



U.S. Department of the Interior
Bureau of Land Management

A Toolkit for Coproducing Actionable Science to Support Public Land Management



NORTH CENTRAL
Climate Adaptation
Science Center

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Suggested Citation

Selby, L.B., Carter, S.K., Haby, T.S., Wood, D.J.A., Bamzai-Dodson, A., Anderson, P.J., Herrick, J.E., Samuel, E.M., and Tull, J.C. A Toolkit for Coproducing Actionable Science to Support Public Land Management. Denver (CO): U.S. Department of the Interior, Bureau of Land Management; 2024. <https://www.blm.gov/noc/report/toolkit-coproducing-actionable-science-support-public-land-management>.

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Tool 1: Coproduction in the Public Lands Context

An informational tool provided as part of a toolkit for researchers and resource managers with an interest in coproducing actionable science to support public land management.

The federal government is committed to using science to inform decision making.¹ Federal staff need usable science products to inform management decisions and actions across multiuse landscapes. A coproduction approach to conducting science is one mechanism that can help ensure that science requested by federal resource managers meets their needs. Coproduction empowers researchers and resource managers to produce knowledge and tools that are relevant, timely, and more easily integrated into agency work processes.^{2,3}

Staff in the Bureau of Land Management, U.S. Geological Survey, North Central Climate Adaptation Science Center, U.S. Department of Agriculture’s Agricultural Research Service, and U.S. Fish and Wildlife Service worked together to develop this informational toolkit. The toolkit is intended to support coproduction of science products that can inform decision making on federally managed public lands.

As part of the process of developing this toolkit, we talked to staff in multiple federal agencies and found that there was not a common understanding of what the term coproduction means. This finding led our team to create this tool.

Coproduction

Coproduction is an approach to producing actionable science through collaboration between researchers, scientists, specialists, planners, managers, and related stakeholders to inform policy and management decisions.⁴⁻⁶

Actionable science

Actionable science includes data, analyses, syntheses, projections, and tools that can support resource management decisions.⁴

Coproduction is a process that both requires and fosters development of strong working relationships. The level of collaboration can vary widely depending on the nature of individual projects (see “[Tool 2: What Level of Coproduction Makes Sense for My Project?](#)”). Coproduction can include stakeholders such as private landowners, Native American tribes, and many others. However, the focus of this toolkit is on coproduction between federal public land management agencies and science providers.

Shared understanding, expertise, and roles

Partners engage in coproduction with respect, trust, and a desire to learn from and work closely with each other. They also continually strive to better understand each other’s professional context, constraints, and opportunities. Many agency researchers have policy and resource management experience, and many resource managers, planners, and decision makers are often also scientists. This overlap in expertise and willingness to learn and engage with others can facilitate successful research-management collaborations.

Engaging in coproduction means that staff from both the resource management agency and the science agency or organization work together as partners on many, if not all, major aspects of projects, from conception to application (see figure).^{6,7} Individual staff roles and responsibilities will vary depending on the nature of the project.



Figure: Aspects of coproduction in the public lands context.

Potential benefits of coproduction

- Science that is actionable (relevant, timely, and useful for decision making).^{7,8,9,10}
- Science products that are more likely to be trusted, easy to integrate into agency work processes, and accessible (e.g., in formats beyond traditional scientific publications).^{2,7,11}
- Meaningful and relevant development of professional skillsets for partners.^{7,11}
- Science support for use of products in agency work processes.¹¹
- Ongoing opportunities for networking that can support long-term programmatic and partnership growth.^{3,7,9,11}
- Resource management that is more responsive to environmental changes and stakeholder needs.^{3,6}
- Ability to better focus research investments on the science topics and deliverables that managers need.^{4,10,11}

Potential challenges of coproduction

- As a relatively new approach to conducting science, there are few standard tools or institutional structures that can facilitate and support coproduction.^{2,11}
- Extra time may be needed from researchers and resource managers to identify partners and participants, develop and conduct the project, maintain good communication, and develop actionable products.^{7,9-11}
- Skills and staff specialized in information exchange and facilitation may be needed.^{7,10,11}
- Divergent individual motivations and career evaluation metrics may not support coproduction.^{7,9,11}
- Institutional structure, culture, and policies can complicate partnership interactions.^{7,11}

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Tool 2: What Level of Coproduction Makes Sense for My Project?

An informational tool provided as part of a toolkit for researchers and resource managers with an interest in coproducing actionable science to support public land management.

Research requested by federal land management agencies to inform their policies and actions can range from projects conducted largely independently to highly integrated, collaborative projects. As projects become more collaborative, they enter the realm of coproduction (see "[Tool 1: Coproduction in the Public Lands Context](#)").

Coproduction in the public lands context is not a one-size-fits-all approach to conducting projects. Rather, it is a shared commitment by researchers and resource managers to collaborate and produce actionable science that meets the needs of resource managers. Some projects may only need limited interaction between resource managers and researchers to produce the results or tools that resource managers need. Other projects may be more exploratory, more complex, or less well defined, and may require a greater level of input and engagement throughout the project.

This tool is for researchers and resource managers who have determined that coproduction is the right approach for their project but are looking for direction regarding the best level of coproduction.

Projects that have a higher level of coproduction have a variety of benefits:

- Resource managers are more likely to gain a better understanding of the data, methods, and findings from the project, increasing their ability to apply its conclusions and understand important limitations.
- Researchers are more likely to genuinely learn about the land management agency's decision-making process, increasing their ability to produce truly actionable science for current and future projects.
- Researchers and resource managers are more likely to build strong and lasting relationships with each other and with other stakeholders at both individual and program levels.
- Products and outputs such as publications, datasets, and decision-support tools are more likely to directly relate to specific management needs and be easily used in agency decision-making processes.
- There are more opportunities for meaningful and relevant professional development for researchers and resource managers, including, but not limited to, coauthorship on publications and other products.

To realize these benefits, there is also a need for greater engagement, time, and resources (see "[Tool 1: Coproduction in the Public Lands Context](#)").

In the table that follows, Project and Partnership Characteristics Across Different Levels of Coproduction, we describe typical types of projects, key characteristics of partnerships, communication, and roles and responsibilities that researchers and resource managers can expect with each level, while acknowledging that every project will have its own unique context and needs. The goal of this tool is to encourage and guide conversations between researchers and resource managers, especially at the outset of projects, about the level of coproduction that makes the most sense for their project and about what that will mean in terms of expectations, workloads, and how they will work together.

We modeled the levels of coproduction concept and framework after Meadow et al. 2015.¹ We have tailored and expanded information here to reflect the specific context of science requested by a federal land management agency to inform resource management on and around federal public lands.


Suggested Citation

Selby, L.B., Carter, S.K., Haby, T.S., Wood, D.J.A., Bamzai-Dodson, A., Anderson, P.J., Herrick, J.E., Samuel, E.M., and Tull, J.C. What Level of Coproduction Makes Sense for My Project? An informational tool provided as part of a toolkit for researchers and resource managers with an interest in coproducing actionable science to support public land management. Denver (CO): U.S. Department of the Interior, Bureau of Land Management; 2024. <https://www.blm.gov/noc/report/toolkit-coproducing-actionable-science-support-public-land-management>.

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Project and Partnership Characteristics Across Different Levels of Coproduction

Coproduction Level 	Low	Medium	High
Typical types of projects	<p>Typical projects have defined needs and use established methods and approaches. Projects typically require input and guidance from the management partner to define objectives and may require occasional reassessment to ensure that the research is addressing management needs. Projects are typically relatively straightforward to conduct and project stages (e.g., data collection and analysis) may proceed independently.</p>	<p>Typical projects may address complex questions that require ongoing input from the management agency to best meet the agency's needs and be easily used within their decision-making processes.</p>	<p>Typical projects address highly context-specific, complex, sensitive, or exploratory questions. These questions require substantial input from the management agency to define and answer (e.g., development of new approaches or methods, projects intended to inform decisions made by multiple resource management programs or offices).</p>
Defining characteristics of partnerships	<p>Researchers and resource managers (or the programs they work for) engage in a targeted partnership. They may make joint decisions on some aspects of the project, likely concentrated at project initiation and application. They do not fully share project decision making.</p>	<p>Researchers and resource managers commit to joint decision making and joint responsibility for multiple (but not all) aspects of the project. There is a commitment to periodic engagement as the project progresses.</p>	<p>Decisions are made jointly. Researchers and resource managers share responsibility and power equally on all aspects of the project. There is continuous, significant engagement throughout the life of the project and shared responsibility for project outputs, outcomes, and overall success.</p>
Partner input and communication	<p>Resource managers provide input on project objectives, proposals, and/or statements of work. Communication is likely infrequent and focused on clarifying objectives, coordinating logistics, reviewing draft products, and sharing results with agency staff at project completion.</p>	<p><i>In addition</i>, researchers and resource managers meet periodically for joint review and/or refinement of objectives, methods, results, and products. They work together to share project products with target audiences.</p>	<p><i>In addition</i>, researchers and resource managers meet frequently to communicate and collaborate to complete the project. The project's successful completion relies on the knowledge and expertise of both parties. Both parties work together to share results widely with agency staff at project close through multiple mechanisms.</p>

Project and Partnership Characteristics Across Different Levels of Coproduction

Coproduction Level →	Low	Medium	High
Resource manager roles and responsibilities	Resource managers provide key input in defining the scope, direction, management needs, and desired outcomes as part of project initiation, and distribute products to the resource management community. Resource managers provide guidance or approval only on major project decisions.	<i>In addition</i> , resource managers participate in periodic project team meetings and provide context, expertise, and interpretation as the project progresses. Additional workload may focus on informing leadership about project progress and results and sharing information about changes in agency policy, staffing, and other factors that might affect the project.	<i>In addition</i> , resource managers commit time on a regular basis (often during joint work sessions) to develop methods and interpret results; address emerging issues or challenges within the agency that may affect the project; plan for communication, distribution, and use of the resulting science products; and engage leadership to facilitate policy-relevance and broad application of findings across the agency.
Researcher roles and responsibilities	Researchers draft initial proposal, incorporate input from the management agency, facilitate completion of agreement or contract paperwork, and produce and share the specified deliverables. In addition to conducting research activities, researchers are expected to periodically communicate progress and findings with the management agency.	<i>In addition</i> , researchers actively seek and incorporate partner input into the project and deliverables. Researchers support continued communication with the resource management agency. Communication can include preparing and coordinating project team updates or meetings and following up on action items related to research progress.	<i>In addition</i> , researchers share joint responsibility for successful, timely completion of the project, including the development and application of defensible methods and production of actionable science products. Researchers share responsibility for effectively communicating findings to target audiences within and outside of the management agency and commit to providing science support for related agency management decisions.

Tool 3: Suggested Coproduction Steps and Practices

An informational tool provided as part of a toolkit for researchers and resource managers with an interest in coproducing actionable science to support public land management.

While there is no single approach to coproduction, there are steps you can take and practices you can follow for successful coproduction throughout a project. The following steps and practices represent ideas and actions that were beneficial in our projects, based on our collective experience.

Success in coproduction must be grounded in a commitment to building strong working relationships and good basic project management. The suggested actions complement and build on standard project management processes and steps. Although project leads for the resource management agency and science provider will often work together to initiate these steps and practices, all members of the project team work together to support and implement the coproduction effort. Early and sustained communication among all project team members is critical for successful coproduction.

Initiating coproduction

1. Consider what [level of coproduction](#) is most appropriate for your project based on the nature of the project, its intended end products and users, available time and resources, and any other pertinent factors (see "[Tool 2: What Level of Coproduction Makes Sense for My Project?](#)").
2. Build a project team that includes the expertise and experience needed to complete the project. Start by drawing on your existing networks and those of colleagues and funding partners. For complex projects, consider identifying core project team members versus auxiliary members, or breaking the team into smaller working groups while also ensuring that there are mechanisms for cohesive communication.
3. Plan a kickoff meeting(s) that includes a conversation about [what coproduction means](#) and typical challenges encountered in coproduced projects (see "[Tool 1: Coproduction in the Public Lands Context](#)").
4. Collectively clarify the agency management need addressed by the project, who will use the resulting science product(s), and specifically how and in what processes and decisions the products will be used. Revisit this conversation as needed throughout the project, particularly if there are changes in agency policies or decision processes that may affect product use.
5. Decide on and record roles, responsibilities, and other project details using the [Project Logistics Tracker Template](#) (see "[Tool 4: Suggested Communication Deliverables for Coproduced Projects](#)"). Consider timelines for delivering products and account for input from the management agency, peer review and approval processes, and expected publication timeframes.
6. Revisit the project statement of work and planned deliverables with the project team; discuss and document any changes resulting from these initial conversations.
7. Discuss details about data ownership and data sharing. Plan for long-term data storage and access.

Communicating within the project team (including running project meetings):

8. Commit to a recurring day and time for project team meetings. Put meetings on everyone's calendars for the year (or length of the project), with the flexibility to cancel if a meeting is not needed.
9. Consider rotating responsibility for leading and facilitating meetings to support participatory decision making. Determine whether it might be beneficial to bring in an outside facilitator.
10. At an early meeting or in a follow-up to it, ask each team member how much time they plan to devote to the project, what project phases and decisions they would like to be involved in, and how they would like to be looped into project communication (e.g., via emails, project meetings, shared meeting notes).
11. Develop and share an agenda before each meeting. Start each meeting with a reminder of the project scope/objectives, a recap of key decisions from the last meeting(s), the current meeting plan, and an opportunity for every member to share relevant project updates (e.g., progress on related initiatives, agency staffing or policy changes). Give equal space to management and research perspectives.
12. Take meeting notes and share them in an agreed-upon format and location, with action items and responsible parties highlighted. Consider emailing progress updates between meetings if meetings are infrequent.
13. Clarify points of contact for concerns, detailed questions, and updates about project progress/work.

14. As the project progresses, the project leads should periodically check in with project team members about how they feel about the project and their involvement in it. This could occur at a project team meeting but may be better in one-on-one conversations. Possible questions to ask:
 - How do you feel about the direction the project is headed and the work we are doing?
 - Are you satisfied with your involvement, and that of the project team, in the project?
 - Do you feel you are being listened to and have the say you want to have in project decision making?
 - What is working well? What could be improved? What are we not doing that we should be doing?
15. Once the project is underway, have an open and realistic conversation about who would like to be involved in, and an author on, project products. Make sure the whole team is comfortable with the author group making decisions about project publications, and that authors have adequate time to contribute to the effort. Revisit these conversations and decisions as needed.
 - Consider consulting existing resources on the roles of authors and contributors (e.g., "[Defining the Role of Authors and Contributors](#)").

Sharing project progress and products with others outside of the team

16. Create a [Project Briefing Sheet](#) and project webpage to facilitate communication with others outside of the project team (see "[Tool 4: Suggested Communication Deliverables for Coproduced Projects](#)"). Encourage project team members to share these with others who may have an interest in the project.
17. Periodically ask the project team if there are other agency programs or people with whom the project leads or project team members should be coordinating or sharing information and products.
18. Decide when and how often to brief leaders in the resource management agency (often leads of individual programs, offices, or branches) about the project. Make every effort to have both the research lead and the resource management lead for the project attend briefings. Share the project briefing sheet and link to the project website with the audience before meetings.
19. Think about who is the best messenger to take project updates and results to different audiences. A goal of coproduction is that everyone on the project team will be fully capable of, and comfortable with, sharing project results and products with the audiences they know best.

Evaluating success

20. At the outset of the project, consider if you will evaluate the coproduction aspect of the project when the project is completed, in addition to requesting feedback on coproduction as the project progresses (see step #14). Consider who conducts the evaluation, whether it is restricted to project team members or extends beyond them, and what approach you will take. You might conduct the evaluation formally (e.g., working with social scientists to develop a survey or interviews) or informally (a conversation), with questions such as:
 - During the project, did you feel like your ideas and contributions were valued?
 - What were some strengths and weaknesses of the coproduction process used for this project?
 - From a coproduction perspective, what would you like to see done differently in a future effort?
21. At the outset of the project, consider if you will evaluate the extent to which the products were actionable and acted upon. Develop a list of potential end users and questions to ask them. The team will likely need to plan for this evaluation to occur in the future, since the timeline for product use may be months or years. You might conduct the evaluation formally (e.g., working with social scientists to develop a survey) or informally (a conversation), with questions such as:
 - Did this product provide useful information for you?
 - Did the product address your original management need? Did the spatial and temporal scale of the product fit your needs?
 - Did you use the product to inform a management action or decision? If so, how?
 - What, if anything, could make this product more useful for you?

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Tool 4: Suggested Communication Deliverables for Coproduced Projects

An informational tool provided as part of a toolkit for researchers and resource managers with an interest in coproducing actionable science to support public land management.

Researchers and resource managers commit to working together as a team to create actionable science products as part of coproduction. Regular communication within the team about project progress, interim results, and potential applications of project findings is key to successful coproduction. This communication need extends beyond the project team to include agency leaders, colleagues, collaborators, and other interested parties.

In this tool, we suggest a suite of communication-focused deliverables for coproduced projects that can foster shared understanding and awareness within and beyond the project team. These deliverables can also assist agency staff with sharing and promoting the use of project products in public lands decision making. Typically, the research lead or work team drafts and maintains these documents in an accessible location for the entire project team to view, provide input on, and download for sharing.

In addition to planned science products, we suggest that project leads and teams consider the following communication-focused deliverables for their projects:

Project Logistics Tracker (see "Project Logistics Tracker Template")

When to create/update: Project initiation; update at least annually.

Purpose and audience: Helps ensure project team members (especially any new members) are aware of and understand key project foundations, decisions, activities, and constraints. This is an internal document.

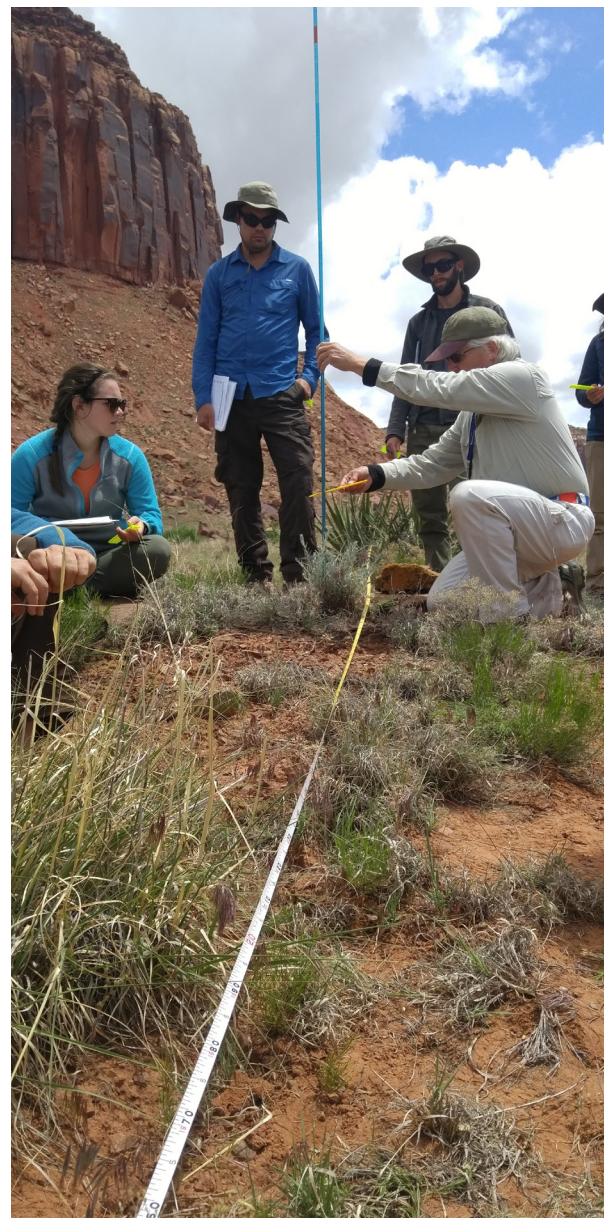
Format and content: Up to several pages of compiled information on interagency agreements (IAAs); project funding, timelines, and authorizations; planned level of coproduction; names and roles of project personnel and other interested parties; and project goals, activities, and deliverables.

Project Briefing Sheets (see "Guidance for Writing Project Briefing Sheets")

When to create/update: Project initiation; update at least annually.

Purpose and audience: Shares a current summary of the project in a short, easy to read format. This sheet is a primary mechanism for communicating core project information to interested parties outside of the project team.

Format and content: Typically one page that contains information on the basic components of the project and reflects project progress over time. Sections typically include title, background and management need, goal and objectives, methods, anticipated benefits, and contact information. Once the project is completed, the briefing sheet is typically expanded to two pages to include key findings and product citations.





Project Presentation (and accompanying slide deck)

When to create/update: Project initiation; update at least annually.

Purpose and audience: Explains project components in a format conducive to interactive sharing and discussion between researchers and resource managers.

Format and content: The initial slide deck expands as the project progresses. It explains the project background and need, purpose and goal, methods, progress and results, anticipated uses and benefits for public land management, and how to access project deliverables and contact project leads.

Plain Language Project Summary (often shared as a webpage)

When to create/update: Project initiation; update as needed.

Purpose and audience: Communicates to the public about the project need, goals, and anticipated benefits.

Format and content: A short (typically fewer than 500 words), [plain language summary](#) of the project. The summary typically includes information similar to the project briefing sheet (e.g., why the project is needed, an overview of methods, anticipated uses and benefits for public land management), but is shorter and geared toward a lay audience. Once the project is completed, the summary may be modified to include key findings and product links.

Suggested Citation

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Project Logistics Tracker Template

An internal document that clarifies important information about a project and how it will be coproduced. Intended for key staff, including funders and project leads.

We suggest that the project leads from the resource management agency and science agency/organization begin to fill out this information together soon after a project receives funding. Reviewing and discussing this information together with the entire project team and other core project staff will help to clarify roles, responsibilities, and expectations for the entire partnership in a proactive, transparent way. Some information and sections may be unknown or not applicable to the project; leave those sections blank. We suggest that the project team store this document in a location that is easily accessible to all and revisit the information periodically to keep it up to date.

Title	
Working project title	
Date last updated (and by whom)	
Interagency Agreement (IAA)	
Title on IAA and/or statement of work for the project	
IAA number	
IAA start and end dates	
Notes (e.g., funding authority, whether the IAA is severable or nonseverable, any modifications to the IAA and the date they were signed)	
Funding	
Management agency, program, and position/person who provided the funding	
Science provider, program, and position/person who authorized IAA and/or receipt of funds	
Original funding amount and date awarded	
Any additional funding amounts and sources for the project and date(s) awarded	
Science provider's in-kind contributions or leveraged funds	

Overall project cost
(e.g., project funding + in kind support + other contributions)

Science provider's account number(s) and name(s)

Current net available balance in account (include date of balance)

Start and end date(s) for account(s)

Notes
(e.g., funding code(s), no-year funds)

Coproduction

Level of coproduction

Circle the intended coproduction level (low, medium, high).

Please see "[Tool 2: What Level of Coproduction Makes Sense for My Project?](#)" for more information on different levels of coproduction that may be best suited for different types of projects, and what those levels of coproduction involve.

Levels of coproduction:

Coproduction level



Low

Medium

High

Management agency offices/parties involved in coproduction
(include topic/component of project, if applicable)

Position/person from the management agency who authorized the project to be conducted using a coproduction approach

Data Sharing and Project Approvals

Notes
Include any data sharing agreements, permits needed, animal care approvals, etc.

People

Resource management lead

(This is the day-to-day decision-maker for regular project work who is also responsible for communicating with the research lead and with the management agency Contracting Officer's Representative (COR).)

Management agency COR

(This is the formal decision-maker for the funding and for any major project redirection, who is also responsible for communicating with the funder, resource management lead, and research lead.)

Research lead

(This person is responsible for communicating with the resource management lead and COR and with the position/person who authorized and oversees funding to the researcher.)

Project team members

(Includes those responsible for attending project meetings, participating in project discussions, and being current on project activities; members advise project leads on project decisions.)

Core work team

(Includes staff who conduct day-to-day work on the project, including collecting and analyzing data.)

Additional technical experts

(Includes people outside of the project and core work teams (e.g., other field biologists) who provide expertise on a specific topic.)

Others who would like to receive information about the project

(Includes people who might be invited to project briefings and encouraged to share ideas or concerns with the project leads or COR. Identify who on the project team will keep them informed about the project, how, and how often. Typically, team members take responsibility for communicating with others in their agency with an interest in the project.)

Project Goals, Activities, and Deliverables

Overarching goal from the IAA (or modification), if applicable

Project goal and management need
(This is usually drawn from the project statement of work.)

Anticipated project deliverables
(e.g., manuscripts, datasets, tools)

Target users of project products

Project communication materials
List and include links to project website, project briefing sheets, and other communication materials. Store copies of all materials in a location accessible to all project team members. This is a running list to be updated over time.

Project communication plan and responsible parties

Briefly describe who will share project updates and deliverables with interested parties and when and how that sharing will happen.

Project briefings

List the date, target audience, and presenter for each briefing, along with the presentation title and link. This is a running list to be updated over time.

Project deliverables

List citations and links to conference abstracts and presentations, journal publications, and other project deliverables. Note that this transitions from a list of planned deliverables to a list of completed deliverables over time, and may evolve based on project direction, progress, and decisions.

Notes

Guidance for Writing Project Briefing Sheets

Purpose and Potential Uses

Project briefing sheets are a go-to resource for sharing information about the project with:

- **Partners** who may be funding, permitting, or coproducing the project.
- **Stakeholders**, including policy makers, program leads, or other big-picture stakeholders (e.g., the Bureau of Land Management's (BLM's) National Science Committee) who may have an interest in the project.
- **Peers** within and beyond your program, center, or agency that may be interested in the project, including how it may relate to or provide additional context for their own work (e.g., field staff managing sagebrush ecosystems).

The intent is that language in these briefing sheets can also be helpful for other uses, including entries in agency administrative and reporting databases. For example, language in this sheet should support required entries in the U.S. Geological Survey's Budget and Science Information System (BASIS) along with other uses such as:

1. Project, task, and annual narratives in BASIS (e.g., statement of problem, objectives, methods, progress, accomplishments, relevance and impact, strategy and approach)
2. External communications (e.g., website news items, new project announcements, project webpages)
3. Conference abstracts
4. Conference presentations/posters
5. Annual reporting on project progress

Writing Suggestions

- Aim for one page of succinct information with one to two visually appealing elements (e.g., photographs) for introductory briefing sheets. Two pages is appropriate for final briefing sheets that may include results (once published). Feel free to adjust the suggested headings and content to best fit your project as it progresses.
- Keep the audience in mind. The purpose of these sheets is to provide a go-to resource to share with partners, policy makers, leadership, and other stakeholders who are interested in planned and ongoing research but may not have a background in the topic (e.g., the BLM's Core Science Team).
- Use straightforward language: "We will analyze vegetation productivity maps at the scale of local watersheds."
 - Avoid jargon: "Landsat NDVI rasters will be analyzed by 8-digit HUC codes."
- Use active voice (subjects first): "We will analyze vegetation productivity maps at the scale of local watersheds."
 - Avoid passive voice: "Landsat NDVI rasters will be analyzed by 8-digit HUC codes."
- Prioritize writing space to describe the project need and potential application of results to specific management decisions. Methods sections can be shorter (though not absent).
- Specify who is involved and their role in the project. If relevant, identify which resource management agencies or offices are involved in each part of the project and how the results are relevant to them.
- Overall, keep each section clear, straightforward, positive, and focused on how the science can be applied to management decisions. The intended audience for these briefing sheets will likely have little background on any individual project and relatively little time to read about that work, but reaching them with a clear message about your project's value for decision making can have a big impact.
- Share the briefing sheet in a format that will maintain content and layout. See Project Briefing Sheet Template.

Project Briefing Sheet Template

[Project Title]

[Introductory, Mid-Project, or Final] Briefing Sheet

Background and Need

[Two to four sentences that explain key species, landscapes, or policies and define the problem – typically a management need or information gap – that this project is intended to address. It can be helpful to cite (and/or provide a link to) a specific law, policy, decision process, or guidance document that the project is addressing. One example is [“Advancing Science in the BLM,”](#) which affirmed the Bureau of Land Management’s (BLM’s) commitment to use science-informed decision making at every level and in every program.]

Project Goal and Objectives

[One to two sentences that state the project goal and main objectives.]

Methods

[Very brief, plain language summary of methods for conducting this work, corresponding to the project objectives. It may be helpful to use bulleted or numbered lists and mention how the project partners will share responsibilities and decision making.]

Planned Activities or Progress to Date

[Outline planned project activities in the initial briefing sheet; describe annual progress and planned next steps in subsequent briefing sheets. If there is any concern about sharing any of this information, be sure to include the appropriate disclaimer (see example disclaimers in red text at the end of this template).]

Anticipated Uses and Benefits

[Describe the anticipated applications and uses of project products, focusing on how they can benefit public land managers and inform actions and decisions that affect public lands and waters.]

Science-Management Partnership

[This section can simply state that the project is being coproduced, or can be tailored to describe that coproduction in more detail. Example text:

The Bureau of Land Management (BLM) [office] requested this project to meet their need for [...]. Staff from BLM [offices] and [science provider] are working together as partners to coproduce this project, with a goal of producing practical, actionable science that informs planning, policy, and management decisions on public lands managed by the BLM (see [“Tool 1: Coproduction in the Public Lands Context”](#) for more information on coproduction).]

For More Information

Please see our project website [link] or contact [name, project position, email, phone number] or [name, project position, email, phone number] with any questions or suggestions.

[If there is any concern about information that is being shared in the project briefing sheet, we suggest that you include the appropriate disclaimer for your agency or organization. Example disclaimers:

This information is preliminary or provisional and is subject to revision. It is being provided to meet the need for timely best science and does not represent any official finding or policy of either agency.

This information has not received final approval by the [federal public land management agency] or [science provider] and is provided on the condition that neither the [federal public land management agency] nor the [science provider] nor the U.S. Government shall be held liable for any damages resulting from the authorized or unauthorized use of the information.]

Date

[We suggest including the date the briefing sheet was last revised at the bottom of the document.]



Figure: Example image of planned activities. Sarah Beckwith, BLM

Tool 5: A Problem-Solving Checklist for Coproduction

An informational tool provided as part of a toolkit for researchers and resource managers with an interest in coproducing actionable science to support public land management.

Coproduction to support public land management involves carefully considering how researchers and resource managers will collaborate on each project. Despite the best intentions, things sometimes go wrong. We developed this checklist based on the authors' collective experiences with aspects of coproduced projects that did not go quite as planned. The questions focus specifically on problem solving and reflect what we wished we would have asked or done earlier in the project to expedite it and better meet its goals.

We suggest that project teams talk through the relevant questions in this list when beginning a coproduced project to make sure all parties have a clear understanding and shared path forward. While some of this information is referenced in other tools in this toolkit and can be found in project management courses, the questions in this checklist are more detailed and nuanced. The answers also often change as the project progresses and as roles, responsibilities, or staffing change. We encourage project leads and teams to revisit relevant questions in this list periodically to verify that the answers are still clear, appropriate, and understood by all involved.

Initiating coproduction and delivering actionable science products

1. What [level of coproduction](#) is planned, why is that level needed, what are the associated workloads, who will authorize and do that work, and what are the benefits and motivations for each agency?
2. What relationships are in place to facilitate coproduction? What relationships need to be developed or strengthened? How will that happen?
3. Is there a clear understanding of why the project is needed, who will use the products, and how people will use them to inform decisions? If not, what is the plan for engaging people who can answer these questions?
4. When will the results, outcomes, or products from the project be needed for decision making? Is this timeline realistic based on current staffing, resources, and other priorities? If not, what are the plans for solving this issue?
5. Who will work to ensure that planning, policy, and management expertise from key programs and offices is available to the project, including expertise to identify who the intended audience/users are, how and for what decision(s) that audience will use the products, and what implications the results may have for public land management?
6. If end users (e.g., field staff or policy makers) are not part of the project team, how will their input be provided throughout the study to ensure the products meet their needs?

Clarifying roles, involvement, and decision making

7. Do the project leads from both the resource management agency and the science agency/organization have the time, resources, and authority needed for the project to succeed? If not, how should issues be addressed?
8. Does the project team collectively have the skills and expertise needed for the project to succeed, including both interpersonal skills (e.g., facilitation and communication) and technical skills and expertise? If not, what is the plan for bringing these skills into the project?
9. Who will make day-to-day project decisions? How, when, and to whom will they communicate important decisions?
10. Who will be the final authority on sensitive/controversial project decisions for each agency?
11. Who will be on the project team? How and how often will they meet? What is the expected workload? Does each team member know why they have been asked to participate and what the team wants from them?
12. Will there be additional project advisors or an advisory group? If so, how and how often will they be kept informed? What is the expectation for input/involvement from them? Does each member know why they have been asked to be an advisor and what is wanted from them? What is the strategy for securing and maintaining their engagement, and how will you know if it is working?
13. Who will help with problem solving when challenges (e.g., staff loss/turnover) or controversies arise?

Defining and conducting the project

14. Who will have a say (and who will have the final say) in defining the project (often after the funding is in place), including clarifying project scope, objectives, tasks, timelines, and end products? Who will prevent scope creep, and how?
15. How and how often will the resource management lead and the research lead communicate?
16. How will project decisions and progress be recorded and shared with the project team on an ongoing basis so that all parties are informed?
17. Who will contribute to developing and refining study methods, and how?
18. Who will participate in collecting data for the project? Who will participate in analyzing project data?
19. Who will review, interpret, and provide feedback on initial results?
20. Who will be an author on products and publications? In what ways will they contribute?
21. Who will be acknowledged in project publications, and in what ways are they likely to contribute?
22. Who will make decisions about publications, including framing, which findings to highlight or discuss, the scope of “Management Implications” sections, target journals, suggested reviewers, and revision of manuscripts in response to reviewer input?
23. Who will decide if, when, how, and where to publish sensitive findings?

Communicating project findings and supporting product use

24. When and how will the project team start expanding or shifting its focus from creating products to sharing and supporting use of project products? Who will lead these efforts?
25. How will the project team identify and work with project champions that can share and advocate for use of project results within the resource management agency?
26. Who will draft and edit project websites, briefing sheets, presentations, news releases, and other communication products? Who will ensure that these are completed and approved through the proper channels?
27. Who will identify target audiences (e.g., programs, offices, or individuals) for sharing of project findings and products? Who will schedule, facilitate, and conduct that communication and sharing?
28. How will the project team support integration and use of products in agency decisions and work processes, including developing/providing training or supporting development of relevant guidance/policy?

Evaluating project progress and outcomes and assessing impacts

29. How will project leads evaluate what is working well (and what is not) on a regular basis so that any issues can be identified and resolved in a timely manner?
30. Who will evaluate the project, process, and products? What will be the criteria for success of each? Who will design the evaluation, collect the data, and do the analysis? When will the evaluation occur? Who will share the findings, and with whom?
31. If partners were not able to use the products as planned, can additional efforts support use? How can future efforts be changed in light of this experience to produce products that are both useful and used?
32. Who will think about any needed follow-up projects and work to find funding for any such efforts?
33. Does the project team feel that the time and resources required for the project to be conducted as a coproduced effort paid off in achieving project goals, including greater product utility and use or other measures of impact?

Suggested Citation

Selby, L.B., Carter, S.K., Haby, T.S., Wood, D.J.A., Bamzai-Dodson, A., Anderson, P.J., Herrick, J.E., Samuel, E.M., and Tull, J.C. A Problem-Solving Checklist for Coproduction: An informational tool provided as part of a toolkit for researchers and resource managers with an interest in coproducing actionable science to support public land management. Denver (CO): U.S. Department of the Interior, Bureau of Land Management; 2024. <https://www.blm.gov/noc/report/toolkit-coproducing-actionable-science-support-public-land-management>.