This project established a community-based observing network and system (CBONS) to acquire fine scale, local data on a range of variables critical to USCG operations. It was developed to enhance the Coast Guard’s ability to successfully respond to Arctic-related Incidents of National Significance (Arctic IoNS). Variables were associated with environmental change, subsistence activities/habitats and vessel transits. CBONS data were then used to enhance the preparedness of communities on the ground, leading to increased effectiveness of USCG in the Arctic and reduced long-term costs. The project also generated community maps consisting of areas critical to culture and subsistence, allowing the Coast Guard to operate in ways that protect livelihoods and traditional lifestyles. Finally, CBONS data are potentially useful to enhance the precision of data from other Arctic Observing Networks (AON) by placing them in situational contexts.