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The Australian Centre for Culture, Environment, Society and Space (ACCESS), University of Wollongong, represents one of Australia's largest and most reputable concentrations of human geography researchers. ACCESS investigates how social relations, cultural norms, community capacities and institutional practices condition the creation of just and sustainable environmental futures. Our research works at different scales from the household, to the city and the region. We work across interdisciplinary and international collaborations and through community- and industry-engaged partnerships.

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The Blue Economy CRC, with a 10-year life, the Blue Economy CRC brings together 45 industry partners, government and research partners from ten countries with expertise in aquaculture, marine renewable energy, maritime engineering, environmental assessments and policy and regulation.

Through targeted industry-focussed research and training, the Blue Economy CRC paves the way for innovative, commercially viable and sustainable offshore developments and new capabilities. Our vision is that our blue economy industries in offshore aquaculture and renewable energy are globally competitive, at the forefront of innovation and are underpinned by a robust environmental planning and management framework which consumers trust and value.

The Blue Economy Cooperative Research Centre (CRC) is established and supported under the Australian Government's CRC Program, grant number CRC-20180101. The CRC Program supports industry-led collaborations between industry, researchers and the community. Further information about the CRC Program is available at www.business.gov.au.



This project was successful in securing funds from the NSW Government.

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CITATION

Croft, F. Voyer, M, Nichols, R., Mifsud, T, Solitei, M., Boehme, T., Gibbs, L., McIlgorm, A. (2024) Socioeconomic considerations for regenerative aquaculture on the NSW South Coast. Report to the Department of Regional NSW.



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Summary

The NSW South Coast community has a strong desire to have a say in the future of the emerging regenerative aquaculture industry (and Blue Economy development more broadly).

The current State Significant Development regulatory approval process requires rigorous and comprehensive community engagement, incorporating environmental, social and cultural impact assessment, along with multiple obligations for consultation. However, reliance on this process as the primary model of engagement means that the weight of consultation and engagement is currently focused on proponents and is also concentrated in the regulatory approvals pathways that comes after lease identification and issuance.

As such, community engagement is being conducted on a site-by-site basis, with minimal opportunities for coordination of broader regional scale education and engagement activities around the industry as a whole.

This is a high-risk approach to engagement for a fledgling industry as the loss of social licence for one operation can have flow-on impacts for the broader industry.

This site by site approach to engagement means that consultation and community engagement are currently disjointed and rely almost entirely on industry proponents. With the exception of a finfish lease off Port Stephens and shellfish leases in Jervis Bay, the NSW government has not undertaken zoning of marine leases for aquaculture.

Recommended consultative pathways are identified in the NSW Marine Waters Sustainable Aquaculture Strategy but at present, this is the responsibility of individual marine lease applicants.

In addition, there are significant disincentives in place within the regulatory system which create barriers to early (ie pre site selection) and effective engagement.

For this industry to develop and succeed, a coordinated, multi scale and multi actor approach to community engagement is required to translate broad community enthusiasm for this industry (see Report 1) into local scale acceptance.

We identify a number of opportunities for co-design of this emerging industry (as seen in the Table below), which aim to foster and enhance positive and proactive engagement and discussion. There is a need to support knowledge brokers to create pathways for relationship building across different groups and facilitate the co-design process.

Funding incentives from Government may be a possible avenue to assist individual proponents/ businesses and the industry more broadly to engage in the activities outlined in the matrix on the following page.



Table 1. Matrix of opportunities for co-design or collaboration across interest groups.

	Government	Industry	Proponents
First Nation groups and individuals	Strategic plan for First Nations involvement and leadership in a South Coast regenerative aquaculture industry*	Engagement protocols to guide cultural partnership pathways between Aboriginal and non- Aboriginal parties*	Cultural navigators to link First Nations with industry and assist with co-design* Benefit sharing and employment commitments
Community/residents	Regional consultative mechanisms on Blue Economy values, planning and management. Ocean literacy programs disseminating latest knowledge on challenges and opportunities for future ocean uses*	Community education on industry standards and practices* Industry open days	Site specific working groups/advisory bodies Community sponsorship and open days Local content and employment commitments
Stakeholders (fishers)	Spatial planning to identify areas of synergy and conflict with existing uses*	Industry standards for co- existence and co-use of marine spaces*	Identification of site- specific co-existence opportunities and mitigation strategies for impacts on access and use*
Other interest groups (e.g., conservation organisations)	State and regional consultative mechanisms on Blue Economy values, planning and management	Innovation workshops and 'sandpits' to collaborate on pathways towards maximizing sustainability and community outcomes from regenerative aquaculture	Local level 'sponsorship' and benefit sharing arrangements

^{*}Assistance from research institutions can support this.

The figure below identifies a potential pathway for community consultation and engagement on the development of a regenerative aquaculture industry which shares consultation responsibilities more equally between regulators, industry, and proponents. It proposes more active engagement of community and First Nations in aquaculture area identification before specific sites are requested by proponents. By identifying suitable aquaculture areas and conducting consultation with communities prior to tendering, government can also de-risk the planning process for industry proponents and give community certainty about the types of potential future uses they can expect to see in their local areas.

Figure 1. Potential consultation pathway for developing a regenerative aquaculture industry on the NSW South Coast.

Preliminary spatial analysis	Aquaculture area identification and establishment criteria	Regional consultations on site options	Demonstration sites and R&D trials	Site tendering and site-specific community engagement
Government (Local & State), Traditional owners, Research institutions	Government (Local & State), Traditional owners, Research institutions, Industry	Government (Local & State)	Research institutions/ Government/ Industry/Proponents	Proponents
△ Desk top identification of broad areas of interest for potential regenerative aquaculture based on available information on environmental, social, cultural economic and logistical considerations	 △ Identification of socially and culturally supported aquaculture areas △ Environmental suitability assessments △ Identification of suitability and merit criteria proponents will need to address in the tendering process 	△ Consultation on aquaculture areas and suitability and merit criteria △ Facilitated relationship building between industry and community/ First Nations to assist in demonstration of merit	△ Option for site level trials within aquaculture areas in order to test biomass models, community responses and environmental considerations	△ Proponents tender for sites within established aquaculture areas, addressing and complimenting suitability and merit criteria which demonstrates ongoing community engagement

Key terms and acronyms

BE CRC - Blue Economy Cooperative Research Centre

MEMA – Marine Estate Management Authority

PIMBY – Please in My Back Yard – the antithesis of the more commonly understood NIMBY phenomena (Not in My Back Yard). Also known as YIMBY (Yes in My Back Yard)

SEARS – Secretary's Environmental Assessment Requirements

SLO – Social License to Operate

UOW – University of Wollongong

1. Introduction

The University of Wollongong (UOW) and the Blue Economy Cooperative Research Centre (BE CRC) have collaborated with the NSW Government and industry to identify social, cultural, and economic impacts and opportunities that may be associated with future development of a regenerative aquaculture industry on the South Coast of NSW.

Local communities are integral stakeholders in the process of developing a regenerative aquaculture industry. Their perspectives, concerns, and aspirations must be valued and sought after, with the aim of fostering transparent and constructive dialogue.



Local businesses and entrepreneurs, who are deeply rooted in the fabric of these communities, are critical partners whose insights will inform the development of sustainable practices.

Indigenous communities, with their deep cultural connections to the land and sea, will also hold a pivotal role in shaping these plans in a way that respects and enhances their cultural heritage.

This report is the third of a series focused on the research outcomes. Report 1 explores the social and economic considerations that current and future developments will need to address and contains the social data on which the recommendations made in this report are based. Report 2 examines how Aboriginal cultural values, rights and interests can be protected, enhanced, or prioritised as this new industry develops. Report 4 looks at how local business networks, supply chains and markets can develop around this emerging industry. This report builds on the analysis of the existing mechanisms for community engagement outlined in Report 1, and the findings contained in reports 2 and 4. It identifies potential pathways for engagement and opportunities for co-design of a future regenerative aquaculture industry.

The full details of the background to the project, the project methodology and key results can be found in Report 1. This report focuses on key findings and recommendations for industry, government, and community, to inform future community consultation and engagement activities, including the development of community engagement plans in accordance with existing NSW Planning requirements.





2. Co-designing a regenerative aquaculture industry with community

Across the region there is a high degree of interest, passion and concern about future ocean use and management.

Our survey data indicated that more than 85% of the respondents from the NSW South Coast would like to be better informed about existing and developing ocean industries in NSW (See Report 1). However, at present there are limited opportunities for people in the region to engage in learning, information exchange and decision making about their local marine environment.

Despite the strong sense of connection to coasts evident from this research (see Report 1), our findings suggest that **communities feel disconnected from decision making around ocean industry development**. An average of 65% of survey respondents from across the NSW South Coast did not believe that all relevant people were being adequately consulted in the development of regenerative aquaculture.

There is a high level of interest in building ocean literacy and engaging community in discussions and deliberations around the future of their oceans and broader Blue Economy developments beyond the scope of individual projects or proposals. Yet the current planning system concentrates engagement around individual proposals on a site-by-site basis. Commonly used consultation mechanisms also tend to be reactive, adversarial, and polarising, with little opportunity for genuine negotiation and collaboration around key decisions.

Given regenerative aquaculture is a new and emerging industry in NSW there is capacity to look to new ways of doing things.

This new industry presents a unique opportunity for positive and proactive engagement and discussion around marine use and management not specifically linked to individual proposals, for example through regional or local marine planning initiatives. Rather than a reactive model of engagement, we recommend consideration of proactive and place-based approaches which ask communities to nominate areas where they think regenerative aquaculture would be suited. Participatory mapping exercises are effective models for this type of engagement, whereby community can view other nominations and provide their reactions to them.

This type of consultation would tap into recent social trends towards the emerging PIMBY phenomena (Please In My Back Yard) where communities advocate for the types of sustainable development that they would like to see for their local areas (Kojola, 2020). This type of positive and proactive engagement can help to build enthusiasm and advocacy within a community and is the shared responsibility of regulators, educational and research institutions, industry, and conservation organisations.

Table 1 is a matrix of opportunities for co-design between relevant actors in the development of regenerative aquaculture industry.



It highlights some examples of approaches which aim to build consensus, genuine two-way engagement, and relationship building. Here, we particularly highlight the important role of knowledge brokers. We recognise that engagement often requires relationship building across diverse communities and stakeholder groups, therefore, we suggest there is a role for dedicated support for this emerging industry. This could be through the appointment of industry knowledge brokers or liaison officers, especially for First Nations consultation (see Report 2). Research institutions can also play a role in acting as a knowledge broker and undertaking social research which can assist in identifying community ideas and opinions.

Table 1. Matrix of opportunities for co-design or collaboration across interest groups.

	Government	Industry	Proponents
First Nation groups and individuals	Strategic plan for First Nations involvement and leadership in a South Coast regenerative aquaculture industry*	Engagement protocols to guide cultural partnership pathways between Aboriginal and non- Aboriginal parties*	Cultural navigators to link First Nations with industry and assist with co-design* Benefit sharing and employment commitments
Community/residents	Regional consultative mechanisms on Blue Economy values, planning and management. Ocean literacy programs disseminating latest knowledge on challenges and opportunities for future ocean uses*	Community education on industry standards and practices* Industry open days	Site specific working groups/advisory bodies Community sponsorship and open days Local content and employment commitments
Stakeholders (fishers)	Spatial planning to identify areas of synergy and conflict with existing uses*	Industry standards for co- existence and co-use of marine spaces*	Identification of site- specific co-existence opportunities and mitigation strategies for impacts on access and use*
Other interest groups (e.g., conservation organisations)	State and regional consultative mechanisms on Blue Economy values, planning and management	Innovation workshops and 'sandpits' to collaborate on pathways towards maximizing sustainability and community outcomes from regenerative aquaculture	Local level 'sponsorship' and benefit sharing arrangements

^{*}Assistance from research institutions can support this.



3. Process of engagement - when and how

This research identified contested ideas around how soon to engage communities in discussions around specific proposals.

It is common for community members to criticise engagement as coming too late, and this was also expressed in these research findings. There was a strong indication that insufficient consultation had been conducted and that consultation should have occurred prior to the selection of the proposed aquaculture sites. The NSW Planning guidelines and established literature on community engagement frequently recommend early community engagement.

However, from an industry perspective there are a number of disincentives to early consultation, which can delay engagement with local communities on proposals. These include:

- △ Industry proponents in an emerging industry like regenerative aquaculture are often technical experts, not community engagement specialists. Given the high-risk nature of being an early adopter, there is often limited capital available to support engagement efforts. This can lead to a lack of confidence or reluctance to begin engagement activities.
- △ Regenerative aquaculture is a relatively new industry for Australia and NSW. This can mean that there is limited research, knowledge, expertise, or case study examples to draw on to answer community questions and concerns. This can result in engagement being delayed in order to allow sufficient time to gather the necessary data.
- △ Community backlash could be considered an almost inevitable response to new developments in ocean environments.

- The results of the community survey (see Report 1) suggest that regenerative aquaculture has one of the highest levels of in principle support of all current and potential ocean industries, yet case study proponents still faced community resistance. This can be highly stressful, distressing and damaging to both community and industry proponents, especially when proponents are members of the local community. This can contribute to a desire to put consultation off until a later date.
- Regulatory frameworks currently in place in NSW include a competitive tender process (see Reports 1 & 4). This can lead to a reluctance to share information on site preferences or details of project proposals before a site lease is secured.

Sharing the load across industry, government and other bodies will help to remove some of these disincentives to engagement. There are multiple 'layers' of engagement that are required to build a regenerative aquaculture industry on the NSW South Coast.

Government needs to play a role in consulting with community around site identification – for example, through the identification of aquaculture areas (as seen in South Australia).

Industry bodies/clusters need to work together to conduct engagement around broader questions that are relevant across multiple locations (e.g., environmental concerns relating to migratory species). Research and education organisations need to assist in building ocean literacy and disseminating up to date research on the impacts and benefits of ocean industries.

Figure 1 identifies a potential pathway for community consultation and engagement on the development of a regenerative aquaculture industry which shares the heavy consultation load more equally between regulators, industry, and proponents.

It proposes more active engagement of community and First Nations in aquaculture area identification before specific sites are requested by proponents.

For proponents, once leases are established there are further processes of community engagement required. This is already well established and specified via regulatory approval pathways. Figure 2 outlines some of the opportunities for maximising community engagement throughout the development assessment and approvals process.

Figure 1. Potential consultation pathway for developing a regenerative aquaculture industry on the NSW South Coast.

Preliminary spatial analysis	Aquaculture area identification and establishment criteria	Regional consultations on site options	Demonstration sites and R&D trials	Site tendering and site-specific community engagement
Government (Local & State), Traditional owners, Research institutions	Government (Local & State), Traditional owners, Research institutions, Industry	Government (Local & State)	Research institutions/ Government/ Industry/Proponents	Proponents
Δ Desk top identification of broad areas of interest for potential regenerative aquaculture based on available information on environmental, social, cultural economic and logistical considerations	 △ Identification of socially and culturally supported aquaculture areas △ Environmental suitability assessments △ Identification of suitability and merit criteria proponents will need to address in the tendering process 	△ Consultation on aquaculture areas and suitability and merit criteria △ Facilitated relationship building between industry and community/ First Nations to assist in demonstration of merit	△ Option for site level trials within aquaculture areas in order to test biomass models, community responses and environmental considerations	△ Proponents tender for sites within established aquaculture areas, addressing and complimenting suitability and merit criteria which demonstrates ongoing community engagement



Figure 2. Potential consultation pathway for developing a regenerative aquaculture industry on the NSW South Coast – for proponents

Pre-site nomination - prior to lease application	Lease established; Social Impact Scoping and Community engagement plan	Community participatory planning	Demonstration sites and R&D trials	Full Social Impact Assessment and ongoing community engagement activities
Proponents, Traditional owners, Government	Proponents	Proponent, Research Institutions	Research institutions/ Government/ Industry/Proponents	Proponents
△ Stakeholder mapping △ Identification of appropriate knowledge brokers and cultural navigators △ Preliminary relationship establishment and building activities and discussions	∆ Identification of social and cultural objectives of the lease area ∆ Preliminary discussions with key stakeholders, particularly around potential community benefit sharing arrangements	△ Consultation on community expectations around good neighbour arrangements, community benefit sharing and best practice environmental standards	△ Site level trials within zones in order to test biomass models, community responses and environmental considerations	A Full Social Impact Assessment and identification of mitigation options △ Development of community engagement actions and activities including good neighbour plans and community benefit sharing arrangement △ Establishment of regular reporting and monitoring activities to maintain community trust

4. The role of values and worldviews

It is common for questions of social license and social acceptability to be distilled into technical debates over community engagement techniques or timing, or the practical responses to community concerns.

These are important considerations, but consultation processes must also recognise the critical role that values and emotion play in informing people's judgements about a particular activity. In particular, increasingly complex conflicts between uses and users in response to emerging industries have been highlighted as tracing back to different ideas of what constitutes sustainability (Knol-Kauffman et al., 2023). This was evident in our research findings where both support and opposition were often framed in terms of environmental impacts and benefits (See Report 1).

It should be noted that it is not always possible or realistic to think that community engagement will resolve all areas of dispute or opposition.

Nor is it feasible to expect that individual proponents should be able to navigate or resolve these broader societal debates. Instead, community engagement needs to focus on building trust with local communities.

At present community engagement and participation remains focused on 'deficit models' whereby the industry or government inform and attempt to convince the public. Relational approaches that focus on relationship building may be a more effective pathway towards genuine, two-way engagement with local communities (Cook & Melo Zurita, 2019).

As such, we recommend industry to consider community engagement as a long-term process of building and maintaining relationships across a broad spectrum of local and regional communities.

We further recommend that this should be supported and facilitated by third parties including government, research institutions, and community leaders.



5. Conclusion

Community engagement is required by all relevant parties.

For government, regional scale consultation and engagement is required is order to understand the social and cultural constraints and opportunities which will enable or inhibit the development of a regenerative aquaculture industry in NSW.

For industry, regional and community scale consultation and engagement is required in order to introduce the public to this new and emerging industry and to begin to cultivate constructive relationships with relevant stakeholder groups and First Nations.

For individual proponents, community engagement is necessary not just as an enabler for their future businesses, but also to adhere to legal and regulatory frameworks. Engagement plans required under existing planning regulations must uphold high standards of ethics, transparency, and accountability.

While the objective across engagement activities is to cultivate positive engagement, it is also important to recognise the significance of negative community feedback as a catalyst for improvement and responsiveness. Community input, whether constructive or critical, will need to be actively sought and considered in the evolution of regenerative aquaculture projects. This approach ensures that project outcomes reflect and align with the shared vision of local communities while adhering to strict environmental and regulatory standards.

References

Cook, B. R. & Melo Zurita, M. D. L. 2019 'Fulfilling the promise of participation by not resuscitating the deficit model'. Global Environmental Change, 56, 56-65.

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