Summary of May 8th, 2012 meeting of the Science and TEK subcommittee of the NPLCC
May 8, 20129

The Science and Traditional Ecological Knowledge subcommittee (S-TEK) of the NPLCC held a meeting by conference call and WebEx on May 8th, 2012, from 1:30 pm to 4:30 pm PDT. 21 subcommittee members participated and are listed in Appendix A.

There were two main topics for the call:

- Status report and decisions on FY 12 projects
    - Develop recommendations for Steering Committee on data management platform and on information-sharing workshops and symposiums to support
- S-TEK Strategy discussion
    - Focus on how activities to identify potential information needs prior to June meeting

Recommendations and action items from this meeting are summarized below. The remainder of this document summarizes the meeting discussions leading to those recommendations and action items.

Recommendations

The S-TEK will recommend to the NPLCC Steering Committee that they adopt LC-MAP as the data management platform to be used by the NPLCC.

Action Items

Action items are listed in Table 1 below and are explained more fully in highlighted boxes within this document.

Table 1. Action items from May 8th meeting/call.

Action	Who	When
Review TEK proposals; make recommendations to Steering Committee	Volunteer reviewers	Recommendations made by 5/31. (Full schedule on p. 3)
Present recommendation for LC-MAP to the NPLCC Steering Committee	Frank Shipley & Mary Mahaffy	At next Steering committee meeting (June 1 or 5)
Develop budget and contract for adoption of LC-MAP by the NPLCC	Mary Mahaffy	By next Steering Committee meeting (June 1 or 5)
Provide ranking of potential information sharing workshops & symposiums for NPLCC support	All	By 5/22
Participate in one or more calls focused on identifying potential information needs within: Freshwater ecosystems / resources Marine and coastal ecosytesm/resources Terrestrial ecosystems/resources	All (based on availability and interest)	Mary Mahaffy will post a Doodle poll to schedule three calls. Initial calls to be completed by June 6.

FY12 priorities

Mary Mahaffy (NPLCC Science Coordinator) and the technical team leads led a discussion and review of the FY12 priorities and work since the April 5th call. The status and schedule for each of these items is summarized in Table 2, with additional details from the discussion below.

Table 2. Status and schedule for FY12 STEK focus areas

FY12 focus	Status	Plan & Schedule
Traditional Ecological Knowledge and Tribal/First Nations Priorities	RFP is out with proposals due May 17	Review and recommendation to Steering Committee by 5/30. Inform awardees by June 5, contracting to follow.
Priorities and Literature Synthesis for Terrestrial Habitats	Ongoing – 4/20 workshop in Juneau included terrestrial ecosystem discussion	May: Web-based expert panel discussions June 11: Expert Workshop in CA Mid- July: Draft focus group report (all ecosystems) available for S-TEK consideration, final in mid-Aug May 2013: Literature synthesis and final report
GIS Data Layer Inventory / Mapping	Team formed, initial lists of foundational and secondary data have been developed (see Appendix B.)	Monthly calls.
Data Management Platform	Recommend adopting LC-MAP Demonstration during call.	Formulate recommendation to the Steering Committee for their June meeting. Determine budget needs and contracting by June 8.
Science and Information Sharing Workshops / Symposiums	S-TEK is prioritizing the list of workshops and symposiums to support.	Ranked list for Steering Committee decision on June 1.

RFP for work related to TEK. The RFP was published on www.grants. gov on April 24th. We have received one proposal to date, and numerous inquiries. Several other agencies and LCCs have also expressed interest in the RFP and the approach we are taking to consider and incorporate TEK in the S-TEK strategy. The schedule is as follows:

- Proposals are due by COB 5/16
- Proposals posted for review by 2:00 pm on 5/17
- Proposal review 5/17 to 5/24
- NPLCC staff & Karen – collate evaluations & prepare summary (5/25)
- Reviewers WebEx on 5/29, 5/30 or 5/31 – develop prioritized list of recommended projects
- Steering Committee meeting likely June 1 or 5
- Notify applicants by June 5
- Approx. 2 weeks complete agreement packages

If you wish to participate as a reviewer and have not already volunteered, please let Mary Mahaffy know as soon as possible.

NWF expert workshops – terrestrial ecosystem focus. Workshop on April 20 in Juneau, AK included consideration of terrestrial ecosystems as well as freshwater and marine. Broad attendance: 18 Tribal and First Nations participants, 15 from Federal agencies, 6 from Academia and 4 from NGO's or other groups. Participants selected six topics for breakout groups in the morning and discussed information needs within each category. Four criteria were used to guide discussions: decision-relevance, spatial/temporal scale, timeline/sense of urgency, partners/ongoing efforts

1. Marine & aquatic organisms: range shifts, food web impacts, and distribution
2. Habitat and species: effects of reduced glacier size/abundance & changing glacial hydrology
3. Freshwater and marine: wetlands/estuarine habitats, soils, and terrestrial/marine nutrient cycling and carbon (including bogs and peatlands);
4. Aquatic and terrestrial: invasive species and disease/pathogens;
5. Impacts of climate change on island ecosystems
6. Terrestrial ecosystems: changes in terrestrial vegetation/habitat and food webs/distribution

Afternoon breakout groups focused on science-support needs, identifying what role the NPLCC can play (and how it can play it), in four areas:

1. Tools/training,
2. Coordinating information sharing and dissemination,
3. Addressing international and institutional cross-boundary issues,
4. Education/outreach

Invitations have been sent to about 230 people to participate in any of three upcoming web-based focus groups, and the in-person workshop has been scheduled

- May 17, 1-3 PM PST: Coastal Temperate Rainforest Ecosystems
- May 18, 10 AM to Noon PST: Lowlands, Prairies, and Other Non-forested Ecosystems
- May 22, 10 AM to Noon PST: Interior Mountain Ecosystems
- In-person workshop: June 11, Arcata or Redding, CA
    - Title: Expert Workshop to Inform Climate Change Science Priorities in the NPLCC – Spotlight on Terrestrial Ecosystems

GIS data layers. The technical team formed and had their first call in mid-April. They identified four tasks for their team:

1. Identify the status of "foundational" and "secondary" geospatial data sets to support conservation in the LCC region
2. Compile and synthesize best available data and associated metadata. Make the metadata and data accessible to LCC partners.

3. Prioritize data needs across the region.
4. Identify means for sharing and updating this analysis

Appendix B lists the team members and preliminary lists of foundational and secondary data identified by the team during their first meeting. The S-TEK emphasized, and the team recognizes, the importance of coordinating their efforts as much as possible with the variety of groups, especially NGOs who have engaged in similar efforts in the region. They intend to have meetings and conversations with those entities over the course of the next several months.

Data management platform. This technical team convened and had several meetings. They defined their goals as:

- Identify data management needs and platform for NPLCC.
- Work towards increased coordination and communication around data and uses.

After a review of numerous different systems (see Appendix C), the technical team recommended that the NPLCC adopt LC-MAP as their data management system. LC-MAP was chosen in part because it is being used by a neighboring LCC, so there is the potential for joint development of the platform in the future, for its analysis capabilities and integration with ScienceBase, and because it was viewed as the most effective way to meet short-term needs combined with the ability to influence its continued development and customize it for NPLCC needs.

The S-TEK saw a demonstration of LC-MAP by Sean Finn, the Science Coordinator for the Great Northern LCC. A recorded webinar describing the system in more detail is available on-line at: http://greatnorthernlcc.org/event/88

The S-TEK agreed to recommend that the NPLCC adopt LC-MAP as its data management platform.

Next steps for the technical team and NPLCC staff include determining the tasks and budget requirements to being adapting LC-MAP for the NPLCC, and contracting and initiating that work.

The technical team is also recommending that the NPLCC consider investing in some user needs workshops or focus groups to begin the process of identifying how the anticipated users of the data management platform could use the system, what their data management needs are, and how they would interact with the tool (see next section). The estimated cost for this is $15,000 - $20,000.

Information-sharing workshops and symposiums. Table 3 lists information sharing workshops and symposiums identified by NPLCC staff and S-TEK members as being valuable efforts that the NPLCC should consider supporting in FY12. It is unclear how much funding is available to support such efforts, so the S-TEK agreed that they should rank the potential workshops.

Table 3. Workshops and symposiums recommended for NPLCC support

Workshop / Symposium	Estimated budget
Cross-boundary Data Integration Workshop to be held in Vancouver this year (hosted by ACRC last year)	$30,000
Co-sponsorship (with the Great Northern LCC) of a Transboundary Forum (WA & BC) on habitat connectivity	$10,000
WildLinks (hosted by Conservation NW and will be held in North Cascades NP)	$4,000

Please review the list of science and information sharing workshops and symposiums above and rank them in order of your preference for providing the requested funding. If there are any that you would not recommend supporting even if funding were available, please indicate that.

Note: A decision needed to be made about providing financial support to the Third Annual PNW Climate Science Conference in Boise, Idaho so it has been removed from the list of workshops being considered. The NPLCC is providing $5,000 in support of the conference.

Science strategy discussions

Karen Jenni (Insight Decisions) led a discussion on identifying potential information needs for the S-TEK Strategy. Figure 1 illustrates the six steps necessary for development of the strategy, and highlights the importance of identifying potential information needs using a variety of different approaches and perspectives.

Several approaches have been and are being used to identify those needs, and were discussed during the April 5th call. Several S-TEK members recommended that, in addition to those efforts, the S-TEK focus some effort on identifying additional potential information needs through a focus on resources of interest and the ecological processes affecting those resources.

The S-TEK agreed to start this process with three conference calls, one organized around each of the ecosystems that the NWF has used to organize their efforts (Freshwater resources, Marine and coastal resources, and Terrestrial resources). During each call, those participating will discuss the following:

1. Identify resources of management concern
2. Identify the ecological processes and drivers by which climate change may affect those resources (and consider the direction, size, and uncertainty in those effects)
3. Identify what types of management actions may be affected by or may be necessary to respond to the stressors/effects
4. Consider whether and what additional information (about the factors identified above) would help NPLCC partners make better management decisions
5. Identify which information needs are already being met and where there are gaps

Figure 1. Process and steps in developing an S-TEK Plan

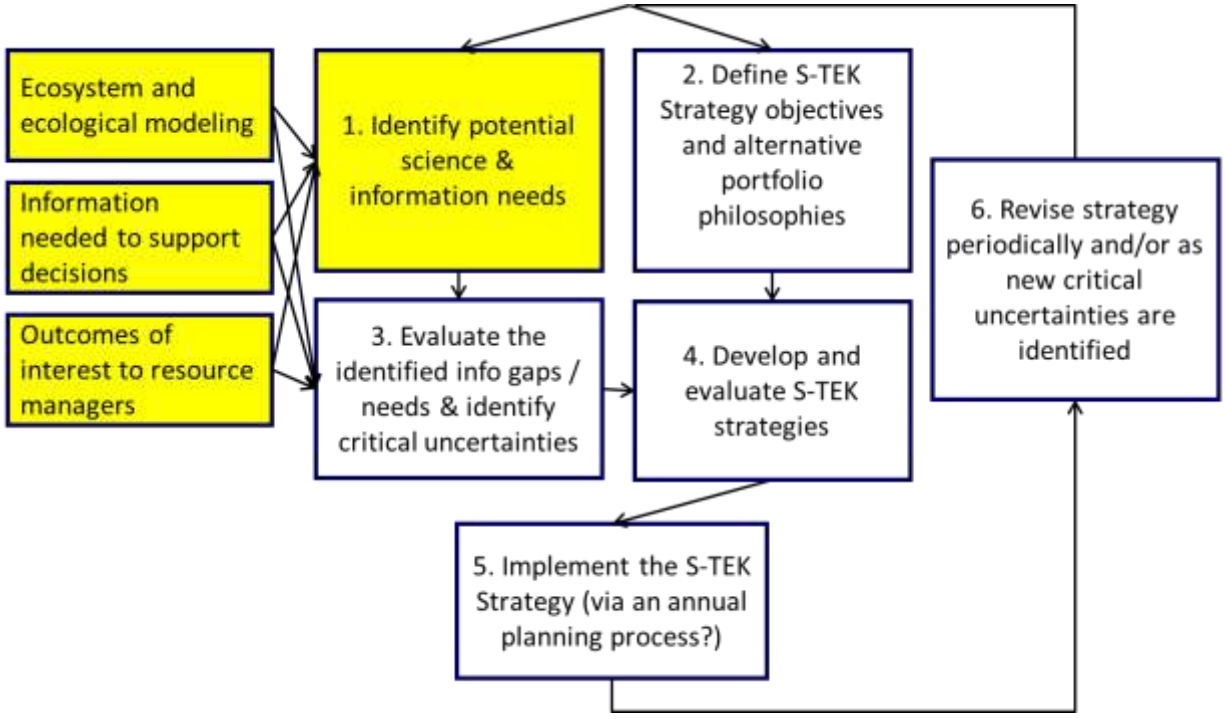

Table 4 was presented as an example of the type of output from these phone calls that would be useful to have at the June meeting. Although the S-TEK agreed that such calls would be useful, concerns were raised about several issues.

First, the process proposed closely parallels the process being used in the NWF workshops, which was deliberately designed to include a much broader set of stakeholders than are represented on the S-TEK. It would be useful for each group to consider the emerging results from the NWF as part of their discussions.

Second, it is important to retain the decision-support focus of the LCC both in the identification and in the prioritization of information needs. The need to connect this exercise to the previously identified set of decisions to be supported and outcomes of interest was emphasized. Summaries will be provided prior to the call. Several participants noted that the example table (Table 4) could be completed in any order – people for whom it makes most sense to think of resources first might start with the first column, people for whom it makes the most sense to think of decisions first might start with that column.

Finally, it was suggested that each group/call also highlight issues and information needs they identify which they believe will be relevant across ecosystems.

USGS is providing support to the NPLCC by preparing three detailed conceptual models. The models will be developed for three resources of management interest with one selected from freshwater ecosystems, one from marine/coastal ecosystems and one from terrestrial ecosystems. Discussions on

the calls will help provide direction to USGS for selecting which resource of interest will be used for the conceptual modeling exercise.

Mary Mahaffy will poll for call dates. NPLCC staff will work with S-TEK chair and consultant to define guidance for the calls to make the most productive use of time.

S-TEK committee members, please inform Mary of your availability and ability to participate in one or more of these calls, either directly or in response to the doodle polls.

Table 4. Example of a summary of potential information needs

Resource of management interest	**Ecological processes, climate change & related stressors (affecting the resource)**	**Impacts of stressors on resources**	**Knowledge/ information needs**	**Additional knowledge would improve what types of decisions?**
Forage fish *(within Marine and Coastal Resources)*	Sea-level rise Ocean acidification Harvest	Habitat changes; diminished, relocated populations. Subsequent impacts on other species of biological, human, and economic importance…	Predicted levels/ locations of sea-level rise Impacts of sea-level rise on forage fish Impacts of changes in forage fish populations, locations & behavior on other species of management interest	Marine mammal management Harvest management
Forests *(within Terrestrial Resources)*	Climatic –related impacts on: Fires / fire regimes Tree growth Diseases/pests	Changes in forest health and subsequent impacts on timber harvests (economic impacts), quality of forest habitats for species of management interests, availability of forest lands for cultural and recreational use and enjoyment	What forest areas will have high fire risk Climate change impacts on susceptibility to pests and diseases	Fire mgmt. planning; zoning/building / use restrictions Timber harvest locations and levels Species and habitat management
Aquatic habitats *(within Freshwater Resources)*	Hydrologic regimes	Changes in location / quality of habitats for key species Changes in numbers/ health of populations of mgmt. interest Changes in water availability for various uses (e.g, hydropower)	Future streamflows (e.g., peak, low, average volumes and timing) Effects of predicted future flows on quality, quantity, location of habitats for species of mgmt. interest	Habitat protection or restoration Management of water flow for multiple purposes (power, agriculture, environmental)

Upcoming work

The meeting closed with a discussion of what we aim to achieve at the upcoming June meeting:

- Robust list of information needs, agreement on how to complete the list by the July call
- Evaluation of information needs
    - Agreement of criteria and process
    - Practice with the process – evaluation of some of the identified needs
    - Agreement on how to complete the evaluation of needs before Aug(?) meeting
- Portfolio / strategy development
    - Clear understanding of alternative approaches that could constitute an S-TEK strategy, with illustrations
    - Develop a process for portfolio development (which will likely be a focus of July call)
- Define an annual planning process / updating process
- Agree on outline for the S-TEK Strategy document
    - Discuss writing assignments

Next meeting
June13th – 14th , starting at 9 am on the 13th. USFWS Regional Office, Portland, OR.
(While web-ex will be available S-TEK members are encouraged to attend in person if possible.

Future meetings:

- July 10th, 1:30 – 4:30pm PDT. WebEx & conference call.
- Aug 10th, 9:00 am – noon PDT. WebEx & conference call
- Sept 25th, 9:00 am – noon, PDT. WebEx & conference call

Appendix A. S/TEK subcommittee membership and attendance at meeting

Name	Agency	Feb 29 mtg (I)n person or (P)hone	Apr 5 call	May 8 call
Subcommittee members				
Frank Shipley (Chair)	USGS	I	X	X
Lyman Thorsteinson	USGS	P	X	X
Phil Van Mantgem	USGS		X	X
Andrea Woodward	USGS	I	X	X
Keith Hatch	BIA	I	X	
Bruce Duncan	EPA		X	X
Brendan Moynahan	NPS			X
Chris Lauver	NPS	I	X	X
Kathryn Boyer	NRCS			X
Peter Kiffney	NOAA	P		X
John Laurence	USFS		X	
Marc Kramer	USFS			
Frank Lake	USFS	P	X	X
Mike Goldstein	USFS	I		
Bill Hanson	USFWS	I		X
Steve Morey	USFWS	I		X
Judy Gordon	USFWS			X
Charlie Chamberlain	USFWS		X	
Tasha Sargent	CWS and PCJV			
Madeline Maley	BC Ministry FLNR	I		
Tim Quinn	Washington DFW	P	X	
Sue Rodman	Alaska DFG	P		X
Karyn Gear	CA Coastal Conservancy	P	X	
Whitney Albrecht	California DFG	P		X
Kathleen Sloan	Yurok Tribe	P		
Bob Altman	PCJV - U.S./ American Bird Conservatory	I		
Mark Petri	PCJV - U.S. / Ducks Unlimited			
John Alexander	Klamath Bird Observatory			X
Dan Siemann	National Wildlife Federation	I	X	X
Jennie Hoffman	EcoAdapt	I	X	X
Dominick DellaSala	Geos Institute	I		
Susan Schlosser/HBI	Humboldt Bay Initiative/Sea Grant			
Kathie Dello	CIRC (NOAA RISA)/OSU	I		X
Durelle Smith	USGS	P		
Leilani Knight-McQueen	CCTHITA		X	
Judy Ramos	CCTHITA			X
Aaron Bean	CCTHITA			X
Additional participants				
Mary Mahaffy	NPLCC Science coordinator	I	X	X

Karen Jenni	Insight Decisions, LLC	I	X	X
Tim Nieman	Decision Applications, Inc		X	
Tom Miewald	USFWS (chairing the GIS and data management platform technical teams			X
Sean Finn	GNLCC (Science coordinator)			X
John Mankowski	NPLCC Coordinator			X

Appendix B: GIS data layers Technical Team Report

Team members include:

Tom Miewald – USFWS	Kelly Christiansen – USFS, PNW
Eric Bergey – USFWS	Peter Eldred – USFS, PNW
Joe Bernert – OSU/INR	Kathleen Moore – Canadian Wildlife Service
Kathryn Boyer – NRCS	Kim Homan – Univ. AK S.E.
Ann Braaten – NPS	Mike Mertens - Ecotrust
Dominick Della Sala – Geos Institute	Frank Shipley – USGS
Carl Markon - USGS	Mary Mahaffy – NPLCC

Foundational Data Sets identified include:

- Climate Change Information
    - Basic climate information
    - Predicted climate models (Regional models)
    - More information on specific ecological attributes related to climate change. For example: stream flows, temperature, etc.
- Digital Elevation Models (DEMs)
    - 10 meter/LiDAR based
- Hydrology
    - Stream Network/ Watershed
- Land Cover/Vegetation
- Satellite or Aerial Imagery
- Roads/Transportation
- Estuarine/Near-shore Data
- Geology/Geomorphology
- Ownership and Land Management

Secondary data sets were defined as data that are not typically core data sets in a GIS Clearinghouse, but are more specialized data relevant to conservation. Secondary data sets identified include:

- Species distribution / habitat models => which species?
- Biodiversity Information: element occurrence data, critical habitat,
- Watershed and watershed condition data
- Climate vulnerability models
- Conservation priority areas from other exercises (for example: TNC portfolios, Important Bird Areas
- Existing and planned alternative energy systems (likely wind)
- Monitoring data.
- Landscape condition/Ecological footprint analysis/Human Footprint.

Appendix C: Data Management Team Technical Team Report

Team members include:

Tom Miewald – USFWS
Erin Stockenberg – USFWS
Jennie Hoffman – EcoAdapt
MaryMahaffy -- NPLCC

Attributes of a data management platform that were considered

- Data repository
- Data Sharing
    - Policies and Processes
    - Security
- Edit and Update
- Data Analysis
- Data Discovery, internal and external.
- Adoption
- Support Needed
- Cost
- Outreach and Networking
- Data Type (spatial, non-spatial, qualitative, all)
- Software required

Multiple systems were reviewed and evaluated.

- Top Selections:
    - LC-MAP
    - DataBasin
- System still in development or with incomplete information::
    - Northwest Knowledge Network (NKN)
    - Western Landscapes Explorer
- Enhanced systems (capabilities we'd like to see)
    - PRBO, CalAdapt
- Other systems evaluated
    - BISON
    - NPS IRMA/IRIS
    - VegBank
    - NOAA Digital Coast
    - Avian Knowledge Network
    - National Phenology Network
    - eBird