

Large-scale CoPe: Collaboration for Coastal Lives and Livelihood (C2L2)

The Collaboration for Coastal Lives and Livelihood (C2L2) is a large-scale CoPe hub proposal whose mission is to bring communities and scientists together in diverse ways to enhance coastal lives and livelihoods. C2L2 overarching question is “**How is climate change impacting the well-being of ecosystems, communities, and economies?**”

The proposed research focuses on three areas: mariculture, harmful algal blooms (HABs), and sea star ecology. These focus areas are intrinsically linked for the continued well-being of ecosystems, communities, and economies in Alaska’s coasts, at the forefront of climate change. Mariculture operations which provide a burgeoning economy for coastal communities are threatened with warming temperatures and ocean acidification. Engaging community members through mariculture lessons and hands-on training will strengthen ties between communities and scientists and increase a qualified workforce. HABs have been observed at higher latitudes, increasing the risk of shellfish poisoning. Alaskan communities need a new framework to assess risk and develop forecasting capabilities for HABs. Additionally, sea star wasting has decimated sea stars across the North Pacific but in Alaska, statewide monitoring of sea stars and their role in the ecosystem has been spatially and temporally limited. Community members can assist existing research programs to enlarge the spatial and temporal research efforts of sea stars and their impacts.

Scientists and communities must develop a shared understanding of how vulnerable mariculture operations, HABs, and sea stars are to environmental changes and how changes will impact people’s lives and livelihood. The C2L2 will institutionalize new modes of operation using Team Science for data-intensive research activities, social science, and community participation. This will enable science across multiple organizations, geographic locations, and research disciplines in a rapidly changing environment. C2L2 will include a public-private co-learning environment through internships, which will develop critical expertise in processing and integrating complex datasets and working with communities to answer scientific questions. Empowered by a convergent science framework, C2L2 positions students, communities, researchers, and data science experts to collaboratively support observing systems and research projects in multiple science disciplines and to advance the boundaries of our current knowledge and capabilities.