

October 27, 2014

Via www.regulations.gov

Jess Beck-Stimpert
Southeast Regional Office, NMFS
263 13th Avenue South
St. Petersburg, FL 33701

**Re: Proposed Regulations to Implement the Fishery Management Plan for
Regulating Offshore Aquaculture in the Gulf of Mexico [NOAA-NMFS-2008-0233]**

Dear Ms. Beck-Stimpert:

The Environmental Law Institute (“ELI”) and the Emmett Environmental Law & Policy Clinic (“EELPC”) welcome the opportunity to comment on the proposed regulations¹ issued by the National Marine Fisheries Service (“NMFS”) to implement the Fishery Management Plan for Regulating Offshore Aquaculture in the Gulf of Mexico² (“regulations” and “Aquaculture FMP” or “FMP,” respectively). ELI is an independent environmental research and education organization based in Washington, DC with extensive experience in aquaculture, including in the areas of regulation and certification. The EELPC is a legal clinic at Harvard Law School under the direction of Clinical Professor Wendy B. Jacobs that works on a variety of local, national, and international projects covering the spectrum of environmental law and policy issues.

As discussed in the proposed regulations, aquaculture is an important and growing element of the domestic and international food supply. If developed in an environmentally and economically sustainable manner, offshore aquaculture in the United States could increase the supply of fresh seafood and support working waterfronts. While the regulations include many important protections, we ultimately believe that they fall short in ensuring that offshore aquaculture development is environmentally sustainable; therefore, we respectfully request that NMFS amend the proposed regulations as set forth in these comments.

Our comments are based on a 2013 study that we jointly published on offshore aquaculture regulation under the MSA and which is attached here by reference.³ As discussed in that study, we believe that the Magnuson-Stevens Fishery Conservation and Management Act (“MSA”) can

¹ Fisheries of the Caribbean, Gulf of Mexico, and South Atlantic, 79 Fed. Reg. 51,424 (Aug. 28, 2014) (to be codified at 50 C.F.R. pt. 600, 622) [hereinafter *Proposed Regulations*]

² Gulf of Mexico Fishery Management Council, Fishery Management Plan For Regulating Offshore Marine Aquaculture In The Gulf Of Mexico (2009) [hereinafter *Aquaculture FMP*].

³ EELPC, ELI, and The Ocean Foundation, *Offshore Aquaculture Regulation under the Magnuson-Stevens Fishery Conservation and Management Act* (2013), available at <http://www.eli.org/sites/default/files/docs/msa-aquaculture.pdf>.

be an important link in the offshore aquaculture regulatory framework because it authorizes deployment of a wide array of management measures and permit conditions that are not available under other laws, such as the Clean Water Act⁴ or Rivers and Harbors Act. However, strong implementation is needed to ensure that the MSA achieves its promise as a regulatory tool for offshore aquaculture.

These regulations to implement the FMP are the first attempt to implement a comprehensive offshore aquaculture FMP, and we congratulate the Gulf of Mexico Regional Fishery Management Council (“Council”) and NMFS on including many positive elements, including provisions intended to minimize habitat damage (e.g., ecological monitoring, siting criteria, financial assurance for equipment removal when production ends), restrict species under cultivation (e.g., prohibition on the use of non-native species), and avoid impacts to wild stocks (e.g., restricted areas outlawing other fishing near aquaculture facilities). Such provisions fill a critical gap in the current regulatory structure for offshore aquaculture and should be included in future FMPs created or amended to manage aquaculture.

The regulations and FMP, however, also have significant shortcomings. In particular, they:

1. Lack a science-based approach to identifying reference points, including maximum sustainable yield and optimal yield;
2. Unnecessarily restrict the Regional Administrator’s discretion during case-by-case review of permits while providing excessively vague requirements for producers;
3. Establish a “significant risk” threshold that is too high;
4. Include overly vague monitoring and reporting requirements;
5. Restrict the situations triggering remedial action to only a small subset of the environmental harms that aquaculture operations could cause;
6. Unreasonably exclude cultivation of native species managed by the states;
7. Fail to mandate short-term permits for untried aquaculture facility designs;
8. Include genetics provisions that are overly vague and fail to explicitly require that wild broodstock must be collected for each individual spawning event and that all juveniles are first generation descendents;
9. Include inadequate site selection and financial assurance requirements;
10. Require insufficient financial assurance requirements that exclude the costs of recovering aquaculture systems that break their moorings and natural resource damages; and
11. Do not establish a minimum time period for public comment on permit applications.

⁴ See Emmett Environmental Law and Policy Clinic, Environmental Law Institute, & The Ocean Foundation, *Offshore Aquaculture Regulation Under the Clean Water Act* (2012).

These elements may cause NMFS to authorize deployment of aquaculture systems that do not avoid or minimize environmental risks and impacts. To address these issues, we respectfully request that NMFS consider the following changes to the regulations.

1. Develop a scientific basis for determination of maximum sustainable yield, overfishing thresholds, and optimal yield for aquaculture.

As discussed in our 2013 report, the MSA establishes a science-based process for fisheries management. National Standard 1 requires that FMPs achieve the optimum yield (“OY”) from each fishery,⁵ which must be based on the maximum sustainable yield (“MSY”).⁶ FMPs must also establish a mechanism for specifying annual catch limits (“ACLs”) to ensure that overfishing does not occur in the fishery.⁷ NMFS Guidelines outline standard processes for determining reference points, including MSY and ACLs, through a science-based process.⁸ The Guidelines recognize that the “standard approaches” for determining reference points cannot be directly applied to aquaculture and call on Councils to propose alternative approaches that satisfy the Act.⁹

The alternative approaches used in the regulations and Aquaculture FMP to set reference points are neither robust nor science-based. The Council has proposed, and NMFS has accepted, reference points that exclude any reference to biological factors or ecological or other impacts of aquaculture production. The FMP establishes a proxy for MSY based on “the productivity of wild stocks”—average landings for all species in the Gulf of Mexico other than menhaden and shrimp.¹⁰ The regulations similarly adopt this rationale as the ACL for the fishery.¹¹ The FMP sets OY at the same level based on the expected level of annual production in the next 10 years.¹²

This rationale for MSY lacks any foundation in a science-based process. As the FMP notes, “[t]heoretically, there will be some maximum capacity of the Gulf to produce cultured fish that does not adversely affect wild stocks or the marine environment (e.g., water quality, habitat).”¹³ The FMP does not attempt to determine this maximum capacity because of the lack of information “about the number and size of operations, potential environmental impacts resulting from aquaculture, economic sustainability of aquaculture, and the production capacity of various marine aquaculture systems.”¹⁴

⁵ 16 U.S.C. § 1851(a)(1).

⁶ 16 U.S.C. § 1802(33)(B).

⁷ 16 U.S.C. § 1853(a)(15).

⁸ 50 C.F.R. § 600.310.

⁹ 50 C.F.R. § 600.310(h)(3).

¹⁰ *Aquaculture FMP*, *supra* note 2, at 89.

¹¹ *Proposed regulations*, *supra* note 1, at 51427.

¹² *Aquaculture FMP*, *supra* note 2, at 89.

¹³ *Id.*

¹⁴ *Id.*

Uncertainty is not a reason to decline to establish a science-based process for MSY determination. Many FMPs lack certainty due to a lack of data, and NMFS Guidelines note that a lack of data does not prevent development of a FMP.¹⁵ However, in such cases Councils must use the data they do have, and FMPs must identify scientific information needed to improve understanding and management of the resource.¹⁶ The FMP appears not to meet this standard: it does not identify what data or processes are needed to determine a meaningful MSY, nor does it incorporate monitoring or reporting criteria that would produce the data needed to determine MSY through such a process. It is possible to do better; while there are data gaps regarding offshore aquaculture, substantial information *is* available showing the wide range of impacts associated with offshore aquaculture production. The FMP does not adequately explain why this information was not used in setting MSY.

The FMP's rationale for determining OY also may not withstand legal scrutiny. OY must be set at a level equal to or less than MSY to account for "any relevant social, economic, or ecological factor,"¹⁷ and it (like other reference points) must account for risk as directed by National Standard 6.¹⁸ The FMP's OY determination does not account for any such factors or for risk, instead setting OY equal to MSY based solely on economic grounds. To explain this decision, the FMP states that, "[u]nlike wild stock management, there is no need to leave cultured animals in offshore aquaculture grow-out systems to support future generations. Accordingly, there are currently no social, economic, or ecological factors supporting a reduction from MSY."¹⁹ The need to leave cultured animals in the wild is not the only reason to reduce OY from MSY. To the contrary, this statement ignores the many ecological factors not related to overfishing of the target stock—including, but not limited to, escapes, water quality degradation, predator interaction, and habitat damage.

The regulations appear to endorse an approach to determining OY that is arbitrary, lacks any scientific basis, and may be inconsistent with the Act. We respectfully request that NMFS reconsider whether the rationale used to set the reference points is consistent with the Act. If NMFS determines that the reference points set in the FMP are inconsistent with the MSA, it must decline to finalize the regulations. Until such time as a sound scientific model is developed, NMFS can use its power to issue Exempted Fishing Permits (EFPs) for aquaculture, as it has done in the past, and it can use these permits to develop the information needed to develop robust reference points. Alternatively, if NMFS determines that the

¹⁵ 50 C.F.R. § 600.315.

¹⁶ 50 C.F.R. § 600.310(l)(1) ("In cases where scientific data are severely limited, effort should also be directed to identifying and gathering the needed data.")

¹⁷ 16 U.S.C. § 1802(33)(B).

¹⁸ 16 U.S.C. § 1851(a)(6); 50 C.F.R. 600.310(l)(3) ("Councils must build into the reference points and control rules appropriate consideration of risk, taking into account uncertainties in estimating harvest, stock conditions, life history parameters, or the effects of environmental factors.").

¹⁹ *Aquaculture FMP*, *supra* note 2, at 89.

reference points are consistent with the Act, we recommend that NMFS revise the proposed regulations as set forth in more detail in the sections that follow.

In any case, we suggest that NMFS assist the Councils in developing compliant processes by amending its National Standard 1 Guidelines to set forth a reasoned and scientifically rigorous process for determining reference points for aquaculture—ideally one that recognizes the varied environmental implications of different offshore aquaculture methods and provides incentives for producers to minimize their environmental impacts.

2. Authorize the Regional Administrator to consider the full range of environmental impacts during offshore aquaculture permitting.

The regulations unduly limit the Regional Administrator’s (“RA’s”) discretion in several aspects of the permit review process. The RA is directed to undertake case-by-case review, but can only review a limited list of environmental impacts during that process. Under the regulations, aquaculture system environmental review can only evaluate the system’s “potential to pose significant risks to essential fish habitat, endangered or threatened species, marine mammals, wild fish stocks, [and] public health, or safety.”²⁰ The RA’s authority to impose permit conditions or deny a permit for environmental reasons is limited to the same set of impacts.²¹

The environmental considerations available for consideration by the RA are unduly and unnecessarily limited and substantially narrow the RA’s authority under the MSA to review and require appropriate conditions to reduce the environmental impacts associated with offshore aquaculture. Aquaculture facility design, location, and operation can substantially affect the presence and magnitude of environmental impacts, many of which are currently outside the proposed list of available considerations. For example, offshore aquaculture may harm organisms that are not managed or protected stocks or species and habitats that are not specifically protected as EFH.

We agree that case-by-case review is needed to assess each proposed aquaculture site and system, and that this review must include consultations with other offices and programs.²² However, we recommend that NMFS substantially strengthen the review as set out in the regulations to ensure that the RA has discretion to consider and require applicants to address the full spectrum of environmental impacts associated with offshore aquaculture. This authority is critical because other regulatory frameworks do not comprehensively address the full range of these environmental impacts. These regulations should therefore direct the RA to consider any relevant ecological factor during the permitting process.

²⁰ *Proposed regulations*, *supra* note 1, at § 622.105.

²¹ *Id.* at § 622.101(d)(2)(ii)(B).

²² *Id.* at § 622.105(a).

Further, in designating allowable aquaculture systems, NMFS should ensure that it is providing all possible incentives for the use of advanced aquaculture systems that avoid and minimize environmental harm. Net pens and cages are widely used, but other systems, such as closed containment, remain in development and could radically decrease the environmental impacts of offshore aquaculture. NMFS can support the development and deployment of next-generation systems by ensuring that applicants receive permits only for state-of-the-art systems that avoid and minimize environmental impacts and by requiring that permits include appropriate conditions governing system design and operation to ensure that these systems function as intended once deployed. Removal of the specific approvals for cages and net pens would also support the ongoing development of best available technology and would provide incentives for producers to deploy more advanced systems with lower environmental impacts, both now and in the future.

3. Amend the “Significant Risk” standard to require a lower probability and magnitude of harm.

The regulations establish “significant risk” as the threshold for evaluating permit applications, siting decisions, and system design. Under the regulations, a “significant risk” is one that:

[is] likely to jeopardize the continued existence of endangered or threatened species or adversely modify their critical habitat; is likely to seriously injure or kill marine mammals; is likely to result in unmitigated adverse effects on essential fish habitat; is likely to adversely affect wild fish stocks and cause them to become overfished or undergo overfishing; or otherwise may result in harm to public health or safety, as determined by the RA.²³

Under this definition, significant risk is a very high bar, requiring that harm be “likely” to occur and that it be very serious in magnitude.

“Likely” suggests that an impact is probable²⁴—a high bar, even with well-constrained information on the likelihood of a given impact. Because offshore aquaculture is still

²³ *Id.* at § 622.2.

²⁴ “Likely” is not defined in the MSA or NOAA regulations, but its meaning has been considered in other contexts. See Brent Stewart, *Center for Independent Experts (CIE) External Independent Peer Review on the 2010 Biological Opinion on the Effects of the Federal Groundfish Fisheries and State Parallel Fisheries on listed species in Alaska, including Steller sea lions* 6 (2012) (“The ESA did not define the meaning of ‘likely’ nor has it yet been defined by either Congressional amendment of the statute or by formal administrative rule or regulation. *The general use of the term and the consideration of it by several District and Circuit courts in non-ESA claims clearly indicate that ‘likely’ means a substantial or a great chance.*” (emphasis added)). See also Merriam-Webster Collegiate Dictionary, 10th ed. (1996) (defining “likely” to mean “having a high probability of occurring or being true; very

relatively novel, there is limited information available on its environmental impacts. This lack of information will limit the RA's ability to show that *any* harm is "likely" to occur from offshore aquaculture—whether at a particular aquaculture system or across all permitted systems. The regulations do not specify whether the RA must show a likelihood for each individual permit and they do not make any provision for uncertainty, further undermining the RA's ability to require any conditions, even for impacts within the definition of significant risk and serious enough to meet the magnitude element of that definition. For example, very serious harms with low probability of occurrence, such as catastrophic events leading to destruction of protected species, could be excluded from consideration as significant risks. A lower probability standard is needed to support a precautionary approach to offshore aquaculture permitting. Specifically, redefining significant risks to include harm that "may" occur instead of just harm that is "likely" to occur would provide the RA with appropriate discretion to balance the likelihood and magnitude of potential harm.

The definition of significant risk requires an inappropriate level of harm before the RA can intervene. "Significant risk," as defined in the regulations, is a very substantial magnitude of harm; for example, it applies not to any "take" of marine mammals, but only to serious injury or death.²⁵ In addition, as noted previously, the list of harms within the definition of "significant risk" is unnecessarily limited and excludes a wide range of adverse impacts on habitats and ecosystems. These limitations substantially limit the RA's discretion to work with applicants to improve system design and operation to avoid environmental harm.

In practice, the RA will need substantial discretion in reviewing permits and working with applicants to address and minimize their impacts on the environment and other users of offshore areas. Given the need to flexibly address varied impacts, the significant risk standard is problematic and should be replaced with an alternative standard, such as "any social, economic, or ecological factor."

4. Expand and increase the specificity of monitoring and reporting requirements.

Robust monitoring and reporting requirements are necessary to ensure that permitting decisions are based on the most complete and up-to-date information and that the RA and Council can engage in the adaptive management of permitted facilities. The monitoring and

probable"; defining "probable" to mean "supported by evidence strong enough to establish presumption but not proof").

²⁵ NMFS has requested comment on whether "significant risk" is a different standard than what is established under the Endangered Species Act ("ESA"). The ESA allows emergency listing without prior notice or comment when an emergency exists that poses a "significant risk to the well-being" of a species. 16 U.S.C. § 1533(b)(7). "Significant risk" is not defined in the statute but implies conditions when a species could be imminently extirpated if normal listing processes were used. This standard is substantially higher than would be appropriate in the context of permit review, where the focus can be on proactively avoiding impacts, including harm to protected species. We therefore suggest that NMFS consider using an alternate term in this context.

reporting requirements in the proposed regulations are not sufficient to support these goals and ensure that offshore aquaculture development does not cause environmental harm because they do not apply to all impacts of aquaculture, lack needed detail to ensure they are effective and enforceable, and will not produce data that are available to the public.

The proposed regulations outline a series of monitoring and reporting requirements that address some, but not all, of the most significant expected impacts of offshore aquaculture on marine ecosystems. For example, the regulations require documentation of major escapements; reportable pathogens; and entanglements or interactions with marine mammals, protected species, and migratory birds.²⁶ However, the regulations fail to require monitoring and reporting of other important environmental impacts, including the discharge of feed, waste, and other pollutants and the use of antibiotics or therapeutics.

The regulations rely on other permitting programs to address monitoring of impacts not covered by the FMP. For instance, permittees must “comply with all applicable monitoring and reporting requirements specified in their valid ACOE Section 10 permit and valid EPA NPDES permit.”²⁷ While these other permitting programs may play the leading role in protecting water quality, they are not complete solutions for offshore aquaculture. For example, EPA’s Effluent Limitation Guidelines (ELGs) for aquaculture do not include numeric standards in discharge permits for most offshore aquaculture facilities.²⁸ Thus, in many cases, monitoring for water quality impacts under the NPDES program alone will be insufficient. The FMP and implementing regulations should supplement other regulatory programs by requiring enforceable monitoring and reporting requirements for water quality impacts and setting limits for remedial action. We suggest that NMFS require that the monitoring and reporting requirements cover the full spectrum of ecological impacts associated with offshore aquaculture.

The limited and vague monitoring requirements that are included in the regulations make it difficult to assess whether the monitoring will detect or prevent environmental harm. The regulations lack details on the required monitoring parameters and procedures, other than stating that monitoring and reporting parameters required must be “consistent with NMFS’ guidelines that will be available on the SERO Web site.”²⁹ Given that the cited guidelines have yet to be developed, it is difficult to evaluate whether the monitoring requirements will be sufficient to detect and address environmental impacts, or whether they will be sufficiently specific to enable effective enforcement. Guidelines are an appropriate place to detail numerical parameters and procedures that should necessarily change and adapt as new

²⁶ *Proposed regulations*, *supra* note 1, at § 622.102(a)(1)(i).

²⁷ *Id.* at § 622.106(a)(8).

²⁸ Emmett Environmental Law and Policy Clinic, Environmental Law Institute, & The Ocean Foundation, *Offshore Aquaculture Regulation Under the Clean Water Act* (2012)

²⁹ *Proposed regulations*, *supra* note 1, at § 622.106(a)(8).

data become available. However, the regulations should require that the guidelines be reviewed on a regular basis, updated with best available science and monitoring data, and open for review by experts. They should also stipulate a minimum number of criteria (e.g., frequency of inspections, etc.) that will be detailed in the guidelines as well as that the monitoring data will feed back into the program.

Finally, the regulations contain no requirement that data provided to NMFS under the monitoring requirements be made available to the public. Data availability is critical to enable the public and private sectors to work together to better understand the impacts of aquaculture and to develop reference points and management measures to avoid and minimize impacts. For example, the Gulf FMP's framework adjustment process relies on an Aquaculture Advisory Panel ("AAP") that, based on data collected during ongoing monitoring of permitted operations, will review planned production levels relative to OY, determine if aquaculture is adversely affecting wild stocks and other marine resources, and recommend changes to OY and management measures. Public input will add much needed capacity to this review process. The regulations can support this goal by requiring that applicants make all monitoring and reporting data available to the public.

5. Expand and increase the specificity of the available remedial actions so the Regional Administrator can effectively address the full range of environmental impacts associated with offshore aquaculture operations.

The proposed regulations outline remedial actions, including permit sanctions and denials in accordance with subpart D of 15 CFR part 904, as well as additional actions, short of permit modification, to avoid or mitigate adverse impacts. While NMFS has authority to impose permit sanctions or denial for noncompliance with regulations or permits,³⁰ permits issued under these regulations may not include conditions or restrictions that address all environmental impacts. In addition, aquaculture systems may cause environmental impacts, such as disease outbreaks or escapement, even when operators are in full compliance with their permits.

We concur that remedial actions are of critical importance in ensuring that permittees take action to address impacts, even when they have not violated permits or regulations. The regulations identify specific remedial actions (movement restrictions and/or removal of all cultured animals) only in response to pathogen episodes and genetic issues.³¹ While a positive start, this list of identified remedial actions makes no specific provision for remedial actions, other than vague reporting requirements, in response to other environmental harms of offshore aquaculture. For example, in the case of major escapements and entanglements, operators are required to report on all events, including detailing actions being taken to

³⁰ 15 C.F.R. § 904.301.

³¹ *Proposed regulations, supra* note 1, at § 622.108.

prevent future entanglements or escapes.³² It is not clear, however, how these plans will be evaluated or monitored, and operators are not required to take action to implement them. Similarly, although the regulations require emergency disaster plans, these plans need address only preparations for potential disasters and not procedures for responding to disasters once they occur.

The regulations should outline specific, enforceable remedial actions to address all potential environmental impacts, including, but not limited to, escapement and entanglement, water quality issues, and failure or loss of systems. In developing remedial actions for each impact, thresholds for action should be measurable and based on monitoring data.

6. Expand the allowable species to allow the culture of native species with lesser levels of environmental impact that are managed at the state level.

We applaud the Council and NMFS for limiting aquaculture in the Gulf of Mexico to native species, and to individuals of those species drawn from locations near the aquaculture system. These requirements will help limit the potential impacts associated with the inevitable escapes from offshore aquaculture facilities.

While restricting aquaculture to native species is a positive step, we note that the prohibition on culture of any species not managed by the Council *and* included in a fishery management unit is over-restrictive as written. This prohibition bars the culture of native species that produce lesser environmental impacts than the species managed by the council—most notably, shellfish and other invertebrates other than live rock and spiny lobster. Oysters and other species managed at the state level are important to working waterfronts in the Gulf of Mexico, and culture of shellfish has broad stakeholder support due to the limited environmental impacts associated with this activity. In addition, several producers have obtained permits from the Army Corps of Engineers for shellfish aquaculture in the past year—a sign of the potential economic sustainability of this approach. The exclusive focus on finfish culture in the FMP and these regulations acts to bar similar projects in the Gulf of Mexico.

NMFS should consider whether the restrictions on allowable species in the regulations and the FMP are consistent with the MSA's goal to produce the OY from the aquaculture fishery. The proposed regulations prohibit culture of the least environmentally harmful species while simultaneously promoting culture of species with higher impacts—a policy that appears suboptimal. A more rational limitation would allow culture of native species independent of what jurisdiction manages them, with alternative restrictions, if needed, to prevent the culture of protected species or for other reasons.

³² *Proposed regulations, supra* note 1, at § 622.102(1)(i)(B), (F).

7. Require short-term aquaculture permits for novel systems to ensure that they perform well in real-world conditions.

The FMP and the regulations provide for 10-year renewable aquaculture permits. While this is a reasonable length for facilities with a proven track record, it is too long for novel, untested facilities. Systems that have not yet been tested under actual ocean conditions may not live up to expectations, regardless of model results, and factors such as feed efficiency may differ from expectations in ocean environments. As a result, issuance of long-term permits for new, untested systems is risky.

NMFS should initially issue only short-term permits for novel offshore aquaculture operations without a track record of operational safety. Such short-term permits could help promote innovation in system design, while allowing real-life testing of systems that can supplement the computer modeling and desktop analysis required in the regulations to determine the safety of new and innovative systems. For example, Kampachi Farms, the successor to Kona Blue Water Farms, shifted from a free-floating to an anchored design based on experience gleaned through its Special Coral Reef Ecosystem Permit.³³

If monitoring demonstrates that a facility holding a short-term permit is performing successfully, then NMFS could allow permit renewals or, upon a demonstration that the facility has met objective standards for performance, could allow conversion into long-term permits. At the same time, NMFS could decline to extend permits for underperforming or unsafe facilities—whereas operators could redeploy those facilities if pre-approved for a long-term permit. This is particularly important as the regulations give limited authority for permit revocation or modification, except in the case of noncompliance.

8. Require establishment of a scientifically-sound genetics policy and increase the specific requirements with respect to breeding programs.

The proposed regulations include a number of measures to reduce differences between wild and cultured stocks of the same species, thereby attempting to minimize potential harm that may result from escapement. Under the regulations, broodstock used to produce juveniles for culture must be from the U.S. waters of the Gulf of Mexico and from the population or sub-population that lives where the aquaculture facility is located. In addition, no genetically modified or transgenic animals may be used or possessed for culture purposes at the aquaculture facility. The draft rule also includes a number of requirements related to hatchery practices (e.g., individual marking or tagging of all broodstock and certification that the genetic material is collected and submitted for each brood animal). Although these are important provisions, they do not sufficiently ensure that genetic divergence in cultured

³³ Honolulu Dist. Corps Eng'rs, Public Notice – Kampachi Farms, POH-2012-00016 (2013)

stocks is minimized. Such divergence could result in adverse effects on wild stocks when substantial escapements occur.

A number of important clarifications must be made to address the potential for deliberate (through selective breeding of cultured individuals) or passive (through genetic drift) genetic divergence of cultured individuals from the wild stock over generations of breeding in a hatchery. The proposed regulations are unclear about the frequency of broodstock collection and contain few requirements for hatchery breeding practices. For instance, the draft rule states that “juveniles stocked in facilities must be the progeny of wild broodstock,” but does not specify whether progeny means first-generation descendants (i.e., whether wild individuals must be captured and used as broodstock for each spawning event). Further, the regulations do not require an operator to develop a genetics policy, nor do they require that the application describe a breeding program to be employed in the hatchery. Without additional specificity, not only will wild stocks be placed at risk, but effective enforcement of these provisions will be difficult or impossible.

We suggest the regulations at minimum require that the permit application include specifics on breeding, including frequency of broodstock collection and monitoring for genetic divergences in the hatchery. Further, we suggest that the regulations explicitly require that wild broodstock must be collected for each individual spawning event and that all juveniles are first generation descendants. In this case, we suggest that the term “genetically modified organism” be changed to “genetically engineered animal” to better reflect NMFS’s true intention.

9. Expand site selection requirements by incorporating the criteria for consideration during baseline environmental assessment into the regulations.

One of the main risks associated with stationary offshore aquaculture facilities is that the projects may individually or cumulatively degrade local habitat as a consequence of discharges and other habitat modifications. To minimize this risk, the FMP and regulations prohibit facilities in specific types of designative protected areas and require case-by-case analysis of all proposed aquaculture sites.

The criteria to be considered in case-by-case review of proposed sites are important. However, as in other contexts in the regulations, the significant risk threshold will significantly and unreasonably limit the RA’s ability to evaluate sites and deny inappropriate sites. Further, the suggested elements to be included in the baseline environmental assessment that will primarily inform NMFS’s case-by-case evaluation of sites are insufficient. As described in the regulations, the baseline environmental assessment “must be conducted, and the data, analyses, and results must be summarized and presented, consistent with the guidelines specified by NMFS.” The regulations indicate the guidelines will include

methods and procedures “for conducting diver and video surveys, measuring hydrographic conditions, collecting and analyzing benthic sediments and infauna, and measuring water quality characteristics.” It is difficult to evaluate whether the baseline environmental assessment will be adequate to identify and measure important environmental harms of offshore aquaculture based on this list of possible data collection methods and procedures.

Rather than solely listing the methods and procedures that should be included, we encourage NMFS to amend the regulations so that they instead outline the specific parameters that must be measured and reported and that the guidelines and included parameters will be updated as monitoring data are collected. This will allow for a more thorough and complete analysis of potential sites and the collection of data that could be used to inform site selection in the future.

10. Expand the financial assurance requirements to address all the reasonably foreseeable costs to the public associated with offshore aquaculture, including natural resource damages.

We applaud the inclusion of financial assurance requirements in the regulations. Given the economic uncertainty in the industry and the high potential costs to the government of removing abandoned equipment, it is important to ensure that adequate funds are available to remove aquaculture systems and cultured organisms if and when they are abandoned.

Abandonment is only one of the risks associated with offshore aquaculture, however, and NMFS should ensure that assurance amounts are sufficient to cover other reasonably foreseeable situations in which aquaculture systems impose costs on the public. For example, extreme weather is a substantial risk, as underscored by the requirement to attach GPS locators to aquaculture systems and to develop emergency response plans. The costs of finding, securing, and removing systems that break away could easily exceed the available financial resources of operators; the regulations should mandate bonds or other assurance mechanisms sufficient to cover such costs, as well as to cover the potential natural resource damages caused by equipment that breaks away or is lost or by escaped organisms.

11. Establish a minimum time period for public comment during the permitting process.

While the regulations set out a substantial array of requirements for offshore aquaculture permit applications and the review of those applications, these requirements are vague with respect to the required time for public comment and appear to limit the scale and timing of interagency consultation and coordination in a manner that will increase the time required to obtain permits.

The regulations state that “[t]he public will be given *up to* 45 days to comment” on permit applications. This language is unreasonably vague. The comment period should be consistent from permit to permit and should be long enough to ensure that the public has adequate time to comment. Given the lengthy permitting timeline set forth in the regulations (i.e., no less than 180 days), there is no compelling reason why the public comment period should be less than 60 days.

We also note that the regulations require applicants to obtain other permits prior to applying for a MSA permit.³⁴ These other permits, including those issued by EPA and the Army Corps of Engineers, may include substantial process, including interagency consultation and public comment. While it may be sensible for NMFS to issue its permit last, we recommend that NMFS work to implement its permitting process in collaboration and coordination with other responsible agencies.

Thank you for considering these comments. Please feel free to contact us for additional clarification.

Sincerely,

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³⁴ *Proposed regulations, supra* note 1, at § 622.101(a)(2)(viii).