



— BUREAU OF —  
RECLAMATION

# Format and Layout for the Tracy Fish Facility Improvement Program Research Proposals

## Investigators

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## Summary

The proposal summary is similar to an introduction of a report. The summary gives background information, problem(s) being addressed, and significant improvements that will result from the study. This section should briefly describe the Tracy Fish Collection Facility (TFCF) and its function within the Central Valley Project. If the study is being conducted outside of the TFCF, the investigator should mention where and how it relates to the TFCF. Describe and cite relevant background information to give the reader enough information to understand the problem and show clear development of the hypothesis(es). Mention previous work or preliminary efforts (e.g., pilot studies) that demonstrate planning, commitment, and potential feasibility of the proposed idea. Include an abbreviated progress update (one to two paragraphs, one page maximum) for multiyear project proposals that are resubmitted in subsequent years. It is important to describe why this study is relevant, including mention of regulations or actions the study addresses. Describe what information will be learned and how this will help management operate the facility more effectively.

## Problem Statement

The problem statement is a clear and concise description of the issues that are addressed by the research. A good problem statement should state the existing problem and articulate research importance. This section should be a short (approximately three to four sentences) synthesis of the Summary, allowing readers to understand the problem, remedy, and relevance.

## Goals and Hypotheses

Present a brief statement of the goals and hypothesis(es) in outline form. This section simplifies the study's intentions and allows the reader to readily determine specific research questions. A goal is the purpose toward which the research effort is directed. A hypothesis is a testable statement that examines how two or more variables might be related. A hypothesis is thought to be testable when the variables stated can be readily measured. Formalized hypotheses are expressed by stating the independent variable (the variable that the researcher changes during the experiment) and the dependent variable (the variable that may change in response to changes in the independent variable). Formalized hypotheses can be written as either the research (H1) or the competing null (H0) hypothesis. The null hypothesis is the opposite of the research hypothesis and generally states that there is not an effect for the treatment or no differences. A good hypothesis should also include three elements: 1) state the variables to be compared, 2) state the dependent variable, 3) state the type or direction of the effect.

Goals:

1. First goal.
2. Second goal.

Hypotheses:

1. First hypothesis.
2. Second hypothesis.

## Materials and Methods

Provide a specific description of how the investigation will be performed and what techniques will be applied. Include a detailed step-by-step process intended to be carried out while performing the study, and specify kinds and quantities of materials. Details of procedures, equipment, software, and instrumentation (manufacturer, model, description) should be explicitly provided for the reader to clearly understand and evaluate the proposal. Information about species (including *Latin* name), quantities, and sizes (life stage) of research organisms should also be included. If the research includes the use of live organisms, a short section on the source and care of the organisms should be provided. Data analyses (statistical methods with relevant statistical values), and computer software

and models (name, references, version, assumptions, conditions) must be described. Statistical designs and models used should be appropriate for the experimental design.

## **Assumptions and Limitations**

Define resources (i.e., personnel, equipment, cost-share funding) and conditions (i.e., flows, temperature, weather) assumed to be available that, if absent, impact schedule, cost, and/or scope. These may be based on historic data or conditions, anecdotal evidence, or best scientific judgement, but are unknown, and therefore pose project risk. This section may also include a brief statement detailing assumptions that should be considered when making management-level decisions based on project results (i.e., applicability of laboratory or model study results to real world conditions).

## **Coordination and Collaboration**

All submitted proposals will be distributed for review by the Tracy Technical Advisory Team (TTAT; [www.usbr.gov/mp/TFFIP/tech-advisory-committee.html](http://www.usbr.gov/mp/TFFIP/tech-advisory-committee.html)), an interagency and interdisciplinary team with expertise and interest in the Tracy Fish Collection Facility. In addition, Principal Investigators are encouraged to collaborate with research partners (agencies, departments, companies, universities, etc.), and collaborative efforts, contributions, and roles should be summarized in this section.

## **Endangered Species Issues/“Take” Considerations**

This section addresses whether the project has the potential or will result in “take” of endangered or threatened species. “Take” defined under the Endangered Species Act (ESA) refers to any activity that may harass, harm, pursue, wound, kill, capture, or collect listed species. The proposal should indicate why the project may result in “take” and plans to minimize or mitigate “take.” Necessary permits should also be specified along with implementation dates.

## **Dissemination of Results (Deliverables and Outcomes)**

Dissemination of results facilitates information sharing which enables the advancement of science, engineering, management, and/or policy. Dissemination of results makes the science more robust in a peer-reviewed format and improves the chances of success in future projects. TFFIP encourages its researchers to actively publish in the Tracy Series and to share results at TTAT meetings. Other venues for dissemination include, but are not limited to, scientific journals, newsletters, bulletins, website project summaries, and local and regional meetings in both verbal and poster format. The proposal should specify how the study results will be disseminated and the anticipated completion dates. Data and metadata should be made available for digital archival.

## Literature Cited

Information referenced in the proposal should be cited here. Authors are encouraged to include appropriate references to support background information and importance of research to provide validity. Reference style and format should follow that of the Tracy Series. The following example is provided:

Portz, Donald E., Douglas Craft, Brent Bridges, and Ron Silva. 2009. *Guidelines for Research and Authorship*. Tracy Fish Collection Facility Studies, Volume 13. Bureau of Reclamation, Mid-Pacific Region and Denver Technical Service Center.

## Budget

Include an itemized funding request with all project costs for the current fiscal year. A table should be included for each entity involved (e.g., TFCF, Technical Service Center (TSC), other agencies, universities). The Principal Investigator has primary responsibility for budget planning and can do so if needed with the consultation of the TFFIP Program Manager. A budget should include, but is not limited to salaries (specify estimated number of staff and/or hours), contracting expenses, materials, supplies, equipment, fish acquisition, travel, and publication costs. A section for estimated outyear budgets, notes, and risks is also included. A budget narrative may be included for complex or multiyear projects.

### Itemized Budget for Current Fiscal Year

Tasks	TFCF Staff Days	TFCF Labor Cost	TFCF Non-Labor (Travel)	TFCF Non-Labor (Materials)	TFCF Fees
Project Development		\$	\$	\$	\$
Purchase Equipment		\$	\$	\$	\$
Data Collection		\$	\$	\$	\$
Data Analysis		\$	\$	\$	\$
Report		\$	\$	\$	\$
Project Management		\$	\$	\$	\$

Tasks	TSC Staff Days	TSC Labor Cost	TSC Non-Labor (Travel)	TSC Non-Labor (Materials)	TSC Fees
Project Development		\$	\$	\$	\$
Purchase Equipment		\$	\$	\$	\$
Data Collection		\$	\$	\$	\$
Data Analysis		\$	\$	\$	\$
Report		\$	\$	\$	\$
Project Management		\$	\$	\$	\$

**TFCF Budget = \$**

**TSC Budget = \$**

**Total Budget = \$**

Estimated Outyear Budget by FY: ***Response required.***

Budget Notes (e.g., shared materials/labor and dependencies): ***Response required.***

Budget Risk (e.g., variability in material costs, change in cost due to project delays, etc.): ***Response required.***