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Aleutian and Bering Sea Islands Landscape Conservation Cooperative

2012 Annual Report

LANDSCAPE CONSERVATION COOPERATIVES

Introduction

This Annual Report summarizes work activities, progress, and accomplishments of the Aleutian and Bering Sea Islands Landscape Conservation Cooperative (ABSI LCC) in calendar year 2012. During the past year, the Steering Committee finalized and adopted a charter, the U.S. Fish and Wildlife Service (USFWS) hired a permanent Science Coordinator and significant progress was achieved in drafting a 5-Year Strategic Science Plan. In addition, the ABSI LCC and its partners were able to fund various activities, including field operations, in support of conservation science missions in the Aleutian Archipelago and Bering Sea.

The ABSI LCC Charter describes this LCC's mission, goals, and scope (Appendix A). Like other LCCs, the ABSI LCC is a self-directed partnership and its charter reflects the Steering Committee's position about climate change and other environmental agents of change in this region.

Mission

"The ABSI LCC promotes coordination, dissemination, and development of applied science to inform conservation of natural and cultural resources in the face of climate change and other landscape-scale stressors."

Goals

The conservation goals for natural and cultural resources of the ABSI LCC are to:

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

Scope

The geographic scope of the ABSI LCC includes the islands of the Aleutian archipelago and the Bering Sea and surrounding marine waters (Figure 1).

The science focus of the ABSI LCC is the natural and cultural resources and their associated marine and terrestrial ecosystems important to ABSI LCC partner organizations. The ABSI LCC will strive to avoid duplication with other entities, and coordinate on issues of mutual interest.

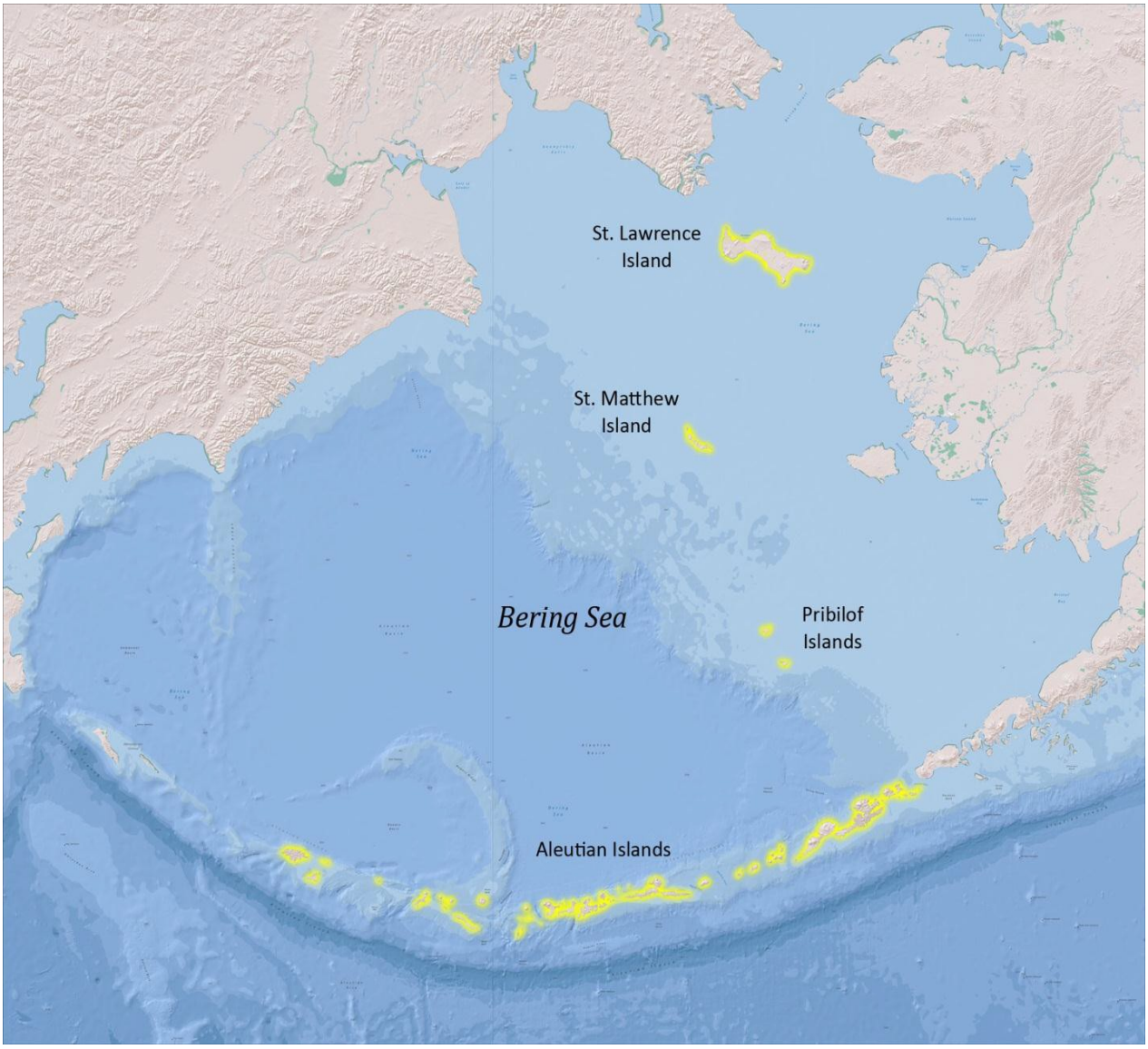

Figure 1. The geographic scope of the Aleutian and Bering Sea Islands Landscape Conservation Cooperative. Islands within the LCC are highlighted in yellow.

Staffing

As of the beginning of 2012, the ABSI LCC employed one full-time staff position (Coordinator, Douglas Burn). In March 2012, Dr. Glenn Chen of the Bureau of Indian Affairs, Subsistence Fisheries Division, began a 90-day detail as Interim Science Coordinator. Glenn continued the strategic science planning efforts that Vernon Byrd (first ABSI LCC Interim Science Coordinator) had initiated that involved the compilation and review of more than 40 research and management plans relevant to the Aleutian and Bering Sea Islands region. At the direction of the Steering Committee, Glenn used this information and additional expert consultations to develop an annotated outline for the draft 5-Year Strategic Science Plan. During his detail to the ABSI LCC, Glenn interviewed dozens of resource professionals to help establish the contemporary applied science needs for the ABSI region.

Also in 2012, the USFWS recruited for a permanent Science Coordinator for the ABSI LCC. The vacancy announcement was open to both current Government employees and non-Government applicants. During the two-week advertisement period, more than 60 individuals applied to the vacancy announcement. A review panel, consisting of the Coordinator, Steering Committee Chair, and another Steering Committee member, reviewed all application materials and, by consensus, developed a short list of top candidates. Each of these candidates was interviewed jointly by the Coordinator and a Steering Committee member. At the end of the interview process, Mr. Aaron Poe was offered the Science Coordinator position and began working for the ABSI LCC in July 2012. Prior to his new role, Aaron had been employed by the U.S. Forest Service, Chugach National Forest, since 1998 where his duties focused on science and management partnerships in Prince William Sound, Alaska.

Governance

The ABSI LCC Steering Committee met five times in 2012. The charter was finalized and adopted at the March 5, 2012, meeting (Appendix A). At that time, the Committee elected its first Chair (Tony DeGange, U.S. Geological Survey) and Vice Chair (Joel Garlich-Miller, U.S. Fish and Wildlife Service). As previously indicated, the mission of the ABSI LCC includes "other landscape-scale stressors" in addition to climate change. The State of Alaska, represented by the Alaska Department of Fish and Game (ADFG), contended that it was the Secretarial intent that LCCs should focus exclusively on climate change and "other *related* stressors." Despite clarifications about LCCs, this difference of opinion could not be resolved to the satisfaction of all partners, and the State of Alaska withdrew from further participation on the Steering Committee at that time.

Following adoption of the charter the Steering Committee focused its attention on development of a Strategic Science Plan for the ABSI LCC (see Strategic Science Plan section below). The remainder of the Steering Committee meetings in 2012 concerned strategic planning involving identification and description of landscape stressors and possible priorities for future consideration. Much effort was devoted to the preparation and review of draft sections of the Strategic Science Plan. Other decision-making addressed the identification and support of projects using FY 2012 funds (see Projects section below).

In the fall of 2012, the Environmental Protection Agency (EPA) re-evaluated participation on LCC Steering Committees. The agency has been scaling back its climate change activities and, based on administrative priorities, withdrew from further participation on the ABSI LCC Steering Committee. At about the same time, the Aleutian Pribilof Islands Association, (a regional nonprofit formed in 1976 to address interests and issues of Alaska Natives in the region) expressed an interest in the ABSI LCC and requested membership on the Steering Committee. This request was unanimously approved by the Steering Committee at the November 7, 2012, meeting.

Strategic Science Plan

The ABSI LCC compiled and reviewed more than 50 existing research and management plans 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 planning by state, federal and international scientists and managers working in the region from 1994-2012.The review of these plans by ABSI LCC staff also considered ongoing efforts and led to the identification of six landscape-level stressors where LCC participation would contribute most significantly to understanding climate change and other landscape stressors effects on this region's natural and cultural resources:

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

At the request of the Steering Committee, ABSI LCC staff drafted six documents describing these stressors, ongoing efforts, priority information needs and potential partners. These *stressor narratives* represent an issue-based analysis, involving information synthesis to identify: 1) the nature of the threat; 2) the availability of data sources; 3) short term steps that ABSI staff could take to improve the steering committee's understanding of the issue without project specific funds; 4) specific resources and ecosystem services threatened; and 5) potential actions and projects the ABSI LCC could undertake using project funds.

These stressor narratives identified what is known about the possible effects of the six landscape stressors on selected resource categories and ecosystem services (Table 1). The resulting list was considered by the Steering Committee to represent a manageable number of attributes for consideration of landscape stressor impacts which included the most visible and/or important features of the ABSI region. It is noteworthy that these elements of ABSI LCC landscapes were also common focus areas of the plans reviewed earlier by the LCC.

Table 1. Broad categories of resources and ecosystem services at risk from six landscape-level environmental stressors in the ABSI Region.

Resource Categories	Ecosystem Services
• Coldwater Corals	• Commercial Fishing
• Cultural Artifacts/Sites	• Human Community Sustainability
• Fishes	• Subsistence Culture
• Invertebrates/Shellfish	• Trophic Function
• Marine Mammals	
• Seabirds	
• Terrestrial Vegetation	

Each stressor narrative was organized such that its component parts could be used in different outreach products (e.g., short summary issue statements on our website) as well as to educate Steering Committee members about the scope of issues associated with each and help inform their decision-making relative to identifying ABSI's priorities. An initial evaluation of priorities was completed by six Steering Committee members and two LCC staff using a series of six online surveys – one for each landscape-scale stressor. Respondents were asked to use ordinal scores to describe the relative threat of the interaction of each stressor on each resource category and ecosystem service using the following definitions:

Resource Categories:

0 None: No reasonably foreseeable effects.

1 Possible: Suspected or potential localized effects impacting species or resources of conservation or management concern.

2 Moderate: Demonstrated or potential broad scale effects impacting species or resources of conservation or management concern.

3 High: Demonstrated broad scale effects on many taxa OR potential population level impacts to key species of conservation or management concern.

Ecosystem Services:

0 None: No reasonably foreseeable effects.

1 Possible: Suspected or potential effects.

2 Moderate: Demonstrated effects on some key linkages.

3 High: Known widespread affects to many key system linkages that will result in negative effects.

Average scores were computed for each interaction between stressor and resource/service and a quartile classification was applied to the range of values to delineate four threat categories: *minimal, low, moderate,* and *high* which were summarized as an overall *threat matrix* (Table 2). The results of this initial ranking will be taken forward into a facilitated workshop in January 2013 to engage scientists, managers and stakeholders with an interest in the ABSI region. Participants at the workshop will be invited to provide feedback on the Strategic Science Plan that will further refine our priorities and identify specific management and information needs associated with each stressor. We stress that the information presented in Table 2 is only a preliminary assessment based on a small sample size.

Table 2. ABSI LCC Threat Matrix of landscape-scale stressors on resource categories and ecosystem services.

RESOURCE or SERVICE	Climate Variability and Change	Commercial Fishing	Marine Shipping	Invasive and Introduced Species	Contaminants & Pollutants	Ocean Acidification
Seabirds	**2.3**	**1.7**	**2.3**	**2.8**	**1.8**	**1.0**
Marine Mammals	**2.8**	**1.9**	**2.3**	**1.0**	**1.8**	**1.0**
Fishes	**2.1**	**2.1**	**1.6**	**1.4**	**1.5**	**1.3**
Invertebrates/ Shellfish	**2.1**	**1.7**	**1.3**	**1.6**	**1.4**	**2.0**
Subsistence Culture	**2.1**	**1.4**	**1.6**	**1.4**	**1.8**	**1.5**
Commercial Fishing	**1.6**	**2.0**	**1.7**	**1.1**	**1.1**	**1.3**
Trophic Function	**2.3**	**1.6**	**1.0**	**1.1**	**1.1**	**1.7**
Human Community Sustainability	**1.8**	**1.5**	**1.1**	**0.8**	**1.1**	**1.5**
Coldwater Corals	**1.6**	**2.0**	**0.8**	**0.7**	**0.6**	**1.7**
Terrestrial Vegetation	**1.9**	**0.1**	**0.1**	**1.8**	**0.9**	**0.0**
Cultural Artifacts/Sites	**1.5**	**0.5**	**0.8**	**0.6**	**0.8**	**0.0**

Minimal: 0 - 0.75	Low: 0.76-1.5	Moderate: 1.51 - 2.25	High: 2.25 – 3.0

For each interaction between a stressor and resource/service where the threat level was rated as either high or moderate, the online survey also asked respondents to evaluate the *benefits* of investments by the ABSI LCC. As with threat assessment, these perspectives were captured with an ordinal scoring approach. Respondents were asked to assign scores ranging from 0-3 across four benefit criteria. They were also given the option to assess benefits with a "*no opinion*" response in the event that they didn't have enough information to answer the question.

Specific scores for each of the four criteria were assigned by respondents as follows:

Expected Applicability to Multiple End-Users:

x No opinion.
0 No indication of managers/scientists/stakeholders needing this information.
1 Limited number of managers/scientists/stakeholders in need of this information.
2 Several managers/scientists/stakeholders.
3 Broad range of managers/scientists/stakeholders.

Potential for Partnership/Leveraging Opportunities:

x No opinion.
0 No known prospects.
1 Potential but no specific parties known.
2 Likely a number of agencies/NGOs/Universities that could be interested.
3 Known entities with efforts/investments underway that could be leveraged.

Potential for Rapid Applied Science Products:

x No opinion.
0 No potential within 5 years.
1 Some potential within 3-5 years.
2 Clear potential within 2-3 years.
3 Clear potential within 2 years.

The Ongoing Work of Others:

x No opinion.
0 Substantial investment and no discernible role for ABSI to contribute.
3 No one working on an important information gap that ABSI could fill.
2 Some investment by others in an important information gap ABSI could help fill.
1 Substantial investment in an information gap with limited opportunities for ABSI
2 Substantial investment with some role for ABSI to make an important contribution.
3 Substantial investment by others with a clear role for ABSI to make a key contribution.

The preliminary results captured in the threat matrix and its relationship to the benefits analysis will be a topic for discussion at the first ABSI LCC Steering Committee meeting in early 2013. The ABSI LCC will establish a draft set of science priorities by March of 2013 such that these priorities can inform project selection for FY2013 funds. Further, the ABSI LCC will pursue opportunities for engagement with regional and topical experts in an attempt to refine priorities and further define applied science needs. Beyond the January 2013 workshop, we will seek opportunities to receive feedback during regional conferences as well as formal and informal gatherings of managers and

stakeholders from the ABSI region. Benefiting from input in these forums as well as expert peer review, the final draft of the Strategic Science Plan will be completed by September of 2013.

Projects

In Fiscal Year 2012, the ABSI LCC had limited funds available for applied science projects. The U.S. Geological survey had $70K of funding for this LCC, and the U.S. Fish and Wildlife Service had $45K. Given this relatively small amount of funding, the Steering Committee elected to not issue a request for proposals (RFP). FY2012 funds were directed to three projects.

FY2012-01 Seabirds as Indicators of Climate Change

Dr. John Piatt of the U.S. Geological Survey led a research cruise in the central and eastern Aleutians in summer 2012 on board the USFWS research vessel *R/V Tiglax*. The focus was on visiting Tufted Puffin colonies throughout the eastern Aleutians where historical diet data had been collected. They visited 10 colonies during August 13-23, 2012. At each site they landed in early morning and set small-mesh screens over puffin burrows to collect prey from puffins returning to feed chicks (Figure 3). Approximately 500 puffin meals containing several thousand individual prey were collected from the 10 colonies, and these data are currently being entered in their database. Dominant prey included juvenile walleye pollock, Atka mackerel, sandlance, myctophids, and euphausiids.

Figure 2. Sampling prey from a Tufted Puffin.

Between setting and retrieving screens, the team collected a sample of chicks from burrows for weights and measures (to assess body condition and overall health), measured burrow occupancy rates, resurveyed historical census plots for USFWS, and collected ancillary data on other species. While ashore, some of the team remained on the *R/V Tiglax* to conduct surveys for marine birds and forage fish on pre-selected transects near each colony. They also collected hydroacoustic and thermosalinograph data during all transects around colonies, and opportunistically during transits between colonies.

Once back on the vessel, and working in the wet lab, the team sorted, identified, weighed and measured all fish samples. A few specimens that could not be identified at sea were archived for later examination. Samples of common fish and invertebrates were saved for stable isotope, genetic, and energetic analyses, and for Alaska Maritime National Wildlife Refuge vouchers. All pelagic seabird survey data have been delivered to the USFWS for inclusion in the at-sea survey program, and will ultimately be archived in the North Pacific Pelagic Seabird Database.

FY2012-02 Alaska Platform of Opportunity Portal

This project was initiated through a cooperative agreement with the Alaska Ocean Observing Network (AOOS), with participation from NOAA.

The ABSI region is one of the most remote and inaccessible areas within the national LCC network. As a result, access is both limited and expensive. The use of "Platforms of Opportunity" is one collaborative approach that allows researchers and managers to collect valuable data that otherwise would not be possible. Presently, there is no single resource available that contains information about planned research cruises, including proposed cruise tracks, schedules, and vessel capabilities. There is strong interagency support in Alaska for a data portal that provides information about platform availability in an interactive, map-based display. The ABSI LCC staff and Steering Committee felt that the portal was necessary to promote opportunities for greater collaboration in this area and other parts of Alaska as well.

The initial design and development phases occurred fall of 2012, with the goal of presenting a working prototype at the Alaska Marine Science Symposium in January 2013 (Figure 3). The portal will be finalized based on end-user input, and should be ready for operational use by the 2013 field season. This project used approximately $8K of ABSI LCC funds, matched by $23K of staff time and hardware resources provided by AOOS.

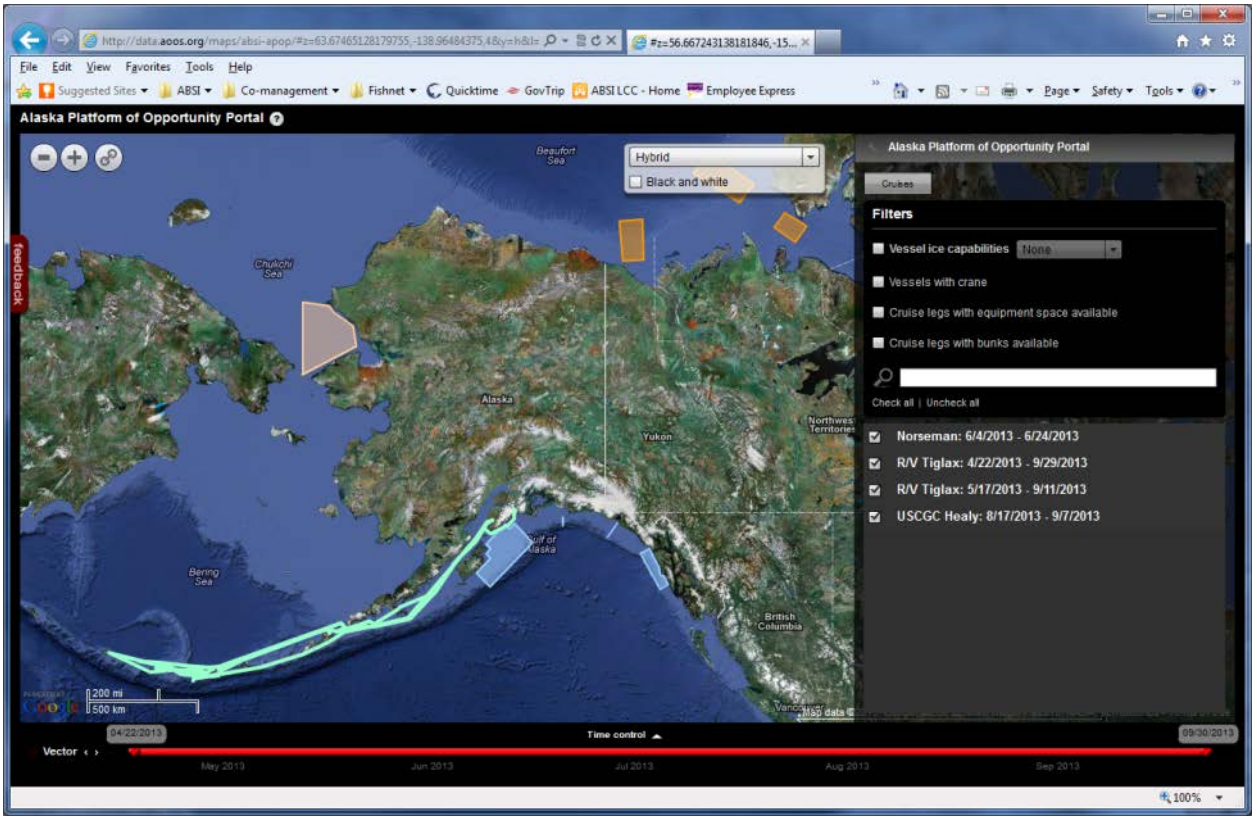

Figure 3. Alaska Platform of Opportunity Portal (APOP).

FY2012-03 Modeling Responses by Long-Distance Migratory Birds to Changes in Atmospheric Circulation

This project will be funded by $20K of USGS LCC funds and has three principal activities. The first activity will quantify viability of corridors using temporal sampling: past, present, future. As large-scale wind patterns change, the viability of flyways in the Pacific hemisphere is likely to change. This project will evaluate the tail/headwind components for flight routes from Alaska to sites in the South Pacific (documented godwit and curlew flight tracks) by sampling 50-year time intervals to determine whether the present climatology is more or less favorable than the past (paleoclimate) periods or the projected future (late 21st century). The project will determine whether other flight corridors may have been more advantageous in the past or future than during the present period.

The second activity will be an assessment of optimization of timing of departures. Available data in the migration tracking archive (Movebank) identify the dates of departure of birds during the past several years. A fundamental question is: do birds optimize their departure dates with respect to weather patterns? By examining the head/tailwind index for alternative departure dates, the project may determine whether optimization has occurred.

The third and final activity will investigate teleconnection patterns relevant to variability of flight optimization. Departure of godwits and curlews appears to be keyed to the west to east passage of low pressure centers across the Aleutians. Are these passages correlated with broader (remote)

circulation features conducive to favorable flight conditions farther en route? Alternatively, if flight tracks are composed of favorable and unfavorable head/tailwind indices, how are these two categories of flight conditions manifested at the birds' points of departure in Alaska? By examining teleconnections, the project will attempt to shed light on the circulation patterns over the broader Pacific domain that are most critical to migratory success via favorable winds en route with special emphasis on the Aleutian Low.

Cooperative agreements for this project were put in place with University of Alaska Fairbanks and University of Illinois – Urbana.

Science Support

In addition to funding several small projects, the ABSI LCC helped support a number of science efforts in 2012. Geospatial data are limited for the ABSI region, as is the expertise to work with these products. We helped locate, acquire, and distribute satellite imagery of several study sites including Kittlitz's murrelet nesting habitat on Agattu Island and Aleutian shield fern habitat on Adak Island.

We also provided science support for an expedition to St. Matthew and Hall Islands in the central Bering Sea (Figure 4). This expedition was organized by the Alaska Maritime National Wildlife Refuge who visits these islands roughly every 5 years, primarily to conduct counts of ledge and crevice-nesting seabirds that have been monitored there since 1983. This year they hosted scientists from a variety of disciplines ranging from archaeology to entomology providing access to Alaska's most remote island group via the research support vessel *R/V Tiglax*. In addition to seabird colony counts, basic inventories of plant, insect and freshwater fish assemblages were completed alongside ecologists evaluating coastal erosion and landscape change as well as the remnants of early attempts of human settlement in the islands. The ABSI LCC helped support the expedition by facilitating the acquisition of new and existing satellite imagery of the area that was used to help identify sample site location and document coastal erosion. Science Coordinator Aaron Poe participated as a member of the expedition team.

Figure 4. Multispectral satellite image of Hall Island. Copyright Digital Globe 2012.

Outreach

The ABSI LCC began the year with a poster presentation at the 2012 Alaska Marine Science Symposium 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. The Symposium also offered us a forum for our LCC to introduce itself to this community. On the final day of the Symposium, we held a "listening session" and invited attendees to provide the staff and steering committee with their thoughts and perspectives on how the ABSI LCC can help address high priority applied science needs within the Aleutian and Bering Sea Islands region.

In April 2012, the ABSI LCC launched a Twitter account, and began following a number of other accounts including those of partner organizations (NOAA, USFWS, USGS, and Aleutian Pribilof Islands Association) as well as other LCCs (Caribbean and Gulf Coastal Plains and Ozarks) and non-governmental organizations (Alaska Sea Grant, NatureServe, The Wildlife Conservation Society). The use of Twitter is part of an overall outreach strategy that includes personal contacts, e-mail notices, and web site.

The ABSI LCC web site (http://absilcc.org) was launched publicly in August 2012 (Figure 5). We envision it to be a key tool for engaging our partnership community on the development of priorities as well as connecting them to our data and communication products. The site is hosted by a third party on dedicated servers, and is based on the Microsoft SharePoint Foundation 2010 framework thus allowing registered users to post announcements, add events to the partners calendar, or participate in online discussions. In addition, registered users receive automatic notification via e-mail when new announcements are posted. User traffic on the site has been building over time and we expect it will provide a more functional communication hub than traditional listservers or newsletters.

In addition to hosting information about the ABSI LCC, we have created a "partner sub-site" for the Alaska Maritime National Wildlife Refuge biological science team. This sub-site includes a document library of reports in PDF format, as well as access to the current version of the *R/V Tiglax* ship schedule for the upcoming 2013 field season. The SharePoint Foundation framework 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 simple service that the ABSI LCC can provide to help promote integrated science in the region.

Although the absilcc.org site was designed as a public-facing web site, it also has extranet capabilities for registered users including our Steering Committee members. Draft documents are posted to an online document library and accessed exclusively by the Steering Committee members for review and comment. This sub-site also hosted online surveys for use in the Steering Committee assessment of the six landscape-scale stressors in the Strategic Science Plan.

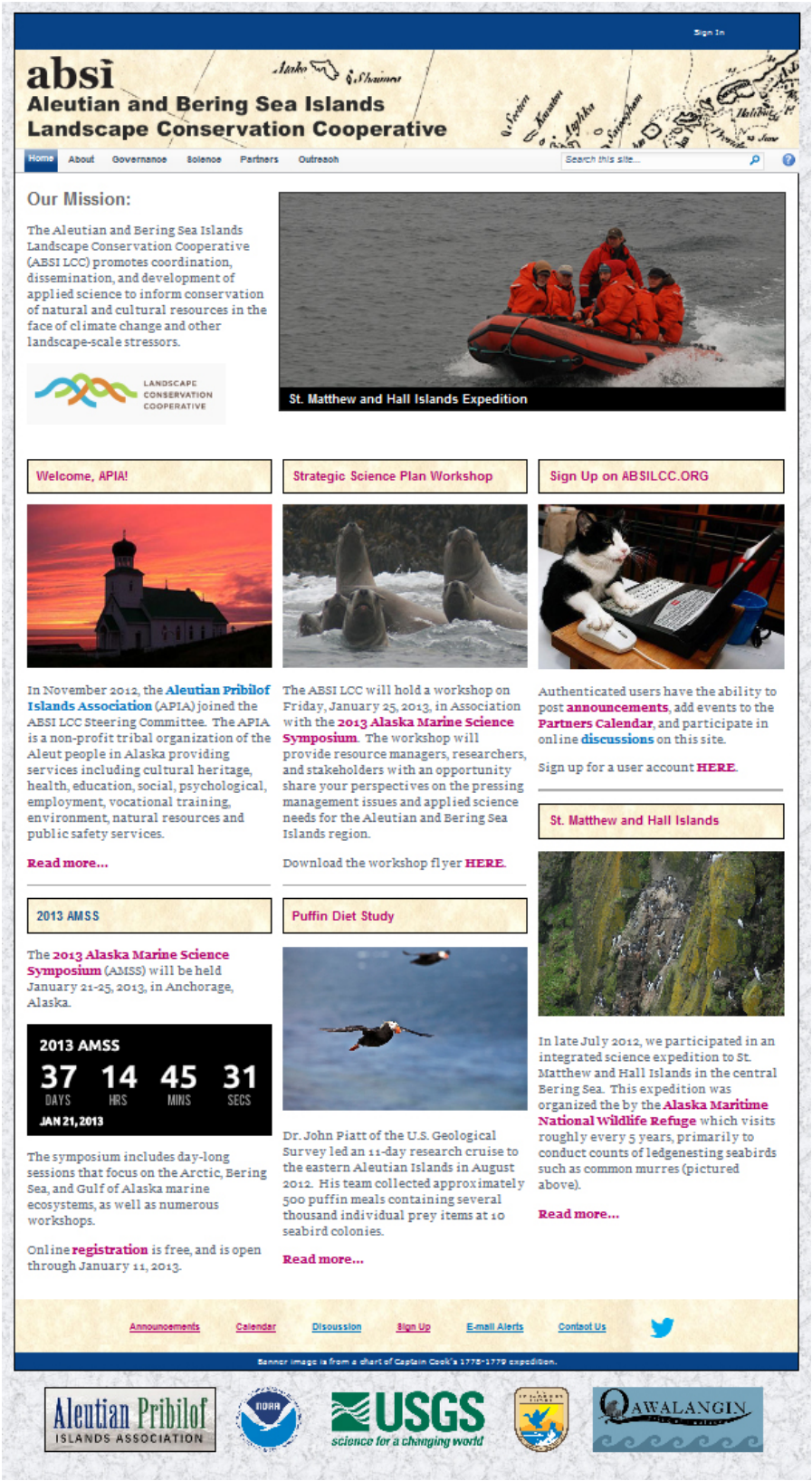

Figure 5. Screen capture of ABSILCC.ORG home page.

Future Plans

The ABSI LCC will begin the new year with a poster presentation at the 2013 Alaska Marine Science Symposium in Anchorage, Alaska, and will also host a facilitated workshop the same week. We will continue to expand our web presence by continuously updating our site with new content. The web site will also be used to solicit additional feedback on our Strategic Science Plan from the ABSI LCC Partnership Community. The Alaska Platform of Opportunity Portal will be operational by April 2013, and will serve information about upcoming research cruises in Alaska waters.

Based on our internal assessment of the six landscape-scale stressors, it was clear that climate variability and change is likely the most important issue in the ABSI region. We will use the results of our assessment to help guide decisions about project funding in FY2013.

Appendix A. ABSI LCC Charter.

Adopted 03/05/2012

Aleutian and Bering Sea Islands
Landscape Conservation Cooperative Charter

1. Purpose of this Charter

The Aleutian and Bering Sea Islands (ABSI) Landscape Conservation Cooperative (LCC or Cooperative) Charter references the authorities that allow for the creation of this LCC, defines the membership and roles of LCC constituent parts, specifies the Charter Review Process, clarifies the governance of the LCC, and outlines its operational guidelines.

2. Establishment Authority

The ABSI LCC is one of 22 LCCs nationwide, formed in response to, and under the authority of, Section 3(c) of Secretarial Order 3289 (September 14, 2009): "Addressing the Impacts of Climate Change on America's Water, Land, and other Natural and Cultural Resources." Current guidance at the time this charter was drafted describes LCCs as "…applied conservation science partnerships focused on a defined geographic area that inform on-the-ground strategic conservation efforts at landscape scales." LCC partners include Department of Interior (DOI) agencies, other federal agencies, states, Native and tribal entities, non-governmental organizations, universities and others.

LCC national guidance states that LCCs shall integrate DOI science and management expertise with that of their cooperating organizations, providing information and best management practices to support strategic climate change adaptation and mitigation efforts on both public and private lands within and outside the United States. National LCC goals include: 1) address terrestrial and aquatic species' needs as well as multiple ecosystems; 2) be accessible and transparent; 3) facilitate approaches to complex conservation challenges such as climate change; and 4) provide a spatial framework to address activities in the context of higher-level conservation goals (Austen 2011). LCCs shall accomplish these goals by providing coordinated scientific and technical support to meet the goals identified by partner organizations.

Techniques used to achieve LCC goals may include, but are not limited to: pursuit of outside grant monies; leveraging existing funds available from participating entities and outside granting organizations; finding and creating synergistic relationships among various partner entities working in the ABSI region that create operational efficiencies; having LCC Core Staff and staff from participating organizations work directly on tasks; making LCC project funds, as approved by the ABSI LCC Steering Committee (as defined in Section 7), available through grant agreements, cooperative agreements, direct acquisition of services and/or tribal grants; hiring staff to carry out certain LCC-related tasks; and implementing a formal or informal request for project proposals.

LCCs in Alaska are unique among LCCs elsewhere in that the senior executives from the State, Federal and non-federal agencies already convene to discuss climate change issues in the Alaska Climate Change Executive Roundtable (ACCER). ACCER is charged with facilitating coordination among the LCCs that occur within Alaska, DOI's Climate Science Center for Alaska, the Alaska Sub-Cabinet on Climate Change, and NOAA's Climate Service for Alaska.

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The existence of ACCER provides the opportunity for some statewide oversight of the LCCs primarily through the ACCER Statewide Coordinating Group.

3. Mission Statement

The ABSI LCC promotes coordination, dissemination, and development of applied science to inform conservation of natural and cultural resources in the face of climate change and other landscape-scale stressors.

4. Goals

The goals of the ABSI LCC (not in priority order) include:

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

5. Scope

The geographic scope of the ABSI LCC includes the islands of the Aleutian archipelago and the Bering Sea and surrounding marine waters.

The science focus of the ABSI LCC is the natural and cultural resources and their associated marine and terrestrial ecosystems important to ABSI LCC partner organizations. The ABSI LCC will strive to avoid duplication with other entities, and coordinate on issues of mutual interest.

6. LCC Composition and Staffing

LCCs are composed of the following constituent parts: Steering Committee, LCC Core Staff, working groups or teams, and a Partnership Community, as defined below.

a. Steering Committee

The Steering Committee shall be composed of the designated representatives of State, Federal and Alaska Native entities participating in the ABSI LCC with an emphasis on field-level staff responsible for management and conservation of land and natural resources in the ABSI region as defined under the Scope section above.

State and Federal agencies holding a seat on the ABSI LCC Steering Committee may be represented by up to two members. Steering Committee members may designate an alternate

representative to a Steering Committee meeting, provided the alternate has been given the information, and vested with the authority to speak for, and make decisions on behalf of, the agency being represented. Rotation between standing members and designated alternates may occur on a yearly basis.

Two Steering Committee seats will be available for individuals who can contribute Native Alaskan perspectives to the LCC. Identification of individuals to fill these seats will come through discussions with Tribal and Native entities within the ABSI LCC geographic area. If more than two Tribal or Native entities are interested in serving on the Steering Committee, alternates and a rotation pattern will be developed by the interested participants with the approval of the existing Steering Committee.

The Steering Committee shall have a Chair and a Vice Chair from two different entities. The Chair will serve for one year, and will be succeeded by the Vice Chair. Selection of the initial Chair and Vice Chair shall be made by consensus. Thereafter, selection of the Vice Chair shall be made by consensus. In the event that an individual is unable to serve for the two-year term as Vice Chair and Chair, a replacement will be selected by consensus to complete that individual's term from an appropriate entity.

In addition to voting members, the Steering Committee shall have an "ex-officio" seat available for the Alaska Climate Science Center. The Steering Committee may establish additional "ex officio" seats as necessary for other entities such as, the North Pacific Research Board, and the North Pacific Fisheries Management Council.

b. LCC Core Staff

Core staff shall be composed of a coordinator and science coordinator. Staffing may evolve in response to the wishes of the Steering Committee, and positions can reside within any organizational entity represented on the Steering Committee.

c. Advisory Groups

These may be composed of individuals from organizational entities with natural or cultural resource conservation and management responsibilities or science capacities in the geographic area or that have skills that can meaningfully inform management decisions within the geographic scope of the ABSI LCC. The Steering Committee may form such groups to provide additional technical expertise and advice to the Steering Committee on management and science needs.

d. Partnership Community

The Partnership Community consists of individual researchers, managers, organizations, agencies, etc. with an interest in conservation of natural and cultural resources within the ABSI region. The Partnership Community may participate in the LCC in a number of ways, including (but not limited to) membership on Advisory Groups, participation at workshops and listening sessions, and submission of proposals to conduct high-priority scientific research. Input from the Partnership Community will also be valuable to ensure that LCC

activities complement existing activities and partnerships, and can increase efficiencies by leveraging funds and facilitating coloration on projects.

7. Roles of LCC Committees, Groups, and Staff

The ABSI LCC Steering Committee, Core Staff, Advisory Groups/panels, and Partnership Community shall fulfill the roles as described below.

a. Steering Committee

The Steering Committee shall represent their agencies' views on issues and represent the science needs, interests, and capabilities of their agency. Because some LCC participating agencies are programmatically diverse, there is the expectation that Steering Committee members will represent all of the programs within their agency. The Steering Committee shall work with the Core Staff to establish broad conservation goals, set priorities, determine ABSI membership, facilitate key activities of the LCC, leverage funding across participating entities to accomplish priority tasks, and provide operational oversight of the LCC.

The Steering Committee shall make a good faith effort to seek consensus in reaching all decisions. Consensus shall be defined as "concurrence without serious objection." While most decisions shall be made during Steering Committee meetings, decisions may also be made via teleconference, web conference, or other forms of electronic communication, provided a quorum is in participation.

b. LCC Core Staff

The Core Staff shall provide support to all constituent parts of the LCC. They shall convene Partnership Community meetings, at intervals to be determined by the Steering Committee, to collaboratively identify conservation goals and identify priority science needs that are essential to fulfilling the conservation goals of the LCC. They shall provide relevant information to the Steering Committee and seek to fulfill information requests made by the Steering Committee and its members. They shall facilitate communication between scientists and resource managers and provide a forum for continuous exchange. The Core Staff shall assemble, translate, and deliver scientific data, analyses, and scientific tools required for conservation and management decisions. Finally, Core Staff shall coordinate with, communicate activities to, and leverage funding with other partnerships and neighboring LCCs.

The LCC Coordinator shall serve as the leader, manager, and supervisor of the ABSI LCC support office. This shall include, but is not limited to: direct supervision of LCC staff hired within the LCC Coordinator's agency; development, administration, and oversight of program budgets and funding; maintenance of administrative and fiscal records; documentation and conveyance of ABSI LCC activities and accomplishments; coordination with LCC member entities and other interested parties. The Coordinator shall assist the Steering Committee in preparing for, and conducting, their meetings. The Coordinator shall assist in development of methods to communicate with, and receive input from, non-member organizational entities. The Coordinator shall seek external funding opportunities and other

available resources that could support ABSI LCC activities and projects. Finally, the Coordinator shall serve as facilitator for Steering Committee meetings.

The LCC Coordinator also serves as a member of the LCC National Network team to represent the interests of the ABSI LCC Steering Committee in the national forum. The Coordinator will share information on potential Network needs or direction with the LCC Steering Committee.

The LCC Science Coordinator shall work with the Steering Committee and others to identify science needs relative to the ABSI LCC. The LCC Science Coordinator shall serve as the leader, manager and coordinator for ABSI LCC scientific issues, activities, and programs. These duties may include, but are not limited to: coordination, review, technical support, and administration of projects implemented largely with ABSI LCC funds; managing and integrating scientific data; facilitating information exchange and feedback among scientists within and outside the ABSI LCC; presenting scientific results and recommendations at regulatory and professional meetings; and conducting public outreach and communications relative to science and technology issues and accomplishments. The Science Coordinator shall serve as the main scientific advisor to the Steering Committee.

The LCC Science Coordinator also represents the ABSI LCC at national LCC meetings on science topics and processes. The Science Coordinator will share information gathered from other LCCs which may be useful to the ABSI LCC and will keep the Steering Committee appraised of national initiatives that affect science within LCCs.

c. Advisory Groups

Advisory groups shall provide recommendations for fulfilling priority science needs and conservation objectives to the Steering Committee and Core Staff. Each group shall have a Chair appointed by consensus of its members. The Chair shall coordinate all phases of the group's work to the Core Staff, and, if requested, have a representative of the group provide the Steering Committee with a written or oral report of activities and products. The Steering Committee may disband or change the composition of Advisory Groups that it deems to be ineffective.

d. Partnership Community

The role of the Partnership Community is to help identify shared science needs, collaborate and leverage opportunities to address shared science needs, and to help the LCC avoid duplication of effort. The LCC will engage with the Partnership Community either through its Core Staff or through Steering Committee members engaged in the partnership and in the LCC.

8. Steering Committee Meetings

The Chair of the Steering Committee shall preside over the Steering Committee meetings. In the event that the Chair is absent, the Vice chair shall preside over the meeting. Steering Committee meetings must have either the Chair or Vice Chair in attendance, or the Chair or Vice chair must

ensure another Steering Committee member is prepared to lead the meeting. Meetings must have a quorum to engage in decision-making, defined as participation by two-thirds or more of the member agencies on the Steering Committee. All agencies with representation on the Steering Committee are expected to ensure participation of their representative(s) or designated alternate(s) to each Steering Committee meeting. Participation in Steering Committee meetings may take place by videoconference or teleconference as necessary.

9. Charter Review Process

Amendments and revisions to this charter will be made by consensus of the ABSI LCC Steering Committee at such times that they deem appropriate. At a minimum, the charter will be reviewed by the Steering Committee every five years.