absi Aleutian and Bering Sea Islands Landscape Conservation Cooperative

2014 Annual Report

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LANDSCAPE CONSERVATION COOPERATIVES

Introduction

The Aleutian and Bering Sea Islands Landscape Conservation Cooperative (ABSI; Figure 1) made great strides in 2014. During the past year, we finalized the development of a <u>Science and</u> <u>Operations Plan</u> that will guide our activities over the next two years. The plan provides greater focus than our five-year <u>Strategic Science Plan</u> that identified six landscape-scale stressors of concern in the ABSI region. In 2014 we funded two new projects that address invasive and introduced species, and contaminants and pollutants. In addition to directly funding projects ourselves, ABSI was successful at directing over \$300K of other money to address our high-priority resource categories and ecosystem services.



Figure 1. Geographic scope of the Aleutian and Bering Sea Islands Landscape Conservation Cooperative.

Governance

The ABSI Steering Committee met in person and/or by teleconference five times in 2014. In March 2014 the position of Steering Committee Chair passed from Joel Garlich-Miller (U.S. Fish and Wildlife Service) to Vice Chair Karen Pletnikoff (Aleutian Pribilof Islands Association). At that time, the committee also elected Carol Fairfield (Bureau of Ocean Energy Management) as their new Vice Chair.

The committee underwent substantial transformation this year. Our first two Chairs, Tony DeGange (U.S. Geological Survey) and Joel Garlich-Miller (U.S. Fish and Wildlife Service)

stepped down from the committee and were replaced by Karen Oakley (USGS) and Robb Kaler (USFWS), respectively (Table 1). Other new members to the committee include Steven Davis and Shannon Fitzgerald (NOAA), Tom Rothe (Pacific Coast Joint Venture), and Durelle Smith (U.S. Geological Survey). In December the last remaining member of the original ABSI Steering Committee, Heather Renner, stepped aside and was replaced by Jeff Williams, Aleutian Unit Biologist for the Alaska Maritime National Wildlife Refuge. In addition to our existing partner organizations, the National Park Service has expressed an interest in joining the ABSI Steering Committee as well and is in the process of identifying a candidate to serve in that capacity.

Name	Affiliation	Department	
Steven Davis	NOAA	Alaska Regional Office	
Tony DeGange	USGS	Alaska Science Center	
Carol Fairfield	BOEM	Environmental Sciences Management	
Shannon Fitzgerald	NOAA	Alaska Fisheries Science Center	
Lynn Fuller	Pacific Coast Joint Venture	Alaska Region	
Joel Garlich-Miller	USFWS	Marine Mammals Management	
Stephen Gray ^a	USGS	Alaska Climate Science Center	
Robb Kaler	USFWS	Migratory Bird Management Office	
William Lekanoff	Qawalangin Tribe of Unalaska	Tribal Council	
Patricia Livingston	NOAA	Resource Ecology and Fisheries Management Division	
Karen Oakley	USGS	Alaska Science Center	
Karen Pletnikoff	Aleutian Pribilof Islands Association	Community Services	
Heather Renner	USFWS	Alaska Maritime National Wildlife Refuge	
Tom Rothe	Pacific Coast Joint Venture	Alaska Region	
Durelle Smith ^b	USGS	Office of the Regional Director for Alaska	
Lyman Thorsteinson	USGS	Office of the Regional Director for Alaska	
Doanh Thi Tran	Qawalangin Tribe of Unalaska	Environmental Coordinator	
Jeff Williams	USFWS	Alaska Maritime National Wildlife Refuge	

Table 1. The 2014 members of the ABSI LCC Steering Committee. Names in *italic* font were members of the Steering Committee at the start of the year; names in **bold** font were members at the close of 2014.

^a non-voting member

^b alternate member

On February 26-27, 2014, the committee held its first multi-day meeting hosted at the office of the North Pacific Research Board in Anchorage, Alaska. The goal of the meeting was to begin development of a Science and Operations Plan that would provide a greater focus than our Strategic Science Plan for our activities in the coming 1-2 years. For some of our committee members located outside of Anchorage, this was the first time they had met their colleagues in person. Meeting <u>agendas and notes</u> are available on the ABSI web site.

In early November 2014, the five LCCs that occur in Alaska and Northwest Canada held their first-ever Joint Steering Committee meeting in Anchorage, Alaska (ABSI, Arctic, North Pacific, Northwest Boreal, and Western Alaska). Each LCC was represented by several members of their Steering Committees as well as their core staff members. The professionally-facilitated meeting focused on ways to increase coordination and collaboration among the five LCCs. Some recommendations from the meeting have already been acted on beginning with the formation of an Alaska LCC Collaboration Team. This group held their initial teleconference in January 2015 hosted a joint Alaska LCC session at the Alaska Forum on the Environment in February 2015.

Science and Operations Plan

ABSI began the year by unveiling our Strategic Science Plan that identifies our science focus for the coming five years. The plan is based on a synthesis of <u>over 50 existing research and</u> <u>management plans</u> relevant to the ABSI region. These plans range from single and multi-species plans to those proposing strategies for ecosystem-wide management. Collectively they represent a rich legacy of effort from countless resource managers and researchers working in the region over decades. Through an analysis of these plans we identified six landscape-level stressors facing the region:

- Climate Variability and Change;
- Marine Vessel Traffic;
- Invasive and Introduced Species;
- Ocean Acidification;
- Contaminants and Pollutants; and
- Commercial Fishing.

In February 2014, we began the development of our Science and Operations plan that identifies our science focus for the coming 1-2 years. Facilitated by Chris Beck of Agnew::Beck, the committee reviewed and adopted the use of Landscape Conservation Design (LCD) as a framework for our LCC operations. We also spent several hours framing our five conservation goals into an adaptive management process (Figure 2).

ABSI Operational Schematic

All Phases: Inform and Collaborate

Goal 1: Promote communications to enhance understanding regarding the effects of climate change and other landscape-scale stressors in the ABSI region.



Project Integration The Deliberate and Apply phases may inform additional Understanding phases in other existing and/or new projects.

Figure 2. Conceptual model for ABSI's operational approach from our Science and Operations Plan.

The five goals of ABSI (order does not imply priority) include:

- Goal 1: Promote communications to enhance understanding regarding effects of climate change and other landscape-scale stressors in the ABSI region.
- Goal 2: Support coordination and collaboration among partners to improve efficiencies in their common science and information activities.
- Goal 3: Identify and support research, including data collection, analysis, and sharing that address common information needs of land and resource management decision makers.
- Goal 4: Enable synthesis of information at landscape and larger spatial scales.
- Goal 5: Enhance resource management in the ABSI region through applied science, analytical tools, data management, and information transfer.

One of our primary tools to put our science focus into action is financial support for applied science projects. The approach we articulate with this Operational Plan allows us to look at projects in a series of three phases: *Understand*, *Deliberate*, and *Apply*. Our approach emphasizes the application of science to address resource management concerns, and includes feedback mechanisms that facilitate adaptation over time (Figure 2).

In this adaptive process, Goals 1 and 2, which focus on communication and collaboration, occur continuously throughout our operations. Goals 3-5 are realized in a sequential process that includes feedback loops. For example, during the *Deliberate* phase, we may identify new information gaps that will inform subsequent research questions addressed in a new project that initiates in the *Understand* phase. Similarly, when science products are *Applied* to enhance resource management, we may discover new information about threats and/or the effectiveness of management actions that may also spur a new *Understand* phase.

We finalized our FY2015-2016 Science and Operations Plan in December 2014 with the addition of a section on Science Communication, and a clear road map for ABSI over the current and next Fiscal Year. A key aspect of our operations is to remain agile and respond to collaboration and partnership opportunities as they arise, in order to achieve our mission.

Funded Science Projects

In Fiscal Year 2014, ABSI once again had limited funds available for applied science projects. Having initiated vulnerability assessments for both climate and marine vessel traffic stressors, we issued a Notice of Funding Availability (NOFA) targeted at vulnerability assessments for our remaining two priority stressors: (1) Invasive and Introduced Species; and (2) Contaminants and Pollutants. We timed the opening of our NOFA to coincide with the Alaska Marine Science Symposium (AMSS), an annual event held in Anchorage, Alaska, in January. The NOFA was open for 30 days. Staff identified one or more external reviewers for each proposal. Those reviews, along with reviews by staff and several Steering Committee members, were summarized into a recommendation to fund one project for each stressor. That recommendation was approved by consensus by the committee during a teleconference in March 2014.

In addition to funding these two new projects, the Steering Committee also elected to supplement the Aleutian and Bering Climate Vulnerability Assessment with additional funds to convene a workshop that would bring the five science teams together to integrate their findings and recommendations. Descriptions of the two new projects, as well as updates for ongoing projects from previous years are included below (Table 2).

Project FY2014-01: A Synthesis and Vulnerability Assessment of Terrestrial Invasive Species in the Aleutian and Bering Sea Islands

The ABSI region includes over 400 islands that represent an area of unique biodiversity and provide essential breeding habitat for over 40 million seabirds, representing more than 30 species. Historically, the Aleutian Islands had no native terrestrial mammals west of Umnak Island. Intentional and accidental introductions of non-native species have resulted in degradation of island ecosystems throughout the ABSI region. These island ecosystems are especially vulnerable to introductions of non-native species owing to their typically small size, high rates of endemism, and lack of adaptive behavioral responses to non-native species. Within the ABSI region, restoration of natural biological diversity by removing introduced species and preventing additional introductions is a primary objective of the Alaska Maritime National Wildlife Refuge (AMNWR). However, specific information on invasive animal species is disparate and currently does not allow for a comprehensive look at species distribution and potential impacts throughout this region.

A major challenge to the successful prevention and management of invasive species is establishing an effective mechanism for collating and sharing data between multiple partners. Having access to invasive species information can support and enhance this important invasive species management work. Our objective with this project is to provide managers, researchers, and communities with the most up-to-date information regarding invasive terrestrial animal species known from, or potentially threatening the ABSI region. Working with AMNWR biologists, the Principal Investigators will develop a centralized repository for invasive terrestrial animal species information, including a comprehensive invasive species list, geospatial data layers for known invasive species, and an invasive species ranking assessment for the ABSI region. These data products will be publicly available and will help quantify the current distribution of invasive species and identify areas vulnerable to invasion. Providing access to a coordinated storage system will facilitate the rapid retrieval and comprehensive analysis of invasive species data for the ABSI region that could be used in a variety of research and modeling activities.

This project is funded through a cooperative agreement with the University of Alaska Anchorage (UAA). The Principal Investigators are Tracey Gotthardt (UAA Alaska Natural Heritage Program) and Leah Kenney (UAA Alaska Natural Heritage Program).

Project FY2014-02: A Database for the Distribution of Potentially Toxic Elements in the Aleutian Volcanic Arc Terrestrial Ecosystem

The occurrence of Potentially Toxic Elements (PTEs) in the Arctic and sub-Arctic is of major concern for the sensitive ecosystems and the humans and aquatic flora and fauna in this region. Specifically, the Aleutian volcanic arc within the ABSI region is of interest because it exists along the ocean and atmospheric pathways for the transport of these and other contaminants and pollutants that are derived from other locations, such as Asia. Assessing the distribution of potentially toxic elements (PTEs) in the Aleutian volcanic arc (within the ABSI LCC) is necessary in order to document the natural and anthropogenic sources of such elements that are utilized as micro-nutrients by aquatic wildlife, in some cases biomagnify, and that in general have negative impacts on the overall quality of ecosystems. The goal of this research project is to produce a database of all existing water quality and water geochemistry data and rock geochemistry data for PTEs of interest in the ABSI region, including arsenic, cadmium, chromium, lead, mercury, nickel, and selenium. The objective of this project is to compile all published PTE water quality data and water geochemistry data and rock geochemistry data for the ABSI region in the ABSI region.

The Principal Investigators will conduct interviews with agencies and stakeholders to obtain all data sources and to ensure that we have feedback on the utilities of the database from potential users, build the database, and design ArcGIS layers for spatial analysis of the data. All entities interested in PTEs in the terrestrial aquatic and land systems will benefit from this "one-stop shop" database. For example, toxicity studies on fishes, birds, and marine mammals and any future work involving PTEs can use this database as a baseline for their work to help understand sources and pathways of these important contaminants. The expected project output and product is a database of all of the known data of water quality, water geochemistry and rock geochemistry for the PTEs of interest.

This project is also funded through a cooperative agreement with UAA. The principal Investigators are Dr. LeeAnn Munk (UAA Department of Geological Sciences) and Dr. Kenrick Mock (UAA Department of Computer Systems and Engineering).

FY2013-01 Downscaled Climate Models: The Aleutians and Bering Climate Vulnerability assessment (ABCVA)

In 2013, ABSI and Alaska Climate Science Center launched a partnership with the Alaska Ocean Observing System (AOOS) to assess climate impacts on key species and ecosystem services in the Aleutians and Bering Sea. This project brought together a team of 30 scientists and managers from agencies, tribal organizations, and universities. The team used results from two recent climate downscaling efforts projections from the <u>Bering Sea Project</u> by the University of Washington and NOAA's Pacific Marine Ecology Lab, and the <u>Spatial Tools for Arctic Mapping</u> and Planning (STAMP) project by University of Alaska, Fairbanks to guide their assessment.

Our scientists worked together in five teams to assess potential climate change threats across a broad range of resources evaluating everything from archeological sites to zooplankton. The largest team combined sociologists and anthropologists to evaluate climate vulnerabilities

associated with socioeconomic and cultural resources vital to the region's nine island communities. Other teams focused on seabirds; marine mammals; terrestrial vegetation; and species important to commercial fisheries of the region. Their combined efforts will help to identify collective future research priorities of ABSI, the Alaska Climate Science Center, and AOOS.

The island communities in this region are a key focus of this assessment. During one community forum in the region's largest town of Unalaska, our team heard about changes residents already see that they attribute to climate change. Changing weather conditions and warmer ocean waters threaten the viability of traditional harvest practices that island tribes have used for generations to survive in this remote region. Residents expressed concerns about climate change interacting with possible impacts from the complex and sophisticated fishing industry that is so vital to the region's economy—which also accounts for 50% of the total annual U.S. seafood harvest. We hope this session can be the first in a series of discussions about climate change in this region and our team is looking for opportunities to further engage with these nine island communities on this topic.

The final report from this project will be released in May of 2015 and will include collective future research priorities of ABSI, the Alaska Climate Science Center and AOOS as we aim to help communities and managers adapt to climate change. More information on this collaboration funded by the U.S. Fish and Wildlife Service, U.S. Geological Survey and NOAA is available <u>on the ABSI website</u>.

FY2013-02 Commercial Shipping Vulnerability Analysis

This project involved an analysis of a three-year archive of Automated Identification System (AIS) vessel locations collected by satellite. The original data files required considerably more pre-processing than originally anticipated. For example, locating metadata about vessels using their MMSI numbers (Maritime Mobile Service Identity) took several months and unknown vessel types still exist in the data set of over 70 million vessel locations. Using a subsample of vessel locations we were able to identify several routes that transited north of the Aleutian archipelago using Unimak Pass in the east and one of three "passes" in the west. We also identified one primary route that occurs south of the Aleutians where traffic is more diffuse. This information was presented at a meeting of the Aleutian Islands Risk Assessment Advisory Panel in April 2014 (Figure 3).



Figure 3. Major vessel routes transiting the Aleutian archipelago based on analysis of satellite AIS data.

We are currently working with the Wildlife Conservation Society to complete an analysis of vessel transits to identify the relative use of these routes by a number of parameters including: vessel type, seasonality, and directionality. Final data layers will be available to managers and stakeholders through one or more online data portals.

FY2013-04 Seabirds as Indicators of Climate Change FY13

This project was a continuation of project FY2013-02, and funded ship time for the second year of the USGS study exploring feasibility of using seabirds as indicators of forage fish assemblages. The field portion of this project occurred from August 11-22, 2013, aboard the R/V Tiglax. A final report for this project is available for download from the <u>ABSI LCC web site</u>.

FY2013-05 Aleutian Islands Cultural Resources

The Aleutian archipelago is an area that is rich in cultural history. Information about cultural sites and artifacts exists in a variety of formats including peer-reviewed publications, agency reports, and other records. This project developed an annotated bibliography of more than 570 references about cultural resources that can help inform future management and research in Aleutian Islands.

FY2013-06 Analysis of Historic Seabird Diet Samples

Continuous, long-term monitoring of the food habits of marine birds is a key component in detecting responses to anticipated climate change of both the birds and the prey populations on which they depend. The Alaska Maritime National Wildlife Refuge (AMNWR) has been collecting seabird diet samples from the Pribilof and Aleutian Islands for more than 30 years.

With support from previous LCC funding, AMNWR has developed protocols for zooplankton sample analysis, created a reference collection of seabird prey items, and helped develop and populate a publicly available data management system. Still needed are process and capacity for whole fish samples and digested fish samples (hard parts such as otoliths). This project dovetails with project FY2013-04 that used Seabirds as Indicators of Climate Change. This project formalized a <u>laboratory protocol and produced a manual</u> and reference collection of samples. These will be of use not only to seabird biologists and managers but also to others that have similar diet samples. The funding we provided was obligated as part of a cooperative agreement administered by the USFWS Alaska Maritime National Wildlife Refuge and used to complete prey identification of auklet species.

FY2013-08 Modeling Marine Bird Distribution in the ABSI Region

This project will expand abundance & distribution models for seabirds, currently underway in Aleutian Islands region (USFWS-funded project under Survey, Monitoring & Assessment program) to the greater ABSI region, and integrate 2013 seabird surveys into the analysis. In particular, this expanded effort would first focus on the North Bering Sea/Bering Strait/southern Chukchi region, which has greatest potential for increased vessel traffic and development. Using at-sea survey data, colony data, and environmental parameters, Tern Again Consulting (Dr. M. Renner) is developing seasonal species-specific models of seabird distribution in the Aleutian Islands region for use in a shipping risk assessment. The resulting models greatly expand the value of at-sea survey data and improve potential applications to a variety of risk analyses and predictive models. As with the Aleutian Islands Risk Assessment, all products would be accessible to managers, responders, and stakeholders on the AOOS web site.

One notable difference from the Aleutian Islands is the presence of seasonal sea ice in the Bering Strait region. This information was included in the model. Preliminary results were available for review in December 2015. Based on the outputs, the parameters will be adjusted and the model will be re-run in January 2016.

			Partner	
Project ID	Title	ABSI Funds	Funds	Collaborators
2014-01	A Synthesis and Vulnerability Assessment of Terrestrial Invasive Species in the Aleutian and Bering Sea Islands	\$49,972	\$14,332	University of Alaska Anchorage, Alaska Natural Heritage Program, USFWS Alaska Maritime NWR
2014-02	A Database for the Distribution of Potentially Toxic Elements in the Aleutian Volcanic Arc Terrestrial Ecosystem	\$49,758	\$10,041	University of Alaska Anchorage
2013-01	Aleutians and Bering Climate Vulnerability Assessment (ABCVA)	\$50,000ª	\$80,000	Alaska Climate Science Center, Alaska Ocean Observing System, University of Alaska Fairbanks, University of Washington, ACCAP
2013-02	Commercial Shipping Vulnerability Analysis	\$22,639	\$35,000	Wildlife Conservation Society, Audubon Alaska, Alaska Marine Conservation Council, Oceana, Marine Exchange of Alaska, Alaska Ocean Observing System, Aleutian Islands Risk Assessment
2013-05	Aleutian Islands Cultural Resources	\$9,523	\$10,000	University of Alaska Anchorage, USFWS Refuges
2013-06	Analysis of Historic Seabird Diet Samples	\$20,000	\$30,000	USFWS Alaska Maritime NWR, Kachemak Bay Research Reserve, USFWS MBM, Axiom Consulting, USGS Alaska Science Center, University of Alaska Fairbanks
2013-08	Modeling Marine Bird Distribution in the ABSI Region	\$20,000	\$210,000	USFWS Migratory Bird Management, USFWS Alaska Maritime NWR, Aleutian Islands Risk Assessment, BOEM, NOAA

Table 2. New and ongoing applied science projects for calendar year 2014.

^a Includes \$30K of funds from FY2013 and an additional \$20K in FY2014.

Partner-funded Projects

In addition to funding projects directly, we also had considerable success in partnering with other organizations to help fund high priority projects in the ABSI region (Table 3). Based on early collaborations between ABSI and the Alaska Maritime National Wildlife Refuge to explore the development of an LCD, the USFWS, National Wildlife Refuges Inventory and Monitoring Program provided ~\$200K to initiate two studies. The first is a retrospective analysis of decades of seabird data collected by the Refuge to evaluate the potential use of seabird as surrogate species to detect large scale changes in environmental variables. The ABSI staff will play a central role in this project which began with a two-day workshop in Homer, Alaska, facilitated by Science Coordinator Aaron Poe in November 2014. A second project builds upon early work of ABSI and partners to evaluate where large vessels transiting through the Aleutian archipelago are most likely to run aground should they go adrift. The results of this analysis will allow us to identify what priority natural and cultural resources may be at risk, as well as inform decisions about oil spill response preparedness and capabilities. We will also be able to model how different route scenarios affect the overall risk of grounding and potential response time.

The Seabird Team from the ABCVA project identified a project that would help inform their vulnerability assessment, and the Integrated Ocean Observing System (IOOS) provided ~\$60K to conduct this analysis. Working with the Audubon Society's important bird areas (IBAs), this project will look at how the climate in these regions is projected to change over the next 40 years. The Seabird Team will then use those projected changes to identify which species are most vulnerable to climate change.

While our focus on marine vessel traffic has primarily been the Aleutian archipelago, we recognize that diminishing sea ice cover has resulted in increased levels of traffic through the Arctic Ocean, most of which passes through the Bering Strait region. Working with funds provided by the National Park Service, we will help oversee the development of an agent-based travel simulation network for the entire ABSI region. Based in part on existing shipping routes, the travel simulation network will allow us to assess the impacts of different levels of shipping traffic, establishment of recommended routes, and development of a new deep-water port in the Arctic.

Finally, ABSI will be working with researchers on two projects to improve manager and stakeholder understanding of the risks posed by invasive and introduce species to the island habitats of our region. The USGS funded two projects that pair collaborators from their agency with those from the USFWS. One project is focused on understanding the risk of "rat spills" from vessels and the second synthesizes data and information on the impacts of introduced ungulates on the terrestrial ecosystems of subarctic/arctic islands. These projects launched in late 2014 and will greatly inform future LCD efforts by ABSI in the region.

Title	Partner Funds	Funding Source	Collaborators
An Inventory of Coastal Wildlife Resources Most at Risk from Marine Vessel Incidents and Oil Spills	\$100,000	U.S. Fish and Wildlife Service, Inventory and Monitoring Program	Wildlife Conservation Society, Alaska Maritime National Wildlife Refuge
Evaluating Seabirds as surrogates for Environmental Change	\$100,000	U.S. Fish and Wildlife Service, Inventory and Monitoring Program	Alaska Maritime National Wildlife Refuge, University of Idaho, NOAA Fisheries
Assessing Seabird Vulnerability to Climate Change in the Bering Sea	\$60,000	Alaska Ocean Observing System (AOOS)	AOOS, Axiom Consulting, Audubon Alaska, U.S. Fish and Wildlife Service
Community Integrated Coastal Incident Preparedness	\$122,000	National Park Service	National Park Service, Alaska Region, Wildlife Conservation Society, University of Arizona, Geodimensions LCC
A Geographic Risk Analysis of Rat Spills in the Aleutian and Bering Sea Islands	\$90,000	U.S. Geological Survey	USGS Kilauea Field Station, U.S. Fish and Wildlife Service, Office of Migratory Birds, Tern Again Consulting LLC
Introduced Ungulates on Islands within the Alaska Maritime National Wildlife Refuge: A Synthesis of Ecological Impacts and Data Gaps	\$43,000	U.S. Geological Survey	USGS Western Ecological Research Center, Alaska Maritime National Wildlife Refuge

Table 3. Partner-funded applied science projects for calendar year 2014.

Working Groups

In 2013, ABSI established a Contaminants and Pollutants Working Group focused on the Bering Sea and Aleutian Region. Chaired by the ABSI Science Coordinator, this group includes 20 representatives from several Federal and State agencies as well as members of the academic community and analysts from Alaska Native organizations. The Working Group met twice in 2014 and continues to advise the ABSI Steering Committee on prescient issues related to pollutants and contaminants. Members of this group are working with ABSI staff to support the development of the contaminants database project led by LeeAnn Munk and Kenrick Mock of UAA. They are helping to identify sample sets from across the region to be included in the database from key species of seabirds, marine mammals and fish and providing feedback on database structure and function. They will also help guide future efforts planned to assess information gaps and will serve as a means to foster collaborative efforts to understand vulnerabilities of ABSI's priority resources from contaminants and pollutants.

ABSI participated in several standing working groups in 2014. The <u>Aleutian Islands Risk</u> <u>Assessment</u> (AIRA) was established following the December 2004 grounding of the *M/V* <u>Selendang Ayu</u> on Unalaska Island in the Aleutian archipelago. Our preliminary analysis of vessel routes transiting the Aleutian archipelago was presented at a meeting of the AIRA Advisory Panel in April 2014, and helped inform recommendations for vessel routes that have been incorporated into Alternate Planning Criteria for this area. These results have also informed recommended vessel routes submitted to the International Maritime Organization for consideration.

The ABSI staff also participated in the Aleutian Islands Cultural Resources Working Group. Chaired by <u>Diane Hanson</u>, Associate Professor of Archaeology at the University of Alaska Anchorage, this working group meets periodically to share information about ongoing work in the Aleutian archipelago. Membership of the group includes staff from USFWS, Bureau of Indian Affairs, the Aleutian/Pribilof Islands Association, and the University of Alaska system. Dr. Hanson is also the Principal Investigator on project *FY2013-05 Aleutian Islands Cultural Resources*.

Science and Planning Support

In addition to funding the projects listed previously, the ABSI staff continued to support a number of science efforts in 2014. We provided geospatial data support for two complex interagency projects in the ABSI region. The first was a series of site visits to Formerly Used Defense Sites (FUDS) in the Aleutian Islands. Field teams used mobile GIS tablets to collect information about sensitive natural and cultural resource sites and provided these data layers to the U.S. Army Corps of Engineers prior to the commencement of remediation efforts. The second project was a joint USFWS-USGS research cruise to the northern Bering Sea and Chukchi Sea to collect skin biopsies of Pacific walrus. These field teams also used mobile GIS tablets to map the location where they collected more than 1,900 biopsy samples (see cover image).

Geospatial data are limited for the ABSI region, as is the expertise to work with these products. After two years of attempts, satellite imagery of St. Matthew and Hall islands were acquired and provide to the Alaska Maritime National Wildlife Refuge and their collaborators to support a number of projects including landcover analysis and an assessment of erosion that may be impacting cliff-nesting seabirds..

Lastly, we continued to provided secure, cloud-based data storage to the North Pacific Seabird Diet Database project. This workspace, hosted as a sub-site of absilcc.org, allowed USFWS Biologists and contractors to collaborate on data QA/QC from a variety of locations across the U.S. and Alaska.

Outreach and Communication

ABSI began the year with a poster presentation at the 2014 <u>Alaska Marine Science Symposium</u> (AMSS) in Anchorage, Alaska. The Symposium, hosted by the North Pacific Research Board (NPRB) is an annual event that brings together nearly 1,000 resource managers, researchers, and students together to present information about marine science in Alaska. We held two workshops associated with our Aleutian and Bering Climate Vulnerability Assessment project. The AMSS has quickly become a key meeting for ABSI to interact with researchers and managers of natural and cultural resources. Our staff participated on the AMSS Organizing Committee to help with planning and logistics for the January 2015 Symposium. Our involvement included assisting with development of plenary session programs, reviewing abstracts, web site development, social media management, and serving as judges for student awards.

Core staff conducted in-person outreach at a variety of forums throughout the year, including the <u>Alaska Forum on the Environment</u>, an annual event that brings resource managers from across the State to Anchorage for a week-long meeting that offers a broad range of plenary sessions with nationally recognized keynote speakers. Results of several ABSI-supported projects were presented at other forums, including the National Workshop on Large Landscape Conservation in Washington, DC, in October 2014, and the Climate, Conservation, and Community in Alaska and Northwest Canada Conference in Anchorage, Alaska, in November 2014.

For the second year in a row, ABSI staff participated as judges in the "<u>Tsunami Bowl</u>" – the Alaska regional competition for the <u>National Ocean Sciences Bowl</u>. Other judges included staff from NOAA, the University of Alaska system, Alaska Pacific University, and the Alaska SeaLife Center. This two-day event gave staff a unique opportunity to present information to a variety of marine scientists, educators, and resource managers, including an opening-day presentation about ABSI at the Alaska SeaLife Center. The team that won the Alaska regional competition, Juneau-Douglas High School, once again placed third in the National competition held in May 2014 in Seattle, Washington.

Staff from ABSI presented information about our marine vessel traffic project at the annual shareholders meeting for the Aleut Corporation in October 2014. This Alaska Native organization is the umbrella corporation for 14 Aleut villages in the Aleutian region and their meetings are key outreach opportunities for ABSI to share our research priorities with community members. The presentation also provided an opportunity for staff to hear concerns related to emerging environmental issues in the region as well as hear about future community development interests.

Throughout 2014, ABSI used our web site (<u>http://absilcc.org</u>) and Twitter account to share information of interest to the resource management and research community. During the past year, our web site had 1,991 unique visitors, and increase of 11% over 2013. Though these visitors were from 60 different countries around the globe, the majority of our web traffic originated within the U.S. and Canada. During the year we posted 80 new announcements that

generated e-mail messages to our mailing list that has grown to 213 members. We also began curating <u>three Flipboard magazines</u> in 2014 posting 345 articles with over 1,900 viewers and 102 subscribers. Over the course of the year, our Klout score, a social media analytic that measures online social influence, has been as high as 42.

In addition to hosting information about ABSI, we have maintained a "<u>partner sub-site</u>" for the Alaska Maritime National Wildlife Refuge biological science team. This sub-site includes a <u>document library of reports</u> in PDF format, as well as access to the current version of the R/V *Tiglax* ship schedule for the 2015 field season. The content management system of the site (Sharepoint Foundation) allows the site to be updated from any computer with internet access, and additional partner sub-sites can easily be created to meet future needs. We see this as service that ABSI can easily provide to help promote integrated science in the region.

Future Plans

ABSI will begin 2015 by presenting results from two projects during the Bering Sea and Aleutian Islands session of the Alaska Marine Science Symposium in Anchorage, Alaska. We will also be co-hosting a workshop on the Conservation Application of the vessel traffic Automatic Identification System with the Wildlife Conservation Society. Information about our marine vessel traffic project will be presented in February at the Alaska Forum on the Environment in Anchorage, Alaska. Results from the ABCVA for seabirds will be presented at the Pacific Seabird Group annual meeting in February in San Jose, California.

During our December 18, 2014, teleconference, the Steering Committee elected to issue a Notice of Funding Availability (NOFA) to solicit proposals to address high priority research questions from the ABCVA project. We will open the NOFA on February 4, 2015, and will announce it at the Alaska Marine Science Symposium in January. During our teleconference, the committee also elected to expand our existing contaminants project with UAA to include tissue data, and also conduct a Mercury synthesis for the ABSI region.

The Steering Committee will hold a two-day meeting in early May 2015 to deliberate over the integration of our four vulnerability assessment projects. The outcome of that meeting will help inform our activities in FY2016.

