**AMSA II(A) – Survey of Arctic Indigenous Marine Use**

*“That the Arctic states should consider conducting surveys on Arctic marine use by indigenous communities where gaps are identified to collect information for establishing up-to-date baseline data to assess the impacts from Arctic shipping activities.”*

**Project Summary/Abstract**

**Title: Building marine-based subsistence mapping capacity in Arctic Coastal Communities**

*Project Justification*

Subsistence remains the predominate way of life in many Arctic indigenous coastal communities. As an example, there are an estimated 100,000 indigenous people living in coastal communities around the Bering Sea in the Russian Federation and Alaska, USA. Those communities are generally characterized as rural with little infrastructure. Access is often by small plane or boat. A warming Arctic is creating challenges for those practicing a subsistence lifestyle by increasing opportunities for resource development, changing the ranges and availability of subsistence species, and increasing shipping.

Identifying marine areas of significance for Indigenous Peoples is crucial for preventing future conflicts between coastal communities and marine-based industries. The Arctic Marine Shipping Assessment (AMSA 2009) identifies a need for ‘Regional analyses of traditional marine use patterns (spatial and seasonal) for application in the development of strategies and measures to reduce potential conflicts and impacts of multiple users of Arctic waterways.’ The report goes on to say, ‘There is insufficient information to identify with any precision the likely effects of marine shipping for most Arctic communities.’

Climate change is expected to result in a ‘reshuffling’ of the biological resources that many communities rely upon for subsistence. A change in harvested species ranges and availability could create ‘serious challenges to food security’ (ACIA 2004). In most cases the consequences of these changes to community well-being is not well understood, but it is likely that such changes would affect not only food security, but cultural identity as well.

The combined effects of increased development and changes in biological resources will require adaptive responses by indigenous communities. Subsistence maps are a tool that may be used by decision makers to reduce spatial and temporal conflict of encroaching development. Subsistence mapping with a temporal component can provide insights into changes occurring in species ranges and availability and how people are adapting to those changes.

Subsistence mapping, also known as use and occupancy mapping, is a unique field that joins social science research methods with cartography. As of 2004 there were no best practices in this field (Elias 2004). Of the resources that have been published dealing with methodology (Ellanna *et al.* 1985, Tobias 2000, Tobias 2009) none deal specifically with the marine environment. This is a relatively new area of study and a variety of methodologies have been used.

Because subsistence maps often contain sensitive information and are created to deal with local issues, communities should have knowledge of and power in this realm. But the tools and guidance needed to create scientifically sound mapped products in the marine environment do not exist.

It is recognized that spatial modeling could be particularly useful in comparing scenarios of climate change in order to identify challenges to and opportunities of adaptation.

*Objectives and Methods*

The main objective of this project willbe toassist in building the research capacity to conduct scientifically justifiable subsistence mapping research in rural Indigenous communities in order to assist adaptation to the effects of climate change. Steps to achieve this goal include:

1. A review of the current state of knowledge of subsistence mapping

2. The creation of a Community Subsistence Mapping Handbook customized for rural, coastal communities based on best practices discovered in the state of knowledge review and expert consultation including a suite of recommended open source software.

3. A workshop to bring together experts in the field, along with community members, to refine the Community Subsistence Mapping Handbook (it is possible that two workshops will need to be held to allow for adequate stakeholder input)

4. The Handbook will be tested in 3 communities, two in Alaska and one in Russia. It will be further refined based on lessons learned in these real life applications.

5. The Handbook will be published and distributed to communities

The Handbook will contain all the necessary information for a community to conduct subsistence mapping research and create quality, scientifically justifiable mapped products. Community Researchers (CR) will attend the workshop(s) and be trained to conduct the research and process the resulting data using the Handbook. CRs will then carry out a subsistence mapping project in their community within six months of their initial training. At the end of these six months project staff will travel to the communities to debrief personnel and convene a community meeting. These discussions will guide the refinement of the Handbook and assure the creation of a quality mapped product for use in research and decision making. Recognizing that agent based modeling can contribute needed information about adaptive processes data will be collected in a method to lay the groundwork for future modeling research.

This work will assist empowering local indigenous communities faced with rapid environmental and social change toward the goal of sustainability.

*Preliminary Timeline*

Spring 2013 to Fall 2013- state of knowledge review and draft guidebook development with expert consultation

Winter 2013/14- workshop and training CRs

Spring to Fall 2014 – Research occurs in the villages by CRs with AIA staff support

Fall/Winter 2014 – AIA staff to travel to each village to provide support and debrief at community meetings

Winter 2014 – Refine guidebook based on lessons learned and expert review

Early 2015 – Publish and distribute guidebook

*Funding*

AIA has received partial funding for Phase 1 of this project (The review of current knowledge and creation of the first draft of the handbook) and is planning to begin work per the preliminary timeline.

A funding source for Phase 2 (workshops) has been approached and preliminary indications are very favorable that funding can be obtained for this phase.

Funding for Phase 3 (community testing) has yet to be obtained, however discussions are underway with several potential funders and we are confident that funds for this phase can be found to coincide with the project timeline.