



Submitted via regulations.gov

May 26, 2026

Jon Kurland, Regional Administrator for Alaska Region
National Marine Fisheries Service
Attn: Records Office
P.O. Box 21668
Juneau, AK 99802-1668

Re: Notice of Intent to Prepare a Programmatic Environmental Impact Statement for Identification of Aquaculture Opportunity Areas in Alaska State Waters: NOAA-NMFS-2023-0113-0058

Dear Regional Administrator Kurland,

On behalf of The Pew Charitable Trusts, thank you for the opportunity to provide comments in response to the Notice of Intent to Prepare a Draft Aquaculture Opportunity Areas (AOA) Options for Alaska State Waters. Pew appreciates the collaborative nature of the AOA process and NOAA's continued engagement with Tribes, coastal communities, industry participants, and other stakeholders. Identification of AOAs represents an important early step in supporting thoughtful, sustainable development of Alaska's mariculture sector, with the potential to improve clarity and predictability in early site selection and investment decisions for prospective farms, while helping guide activities in areas with favorable conditions.

As the AOA process moves forward, NOAA has the opportunity to effectively support the transition from spatial planning to permitted, operational farms—including by clearly delineating what additional data are necessary for farmers that may apply for permits within specific, identified AOAs; using relevant environmental effect indicators to guide impact assessments; and making sure that Tribal perspectives help inform site selection, design, monitoring, and long-term management of mariculture farms. The sections below provide additional detail on these considerations as they relate specifically to seaweed farming in Alaska.

NOI #1: Scope of the PEIS

Baseline environmental data availability should play an explicit role as NOAA prepares the Programmatic Environmental Impact Statement (PEIS) and compares AOA options under Alternative 2, alongside other factors such as spatial conflicts, use patterns, and physical suitability.

The availability and quality of baseline environmental knowledge vary substantially across Alaska. While some conditions, such as temperature and salinity, are monitored through existing regional

programs, a forthcoming science synthesis focusing on Alaska and British Columbia, co-authored with NOAA (Tamburello et al. 2026, anticipated publication summer 2026) finds that baseline data varies widely across the environmental indicators relevant to seaweed farming, and that seaweed-specific monitoring in Alaska is geographically concentrated in just a few regions. This may limit the availability of baseline data across the broader range of areas under consideration as AOA options.

The PEIS should acknowledge these variations in baseline data availability and quality and describe those uncertainties when evaluating AOA options, including acknowledging where data gaps may warrant more precautionary interpretation or additional consultation, while recognizing that project-specific permitting processes will assess certain ecological risks in greater detail. For AOA options that are not identified, NOAA should provide transparency about factors informing those decisions—including whether baseline data gaps or remaining uncertainty played a role—so that prospective applicants understand what additional information would be needed if development was still considered in those areas. For AOA options that are identified, the PEIS should clearly communicate what baseline information currently exists versus what additional characterization may still be needed before prospective farmers invest in permitting.

Additionally, using the results of the AOA and PEIS processes, NOAA will be well positioned to support continued baseline data development and environmental characterization through coordination with the State of Alaska, Tribes, local communities, regional organizations, and research institutions.

NOI #4: Potential Impacts to Biological, Physical, and Ecological Resources—Using Environmental Effect Indicators

Given Alaska’s dynamic marine environment, evaluating potential biological, physical, and ecological effects of seaweed farming within AOA options will require NOAA to assess the operational characteristics of potential farms, consider evidence of local effects, and determine the availability and quality of data for key environmental indicators. The forthcoming Tamburello et al. (2026) synthesis systematically evaluates 38 environmental effect indicators relevant to seaweed farm operations using a suite of nine criteria: relevance to management, literature support, sensitivity and responsiveness, robustness, feasibility, cost-effectiveness, reliability for predicting causality, likelihood of occurrence, and community interest or concern.

Once published, Pew encourages NOAA to use this synthesis to inform its analysis of potential environmental impacts under Alternative 2. The synthesis organizes the 38 indicators into three descriptive groups that reflect their scientific merit, practicality, and importance for decision-making. These groupings can be used to help evaluate AOA options based on the strength of

available science and monitoring, describe varying levels of confidence in predicted environmental effects, and identify where additional baseline characterization or project-level analysis may be required. Pew also encourages NOAA to consider Indigenous Knowledge alongside these scientific findings when evaluating potential environmental effects across AOA options.

Regardless of whether a specific AOA advances through the PEIS process, NOAA should clearly document and share the information, assumptions, and uncertainties that informed its impact assessments. Providing transparency about where sufficient data exist, where assumptions were applied, and where information gaps remain would reduce uncertainty for prospective applicants and improve overall consistency and predictability as planning transitions toward permitting.

Cumulative Effects and Regional-Scale Considerations

NOAA should ensure that the PEIS considers regional-scale cumulative impacts when evaluating AOA options under Alternative 2, particularly where interactions across multiple farms, seasons, or shared waterbodies may magnify environmental effects. Although individual seaweed farms in Alaska are generally small and seasonal, their potential ecological effects, including those related to nutrient dynamics, water flow, and potential genetic interactions with wild kelp populations, are best understood when activities are considered collectively at the bay or regional scale.

Pew recognizes that the PEIS will necessarily partially rely on qualitative analysis and assumed operational scenarios, with more detailed impact evaluation tiered to future project-level review. However, to support spatial planning and future permitting decisions, the PEIS should describe plausible scenarios—such as multiple farms operating within one bay—and explore whether site-specific conditions influence how many farms could operate without significant cumulative ecological effects. This approach, even if qualitative, can help clarify expectations for siting, permitting, and long-term impacts as the sector grows.

Pew also encourages NOAA to work with state agencies, Tribes, research institutions, and industry—both within and outside the PEIS process—to build a shared understanding of cumulative ecological effects as seaweed farming develops in Alaska. Drawing on diverse knowledge systems and monitoring data can help refine understanding of how environmental effects scale with farm density across different regions of Alaska.

NOI #5: Tribal Engagement, Knowledge Co-Production, and Cultural Considerations in AOA Planning

Pew recognizes the sovereign authority and leadership of Tribal governments in shaping conversations around marine aquaculture development in Alaska. Tribes have consistently

emphasized the need for early, sustained, and meaningful involvement across all stages of AOA planning and implementation, with approaches that respect Tribal sovereignty, Indigenous Knowledge, and support co-production of knowledge and decision-making reflecting Tribal priorities and stewardship practices.

Throughout the PEIS process, NOAA should ensure that Tribal perspectives inform the identification of AOA and related planning considerations. Incorporating Tribal consultation and Indigenous Knowledge—including long-term, place-based observations—alongside Western science will strengthen understanding of ecosystem dynamics, improve siting decisions, and improve evaluation of potential environmental and community impacts. Where Tribal cultural information or place-based knowledge is incomplete, confidential, or not available for inclusion in the PEIS, NOAA should take a precautionary approach in how those gaps are interpreted. In this context, the absence of information should not be treated as an indication of compatibility, but rather as a sign of the need for additional consultation and analysis.

The PEIS should also evaluate how AOA identification may affect existing marine uses in Alaska, including subsistence harvesting and culturally significant areas. Considering these factors together can help reduce user conflicts, improve spatial compatibility with existing ocean uses, and better align AOA planning with local priorities and cultural values.

NOAA should use the PEIS to acknowledge and describe considerations related to data collection, management, and sharing approaches, including those that uphold Tribal data sovereignty—such as the rights of Tribes to govern the ownership, access, and application of data derived from their lands, waters, and knowledge systems. Providing greater clarity on how these considerations may be addressed in subsequent planning, permitting, or monitoring processes could help build trust and support for Tribal participation in monitoring and research.

Following identification of the AOAs, NOAA should continue to build on its strong foundation of Tribal engagement by supporting approaches that enable ongoing collaboration with Tribes, including those that reflect shared stewardship and, where appropriate, introduce co-management or similar collaborative governance structures.

NOI #7: Long-Term Utility of AOA Data and Planning Tools

In the future, as seaweed farming in Alaska progresses from identification of AOA sites toward gear in the water, the data and analytical tools that informed NOAA's evaluation should take on a new role: supporting prospective farmers as they move to project-level permitting. NOAA has an opportunity to ensure that these resources remain accessible and continue to increase in value

over time as new scientific findings, monitoring results, Indigenous Knowledge, and locally collected data become available.

The Alaska Aquaculture Atlas represents a significant investment in spatial planning that can provide additional value beyond AOA identification. But while the Atlas supported early screening and synthesis, prospective farmers have noted that it currently lacks the biophysical detail needed to inform local site selection. NOAA should consider how the underlying datasets, documentation, and analytical assumptions might be maintained, updated, or supplemented over time to reflect new monitoring data, research findings, and place-based knowledge. Ensuring that these resources are publicly accessible and well documented would help prospective farmers better evaluate sites within identified AOAs and make more informed permitting decisions.

Continued coordination with state agencies, Tribes, researchers, and farmers will be important to ensure a transparent and predictable flow of information as the sector develops. By treating AOA-related data and planning tools as living resources rather than static outputs, NOAA can extend the return on its spatial planning investment while reducing uncertainty for prospective applicants.

Thank you again for the opportunity to provide input. Pew looks forward to continued collaboration with NOAA Fisheries and partners in Alaska to support AOAs that are effective, adaptive, and aligned with responsible seaweed farming and Alaska's environmental, cultural, and economic priorities.

Respectfully,



Rachel Hopkins
Director, International Fisheries and Aquaculture



Lila Hobbs
Officer, Seaweed Farming