


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**Aleutian and Bering Sea Islands
Landscape Conservation Cooperative**

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Science and Operations Plan FY2015 - 2016



LANDSCAPE
CONSERVATION
COOPERATIVES

Introduction

Formed in early 2012, the Aleutian and Bering Sea Islands Landscape Conservation Cooperative (ABSI) promotes applied science to inform conservation of natural and cultural resources in the face of climate change and other landscape-scale stressors. We are a broad partnership of individuals, organizations, and government agencies with an interest in the Aleutian and Bering Sea Islands region. The ABSI charter includes the following five conservation goals, the order of which does not imply priority:

- 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.

In our Strategic Science Plan, we describe our synthesis of over 50 existing research and resource management plans relevant to our region. Our analysis identified six landscape-scale stressors of greatest concern to the natural and cultural resources of the region:

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

Given the tremendous amount of interest and activities related to Commercial Fishing and Ocean Acidification, we determined that the remaining four stressors are areas where ABSI could make meaningful contributions given our limited budget.

These same research and management plans also identified seven priority categories of natural and cultural resources, as well as four priority ecosystem services:

Priority Natural and Cultural Resource Categories

- Seabirds
- Marine Mammals
- Fishes
- Coldwater Corals
- Invertebrates/Shellfish
- Terrestrial Vegetation
- Cultural Artifacts/Sites

Priority Ecosystem Services

- Subsistence Culture
- Commercial Fishing
- Trophic Function
- Human Community Sustainability

While our Strategic Science Plan narrowed our focus to stressors, resource categories, and ecosystem services of interest over the coming five years, this Science and Operations Plan identifies more specifically activities that we are currently doing and intend to undertake during Fiscal Years 2015-2016. Furthermore, this Science and Operations Plan demonstrates how ongoing and future activities achieve our conservation goals.

Putting our Science Focus into Action

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 Science and Operations 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 1).

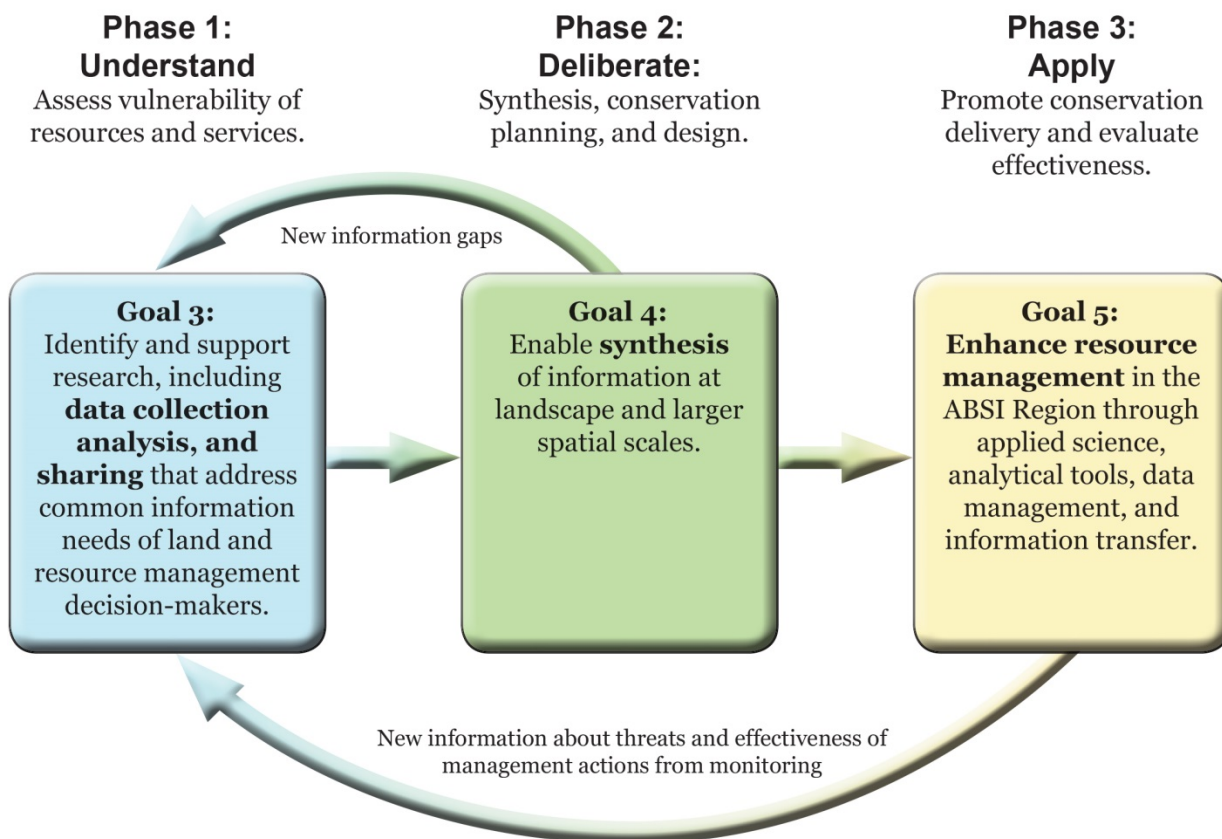
Nationally, many Landscape Conservation Cooperatives (LCCs) are focused on connecting the efforts of multiple managers and stakeholders through integrated strategies to adapt to or mitigate the effects of landscape scale stressors such as climate change. The LCC Network and others refer to this process as *Landscape Conservation Design* or LCD (Campellone et al. in prep.). We believe that this concept, though being applied differently across the LCC Network to fit local contexts, has promise in the Aleutian and Bering Sea Islands region. Landscape Conservation Design will provide the framework for development and application of our science products by researchers, managers, residents, and stakeholders similarly focused on conservation of natural and cultural resources in our region. The success of landscape conservation “designs”, much like LCCs in general, is grounded in making strategic investments that bring interested parties together to use the most current data, models, and decision support tools.

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.

Goal 2: Support coordination and collaboration among partners to improve efficiencies in their common science and information activities.



Project Integration

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

Figure 1. A conceptual model for ABSI's operational approach.

Inform and Collaborate

A foundational tenet of the ABSI partnership is the promotion of communication and collaboration between researchers, managers, residents, and stakeholders. In addition to helping achieve Goals 1 and 2 of our conservation goals, activities that “inform and collaborate” also serve two important operational purposes. The first is the need for transparency about progress on projects that we support. Of equal importance is meaningful engagement with those managers and stakeholders who will be best able to implement resource management based on the results of our work and that of others in the region.

The specific audiences engaged, as well as collaborations promoted and fostered, will primarily grow out of the “understanding” phase of our operations. Supporting collaboration between Steering Committee partners should be of an integral ABSI function. Interim and final products from our projects will allow us to engage key audiences with results “in-hand” that demonstrate our interests and capability for collecting, synthesizing and sharing information.

The ABSI staff will produce written narratives for all our projects that identify specific activities associated with each operational phase. These narratives will be hosted on our website where they can be updated easily as well as dynamically shared and linked to other content. Collaborations supported by ABSI will have specific investments in communication and data sharing beyond publication and at the very least will require some level of presentation at conferences or workshops. Given the complex nature of our issues, and diversity of our potential audiences, additional investment may have to be made in order to effectively share results (e.g., focused workshops, data visualizations or other multimedia products).

Results of our supported projects will also allow ABSI to develop a focused communications strategy with specifically defined tactics and identify venues for engaging our audiences organized around our four stressors. We will include opportunities to provide feedback to allow for evaluation and solicitation of input from stakeholders and managers interested in our issues and in using our products.

One common challenge faced by all LCCs is to describe what we do and thus we will emphasize finding venues and opportunities to share our science products. Of greatest priority will be those venues that serve residents and stakeholders from the region (e.g., Aleut Villages, Alaska Federation of Natives, the Southwest Alaska Municipal Conference, the Marine Expo) as well as those serving researchers and managers (e.g., Alaska Marine Science Symposium, Alaska Forum on the Environment). Given that many members of our Steering Committee already attend our meetings virtually, we will explore the potential for hosting our meetings in communities within our LCC or at events and conferences that cater to its residents and managers. Allowing residents or meeting attendees to join these sessions reinforces our open door approach to all Steering Committee meetings and would facilitate two-way information exchange with individuals acting at the local level.

Understand

The first operational phase of our Landscape Conservation Design is to understand the threats that our four primary landscape-scale stressors pose to our previously-identified resource categories and ecosystem services. Within the broad categories there are undoubtedly some species or specific ecosystem components in greater need of attention than others, either because of the severity of potential threats, or because of a lack of attention by other scientists and managers. Given the broad range of potential actions, and limitations in capacity of ABSI in the region, we will need to refine our focus to those key science needs for addressing threats to our priority resources and ecosystem services. Conceptually (as shown in Figure 1), activities conducted during the “understand” phase help us make progress toward achieving Goal 3 of more focused conservation goals.

Our current approach for sharpening our focus during this phase is to conduct vulnerability assessments (Glick et al. 2011¹) for each of our four landscape-scale stressors. Of particular importance will be incorporating Traditional Ecological Knowledge in our assessments. Results of these assessments are expected in 2015. As much as possible, these vulnerability assessments will be based on spatially- and temporally-explicit data that identifies the location (**where**) and timing (**when**) relative to the effects of each stressor. Ultimately each vulnerability assessment will provide two essential contributions including help in:

- Identifying **which** resources or ecosystem components are likely to be the most strongly affected by projected changes relative to each stressor; and
- Understanding **why** these resources or ecosystem components are likely to be vulnerable, including interaction between multiple stressors.

Determining **which** resources and services are most vulnerable will help managers in setting priorities, while understanding the reasons **why** they are vulnerable assists with the development of appropriate management actions. For example, based on our current efforts assessing resource vulnerabilities relative to marine vessel traffic, we can define some risk thresholds for exposure to oil spills from vessel groundings along with an understanding of spill response capabilities. This gives us a better understanding of the relative risk of exposure for priority resources and ecosystem services that can speak to the specific threats from this stressor (e.g., **which** seabirds or marine mammals are at risk; or **which** subsistence practices might be most threatened).

Finally, vulnerability assessments are conducted based on the current understanding of each stressor yet the nature of these stressors and our understanding of them will undoubtedly evolve even in the short term (e.g., 5 years). Therefore, the results of our vulnerability assessments will require periodic review and validation as new data become available. For example, assuming

¹ Glick, P., B.A. Stein, and N.A. Edelson, editors. 2011. Scanning the Conservation Horizon: A guide to Climate Change Vulnerability Assessment. National Wildlife Federation, Washington, DC.

our priorities relative to invasive and introduced species begin with a focus on terrestrial invasive species it may still be necessary to be mindful of possible impacts from invasive aquatic species.

Deliberate

After development of individual vulnerability assessments ABSI will conduct a synthesis in 2015 to integrate the results of each to address compounding effects to resources as well as evaluate potential interactions between stressors. Some examples of these interactions might include:

- Diminished Arctic sea ice due to climate change is opening up new marine shipping routes through the Bering Strait;
- Invasive species may be transported in vessel ballast water;
- Changes in atmospheric circulation patterns may alter global transport of contaminants and pollutants compounding risk to resources vulnerable to vessel traffic.

In this “deliberate” phase we will assess these integrated vulnerabilities to further refine our science focus as we look toward the development of conservation strategies and actions that can be implemented by managers and stakeholders. This second phase of action will bring together insights gained from the collection of vulnerability assessments and the expertise of our Steering Committee as well that of researchers, managers, residents, and stakeholders with whom we have engaged with during the understanding phase.

During this phase we will likely identify further information gaps that may then inform new investments in understanding and identify new audiences for our science projects and data synthesis efforts. We may also identify new opportunities for partnerships based on our efforts to engage with managers and stakeholders as part of our understanding process. This operational phase helps us achieve Goal 4 of our conservation goals.

Apply

In order to ensure that ABSI science products are applied to enhance resource management in the Aleutian and Bering Sea region, our Steering Committee recognizes that ABSI needs to be more than a producer of science or a clearing house for data and information. As part of this “apply” phase, ABSI will engage with managers and stakeholders to develop appropriate “design elements” for each landscape-scale stressor. Together these comprise an overall LCD where partners are engaged in contributing to the comprehensive design. This operational phase helps us achieve Goal 5 of our conservation goals.

We see that a diversity of approaches might be taken by managers and stakeholders (including industry) to collectively develop these elements. Some may be readily apparent based on the early results of the vulnerability assessments and engagement with the parties involved in addressing the issue. For example, based on our current efforts assessing resource vulnerabilities related to marine vessel traffic we have already provided vessel routing

information has been incorporated into broader recommendations put forward from the Aleutian Islands Risk Assessment.

Other instances may require further information or planning efforts to help managers and stakeholders develop and prioritize individual design elements. For example, if expansion of introduced ungulate populations is expected to increase vulnerabilities of seabirds due to habitat degradation, but stakeholders can't agree on actions to be taken, the LCC may offer to facilitate a collaborative planning process to identify mutually agreeable design elements.

Clearly bringing together the managers and stakeholders *most capable* of implementing the resulting design elements is critical to the effectiveness of an LCD. This step is especially important when operating at landscape scales where managers assess the effects of stressors that cross multiple jurisdictions.

It is also important to note that individual design elements are “modular” actions that can be implemented as soon as elements are agreed to, rather than awaiting completion of a single, comprehensive LCD (Figure 2). This approach of an emerging, ground-up conservation design is somewhat in contrast to more open-ended planning efforts that attempt to create an all-encompassing singular plan before implementation may begin. Such plans are inherently difficult to enact in their entirety especially in situations where large numbers of entities must reach consensus on all elements. By focusing on what elements can be achieved individually, while still being cognizant of the larger design, conservation outcomes may be achieved at a more rapid pace.

As with any adaptive management approach, monitoring is an essential component of LCD. First and foremost, monitoring the effectiveness of design elements will ensure that they are being implemented properly and are producing the intended conservation outcomes. For example, assuming new vessel routes are established as design elements it becomes vital to know if vessels are following the new routes so that expected impacts to priority resources are minimized. As a result a key focus of ABSI's next Science and Operations Plan (2017-2018) will likely be on the incorporation of monitoring—both to test the effectiveness of our monitoring efforts as well as refresh understanding about expected impacts of our focal stressors. The results of these future monitoring efforts will ultimately feedback into the understanding phase again stimulating adaptive learning and management.

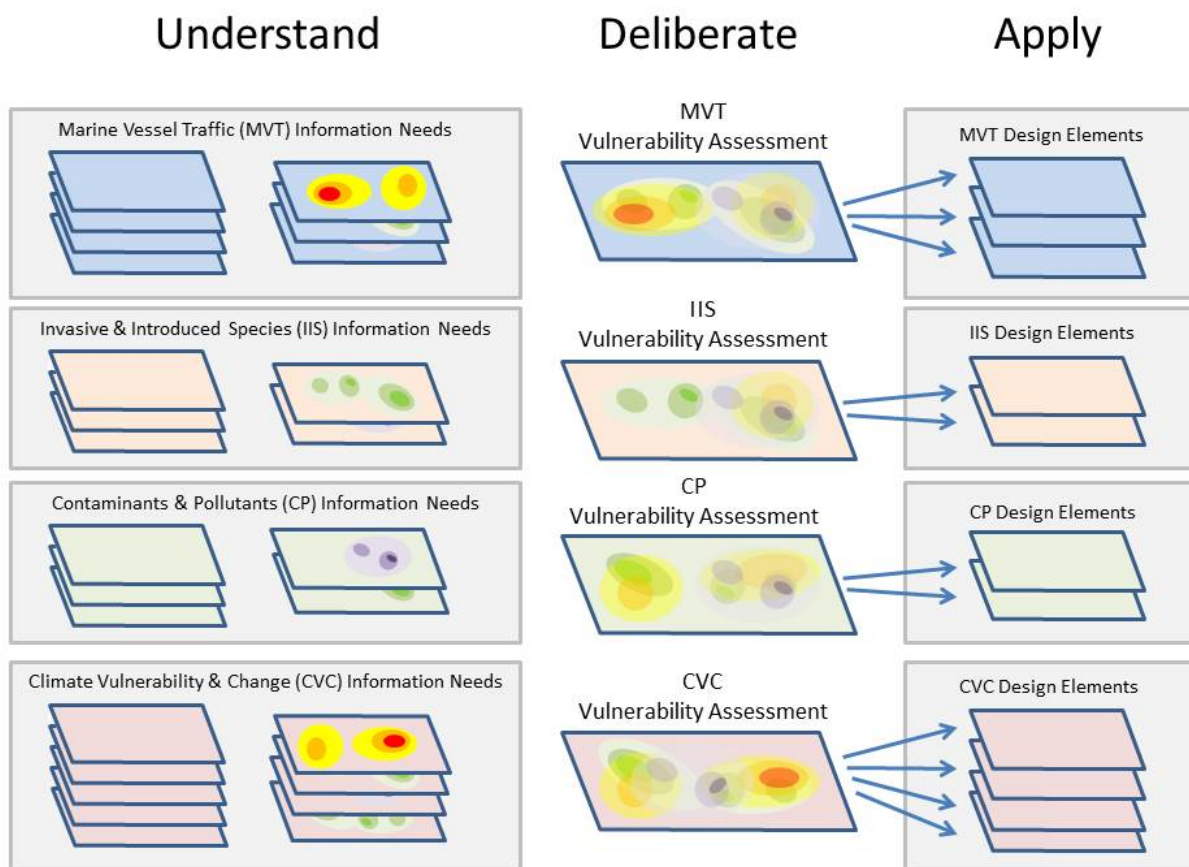


Figure 2. Development and integration of multiple vulnerability assessments within the ABSI region results in an overall Landscape Conservation Design.

Visualizing Our Operations

The foundational components of this Science and Operations Plan are the individual project narratives that identify activities and timelines for the three operational phases described in this plan. These project narratives will show key communication and collaboration components, identify possible opportunities for connected actions to address information gaps, and offer descriptions of resulting products. They will exist as [dynamic PDF documents](#) with hyperlinks to results including data layers, reports, publications, webinars, workshop notes/proceedings etc. as they become available.

These individual project narratives will also be linked to together in a larger document depicting our existing and future program of work for 2015-2016. This larger document will allow ABSI to transparently show the origins of our projects and progress toward the development of resulting LCD components. It will also highlight information gaps and opportunities for potentially interested partners to see where our program of work is headed. This interactive PDF document

will serve as directory for our projects along a three year timeline that will allow readers to dive deeper into the specifics from individual project sheets.

Our aim is that this easily updated project interface can become the living version of this Science and Operations Plan that is easily reviewed and shared by members of our Steering Committee, other partners as well as any stakeholders or managers working on conservation in the ABSI Region.

Science Communication

As one of our over-arching conservation goals, science communication is a large part of what we do. As well as producing manuscripts for peer-reviewed publication, the Principal Investigators of projects supported by ABSI are encouraged to present preliminary and/or final results at workshops, conferences, and symposia. The Alaska Marine Science Symposium (AMSS) that is an annual event sponsored by the North Pacific Research Board (NPRB). This symposium brings nearly 1,000 researchers, resource managers, and stakeholders to Anchorage each January. In addition to a full day of oral presentations about the Bering Sea/Aleutian Large Marine Ecosystem, AMSS features an evening poster session. Since 2012, we have capitalized on this audience, many of whom have an interest in the ABSI region, by hosting workshops to help frame management issues and solicit input on our Aleutian and Bering Climate Vulnerability Assessment project. In January 2015 we will co-host a workshop at AMSS on the use of Automatic Identification System (AIS) data to characterize marine vessel traffic and assess the vulnerabilities of priority resources and ecosystem services to potential impacts. In addition to workshops and presentations from our collaborators on existing projects, we also have used the symposium as a forum to announce our Notice of Funding Availability, essentially a Request for Proposals (RFP).

We will continue to leverage other annual meetings such as the Alaska Forum on the Environment, the Bureau of Indian Affairs Tribal Providers Conference, and the Alaska Federation of Natives to address these audiences about our activities. Where practical, we will also visit communities within the ABSI region to meet with residents and inform them about our activities and results that may be of interest to them.

The use of social media and our web site (<http://absilcc.org>) are key resources we use to communicate with our audience throughout the year. Our mailing list currently numbers over 225 individuals who receive announcements posted to our site by e-mail. We also use our Twitter account (@ABSILCC) to share information of interest to our audience. In 2014, we also began curating three [Flipboard magazines](#) on Climate Change in Alaska, the Aleutians, and Sea Ice. A relatively easy way to present information in a compelling, easy to access format, our three magazines have nearly 2,000 viewers combined.

Fiscal Year 2015-2016 Operations

In Fiscal Years (FY) 2013 and 2014, we supported four main projects to initiate vulnerability assessments for our four key stressors: climate variability and change, marine vessel traffic, invasive and introduced species, and contaminants and pollutants. The Aleutian and Bering Climate Vulnerability Assessment, or “ABCVA” as all the cool kids call it, brought together 30 managers, researchers, and stakeholders who formed five teams to assess the climate-related vulnerabilities of: 1) seabirds; 2) marine mammals; 3) fish and commercial fisheries; 4) terrestrial vegetation; and 5) community sustainability, subsistence, and cultural resources. These teams are completing their initial investments in the first quarter of FY2015 and will meet in December 2014 to participate in a facilitated structured decision making workshop. One of the purposes of the workshop is to identify the additional applied science needs relative to climate change. Therefore, the ABSI Notice of Funding Availability (NOFA) that will be announced at the Alaska Marine Science Symposium in January 2015 will be targeted toward those high-priority science needs identified at the December workshop.

We expect to use approximately half of our FY2015 operational funds to support climate-related project proposals submitted to our NOFA. The remainder of our operational funds will be used to support continued work on contaminants and pollutants. Our ongoing FY2014 project is for the development of a spatially-explicit database of contaminants in the Aleutian archipelago. Although the database will initially be populated with heavy metals data for inorganic substrates, it is being designed to incorporate data in biotic tissues, as well as other types of pollutants data. The ABSI Contaminants and Pollutants Technical Working Group recommended we expand the scope of this project to add abiotic tissue data to the database, and also to conduct a synthesis of mercury (Hg) levels throughout the ABSI.

In addition to providing financial support to projects related to vulnerability assessments on climate change and contaminants and pollutants, we will also continue to engage with the management team of the [Aleutian Islands Risk Assessment](#) (AIRA). The AIRA project was funded under a plea agreement made by the owner of the *Selendang Ayu*, which drifted aground on the north shore of Unalaska Island in December 2004. Funds for the AIRA have been administered by the National Fish and Wildlife Foundation (NFWF). As of December 2014, the bulk of the funds for this project have been expended, with a small amount remaining in an account for contingency purposes. We believe the AIRA project has built a strong array of partners with an interest in enhancing the safety of shipping that transits through the Aleutian archipelago, and would like to see this partnership continue into the future. During discussions with representatives of the U.S. Coast Guard, ABSI has advised the AIRA to consider using their remaining funds to convene a meeting to discuss the possibility of forming an Aleutian Islands Waterway Safety Committee. In October 2014, a similar effort has resulted in the formation of an Arctic Waterway Safety Committee, which can serve as a model for an Aleutian Islands Waterway Safety Committee. We will continue to work through the AIRA Facilitation Team and U.S. Coast Guard to explore this concept.

Looking ahead, we anticipate integrating the initial results of our four vulnerability assessments at an upcoming meeting in the spring of 2015. The results of that exercise will help inform our applied science priorities for FY2016. We will once again solicit proposals to address those priorities through the NOFA process.

We will continue to look for and respond to opportunities to access additional resources, including collaborating on submissions to Requests for Proposals (RFPs) including one that the NPRB holds annually. We will also inform NPRB on our applied science needs in order to help focus their RFP on ABSI priorities. Other potential sources of funding include the U.S. Geological Survey Science Support Partnerships and Quick Response Programs that we were successful at directing funds in FY2014.

