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NPLCC PROJECT MANAGEMENT AND ACCOUNTABILITY PRACTICES

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Contents

Introduction

The North Pacific Landscape Conservation Cooperative (NPLCC) provides data, information, and tools to support landscape level conservation and sustainable resource management in the face of a changing climate and related stressors (http://www.northpacificlcc.org/). The NPLCC projects implemented to achieve this purpose are funded with Federal appropriations administered through the U.S. Fish and Wildlife Service (USFWS) as the hosting organization and are frequently augmented (or even principally funded) by a variety of State, Tribal, Federal, First Nations, Provincial, and non-governmental (NGO) organizations. The essence of NPLCC projects is collaborative—in development, purpose, execution, and support.

This document serves as guidance for the development, implementation, management, and evaluation of each NPLCC-sponsored project from initiation to close-out. In awarding and managing project-related funding, the primary objectives of the NPLCC are accountability of the use of funds and the relevance of project outcomes and products. This document also serves as guidance for cooperatively managing data and information provided to the NPLCC in order to address shared natural resource challenges. It will be reviewed and potentially revised no later than four years after it has been adopted.

This guidance will help ensure that NPLCC projects:

- meet Federal and other applicable requirements for contracting and financial management;
- are free from any conflicts of interest or appearances of conflict of interest among both NPLCC members and project partners;
- fulfill all reporting requirements, relevant data and information documentation, and delivery standards in a timely manner;
- contribute to a common pool of readily available, practitioner-relevant knowledge supporting conservation and sustainable natural resource management in the face of a changing climate and related stressors throughout the NPLCC eco-regions;
- facilitate communication and collaboration in developing effective, on-the-ground approaches to climate-related challenges.

This document is organized around three sequential activities associated with developing, awarding, implementing, and completing a given project, beginning with high level strategic planning and ending with project data and information management and communication to inform those who most need the information. Figure 1 illustrates the flow of these main activities and provides a guide to the structure of this document.

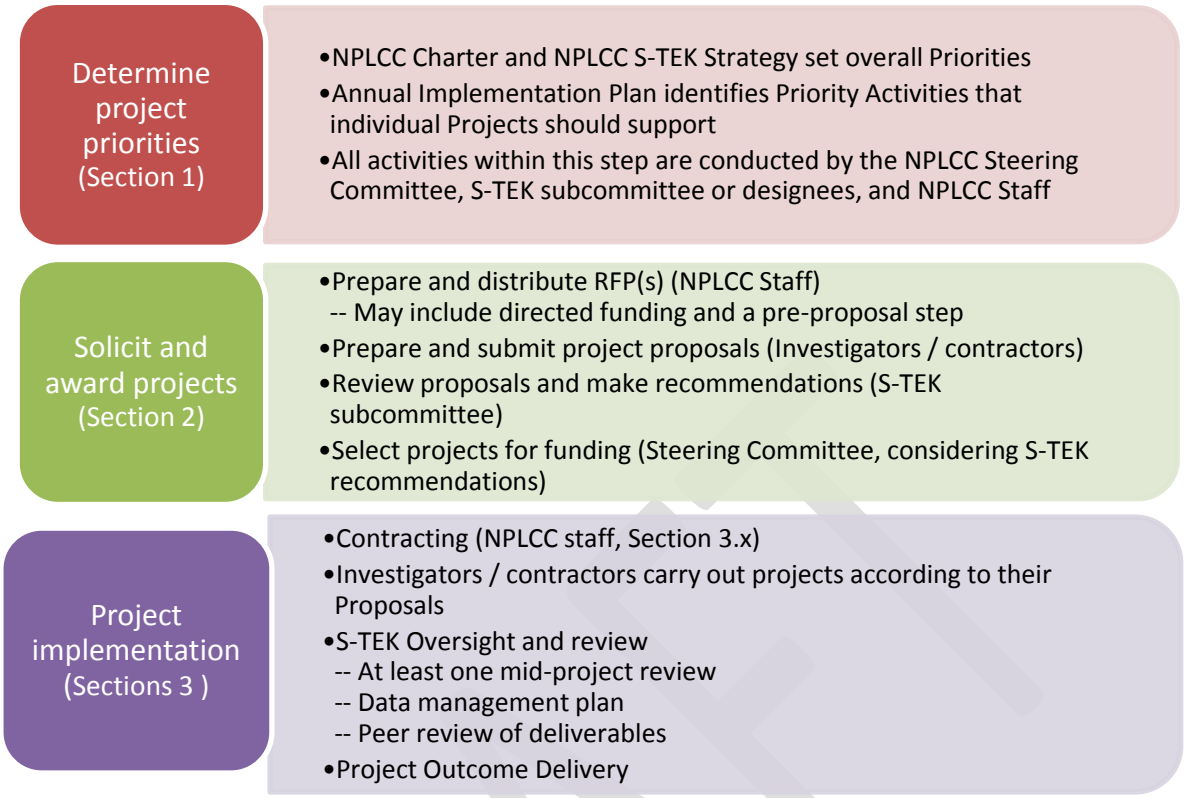

Figure 1. Project management and accountability elements.

Section 1 - Identification of Project Priorities

The NPLCC has adopted a tiered planning approach that considers resource and climate change issues encompassing all the program's partners, throughout the full geography of the NPLCC. The NPLCC Steering Committee, which oversees all aspects of the NPLCC, created the NPLCC Charter (available here). The Charter includes the partnership's mission, overall goals, guiding principles, and roles of the Steering Committee and Subcommittees. The mission of the NPLCC is "*The North Pacific Landscape Conservation Cooperative promotes development, coordination and dissemination of science to inform landscape level conservation and sustainable resource management in the face of a changing climate and related stressors*."

The mission, overall goals and guiding principles included in the NPLCC Charter set the highest level framework for all NPLCC activities. Within the context of the Charter, the Science and Traditional Ecological Knowledge Subcommittee (S-TEK Subcommittee) created a four-year strategy and associated implementation plans to step down planning to more manageable, detailed elements ultimately leading to project development and implementation. All NPLCC goals and activities are consistent with the National LCC purpose (http://lccnetwork.org/). How this NPLCC planning process will be used in project management is summarized below.

NPLCC Strategy for Science and Traditional Ecological Knowledge

The four-year *Strategy for Science and Traditional Ecological Knowledge* (*Strategy*, available here) provides overall direction and guidance for NPLCC activities related to landscape-level conservation and sustainable resource management in the face of a changing climate and related stressors. The *Strategy* defines some guiding principles, a set of high priorities and corresponding types of actions, in a flexible framework to support more specific annual planning. The S-TEK Subcommittee will revise the *Strategy* periodically, on a schedule determined by the Steering Committee. The Steering Committee is responsible for approving the *Strategy*.

All NPLCC Science and Traditional Ecological Knowledge projects and other related activities will be guided by the Priority Topics and Guiding Principles identified in the Strategy. The Strategy for the 2013-2016 planning period identifies five Priority Topics most relevant to resource practitioners on the ground. They fill critical gaps not likely to be addressed by individual partners working alone.

NPLCC Implementation Plan

The *Implementation Plan* for the *Strategy (Implementation Plan*, available here) further steps down the broad guidance of the *Strategy* to a set of Priority Activities corresponding to the Priority Topics in the Strategy. The Priority Activities will be specific enough to guide annual development of NPLCC projects, but broad enough to allow for creativity and innovation by the Principal Investigators (PIs) who carry out the projects. As with the *Strategy*, the *Implementation Plan* will be developed by the S-TEK Subcommittee and approved by the Steering Committee. Revision of the *Implementation Plan* will occur annually.

Section 2 - Solicitation and Award of Projects

Annually, projects will be selected through a competitive process via a Request for Proposals (RFP), a process widely used in research funding. Under some circumstances, however, projects can be directed non-competitively to an appropriate organization or investigator chosen as the best for a particular issue. The NPLCC reserves the right to not solicit or award funds to new Science/TEK projects if the NPLCC decides its resources are better spent in outreach, revisiting previously funded research to obtain additional knowledge and/or information, or for other activities.

Competed projects have the advantage of stimulating innovation and forward-looking approaches to climate change adaptation, and avoiding any appearance of favoritism. Directing funding to specific projects and organizations or individuals is appropriate when an organization/individual 1) is uniquely qualified to conduct the work; 2) volunteers most or all of the funding to conduct the project, 3) offers to continue a particular line of work beyond the project period; or 4) when other cost-savings occur. All project awards, directed or competed, will meet federal guidelines.

The NPLCC Science Coordinator will work with the S-TEK Subcommittee Chair and other interested S-TEK Subcommittee members to develop a portfolio mix of competed and directed projects for a given annual funding cycle. The S-TEK Subcommittee will then deliberate on the merits of the recommendation in view of the currently identified Priority Activities in the *Implementation Plan* relative to the ongoing activities of partner organizations. Recommendations from the S-TEK Subcommittee for any directed funding will be provided to the Steering Committee for deliberation and approval.

Specific Project Eligibility

In some cases, who is eligible to receive project funding will be restricted. Projects related to or incorporating Tribal/First nations TEK may fall into this category. The NPLCC emphasizes the role of TEK of Tribes and First Nations in shaping human response to climate change influences on natural and cultural resources. Tribes and First nations have proprietary rights to their TEK, and the decision as to whether to share knowledge, what and under what circumstances is TEK to be shared and how and with whom to share it rests with them. TEK does not fall within the same provenance as scientific findings that are freely and publically shared. In addition to protection measures for TEK, sacred or traditional use sites or areas included in projects may be excluded from public disclosure. Mixtures of knowledge derived from both TEK and research may be the basis for Tribal and First Nation natural resource management in significant NPLCC environments. For these reasons, TEK-related projects may be awarded to a particular Tribe or First Nation.

Competed and Directed Projects

Competed Projects

Competed projects will be selected from proposals submitted in response to a publically announced RFP. Since the NPLCC will typically receive far more proposals than can be funded, an initial request for pre-proposals normally will be used to narrow the field of potential projects. Calling for pre-proposals has the advantage of highlighting similar proposed projects early in planning, sometimes authored by PIs who are unaware of each other's proposed work. This situation offers the opportunity for collaboration to occur during full proposal development if the NPLCC connects PIs working on similar projects.

Development of full proposals involves a substantial time and work load for PIs and reviewers alike, thus use of pre-proposals is useful in focusing NPLCC efforts on a smaller number of qualified projects with potentially greater collaboration. In unusual circumstances full proposals will be requested without first requesting pre-proposals. Elements of the award process for competed projects are shown in Figure 2, and are detailed below.

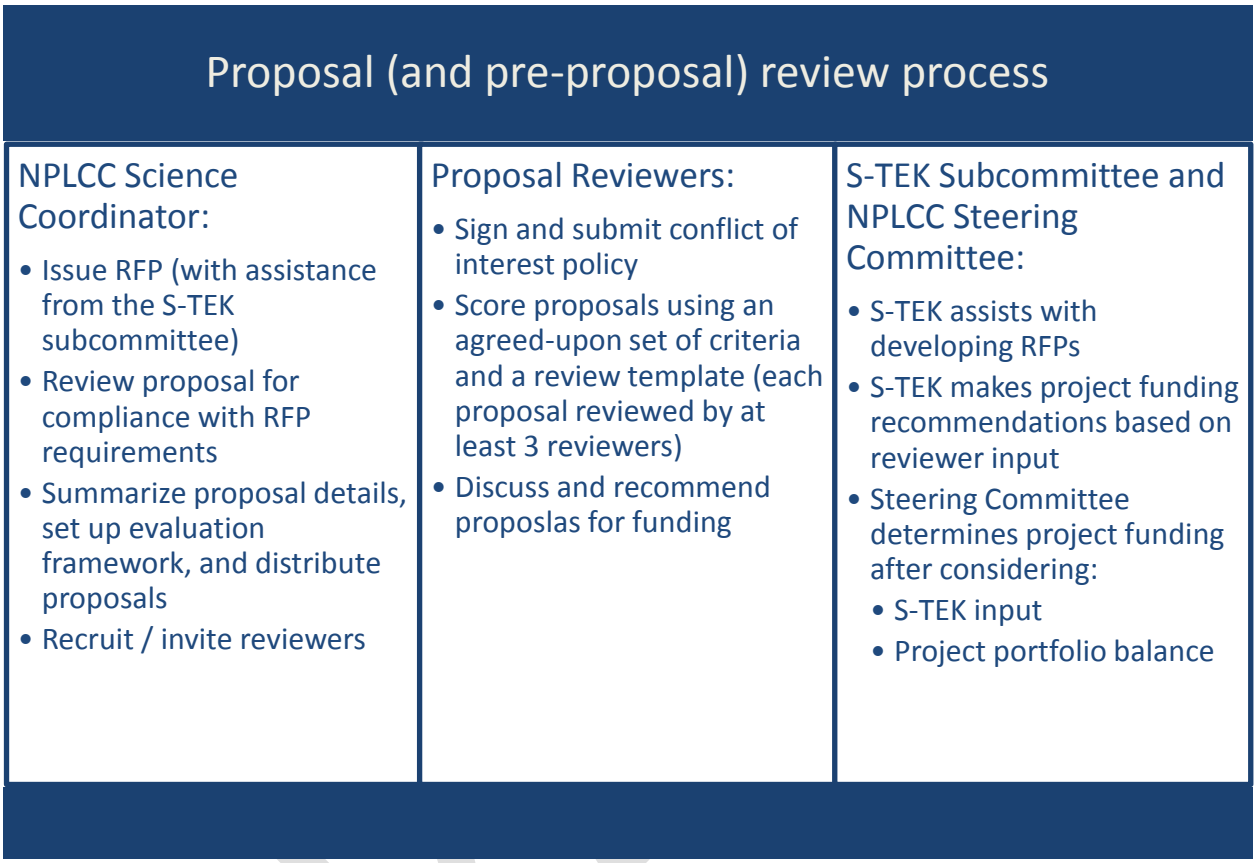

Figure 2. Proposal and pre-proposal review process.

***Request for Proposals**:* A RFP will be drafted by the NPLCC Science Coordinator and reviewed by the S-TEK Chair and any volunteering S-TEK members. The RFP will cite applicable NPLCC guidance documents (*Strategy*, *Implementation Plan*, this document, and other guidance as appropriate). The RFP will include:

- a clear description of the funding opportunity, eligibility and application requirements, the Priority Activities being addressed, and a link to the *Implementation Plan* that has led to the RFP;
- submission instructions, application review information, and award administration;
- a recommended template, or link to an on-line entry system, corresponding to pre-proposal (Appendix I: Pre-proposal template example) or proposal (Appendix II: Proposal template example) submission as previously determined by the S-TEK;
- ranking criteria;
- project requirements, including:
    - schedule and progress reporting requirements;
    - requirement for development of a Data Management Plan (DMP);
    - final deliverables requirements;

- communication expectations for project outcomes;
- expectations for establishing and/or evaluating metrics of success;
- a project budget;
- PI and project participant credentials guidance.

The RFP will be published on Grants.gov and posted on the NPLCC website, an announcement will be sent to NPLCC contacts, and NPLCC members will be encouraged to publicize the RFP as widely as possible within their respective organizations.

***Review of Pre-proposals**:* Pre-proposals are used to assess responsiveness to the RFP and overall quality of the proposed projects. Reviewers primarily from the S-TEK Subcommittee will use criteria for clarity and responsiveness to the RFP, partner engagement, and significance of the work to landscape-level conservation and sustainable natural resource management in a climate change context to score the pre-proposals. A subset of the PIs submitting pre-proposals will be invited to submit full proposals. The following activities will be completed for pre-proposals:

1. The Science Coordinator will screen pre-proposals for compliance with RFP guidance.
2. The Science Coordinator will summarize proposal details, set up evaluation framework, and distribute proposals for review.
3. All reviewers will agree to in writing to the Conflict of Interest and Confidentiality Statement (Appendix III: Conflict of interest and confidentiality statement).
4. A minimum of three reviewers will review and score all criteria included in the RFP for each pre-proposal; reviews will be conducted in strict confidentiality.
5. The Science Coordinator and reviewers will hold joint reviewer deliberations (by meeting or conference call) on project rankings based on review scores and general discussion on the merits of proposed projects.
6. The Science Coordinator, with S-TEK Subcommittee input, will identify similarities among pre-proposals and will make recommendations on whether to invite one or more joint collaborative full proposal(s), dependent on PIs being willing to share information and collaborate.
7. The Science Coordinator, with S-TEK Subcommittee input, will prepare recommendations to present to the Steering Committee for their selection of PIs to invite submission of full proposals or joint proposals.

***Review of Full Proposals*:** Full proposal review, regardless of whether pre-proposals have been previously requested and reviewed, will be more substantive, and often more technical due to the higher level of detail requested of a full proposal. Proposals will need to include, but not be limited to, elements such as experimental design, methods, data acquisition and management application. All proposals must include a detailed budget, PI credentials, and co-PI concurrence. Five to seven review criteria will be used to evaluate full-proposals and will be included in the RFP.

The review team for full proposals will be expanded to include additional qualified peer reviewers that do not have a conflict of interest for the proposal(s) they are reviewing. Review of full proposals will follow the same steps as for pre-proposals review (above);

however, reviewers will evaluate proposals using the criteria identified in the RFP for full proposals. The full proposal criteria include aspects not evaluated for pre-proposals, including technical methods of the proposal, abilities of the project team, and the budget. Should review findings reveal the need to modify the proposal for a given project, the Science Coordinator will discuss review findings with the Project PI, and will negotiate any revisions to the proposal prior to award of funding.

Directed Projects

Some circumstances call for non-competed project awards to particular organization(s), Tribes/First Nations, or agencies without the use of an RFP and without review of multiple competing proposals. For example, a sustained commitment by a particular organization to ongoing work, such as the NPLCC's data management portal, could best serve the NPLCC mission through a non-competed project award. A qualified NPLCC partner organization may contribute most or all of the funding for a given project within the mission of both the NPLCC and the contributing organization, and therefore be the best qualified entity for the work. All awards of project funding for projects managed by the USFWS will meet Department of Interior regulations and other partners will meet their requirements.

Review of Directed Projects: Following a staff recommendation, recommendation by the S-TEK Subcommittee, and approval by the Steering Committee on any identified directed project, the NPLCC Science Coordinator will request a full proposal from the identified project PI. Review will then follow the NPLCC process for a full proposal review described above.

Project Selection and Award

S-TEK Subcommittee Project Award Recommendations to Steering Committee

S-TEK Subcommittee members that participate in review of full project proposals will assist the Science Coordinator and Subcommittee Chair develop a list of projects to recommend for funding. This list will include projects deemed best choices based on the high marks they received during the review process. The Science Coordinator or Subcommittee Chair will present the list of recommended projects to the Steering Committee for consideration. By prior agreement, the Steering Committee may delegate deliberation on these project recommendations to an Ad Hoc Committee comprised of the Steering Committee Co-Chairs and the S-TEK Subcommittee Chair. In the event of such a delegation, other members of the Steering Committee may participate in the deliberation at their option.

The S-TEK Subcommittee Chair and Science Coordinator will summarize the results of S-TEK Subcommittee project review for the Steering Committee or its agreed-upon representatives including:

- Summarized information for pre-proposals and proposals received by the NPLCC for consideration;
- Review process carried out and findings such as project rankings;
- Deliberation on the mix of competed and directed projects;
- Deliberation on project portfolio balance;

- Recommendation to the Steering Committee for a suite of projects to award for the current planning cycle.

Project Portfolio Balance

Prior to the invitation of full proposals or the award of projects, the Steering Committee may consider review findings in light of the overall NPLCC project portfolio. When evaluating selection of particular projects for funding, the Steering Committee may consider issues not determined solely by project review scores, such as mission balance among the diverse geographic environments within the NPLCC, the balance of natural science, social science, TEK or other approaches, and the relative participation of partners (Tribes, First Nations, US States, and Province of British Columbia). Both in development of the RFP, and in review of proposals, the Steering Committee may seek projects focused primarily on one or a few Priority Activities in a particular year, or may seek to implement projects across multiple Priority Activities in the same year.

Awards

The Steering Committee or delegated Ad Hoc Committee will base its decision to award projects based on the merits of the proposal as determined by the review findings unless there are other relevant considerations as described above. The NPLCC reserves the right to not award funds to solicited projects if it decides that no projects garner enough support for funding.

As the official Federal hosting agency of the NPLCC, the USFWS will implement all necessary contracts and cooperative agreements to award projects selected by the NPLCC Steering Committee for funding provided by USFWS or provided by partners to support NPLCC projects where those partners desire USFWS administration of contracting. All required Department of the Interior and USFWS contracting requirements will be followed. If another agency or organization provides funds directly to another entity for a NPLCC selected project, their contracting and funding requirements will be followed.

Section 3 - Project Implementation

Tracking and Review

Project Management Database

Each project implemented by the NPLCC will be entered into the program's Project Management Database (Appendix IV: "Master" project table (under development)). The intent of this database is to list in a single location all the information necessary to track and manage each project. The database will include the project title, funding amount and duration, project PI, other cooperating investigators, reporting deliverable due dates, and other pertinent information. Detailed reports from the database will be available to all NPLCC S-TEK Subcommittee and Steering Committee members, and will facilitate progress reporting by the Science Coordinator to the S-TEK Subcommittee. Less detailed database reports will be available to the public.

Project Tracking

The project PI will be required to report progress to the NPLCC Science Coordinator or appointed staff member. Principal investigators will utilize the NPLCC progress reporting template (Appendix V: Project progress report template example) for all progress reports. Mid-year progress report will be required for all one-year projects. Semi-annual or annual progress reports will be required each year during the project period for multi-year projects. The NPLCC Science Coordinator will review the progress of all active projects, including the dates upon which deliverables or other requirements are due, and when these required deliverables are actually received.

The NPLCC Science Coordinator will ensure that all progress reports are posted to the NPLCC web site, and will report on the progress of all active projects to the S-TEK Subcommittee during regular meetings. The Science Coordinator will report on any concerns, issues, or needs for additional project guidance or communication arising during progress tracking, and on an as-needed basis, progress will be reported to the S-TEK Subcommittee and the Steering Committee. Failure of PIs to comply with reporting and submission of deliverables will be a consideration in future proposals received from the same entity/person.

Project Review

The NPLCC seeks project outcomes that provide data and/or information relevant to landscape-scale conservation and sustainable natural resource management in a changing climate within the NPLCC region. Project outcomes will range from numerical physical and biological measurements with derived statistics and interpretations, to digital geographic data layers, models, and ethnographic survey responses involving societal belief systems, and other outcomes. Project deliverables will therefore vary to include technical reports and data sets (e.g. hydrologic temperature regimes) to policy "white papers" (e.g. use of TEK in climate change adaptation) to improved opportunities for information dissemination, i.e. multi-stakeholder workshops/conferences, and other deliverables.

To ensure that data and information objectives of the NPLCC are achieved, Data Management Plans (DMPs) will be required for each project (see below for more details.) The data management practices of the NPLCC are intended to be generally consistent with requirements of the National LCC Network, National Climate Change and Wildlife Science Center, the overlapping Climate Science Centers, and the National Science Foundation.

If deemed appropriate by the Science Coordinator, he/she will convene a review team to meet with the PI and others on their team to discuss project methods, draft results, or other intermediate activities to ensure the project is on track and final products will meet the goals and objectives of the projects. Discussions on outreach to managers and other product end users will be included.

In keeping with the diversity of NPLCC project outcomes and deliverables, the term "data" will be used broadly to include "textual information, numeric information, instrumental readouts, equations, statistics, images (whether fixed or moving), diagrams, and audio recordings. It includes raw data, processed data, derived data, published data, physical samples, and archived data. It includes the data generated by experiments, by models and simulations, and by observations of natural phenomena at specific times and locations. It includes data gathered

specifically for research as well as information gathered for other purposes that is then used in research. This definition of data also includes any custom code or applications that were developed to aid in data analysis or transformation and are necessary to understand the data. Code and applications must include adequate documentation and/or within code comments to understand the function." (LCC Data Management Best Practices Part 1, 2013)

Data Management Plan

For each NPLCC project, the PI will submit a DMP to the Science Coordinator within 90 days of the project award (Appendix VI: DMP template). The NPLCC DMP template is consistent with the DMP used by the Climate Science Centers to facilitate use with jointly funded projects. The DMP will address the information needs that the project is designed to fulfill, project design, methodology, computation and analysis, data storage and archiving, and product delivery. The DMP will guide implementation of standard data documentation practices throughout the project life. The project budget will realistically reflect the proportion of project resources needed to ensure appropriate data management activities are accomplished under the DMP as part of the project. Data delivery will ensure that all data and information generated by the project are easy to find and include sufficient documentation for use in ongoing post-project NPLCC data management and natural resource application (however, see exceptions concerning limitations on the public disclosure of some kinds of data (i.e TEK or sacred sites), under Delivery of Project Outcomes (page 13). NPLCC guidance will differ for technical and non-technical NPLCC projects as defined and summarized below. The NPLCC data management specialist will provide assistance if requested. The NPLCC will work with Tribes and First Nations on the use of the DMP since they will not be required to enter data or information related to proprietary or sensitive TEK or sacred sites. Tribes and First Nations will be given the latitude to enter what they choose is appropriate to share.

Technical Projects

Technical projects are those projects that acquire technical or scientific data and provide information to the NPLCC beyond "textual information." Many NPLCC projects will be technical, for example applying a formal methodology, collecting field data or compiling and analyzing previously published data, providing numerical or interpretive analyses, modeling, geo-referencing specific data, and drafting a report.

Submittal of the DMP will consist of completion of entries into the NPLCC on-line DMP template provided as part of the Science Base/LC-Map systems or provided via the NPLCC website. Technical project DMPs will:

- Address all critical aspects of the data management and use: plan, collect, ensure, describe, preserve, discover, integrate, and analyze;
- Document data acquired from existing data sources (origin, documentation, and use restrictions);
- Anticipate the full array of data products generated using NPLCC funds including primary (i.e. field-collected) and secondary (i.e. derived from analysis or modeling) sources;

- Describe how new data will be collected and how existing data will be leveraged or re-purposed, including any relevant analytical tools and software;
- Articulate quality assurance/quality control procedures;
- Define the means to achieve appropriate metadata standard for all datasets;
- Identify anticipated data formats;
- Describe a plan for long-term storage of samples and physical collections (if appropriate);
- Specify how and when the data will be transferred to LCC custody;
- If applicable, describe archiving, data delivery, and long-term maintenance measures.

Non-Technical Projects

Projects will be considered non-technical if they do not acquire technical or scientific data. Deliverables could include a "white paper," a narrative report without quantitative data, development of policy recommendations, or some ethnographic or other findings in the form of a report that is primarily narrative. The primary product of a non-technical project may not be a written report; however, most projects will have some elements of information collection even if they do not involve quantitative data and a science design. An abbreviated DMP is required for these projects. For predominantly non-technical projects, the NPLCC Science Coordinator will work with the project PI to determine which elements of the DMP Template apply, and the project PI will then provide responses to those elements, on the same schedule that a technical project provides a full DMP.

Deliverables Review

In the public trust, the NPLCC seeks to ensure high quality and maximum utility of data and information products resulting from NPLCC-funded projects. All draft project deliverables will undergo review to help meet this goal. The Science Coordinator will determine which draft deliverables should undergo peer review and will work with the PIs regarding review. As noted above, delivery of TEK information and data are not necessarily required and Tribes and First Nations will only share what they determine to be appropriate to share. Prior to peer-review or release for publication or presentation to the public, Tribes and First Nations retain the right to review, modify, and censor potentially sensitive information regarding their own Tribal intellectual property, knowledge systems, traditional practices, and sites, habitats, or resources of significance. Prior to the award of funding, the Science Coordinator and PIs from Tribes and First Nations will identify potentially appropriate deliverables.

Peer review "is a form of deliberation involving an exchange of judgments about the appropriateness of methods and the strength of the author's inferences. Peer review involves the review of a draft product for quality by specialists in the field who were not involved in producing the draft."[1] While the term "peer review" is often associated with scientific review, this definition is general enough to apply to essentially all NPLCC project deliverables.

[1] Final Information Quality Bulletin for Peer Review, OMB, 2004

The purpose of peer review will be to improve draft deliverables through appropriate revisions prior to their delivery as final products to the NPLCC. Based on the results of peer review, the NPLCC Science Coordinator will communicate with the PI to address review comments and agree upon the nature of any revisions needed during development of the final deliverables. Principal investigators should include adequate time for internal review in their estimation of project duration. This will allow for adequate time to be included in all contracts, agreements and the DMP to allow for peer review if needed. If it becomes apparent late in the agreement or contract period that peer review and time for the PIs to address comments is needed, the agreements will be modified to allow the needed extra time. The following steps will be undertaken for review of draft final deliverables, under the general oversight of the Science Coordinator:

Compliance Review

The Science Coordinator will initially screen all deliverables for completeness and for fulfillment of contract and agreement requirements. The Science Coordinator will communicate any shortfalls to the project PI, so that a complete deliverable is available for peer review.

Identification of Peer Reviewers

For scientific and technical deliverables deemed appropriate for peer review, the Science Coordinator will seek reviewers outside the S-TEK Subcommittee who have education and/or experience sufficient to comment on the work of others in a particular field of expertise. Reviewers of non-technical deliverables must be similarly qualified. If a professional publication will be peer reviewing a scientific and technical deliverable, the NPLCC will accept that review to fulfill this step if completed during the grant performance period. Review steps and their corresponding responsibilities are:

1. The Science Coordinator will send a call for nomination of peer reviewers to NPLCC members and the lead PI of the project:
    - S-TEK members may be personally qualified to participate as a reviewer and may volunteer themselves if no potential conflict of interest exists, and are also encouraged to nominate qualified, willing reviewers based on professional networks.
    - PIs are in a position to know colleagues in their field who meet reviewer qualifications, and may nominate individuals as potential reviewers.
    - The Science Coordinator is not bound by any particular NPLCC member or PI nomination, but may use discretion to draw from the overall pool of nominees to identify the most objective, qualified reviewers.
2. The Science Coordinator in consultation with S-TEK Subcommittee members will designate at least three reviewers for anonymous, confidential review of each project draft deliverable:
    - The anonymity provision recognizes that peer reviewers will carry out objective, merit-based reviews free from complications resulting from professional or personal links to authors.
    - The confidentiality provision ensures that the draft deliverable is distributed solely for review purposes, and is deliberative and pre-decisional only, and so will not be disclosed or released by reviewers.

3. As required, reviewers will acknowledge their compliance with the NPLCC conflict of interest policy in writing to the Science Coordinator.
4. The Science Coordinator will provide reviewers review guidance and template.

Peer Review

1. Reviewers will be asked to complete their reviews within 21 days of receiving the deliverable. The Science Coordinator will provide them with a review template (Appendix VII: Deliverable peer review template (*under development*)).
2. Reviewers transmit findings to Science Coordinator.

Reconciliation of Reviewer Comments

1. Serving as the referee for peer review, the Science Coordinator will provide reviews anonymously and in their entirety to project PI unless reviewers note that the comments are for the Science Coordinator only.
2. After receipt of the reviews, the PI, working with author team, will develop the reconciliation within 21 days, unless the peer review recommends a longer reconciliation period:
    - Reconciliation is a point-by-point written author response to review comments and recommendations. Typically, this process results in specific deliverable revisions, and for comments not leading to revisions, PI provides a written refutation of review suggestion(s) with reasons provided as to why review recommendations were not incorporated.
3. The Science Coordinator will assess the reconciliation and revised deliverable against review comments for adequacy:
    - If a review issue cannot be resolved by the Science Coordinator working with the project PI and author team, advice to identify a path toward resolution will be sought from the NPLCC Coordinator and the Chairs of the S-TEK Subcommittee and Steering Committee. The Coordinator can request the involvement of the USFWS National Science Advisor if a review issue cannot be resolved.

Delivery of Project Outcomes

PIs will submit to the NPLCC a digital copy of any final report(s), as approved following peer review and reconciliation. Digital copies of outreach materials will also be provided to the NPLCC project manager, unless agreed to otherwise in a specific contract or agreement, PIs will further provide the NPLCC with all raw data, agreed upon derived data products, other agreed upon products (i.e. tools, etc.) and other supporting materials created or gathered in the course of work under NPLCC-supported research or other NPLCC-supported project. Tribes and First Nations may exclude, code, or otherwise use methods to protect the identity of individually, traditional practices, or sites, habitats and resources. All PIs will present a NPLCC hosted webinar to communicate project results and describe products and lessons learned if requested.

Report Delivery

All NPLCC projects will generate a final written report with summaries of all phases of the project work and a description of end products within 90 days after conclusion of the project.

Some of the project final reports will generate a final written report in the form of a manuscript with additional detail. Once peer review is complete and the NPLCC Science Coordinator or NPLCC Coordinator approve the report, the deliverable will be posted on the NPLCC website. NPLCC communications will also use the report in getting program findings into the hands of natural resource practitioners who face challenges related to climate change. Proposal, contract, or agreement provisions will frequently include verbal reporting in the form of presentation(s) by the PI or project team, to communicate project outcomes. Reporting may be in person in the form of presentations at various venues, or by audio/video streaming; their principal focus will be on information transfer to natural resource practitioners.

Data Delivery

While the function of a final project report is to summarize findings and interpretations of those findings, the full range of data and information gathered or produced by the project is not typically included in the report in a complete or useable form. For example, raw or derived digital geographic data layers require different delivery than a report or manuscript can provide. Raw data, including all elements included in the data definition, will be provided in the proper format(s) for delivery to the NPLCC for ongoing use in data and information server and analysis systems such as ScienceBase.

Delivery Responsibility: The project PI will preserve and transfer all data and data products to the NPLCC in commonly accepted formats needed for long term applications. These standards do not supersede the legal requirements imposed upon organizations to restrict public access to data; however such restrictions must be addressed in advance in the project proposal and DMP.

1. PIs will be responsible for delivering a copy of all data, appropriate metadata, and other supporting information to the NPLCC Science Coordinator. Unless agreed to otherwise (such as proprietary data or data that is in an agreed upon public database), the PI or designee will enter raw data into ScienceBase or another NPLCC selected storage system:
    - The NPLCC will provide appropriate access to data systems. The purpose of the NPLCC raw data archive is to provide protection against data loss;
    - Raw data will be accessible by other researchers or the public unless it is proprietary or there are other restrictions on its use;
    - Upon transfer of raw data from PIs, NPLCC becomes responsible for long-term maintenance and potential eventual public access to this data. The data will be housed on the USGS ScienceBase platform where the data will be made accessible to the public. When the data is put on ScienceBase for public access is dependent upon discussions during the data management plan development phase. Refer to LCC Best Practices for managing data.
2. PIs will be responsible for the quality, completeness, and description of project data, metadata and associated products delivered to the NPLCC.

Delivery Schedule: Unless otherwise agreed to, the PI will submit all data and derived data products to NPLCC no later than 90 days after the conclusion of the project. The NPLCC Steering Committee may issue an extension if warranted for additional

Tribal/First Nations review, and measures to protect TEK and other sensitive information.

Metadata: Metadata will be provided for all project data sets and products. The PI will submit a complete metadata record to the Science Coordinator for the project as a whole (Project Metadata) and for each individual data product delivered (Dataset Metadata). If required, the PI will provide metadata through data entry into digital systems.

1. Content and format will follow recognized metadata protocol, such as the Federal Geospatial Data Committee Content Standard for Digital Geospatial Metadata (FGDC CSDGM) or International Standards Office (ISO) 19115/19119 protocols.
2. If a project re-purposes or leverages an existing data set, metadata will cite the source data reference and link to the data, if there are no restrictions to sharing data. Existing data that is sensitive, or where there are preceding data sharing agreements, will not be required to be open.
3. Some sources for metadata creation and support include: FGDC Geospatial Metadata Tools: http://www. fgdc. gov/metadata/geospatial-metadata-tools/LC MAP Metadata Tool: https://www. sciencebase. gov/catalog/?community=LCMAP and USGS Online Metadata Editor: http://mercury. ornl. gov/OME/ EPA Metadata Editor:https://edg. epa. gov/EME/mp Metadata Parser: http://geology. usgs. gov/tools/metadata/tools/doc/mp. Html

Proprietary Data and Software: Principal Investigators who will use or create proprietary data affecting terms of information release or types of data use by the NPLCC will document proprietary elements in the pre-proposal, proposal and DMP. The NPLCC Data Coordinator will manage the data accordingly. TEK and related sensitive data from Tribes and First Nations are recognized as being proprietary and if desired by these indigenous groups, will not be submitted to the NPLCC.

1. Documentation will clearly state what information, data, and conclusions cannot be released to the public upon conclusion of the project. All data deemed sensitive, privileged, or subject to restricted access will be identified and appropriately labeled by the PI upon submission to NPLCC.
2. Policies for access to these data will be negotiated between the PIs and the NPLCC Science Coordinator, or NPLCC Coordinator as necessary, and documented in writing, prior to project implementation. Legal requirements restricting information and data access will be clearly stated in the project proposal and DMP. Tribes and First Nations may have additional requirements or circumstantial conditions for release and/or use of such data.

Physical Specimens: Principal Investigators will deposit any samples, genetic material, and/or physical collections associated with their research in a recognized and approved repository or collection within their discipline, and will provide the NPLCC Science Coordinator with this information in the Project Metadata. Where applicable, a sample or physical collection preservation plan will be defined in the project's DMP.

Ongoing Data Management: Upon transfer of data from a PI to the NPLCC, the NPLCC will become responsible for providing the long-term maintenance and public access to this data.

Project Close-Out

When all requirements have been fulfilled for a given project, the NPLCC Science Coordinator will notify the project PI, the S-TEK subcommittee and the Steering Committee that the project is completed. Completion will be recorded in the Project Management Database, and all deliverables and data sets will be archived in appropriate systems. Project outcomes, except for exceptions noted above in this guidance, will be made publically available, and the NPLCC will utilize these outcomes in targeted communications with NPLCC partners, natural resource practitioners, and the public.

If deemed appropriate, the NPLCC will invest a small amount of funds in an internal/outreach project to convene the project PIs, the Steering Committee, and additional management entities to ensure that the information is understood and provided in a format/scale that can be used by managers. Study results would be presented and their implications explored.

Appendices

Appendix I: Project Pre-Proposal Template
Appendix II: Project Proposal Template
Appendix III: Conflict of Interest and Confidentiality Agreement
Appendix IV: *Project Management Database (Under development)*
Appendix V: Progress Report Templates
Appendix VI: Data Management Plan Template
Appendix VII: *Deliverable Review Template (Under development)*