



Kristy Beard
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Silver Spring, MD 20910

December 22, 2020

Dear Ms. Beard,

On behalf of the Gulf of Mexico Reef Fish Shareholders' Alliance (Shareholders' Alliance), please accept these comments on the Request for Information (RFI) on Aquaculture Opportunity Areas (NOAA-NMFS-2020-0118).

The Shareholders' Alliance is the largest organization of commercial grouper and snapper fishermen in the Gulf of Mexico. We are dedicated to sustainable management of the Gulf's marine resources and to supporting American commercial fishing and seafood businesses in our region. We have members in all five Gulf States that rely on state and federal agencies to ensure fisheries management is based on sound science so that our fisheries and businesses can provide the American public with wild-caught, fresh, domestic seafood.

We appreciate the opportunity to provide feedback to the National Oceanic and Atmospheric Administration (NOAA) on designating portions of the Gulf of Mexico as Aquaculture Opportunity Areas (AOAs). While we are providing comments to the specific questions posed in this RFI, as well as outlining our broad concerns about aquaculture in the Gulf of Mexico, our input is based on the following three statements that are essential for this process of developing and siting of any AOAs and the establishment of any aquaculture facilities in the Gulf's federal waters:

1. Establishment of any AOAs must include meaningful commercial fishermen input and ensure they have a seat at the table throughout every step of this process.
2. The selection of AOAs must rely on sound science and comprehensive data analysis.
3. NOAA and the researchers involved must acknowledge and analyze the full upstream and downstream impacts of aquaculture on domestic wild-caught fisheries.

I. The Shareholders' Alliance has concerns regarding aquaculture in the Gulf of Mexico.

Aquaculture could negatively impact the Gulf of Mexico ecosystem.

The Shareholders' Alliance urges caution as aquaculture is considered in the Gulf. There is already wide concern from multiple sectors of stakeholder groups about the damage aquaculture could do

to the Gulf's habitats and to wild fish populations. Escapement is of particular concern, such as the recent example in 2017 when hundreds of thousands of Atlantic salmon escaped from a farm off the coast of Washington.¹ In Scotland, where both farmed and wild Atlantic salmon populations exist, one study found that between 3 and 6% of reported recreational salmon catch in open waters were identified as farmed fish.² The impact of non-native fish species on wild populations is well documented, but the impact of an escape event of a farmed native species on a wild population is not well understood and remains a significant concern. In the case of salmon, some studies have shown that escaped fish are less fit (lower survival and reproductive rate) than native salmon,³ which could have harmful impacts on the viability of wild fish populations and their ability to rebuild and recover from anthropogenic and natural stressors. Because there currently is no open-water aquaculture in the Gulf, this analysis is something that NOAA and the permitting bodies will need to prioritize in order to mitigate potential harm to wild finfish species in the Gulf.

Impacts from the nutrients in fish feed and fish waste is also a top concern. The Gulf of Mexico is already highly susceptible to water quality issues. Runoff from inland states creates an area of hypoxia off the mouth of the Mississippi, known as the "dead zone." This area fluctuates in size from year to year, but in 2019 was 7,829 square miles.⁴ Additionally, the west coast of Florida experienced multiple red tide events over the last twenty years. The most recent was in 2017 and lasted until the winter of 2019.⁵ Red grouper populations suffered tremendously from this red tide event, which was documented in a sharp decrease in landings (Figure 1) and near-universal observations from commercial fishermen. Adding a major source of nutrients in the form of fish waste or fish feed to these already sensitive areas could have major impacts on fish and shellfish populations, including but not limited to amplifying large mortality events, as occurred in 2018.⁶

¹ Blank C. August 28, 2017. Cooke Aquaculture dealing with local outrage after farmed salmon escape in Washington. Seafood Source News.

² Green, D.M., Penman, D.J., Migvad, H., Bron, J.E., Taggard, J.B, McAndrew, B.J. 2012. [The Impact of Escaped Farmed Atlantic Salmon \(*Salmo salar*, L.\) on Catch Statistics in Scotland](#). PLoS ONE 7(9)

³ Weir, L. Grant, J.W. 2005. Effects of aquaculture on wild fish populations. Environmental Reviews 13(4): 145-168

⁴ NOAA. June 10, 2019. [NOAA forecasts very large 'dead zone' for Gulf of Mexico](#).

⁵ NOAA. Fall 2018 Red Tide Event that Affected Florida and the Gulf Coast

⁶ Achenbach, J., Furby, K., Horton, A. August 14, 2018. [Florida Declares State of Emergency as red tide kills animals and disrupts tourism](#).

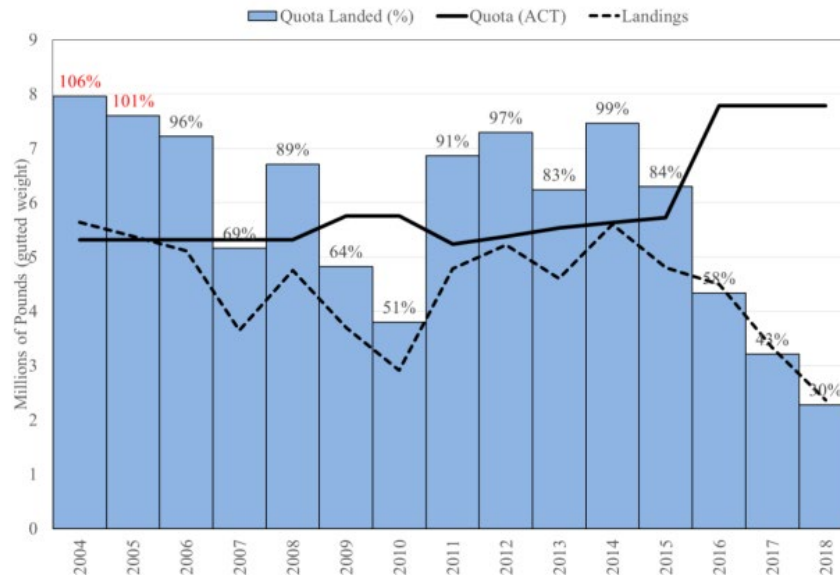


Figure 1. Comparison of commercial red grouper quota, landings, and percent of quota landed over time. Taken from Southeast Data, Assessment and Review (SEDAR) 61.⁷

Aquaculture product could compete with wild-caught fish in the market and create market instability.

Introduction of offshore aquaculture into the Gulf of Mexico will result in market competition with wild-caught, sustainable Gulf product. Nationwide, the value of aquaculture has increased in the U.S. while volume has remained relatively stable.⁸ Meanwhile, commercial value has remained relatively static since 2013, and actually declined between 2013 and 2016 (Figure 2).

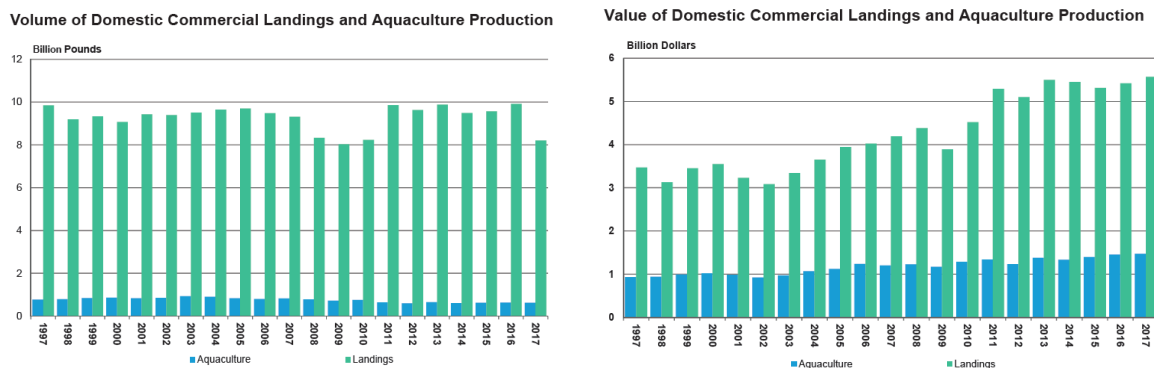


Figure 2. Value and Volume of Domestic Commercial Landings and Aquaculture Production. Taken from 2018 Fisheries of the U.S.⁹

⁷ SEDAR 61.2019. [Stock Assessment Report Gulf of Mexico Red Grouper](#).

⁸ NOAA. [2018 Fisheries of the United States](#).

⁹ NOAA. [2018 Fisheries of the United States](#).

Commercial reef fish fishermen in the Gulf have worked hard over the last fifteen years to rebuild the red snapper fishery and create more market stability. They have invested copious amounts of time and hundreds of thousands of dollars in the management process to build businesses that thrive when stocks are healthy and well managed. Red snapper ex-vessel prices have increased steadily over time and commercial fishermen harvest close to 100% of the available quota.¹⁰ It's currently unknown how a farmed product would affect the price of wild-caught fish in the marketplace, whether it's red snapper, almaco jacks or any other fish that competes for consumer use. Farming species in the Gulf that are also commercially harvested could destabilize those investments, increasing risk and causing additional barriers for fishermen to acquire capital or loans from banks and financial institutions. NOAA created a Fishery Finance Program so commercial fishermen can construct/reconstruct vessels or purchase quota shares, in part due to the difficulty for commercial fishermen to get access to loans.¹¹ Aquaculture will act as another layer of financial uncertainty.

Aquaculture operations and the selection of AOAs must consider climate change.

Climate change is an ever-present threat to the Gulf of Mexico, its fisheries, and our ecosystems. The United Nations Intergovernmental Panel on Climate Change (IPCC) found the rate of ocean warming has doubled since 1993, the rate of sea level rise is increasing, the average intensity of tropical cyclones and the proportion of strong hurricanes will increase, and that a multitude of climate change impacts are resulting in species distribution shifts.¹²

The Gulf of Mexico has experienced the impacts of climate change first-hand over the last several years through increasing flood events and more and stronger hurricanes. The Bonnet Carre spillway is a structure that diverts floodwater from the Mississippi River to Lake Pontchartrain and ultimately the Gulf of Mexico. Since 1937, the spillway has been opened 14 times, five of those in the last ten years.¹³ In addition, 2020 was the most active hurricane season on record, with 12 storms making landfall in the Gulf and Southeastern U.S.¹⁴

AOAs will need to factor in these historical and predicted future shifts in weather patterns, potential changes in ecosystems due to a changing climate, and how aquaculture operations in AOAs either contribute to those impacts or will be in the path of damage. Subsequently, they must also consider the shifting behavior of fishermen who may have to alter fishing and business strategies in the face of climate change impacts. It is also important that NOAA establish a transparent and public process to evaluate designated AOAs, revise them, and relocate them when necessary due to climate change or other environmental variables.

II. The Shareholders' Alliance acknowledges there are possible benefits to aquaculture.

¹⁰ NOAA. July 12, 2019. [Gulf of Mexico Red Snapper Individual Fishing Quota Annual Report](#).

¹¹ [NOAA Fisheries Finance Program](#).

¹² IPCC. 2019. Special Report: special Report on the Ocean and Cryosphere in a Changing Climate. [Summary for Policy Makers](#).

¹³ U.S. Army Corps of Engineers. Mississippi River Flood Control. [Historic Operation of the Bonnet Carre Spillway](#).

¹⁴ NOAA. November 24, 2020. [Record-breaking Atlantic hurricane season draws to an end](#).

Seafood is an essential part of a healthy diet. The Eighth Edition of the Dietary Guidelines for Americans recommends at least 8 ounces of seafood per week.¹⁵ Sustainable aquaculture, when done properly, can be a source of healthy seafood that contributes to a balanced diet and improved human health, considering that some farmed fish can have the same Omega-3 fatty acid content as wild seafood.¹⁶ There is the potential for economic benefits as well. Aquaculture is currently 20% of the value of domestic fisheries, and doubling that value could lead to an increase in available jobs.¹⁷ However, building and expanding this industry should not come at the expense of sustainable wild-capture commercial fisheries. A full understanding is necessary of how these industries compete with and can complement each other.

III. The Shareholders' Alliance stresses the need for a transparent and inclusive process for selecting AOAs that includes comprehensive analysis of data points.

At the December 2020 meeting, the Gulf Council unanimously supported a motion “*To request staff send a letter to relevant NMFS agency personnel highlighting the value in creating a fishery stakeholder advisory panel to inform the process of identifying aquaculture opportunity areas (AOAs).*”¹⁸ The Shareholders' Alliance strongly supports this approach as it addresses some of our concerns about the inclusivity of the AOA establishment process. Commercial fishermen submit multiple streams of data to NOAA through Vessel Monitoring Systems (VMS), electronic or paper logbooks, trip tickets, and observer reports. While these data are incredibly valuable and help ensure our fisheries are sustainably managed and harvested, they do not always paint the full picture. An industry advisory panel would provide valuable input and recommendations on the best way to interpret the commercial fisheries data NOAA receives. For example, there are 62 bottom longline endorsements in the eastern Gulf utilized by commercial grouper fishermen. In 2017, longline fishermen landed 2.3 million pounds of red grouper worth \$8.3 million. When looking at this compared to the entire Gulf or the full value of commercial fisheries in the Gulf, it may appear that an area is not utilized by many commercial fishing vessels. However, this fishery represents a significant component of the economic profitability for this specific segment of industry.

It is evident that NOAA is considering a breadth of data in analyzing areas for AOA siting. However, it is important that the full suite of commercial fishing and seafood supply chain data are appropriately utilized and considered at a regional, state, county and community level. To ensure that occurs, we recommend that NOAA work closely with the Gulf of Mexico Fishery Management Council (Gulf Council), its Ecosystem Technical Committee (ETC) and its Science and Statistical Committees (SSCs). Specifically, since AOAs and aquaculture operations will impact the Gulf marine environment and fisheries, we recommend that all applicants looking to establish a fish farm within an AOA be required to present to the SSC, ETC and the Gulf Council. This will allow the leading scientists in the Gulf to review and assess the potential impacts of a facility and determine if an applicant's mitigation strategies are sufficient to prevent environmental

¹⁵ U.S. Department of Agriculture and Department of Health and Human Services. [Dietary Guidelines for Americans. 2015-2020](#). Eight Edition.

¹⁶ Seafood Nutrition Partnership. [Seafood and the Environment](#).

¹⁷ NOAA. Office of Aquaculture Fact Sheet. [NOAA Fact Sheet](#)

¹⁸ Gulf Council. November 30-December 1, 2020 Webinar. [Motions Report](#).

degradation. The SSC and ETC can provide important and informed guidance to the Gulf Council on implementation, highlighting the potential impacts of operations on the ecosystem. Subsequently, all applicants must also present their proposal to the Gulf Council, who can provide a formal recommendation to NOAA on whether to approve, partially approve, or deny it. A similar process exists now for Exempted Fishing Permits and could serve as the basis for this process.

IV. Shareholders' Alliance Responses to NOAA's questions in the Request for Information.

Question 1. The Shareholders' Alliance requests that NOAA present a summary of industry input that led to the depth range designations between 50 and 150 meters. Designation of depths should be based on the best scientific information available that ensures aquaculture facilities would not conflict with other user groups and would not impact bottom habitat. Generally speaking, greater depths means fewer user conflicts and habitat impacts. But this isn't always the case. For instance, the bottom longline closure in waters shoreward of the 35-fathom depth contour in the eastern Gulf prohibits use of this gear type from June to August.¹⁹ In response, the bottom longline fleet pushes offshore to the west of this area, increasing effort in adjacent deeper waters. These types of fishery effort shifts need to be fully comprehended throughout this part of the siting process. Additionally, NOAA has said that these depths are being considered in regards to mitigating hurricane damage, but we have not seen research or data confirming that 50-150 meters is appropriate or would achieve this goal. We need assurance that facilities at these depths could withstand the strongest Gulf of Mexico storms to-date, and can withstand predicted increase in future storm strength due to climate change and other factors, and therefore negate the possibility of escapements or pollution.

Question 2. We suggest that a commercial fishing industry AP, as suggested and supported by the Gulf Council, is best positioned to designate specific locations or habitats to be considered for AOAs. We strongly recommend that NOAA rely on the expertise of leaders in the commercial fishing community in this matter, as they have a lifetime of knowledge and on-the-water experience. This stakeholder group would be able to provide formal guidance on areas that would minimize user conflict, are susceptible to pollution, and be conducive to aquaculture.

We also suggest that NOAA consider analyzing areas where potential infrastructure for an aquaculture operation already exists, such as oil platforms, and that NOAA collaborate with Bureau of Safety and Environmental Enforcement (BSEE) to develop a policy or plan for decommissioned oil rigs to be repurposed.²⁰ This could minimize new structures needing to be built in the Gulf to support commercial aquaculture facilities, and could minimize any additional displacement of traditional commercial fishing activities.

AOAs should also not be placed in areas that have, or are predicted to have, high concentrations of red tide, blue-green algae, low dissolved oxygen, or other factors that would increase mortality risk to both the fish in the facilities, and the wild fish populations. NOAA must continue to monitor HAB events (see Figure 3) and how they are shifting over time due to climate change. An area that

¹⁹ [74 FR 53889](#)

²⁰ BSEE. [Decommissioning FAQs](#)

does not have frequent HAB events now may see an increase in these events in the future due to shifting environmental dynamics. There must be a public and transparent method of evaluating AOAs and aquaculture siting areas in the face of a changing climate.

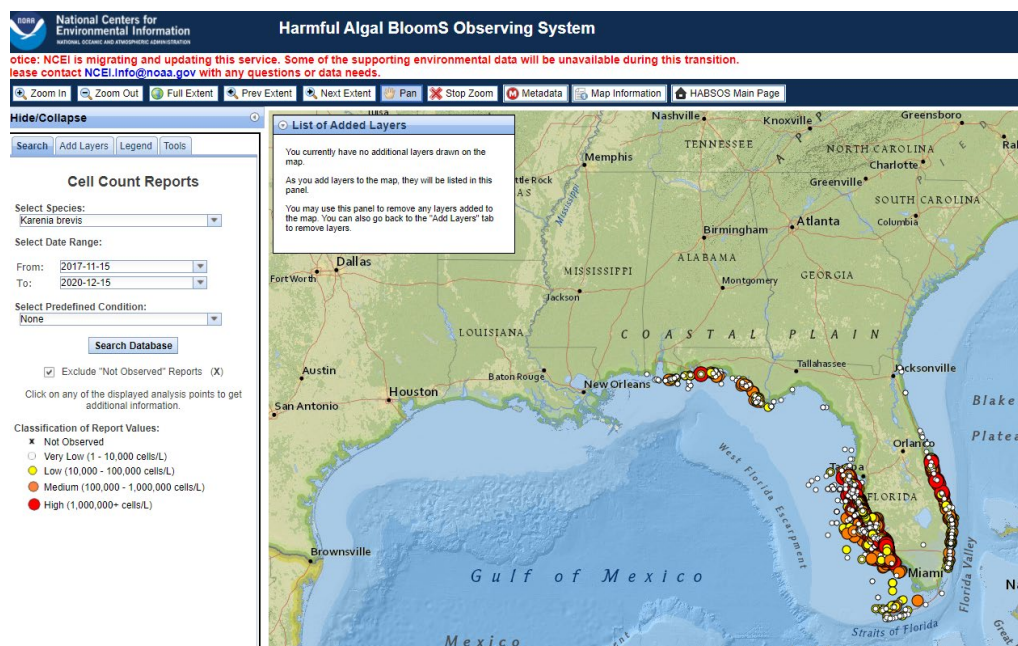


Figure 3. NOAA National Centers for Environmental Information. Harmful Algal Blooms Observing System.²¹

Question 3: Refer to response in Question 2.

Question 4: HABs and red tides are already a very real threat to commercial fishing in the Gulf (refer to Section I of this letter), and we have serious concerns that aquaculture operations will contribute to HABs and impaired water quality.

Question 5. The SSC is populated with experts in these precise fields for the Gulf of Mexico. We strongly urge NOAA to utilize this group of experts as they continue down the path of designating AOAs. This RFI and any future RFIs for aquaculture should be presented to the SSC for their input. It will be especially important for economists and experts in the seafood supply chain to weigh in on AOAs and aquaculture as it develops in the Gulf. To date there is little, if any, research on how an influx of competing domestic, farmed seafood could impact the supply chain or create market competition with sustainable, wild-caught product (see Section I of this letter). Additionally, commercial fishing continues to be impacted by the COVID-19 pandemic, and these impacts could be felt for years to come. NOAA should incorporate ongoing research on the effects of COVID-19 on fishermen and fishing communities into this process, recognizing that competition with domestic aquaculture could have a cumulative and additive negative impact on businesses that are already in a vulnerable state.

²¹ [Harmful Algal Blooms Observing System.](#)

In 2009, the Gulf Council published an aquaculture Fishery Management Plan (FMP) for the Gulf of Mexico²², recognizing that this burgeoning industry would take interest in Gulf waters in the EEZ. NOAA should revisit and update this FMP with the Gulf Council and appropriate Committees and APs to ensure concerns and management measures raised during the development can be considered and incorporated into the AOA designation process.

A commercial fishing industry AP, as suggested by the Gulf Council, would also be valuable to provide formal recommendations regarding information that should be incorporated into this process.

We also recommend consulting the National Academy of Sciences. This is a well-respected and trusted body who has conducted previous work on economic development in ocean systems.²³ They are an impartial third-party that has a wealth of resources in the form of industry experts and past reports.

We request that NOAA publicize the process by which they determine who will be consulted on these areas, what information will be considered from these bodies, and how it will be incorporated into the selection of AOAs.

Question 6: See response to Question 5.

Question 7 -11: Additional AOAs should be embargoed until the process of analyzing California and the Gulf of Mexico is complete, the AOAs in these two areas have been selected, and an evaluation process for the identified AOAs described. NOAA should create a process in each region that includes a commercial fishing AP and other advisory body(ies). This ensures that commercial fishermen are involved and can provide formal and regular input to NOAA so that impacts of aquaculture on the environment and on commercial fishing and seafood supply chain businesses are minimized.

Question 12: The Gulf of Mexico has several significant commercial fisheries that are primarily prosecuted in state waters. If AOAs are to be considered in state waters, NOAA must develop a process that formalizes participation and input from those industries and the Gulf state fishery managers.

Thank you for the opportunity to comment on this RFI. We look forward to NOAA's response to the comments received from this process and to future presentations that clarify the questions posed in this letter.

²² Gulf Council. 2009. [Fishery Management Plan for Regulating Offshore Marine Aquaculture in the Gulf of Mexico](#).

²³ [Critical Infrastructure for Ocean Research and Societal Needs in 2030](#). National Academies Press. Washington, DC.

Sincerely,

A handwritten signature in black ink that reads "Eric Brazer". The signature is fluid and cursive, with a period at the end.

Eric Brazer
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