Rural Alaskan communities have survived the harsh and variable conditions of Alaska for generations, but they face increasing challenges from climate change, increased gas and food prices, reductions in state budgets and outmigration. Researchers in Alaska have historically had an uneven relationship with these communities: extracting information and rarely returning research results. The Community Partnership for Self Reliance is a partnership between the Alaska Native Science Commission and the University of Alaska, Fairbanks with the goal of building the self-reliance of rural communities by reversing the traditional scientific process and grounding research questions in community concerns. We present preliminary work in four communities to prioritize community-relevant research questions and strategies to increase self-reliance. These projects have demonstrated that collaborative adaptive science requires engaged local community leaders, direct and clear communication, and flexibility on the part of community members and scientists. We hope that these pilot projects inspire a new approach to science that forges strong and mutually supporting relationships between academic institutions and communities to more effectively meet adapt to climate change and other stressors.