4. Kahea v. National Marine Fisheries Service, 544 Fed. Appx. 675 (9th Cir. 2013) (*Kabea II*).
5. *Kabea II*, 544 Fed. Appx. at 675.
6. 81 Fed. Reg. 1781, 1789 (Jan. 13, 2016).

## In SUM.

A Summation of the Facts and Figures of Interest in this Edition

★ Number of commercial oyster farms in the Gulf in 2009:	0
★ Number in Alabama today:	14
★ Number in Mississippi:	0
★ Estimated start up costs for finfish aquaculture in Gulf:	\$2.89 million
★ Sea Grant grant for blue crab aquaculture:	\$339,239

# Oyster Aquaculture in the Gulf of Mexico

Russell Grice

## The Industry

For decades, oysters have been tonged or dredged for harvest in the Gulf of Mexico. And Native Americans harvested Gulf oysters for centuries before that. Oyster aquaculture, however, is new. Farming oysters in raised containers presents a unique opportunity to cultivate a premium product for a growing market while being able to manage some aspects of the risks inherent in on-bottom culture. Oyster aquaculture is beneficial in that it creates jobs in rural coastal communities, provides a popular seafood product to consumers, and is complementary to restoration programs such as oyster gardening.

In the Gulf of Mexico oyster farmers use a couple of types of gear on their farms. Growers can use an adjustable long line system which consists of plastic baskets that are suspended from lines that are attached to pilings and can be moved in and out of the water column for air drying. The other system is a floating cage which can be flipped so that the oysters are entirely in the water for feeding or out of the water for air drying. The cage is tied to long ropes that are anchored to the sea floor. All farms have to be approved by the U.S. Coast Guard and must be marked with beacons so that boats can see them. Boaters frequent the farms because they are great areas for fishing.

Gear can be removed from the farm for storms, but the oysters have to be put back in the water at the farm for a specific number of days as determined by each state.

An average farm managed by one person is two acres big and will have 2 to 300 containers of oysters. Most farmers are out daily, depending on weather and closures. It is a full time effort for one person, and they will usually hire some help during harvest.

There are two types of operations for oyster farming: off-bottom and on-bottom. Off-bottom oyster farming is described above. In contrast, on-bottom oyster farming uses racks that sit on the sea floor and are filled with oysters. We have found that this doesn't work as well in the Gulf due to sediment build up and predator loss.



Photograph of Florida oyster farmers; courtesy of Russell Grice.

Being raised off of the sea floor and in containers makes it very difficult for predators to get to the oysters to feed.

## New Industry to the Gulf

Farm-raised oysters are still a relatively new commodity in the Gulf of Mexico—in fact, just as recently as 2009, there wasn't a single oyster farm from Florida to Texas. Now, thanks to an increasing demand for a premium product, there are almost 50 oyster farms currently in operation in the region with new farms in the works. Seafood restaurants and oyster bars throughout the Gulf states and beyond are featuring these boutique oysters on their menus, and food enthusiasts at every level are enjoy the farm raised product.

Beyond the business opportunities that come with starting an oyster farm, it's good for the ecosystems of Gulf Coast. In fact, oysters are considered to be a “keystone species” for our waterways. Oysters help to improve the water quality in our bays by feeding on excess phytoplankton. They are known as natural filters, cleaning the water. Additionally, the presence of additional on-bottom oyster farms creates new artificial reef habitat, which are beneficial to a number of aquatic species.

Thanks to a mixture of salt water from the Gulf Coast and freshwater from our bays and rivers, Gulf oysters are in an environment where they can thrive.



Raising oysters in containers significantly reduces the threat from predators as well. Predators include a variety of fish, crabs, and oyster drills (a sea snail).

Due to the variety of the Gulf's coastline, the flavor profiles of farm raised oysters can vary a great deal. In fact, oysters from the same bay can vary in size, appearance, salinity, and taste. Plus, depending on seasons, weather, and other factors such as rainfall, characteristics of these oysters can vary even more.

Additionally, through research efforts and funding from grants the industry has developed techniques to improve the marketability of cultured oysters for the half shell market. For example, running oysters through a mechanical tumbler during the grow out phase chips the bill of the oyster which causes them to grow a deeper cup while removing fouling and barnacles from the shell. Also, the ability to raise the oysters out of the water column periodically allows for air drying which also reduces fouling.

Farm-raised oysters are known for their quality. This is due in part to the fact that farm-raised oysters are grown from individual seed instead of being harvested in clumps which form a natural reef in the wild. By minimizing fouling, sorting them by size, and tumbling them to get a deep cup, growers can produce consistent and appealing oysters for the higher end half shell market. Tumbling, which is done by electric tumblers, is a common practice among the larger operators. It helps develop a deep cup in the shell, which in turn, allows the oyster itself to become plump and even-sized.

Off-bottom oyster farming begins with oyster seed that is spawned and raised in private nurseries for sale at various sizes depending on what farmers want for the type of system that they use. This year, three new seed suppliers (in Alabama, Florida, and Louisiana) began commercial operation in the Gulf which is critical for the industry to be successful. The area has approximately a half-dozen seed suppliers now.

## Challenges

Aquaculture as an industry has many challenges and oyster farming has its share. For instance, at the time of this writing the Florida panhandle was struck by Hurricane Michael in an area that has a large oyster aquaculture lease program and several commercial farms. I was able to view several of the farm sites and talk with some growers there. Although it will take some time to determine losses, it is apparent that while


most of the gear and infrastructure was spared, there is significant crop loss. Oysters take several years to reach a size suitable for harvest, so the impacts from this storm could impact harvests for years. Some of the mortality can be attributed to lowering the gear to the bottom (for protection from storm surge) that led to the oysters being covered by mud and silt. Low salinity from the heavy rainfall may have also contributed to the losses. Some gear was also damaged.

Some of the other risks to the industry include water condition closures, disease outbreaks (such as vibrio), and harmful algal blooms. Note that all of these are risks for the seafood industry as whole and not just to shellfish aquaculture.

## What's next?

As interest grows for oyster aquaculture in the Gulf of Mexico, we are seeing more of a focus from various agencies to meet the requests from our stakeholders. Permitting remains a long and complex process in some states, and there are areas where acceptance by traditional oystermen is slow. However, off-bottom oyster farming courses and programs have been established in Alabama, Mississippi, and Florida.

Other types of Gulf aquaculture are also taking off. As an incentive to aquaculture innovation, the national Sea Grant program awarded \$11 million in grants in 2018 for 22 marine aquaculture projects around the United States. The Mississippi-Alabama Sea Grant Consortium (MASGC) received a \$339,239 grant to expand blue crab aquaculture. Blue crabs are the fifth most valuable seafood in the Gulf. MASGC is developing models for blue crab hatcheries, ponds, and shedding phases to advance sustainable aquaculture of soft blue crabs in the United States. The program will involve both the Gulf of Mexico and the coast of North Carolina.

While there currently are no oyster farms in Mississippi, participants in the Sea Grant aquaculture training program are completing the training requirement this fall. Louisiana now has an oyster aquaculture lease program, and the Texas legislature will be considering a bill for oyster farming in the next congressional session. Off-bottom oyster aquaculture in the Gulf of Mexico is a new industry and not without challenges, but certainly worth keeping an eye on. 

*Russell Grice is an Oyster Aquaculture Business Specialist for the Mississippi-Alabama Sea Grant Consortium and at the Auburn University Shellfish Lab.*



# Examining the Link Between Aquaculture and Urban Planning

Stephen Deal

**One conflict planners often encounter is balancing the** space needs of an expanding city against the importance of preserving land for basic agriculture. Although a marine aquaculture operation doesn't occupy the same physical footprint a farming operation would, the core conflict is essentially the same: how do aquaculture businesses successfully coexist with coastal cities and the growth demands associated with new development? Rezoning decisions, nuisance complaints, and transportation investments all have the potential to escalate tensions. To develop a sound aquaculture policy, cities must first determine the existing value of local aquaculture activities and how they operate. From there, they must determine the basic land use needs of aquaculture operations and how those needs may be addressed through either zoning or other local policy apparatuses. Finally, municipalities must learn about the marketing needs of aquaculture businesses, and engage in ongoing efforts to facilitate the sale and purchase of local seafood products. By addressing these core matters, cities will have a sound plan of action that they can use to address the needs of aquaculture through local policy.

## Land Use and Aquaculture: Setting the Story

At first glance, it would appear that aquaculture and the land use planning process don't have much in common. From a legal perspective, land below the mean high tide line is owned by the state and held in trust for the public, which means that a lot of issues involving the use and management of aquatic resources tend to fall under state rather than local jurisdiction.<sup>1</sup> While cities and counties may not manage fisheries and the sale and purchase of seafood, they often manage something just as important: the storage spaces and physical structures associated with an aquaculture operation. Even the smallest aquaculture operation requires storage space for maritime equipment and may even have an operation on the land from which to sell their product. Also, while an aquaculture operation may operate in public waters, its secondary effects may influence

properties adjacent to the water. Traffic, noise, and hours of operation are examples of potential negative externalities that may be subject to regulation under local nuisance laws.

Oyster farms in particular may pose local zoning challenges, as oysters grow best where freshwater and saltwater mix, preferably in areas of salinity between 2 and 3 percent and where offshore reefs or barrier islands provide protection from ocean waves.<sup>2</sup> This means that oyster farms are frequently sited just offshore, where freshwater rivers and streams drain into the ocean. Therefore, the operation of oyster farms is likely to affect onshore land use and properties.

Additionally, many states also consider wharves, piers, and other structures that extend out into the water from the land as being under local jurisdiction.<sup>3</sup> The proximity of oyster farms to land, as well as local control over the construction and maintenance of piers and wharves, means that in many instances, local governments yield considerable control over the shellfish aquaculture industry.

## Assigning Value to Local Fisheries

In order to understand what to do about local aquaculture and fisheries operations, city planners must first focus on why coastal aquaculture is an essential component of coastal communities. It is difficult to have robust aquaculture regulations without first communicating the value and importance of seafood production through local planning mechanisms such as comprehensive plans and master plans. One good example of this is the 2017 comprehensive plan developed for the city of Portland, Maine. The plan devotes an entire portion of the document to waterfront issues, which includes an extensive profile on the state of the city's aquaculture industry. From this section, one can gain valuable data on the city's seafood industry such as the number of seafood business located in Portland, the type of seafood that is harvested, and what public investments will impact the industry within the near future.<sup>4</sup>



Photograph of Rappahannock Oyster Company in Topping, VA; courtesy of Will Parson/Chesapeake Bay Program.

A comprehensive plan would not be complete without a number of specific goals and strategies tailored to each section of the plan. Within the waterfront section of the comprehensive plan there are 10 broad strategies outlined for waterfront planning. Many of the strategies listed, such as “adopt measurable objectives,” and “dredge responsibly,” have the potential to significantly affect local aquaculture. For example, one objective calls for the city to “support traditional and emerging marine industries.” Additionally, subsets within the objectives direct action that could aid aquaculture, such as one suggestion that the city support the Portland Fish Pier and Fish Exchange as a hub for the seafood economy. By explicitly addressing the needs of local aquaculture within the comprehensive plan, the city is able to develop a road map to inform the city’s interactions with the aquaculture industry.

#### Facilitating Aquaculture Through Better Land Use

The relationship between the aquaculture industry and the land use planning process is complex. Cities sometimes fail to

account for secondary operations and uses that are essential to aquaculture businesses. Also, cities and states may have conflicting protocols and procedures governing new aquaculture businesses. One coastal municipality developed a policy document to answer these questions: the *Aquaculture: Local Policy Development*,<sup>5</sup> produced by the Middle Peninsula Planning District Commission, a regional planning organization in coastal Virginia. One of the more notable examples cited within the document is the permitted use table devised for Waterfront Maritime Zoning Districts in Annapolis, Maryland. This table provides details on different activities and machinery associated with seafood processing and local aquaculture, such as spar and rigging construction and metal casting for marine purposes.<sup>6</sup>

While a comprehensive use table is a start, it should be noted that zoning is an inherently political endeavor, so a community must do its best to anticipate concerns local citizens may have when it comes to aquaculture uses. Although no community can fully anticipate all worries and concerns specific to each zoning case, past experience can

be a reliable indicator of future issues cities should address in a proactive manner. In the realm of aquaculture, many of the biggest conflicts have centered on the expansion of oyster farming. Oyster farming has gained in popularity over the years because of the numerous environmental benefits associated with an expanding oyster population, as well as the economic gains. Because of this, many states and local governments have tried to develop regulatory practices that encourage oyster farming as an economic activity.

One state where oyster farming has experienced significant expansion is Maryland. Since the state liberalized its coastal leasing laws and offered financial assistance for oyster startups, private oyster production has increased from 3,340 bushels in 2012 to 74,066 bushels in 2017.<sup>7</sup> This expansion in oyster production has prompted complaints from a number of coastal residents who worry about the impact oyster cages and aquaculture operations will have on property values. The issue of jurisdictional authority further compounds these concerns, as city regulations on aquaculture may not be fully consistent with the state leasing program and vice-versa. While the State of Maryland is fully within its right to conduct a leasing program to establish oyster farms, many residents perceive oyster aquaculture as a land use planning conflict best resolved by local zoning regulations.

With that in mind, city and county governments should be viewed as essential partners of the state in the promotion and expansion of aquaculture activities. One way states can empower local governments to effectively address the objections of coastal residents is by having local regulations that govern the size and scale of oyster farming operations. One example of this is from Mathews County, Virginia, where local leaders instituted a more rigorous permitting process for commercial oyster aquaculture operations that exceed a certain size. In low density residential districts along or near the waterfront, the county allows shellfish aquaculture by right, as long as the operation is not in excess of 100,000 shellfish.<sup>8</sup> Shellfish operators wanting to farm more than 100,000 oysters must apply for a conditional use permit. This means that a large oyster farming project will be subject to the same review and oversight given to a local rezoning case. The Virginia Department of Health, Shellfish Sanitation mandatory sales records are used to verify the size and scale of each oyster operation to ensure compliance with county regulations.<sup>9</sup>

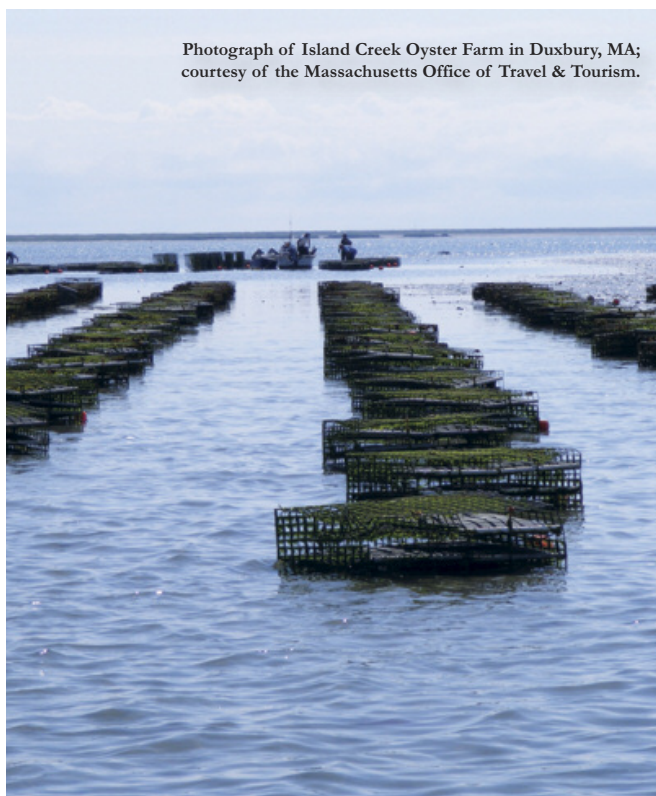
The strengths of the Mathews County arrangement is that it doesn't unduly burden oyster farming initiatives led by the state, and it effectively addresses homeowner concerns by making provisions for minimal oversight by the county government. The regulatory provisions set forth by Mathews County are also narrowly tailored to address the concerns voiced by a specific land use constituency, in this case coastal homeowners. While this regulatory change can't quell every concern or objection of coastal residents, it does provide local citizens with a sense of ownership in the day-to-day management of commercial aquaculture facilities.

### **Expand the Marketing Capacity of Local Aquaculture**

Aquaculture, like many economic ventures, does not rely on raw production alone. Additional resources are required to market seafood to the public and get the product out in a manner that maximizes local seafood providers' revenue. One simple way communities can help local aquaculturists sell their product is through the construction of a market. In Foley, Alabama, city leaders received a grant to construct a Farmers and Fishermen's market within the city.<sup>10</sup> The facility, which was completed in October 2013, contains 30 vendor spots to sell local seafood and Alabama-grown crops. In addition to serving as a simple, physical facility for the purchase and sale of seafood, a market also provides institutional support and backing for the direct marketing of seafood. For example, the Foley Fisherman's market has vendor rules and regulations that are unique to its day-to-day operation.<sup>11</sup> These rules are consistent with state and federal health requirements, such as having an Alabama Seafood Dealer's License, or keeping all seafood products at a temperature of 41 degrees Fahrenheit or below. This helps quell worries about the quality and safety of the seafood in question, but it also helps ensure regulatory compliance for participating vendors, something that might be harder to ensure for a single operation such as a produce stand or food truck.

In lieu of a physical market building or structure, coastal communities can turn to Community Supported Agriculture (CSA) programs to provide institutional support and backing for local aquaculture operations. Individuals who join a CSA program pay a price upfront to receive a weekly share of an agricultural crop or commodity.<sup>12</sup> For seafood providers, the CSA model has been employed as





Photograph of Island Creek Oyster Farm in Duxbury, MA; courtesy of the Massachusetts Office of Travel & Tourism.

Community Supported Fisheries (CSF). A CSF serves as an institutional apparatus for the direct marketing efforts of local seafood providers. One example of a CSF in action is the Thimble Island Oyster Company based in Connecticut. A Thimble Island shareholder, who pays \$175.00 per year, will receive one dozen oysters and two dozen clams each month for 6 months starting in April. Thimble Island shareholders can receive their products either directly from the docks or from another facility located within the community. A CSF program is a unique method for encouraging the consumption and sale of local seafood, while also providing for a more unified front for fishermen to engage with potential consumers.

## Conclusion

While many coastal communities have witnessed positive economic growth and change due to coastal tourism, this growth has sometimes come at the expense of traditional economic and social activities that helped sustain the community. One of those traditional activities was fishing, embodied by the local companies and individuals who brought fresh catch of fish to market each day. Now that the aquaculture industry is advancing, especially in the case of shellfish, coastal communities must adapt and regulate for such uses.

If coastal communities are to become more resilient in the face of economic downturns, it is important that cities carve out room in which aquaculture activities can thrive and flourish. Cities can begin this process by incorporating aquaculture goals and objectives into their comprehensive plan and incorporating facts and figures detailing the current state of local aquaculture. From there cities can work on calibrating their zoning ordinances and land use categories to accommodate the unique needs of small aquaculture businesses and coordinate with state agencies on oyster farming initiatives. Last, but not least, a city can be a valuable ally in the direct marketing of seafood products, either by constructing a physical market space for local fisherman or by helping establish a CSF program. By working on these core planning recommendations, coastal communities can develop a solid plan for aiding local fishermen, which in turn will help preserve a coastal way of life that Gulf coast communities have come to cherish. 🐟

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# Local Conditions Severely Limit Power of General Permit for Commercial Shellfish Aquaculture

Grace M. Sullivan

## Introduction

The U.S. Army Corps of Engineers (Corps) issues Nationwide Permits (NWP) in order to encourage certain activities. Authority for the Corps' NWPs comes from Section 404(e) of the Clean Water Act (CWA) and Section 10 of the Rivers and Harbors Act. The Corps has issued NWPs since 1977 and redrafts them every five years, with input from the public and other government agencies. Most recently in 2017, the Corps reissued fifty and published two new NWPs, including an amended version of NWP 48: Commercial Shellfish Aquaculture Activities.

General permits like NWP 48 expedite the permitting process for activities that have only minimal adverse environmental effects and encourage the growth of these activities. In contrast, projects that do not meet the requirements for a general permit must seek approval through the more detailed and time-consuming individual permit process. The Corps amended NWP 48 in 2017 to serve this goal and “reduce the number of [aquaculture] activities that require individual review by Corps districts.”<sup>1</sup> Even with an intentionally streamlined NWP available, however, not all commercial shellfish aquaculture operations can take advantage of those benefits. One reason for this may be the local conditions added by states or district Corps offices.

## History of Nationwide Permit 48

Nationwide Permits can be in effect for up to five years, so the Corps must go through a reissuance process every half decade. The process begins with the Corps posting a proposed rule in the *Federal Register* and allowing a period for public comment, during which members of the public may submit notice of concern or support for new, old, or amended NWPs. In the most recent reissuance, the Corps received and considered more than 54,000 comments submitted over the sixty-day period.

Next, the Corps drafts a final rule and submits it to other government agencies. The Corps then publishes the final version of the permits in the *Federal Register*, and each of the

Corps' district offices has the opportunity to issue district-specific conditions to the permit. Districts may also fully deny approval of a NWP, thereby fully preventing its implementation in favor of local rules. States, like districts, also have limiting authority. For example, in the final stage of NWP reissuance, the Coastal Zone Management Act (CZMA) requires that states determine whether the general permits are consistent with their federally approved coastal management programs.<sup>3</sup> A state may give full concurrence, meaning it determines the permits are fully consistent with state program requirements, or it may determine that additional requirements are necessary in order for general permit activities to be consistent with state environmental standards. States may also fully deny federal consistency, meaning that the federal agency in question is prohibited from issuing permits authorized under the NWP in question in that state. States also have authority to condition NWPs through the Water Quality Certification review process under the Clean Water Act.

The Corps first issued NWP 48 in 2007 and has reissued it with amendments in 2012 and 2017. Its title, “Commercial Shellfish Aquaculture Activities,” refers to activities such as seeding, cultivating, and harvesting aquatic invertebrates like clams, oysters, and mussels. This process often involves a physical infrastructure of cages, nets, or floating buoys to hold the growing animals, and harvesting sometimes involves dredging the animals. Shellfish farming operations near the coastline are under the jurisdiction of the Corps, even when the waters are above state-owned lands. This is because the aquaculture activities have the potential to interfere with navigation, which is under the Corps' authority.

After several amendments, NWP 48 now serves to authorize both new (meaning it is the first operation in the area in the past 100 years) and existing commercial shellfish aquaculture operations. Approved activities include the installation of buoys, floats, trays, nets, containers, etc., into navigable U.S. waters and the discharge of dredged or fill material into those waters as necessary for the “seeding, rearing, cultivating, transplanting, and harvesting” of shellfish.<sup>4</sup>

NWP 48 specifically does not authorize cultivation of nonindigenous species (unless previously cultivated in that water body), cultivation of an aquatic nuisance species,<sup>5</sup> other attendant features like docks, piers, or boat ramps, deposition of waste shell material back into United States waters, or activities directly affecting more than one half acre of submerged aquatic vegetation beds, unless the project area has been used for commercial shellfish aquaculture in the past 100 years.

### General Conditions and Preconstruction Notification

Along with the reissuance of NWPs, the Corps includes a list of requirements that apply to all of the general permits. These thirty-two requirements are called General Conditions and must be followed in addition to any requirements in the language of specific permits.

Some of the General Conditions are very specific as to what they require of a permittee. For instance, condition number sixteen regarding Wild and Scenic Rivers and condition number eighteen regarding endangered species are long and contain references to acts of Congress and resources from other federal agencies giving definitive requirements for compliance. Other general conditions have ambiguous stipulations. As an example, condition number four requires that permittees avoid activity in spawning areas “to the maximum extent practicable.” Five other conditions use this phrase as well.

General Condition number thirty-two, outlining how and when to submit pre-construction notification (PCN) to a district engineer, is perhaps the most referenced condition by the Corps’ District Offices and state agencies. PCN is a document submitted by an applicant to describe the scope and duration of a project, and it serves to give the Corps additional time and information to consider the impact of a project. Regional requirements commonly add circumstances under which permittees must submit PCN, and some NWP’s list specific circumstances requiring PCN as well. For NWP 48, applicants for a permit must submit PCN if the aquaculture activity involves a species not previously cultivated in the particular water body, or when the proposed activity is in a project area that has not been used for commercial shellfish aquaculture in the past 100 years (a “new” operation).

### Several Approaches to State Conditions

Mississippi, Alabama, Louisiana, and Florida each took different approaches to shellfish aquaculture under NWP 48.

### Mississippi

The Mississippi Department of Marine Resources (MDMR) holds the responsibility to determine CZMA consistency with the Mississippi Coastal Program. For the 2017 NWP reissuance, MDMR prescribed just one additional condition that applies to applicants in three categories of water, relevant to the state’s coastal counties.<sup>6</sup> These include: (1) tidal waters in the three coastal counties: Jackson, Harrison, and Hancock; (2) all U.S. waters with a “surface hydrological connection” to tidal waters that are within 200 feet of the mean high tide mark; and (3) all marsh habitats, whether saltwater, brackish, or freshwater, with a surface hydrological connection to tidal waters whether or not it is located within 200 feet of the mean high tide mark. For activities occurring in any of these three categories, MDMR effectively denied concurrence by adding one condition; permit applicants must submit their plans to MDMR for CZMA consistency approval on a project-specific basis. If MDMR declines to grant consistency after its CZMA review, a project is prohibited from operating in listed waters in Mississippi, even if it would otherwise qualify for authorization under a general permit such as NWP 48.

### Alabama

The Alabama Department of Environmental Management (ADEM) determines whether the Corps’ general permits satisfy the Alabama Coastal Area Management Program. For the 2017 reissuance of NWPs, ADEM imposed four additional conditions specific to NWP 48.<sup>7</sup> Like in Mississippi, the conditions were mainly related to the state’s coastal areas. ADEM required that a permittee must also submit any Corps-required pre-construction notification to the ADEM Mobile-Coastal office, the Alabama Department of Coastal Natural Resources (ADCNR) Marine Resources Division, and the ADCNR-Submerged Land Division (SLD). Further, NWP 48 activities must not occur in close proximity or adversely impact existing wetlands, submersed grassbeds, or natural oyster reefs. The permittee must not place any additional fill onto state-owned submerged lands, and finally, permittees require additional authorization from the ADCNR-SLD if their activities will impact or be located over state-owned submerged lands. Essentially, the ADEM requires additional paperwork where the Corps requires PCN, prohibits the commercial shellfish aquaculture activities described in NWP 48 in two categories of areas, and requires additional approval where activities affect state-owned submerged lands.

## Louisiana

In Louisiana, the Louisiana Department of Natural Resources Office of Coastal Management (OCM) is the agency tasked with determining CZMA consistency with the Louisiana Coastal Resources Program. The OCM prescribed additional conditions for some permits reissued in 2017, but it gave full concurrence to NWP 48 so long as the nine regional conditions given by the Corps' New Orleans District are applied.<sup>8</sup> Regional conditions restrict the place and amount of area NWP activities can affect, such as prohibiting activities that cause the permanent loss or conversion of more than one half acre of cypress swamp or pitcher plant bogs. Other conditions affect land use.<sup>9</sup> In summary, a hopeful permittee for commercial shellfish aquaculture will be subject to nine conditions in addition to those provided by NWP 48 and will likely require project-specific permitting from the New Orleans District engineer.

## Florida

According to an environmental consultant at the Florida State Clearinghouse, which coordinates federal and state activity, the state never published a consistency determination related to NWP 48. The Jacksonville District places nine regional conditions on activities falling under NWP 48, six of which are requirements for PCN. For example, dredging of sediment is not authorized, except in rare circumstances. Six regional conditions define additional circumstances that require PCN based on the location of the activity or a species that it might impact. The last condition prohibits the placement of "live rock" culture as part of NWP 48 activities.<sup>10</sup>

## Actual Barriers to Nationwide Permit 48 Activities

Using these four Gulf Coast states as a sample, state additions to the Corps' conditions for NWP 48 generally fall into two categories: requirements that are the same for all applicants, and those that are project-dependent. Rules that would apply to any applicant include Alabama's requirement to apply for an easement for the operation site, or Florida's online Aquaculture Best Management Practices Manual. The requirements are universal so that applicants would know at the outset whether the proposed area and method of operation fall within the explicit rules.

Project-dependent requirements, however, are likely to add time and resource burdens to the application process.

An applicant may not be sure of all the additional requirements, likelihood of success, or the timeline of their permitting process from the outset for those requirements, such as demonstrating consistency with a state's CZMA.

## Conclusion

While it is not currently practicable to conclude whether a state's approach to NWP 48 dictates the success of aquaculture in that state, it is worth noting that Alabama, a state with seemingly less burdensome conditions, has fourteen commercial oyster operations, which are valued at nearly \$2 million.<sup>11</sup> Florida, too, as of the most recent reports available, has 139 shellfish producers with sales of nearly \$12 million.<sup>12</sup> Meanwhile, Mississippi does not have a commercial shellfish operation, despite the Corps' intentional efforts to make permitting more flexible and streamlined in order to encourage new operations. 🐟

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