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LISTENING TO COASTAL VOICES: STRENGTHENING AQUACULTURE RESILIENCE IN SABAH

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As part of a large research grant involving the Institute of Climate Change (IPI) UKM, the Faculty of Social Sciences and Humanities (FSSK) UKM, Universiti Malaysia Sabah (UMS) and WorldFish, a research team visited several coastal communities along the shores of Sabah. The project focuses on understanding climate vulnerability and exploring how gender-inclusive, community-based aquaculture can support long-term resilience among communities whose livelihoods depend closely on the sea. Field engagement revealed that climate change, often discussed through scientific data and projections, is already shaping everyday life in these coastal areas.

Climate Change as Lived Experience in Coastal Communities

Across the communities visited, residents described noticeable changes in their marine environment. Sea temperatures were reported to feel warmer throughout the year, coral areas appeared weaker and less colourful, and storm events were said to arrive more suddenly and with greater intensity. These experiences are consistent with broader scientific findings related to marine heat stress, coral degradation and coastal erosion. Community members also shared how fish movements have become less predictable, with seasonal patterns no longer as reliable as before.

Seaweed and sea cucumber growth has slowed, while fishing and aquaculture yields have become increasingly uncertain. In response to frequent flooding during high tides, some households have raised their stilt houses as a practical adaptation to changing sea conditions.

Linking Climate Science, Gender and Aquaculture Adaptation

The research team worked closely with community members to connect climate science with local knowledge and daily realities. Climate information on rising temperatures, sea-level changes and shifting rainfall patterns was shared in accessible ways, while social perspectives ensured that women, youth and vulnerable groups were included in discussions. Ecological expertise helped identify suitable species and farming systems, and international experience contributed insights into climate-ready aquaculture practices. Through open dialogue, scientific explanations of coral bleaching, changing seasons and stronger storms were exchanged with community observations of declining fish catches, damaged aquaculture cages and increasing difficulty in predicting safe fishing days. These conversations helped identify aquaculture approaches that are more resilient to warming waters, changing salinity and extreme weather, while remaining practical and culturally appropriate for coastal livelihoods.





Sharing sessions where researchers and community members talk openly about changes in the sea and everyday aquaculture challenges.

Conclusion

Climate change is reshaping Sabah's coastal and marine environments in ways that are clearly felt by local communities. Warmer seas, damaged habitats and increasing uncertainty now affect daily decisions related to fishing, aquaculture and household safety. This multi-institutional research collaboration demonstrates how combining climate science, gender inclusion and community knowledge can support more resilient aquaculture pathways. While the work is ongoing, it is clear that climate-informed and socially inclusive aquaculture will play an important role in strengthening the future resilience of Sabah's coastal communities.

Moving forward, continued collaboration between researchers, local communities and development partners will be essential to strengthen climate adaptation along Sabah's coast. Future efforts should focus on scaling up aquaculture practices that are better suited to warmer waters and more variable sea conditions, while ensuring that women and other vulnerable groups remain actively involved in decision-making.



Team members during fieldwork for a collaborative climate and aquaculture project in Sabah