Inventorying and Evaluating Best Management Practices for the Reduction of Non-Nutrient Pollutant Loads

Project Information

1. **Proposal Title:**

   Inventorying and Evaluating Best Management Practices for the Reduction of Non-Nutrient Pollutant Loads

2. **Proposal applicants:**

   Bill Power, Power Hydrodynamics

3. **Corresponding Contact Person:**

   Bill Power
   Power Hydrodynamics
   6301 Bearden Ln. Modesto, CA 95357
   209 606-6832
   Power_Hydrodynamics@email.msn.com

4. **Project Keywords:**

   Ag/Urban Runoff
   Water Pollution, Non-point Source
   Watershed Management

5. **Type of project:**

   Research

6. **Does the project involve land acquisition, either in fee or through a conservation easement?**

   No

7. **Topic Area**:

   Ecosystem Water and Sediment Quality

8. **Type of applicant:**

   Private for profit

9. **Location - GIS coordinates:**

   Latitude: 37.330

   Longitude: -121.000

   Datum:

Describe project location using information such as water bodies, river miles, road intersections, landmarks, and size in acres.

Livingston (geographical centerpoint of the Research Area)

10. **Location - Ecozone:**

    12.1 Vernalis to Merced River, 12.2 Merced River to Mendota Pool, 12.3 Mendota Pool to Gravelly Ford, 13.1 Stanislaus River, 13.2 Tuolumne River, 13.3 Merced River, West San Joaquin Basin, 1.3 South Delta, 1.4 Central and West Delta, 11.3 Calaveras River

11. **Location - County:**

    Fresno, Madera, Merced, San Joaquin, Stanislaus, Tuolumne

12. **Location - City:**

    Does your project fall within a city jurisdiction?

    No

13. **Location - Tribal Lands:**

    Does your project fall on or adjacent to tribal lands?

    No

14. **Location - Congressional District:**

    11, 18, 20

15. **Location:**

    California State Senate District Number: 5, 12, 14, 16

    California Assembly District Number: 30, 26, 25, 4, 10, 17

16. **How many years of funding are you requesting?**

    1

17. **Requested Funds:**
    a) Are your overhead rates different depending on whether funds are state or federal?

       No

       If no, list single overhead rate and total requested funds:

       Single Overhead Rate: 0%

       Total Requested Funds: $125,450

b) Do you have cost share partners already identified?

No

c) Do you have potential cost share partners?

No

d) Are you specifically seeking non-federal cost share funds through this solicitation?

No

If the total non-federal cost share funds requested above does not match the total state funds requested in 17a, please explain the difference:

18. **Is this proposal for next-phase funding of an ongoing project funded by CALFED?**

No

Have you previously received funding from CALFED for other projects not listed above?

No

19. **Is this proposal for next-phase funding of an ongoing project funded by CVPIA?**

No

Have you previously received funding from CVPIA for other projects not listed above?

No

20. **Is this proposal for next-phase funding of an ongoing project funded by an entity other than CALFED or CVPIA?**

No

Please list suggested reviewers for your proposal. (optional)

Mike McElhirey NRCS 209-581-2100

Joe McGahan Summers Engineering 559-582-9237

Bob Bugg SAREP-UCD 530-754-8549

21. **Comments:**

Environmental Compliance Checklist

Inventorying and Evaluating Best Management Practices for the Reduction of Non-Nutrient Pollutant Loads

1. **CEQA or NEPA Compliance**
   a) Will this project require compliance with CEQA?

      No
   b) Will this project require compliance with NEPA?

      No
   c) If neither CEQA or NEPA compliance is required, please explain why compliance is not required for the actions in this proposal.

      Statuatory Exemption for feasability or Planning Studies for possible future actions Public Resource Code sections 21102 & 21150 The project will develop a plan for a future set of actions to restore dissolved oxygen in the DWSC in the lower SJR. Once the plan is developed, it is likely that a master EIR/EIS will be needed before major implementation can proceed.

2. **If the project will require CEQA and/or NEPA compliance, identify the lead agency(ies).** *If not applicable, put "None".*

   CEQA Lead Agency:
   NEPA Lead Agency (or co-lead:)
   NEPA Co-Lead Agency (if applicable):

3. **Please check which type of CEQA/NEPA documentation is anticipated.**

   CEQA
   -Categorical Exemption
   -Negative Declaration or Mitigated Negative Declaration
   -EIR
   Xnone

   NEPA
   -Categorical Exclusion
   -Environmental Assessment/FONSI
   -EIS
   Xnone

   If you anticipate relying on either the Categorical Exemption or Categorical Exclusion for this project, please specifically identify the exemption and/or exclusion that you believe covers this project.

4. **CEQA/NEPA Process**
   a) Is the CEQA/NEPA process complete?

Not Applicable

b) If the CEQA/NEPA document has been completed, please list document name(s):

5. **Environmental Permitting and Approvals** (*If a permit is not required, leave both Required? and Obtained? check boxes blank.*)

LOCAL PERMITS AND APPROVALS

Conditional use permit

Variance

Subdivision Map Act

Grading Permit

General Plan Amendment

Specific Plan Approval

Rezone

Williamson Act Contract Cancellation

Other

STATE PERMITS AND APPROVALS

Scientific Collecting Permit

CESA Compliance: 2081

CESA Compliance: NCCP

1601/03

CWA 401 certification

Coastal Development Permit

Reclamation Board Approval

Notification of DPC or BCDC

Other

FEDERAL PERMITS AND APPROVALS

ESA Compliance Section 7 Consultation

ESA Compliance Section 10 Permit

Rivers and Harbors Act

CWA 404

Other

PERMISSION TO ACCESS PROPERTY

Permission to access city, county or other local agency land.
Agency Name:

Permission to access state land.
Agency Name:

Permission to access federal land.
Agency Name:

Permission to access private land.
Landowner Name:

6. **Comments.**

Land Use Checklist

Inventorying and Evaluating Best Management Practices for the Reduction of Non-Nutrient Pollutant Loads

1. **Does the project involve land acquisition, either in fee or through a conservation easement?**

   No

2. **Will the applicant require access across public or private property that the applicant does not own to accomplish the activities in the proposal?**

   No

3. **Do the actions in the proposal involve physical changes in the land use?**

   No

   If you answered no to #3, explain what type of actions are involved in the proposal (i.e., research only, planning only).

   research only

4. **Comments.**

Conflict of Interest Checklist

Inventorying and Evaluating Best Management Practices for the Reduction of Non-Nutrient Pollutant Loads

Please list below the full names and organizations of all individuals in the following categories:

- Applicants listed in the proposal who wrote the proposal, will be performing the tasks listed in the proposal or who will benefit financially if the proposal is funded.
- Subcontractors listed in the proposal who will perform some tasks listed in the proposal and will benefit financially if the proposal is funded.
- Individuals not listed in the proposal who helped with proposal development, for example by reviewing drafts, or by providing critical suggestions or ideas contained within the proposal.

The information provided on this form will be used to select appropriate and unbiased reviewers for your proposal.

Applicant(s):

Bill Power, Power Hydrodynamics

Subcontractor(s):

Are specific subcontractors identified in this proposal? Yes

If yes, please list the name(s) and organization(s):

Jane Rundquist BizLine

Helped with proposal development:

Are there persons who helped with proposal development?

Yes

If yes, please list the name(s) and organization(s):

Kevin Wolf Kwvin Wolf and Associates

Comments:

Budget Summary

Inventorying and Evaluating Best Management Practices for the Reduction of Non-Nutrient Pollutant Loads

Please provide a detailed budget for each year of requested funds, indicating on the form whether the indirect costs are based on the Federal overhead rate, State overhead rate, or are independent of fund source.

Independent of Fund Source

Year 1												
Task No.	**Task Description**	**Direct Labor Hours**	**Salary *(per year)***	**Benefits *(per year)***	**Travel**	**Supplies & Expendables**	**Services or Consultants**	**Equipment**	**Other Direct Costs**	**Total Direct Costs**	**Indirect Costs**	**Total Cost**
1	Inventory Research	84				400	7875			8275.0		8275.00
2	Locate Documents	670				525	38750			39275.0		39275.00
3	Analyze BMP research	240					22500			22500.0		22500.00
4	Write Reports	360					33750			33750.0		33750.00
5	Disimenate Reports and Database	84				500			9750	10250.0		10250.00
6	Contingency								11400	11400.0		11400.00
		1438	0.00	0.00	0.00	1425.00	102875.00	0.00	21150.00	125450.00	0.00	125450.00

Year 2												
Task No.	**Task Description**	**Direct Labor Hours**	**Salary *(per year)***	**Benefits *(per year)***	**Travel**	**Supplies & Expendables**	**Services or Consultants**	**Equipment**	**Other Direct Costs**	**Total Direct Costs**	**Indirect Costs**	**Total Cost**
		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Year 3												
Task No.	**Task Description**	**Direct Labor Hours**	**Salary *(per year)***	**Benefits *(per year)***	**Travel**	**Supplies & Expendables**	**Services or Consultants**	**Equipment**	**Other Direct Costs**	**Total Direct Costs**	**Indirect Costs**	**Total Cost**
		0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Grand Total=125450.00

Comments.

Budget Justification

Inventorying and Evaluating Best Management Practices for the Reduction of Non-Nutrient Pollutant Loads

Direct Labor Hours. Provide estimated hours proposed for each individual.

PI: 740 hours Research Assistants: 550 hours MetaData Consultant: 88 hours Web Programmer: 60hours

Salary. Provide estimated rate of compensation proposed for each individual.

All work done by independant consultants. Consulting fees incorporate overhead and benefits

Benefits. Provide the overall benefit rate applicable to each category of employee proposed in the project.

All work done by independant consultants. Consulting fees incorporate overhead and benefits

Travel. Provide purpose and estimate costs for all non-local travel.

Travel funds are accounted for by the Contingency section

Supplies & Expendables. Indicate separately the amounts proposed for office, laboratory, computing, and field supplies.

none

Services or Consultants. Identify the specific tasks for which these services would be used. Estimate amount of time required and the hourly or daily rate.

PI: $73625 Metapartner Consultant: $9750 Web Developer: $3400 Research Assistants: $27500

Equipment. Identify non-expendable personal property having a useful life of more than one (1) year and an acquisition cost of more than $5,000 per unit. If fabrication of equipment is proposed, list parts and materials required for each, and show costs separately from the other items.

none

Project Management. Describe the specific costs associated with insuring accomplishment of a specific project, such as inspection of work in progress, validation of costs, report preparation, giving presentatons, reponse to project specific questions and necessary costs directly associated with specific project oversight.

The Principal Investigator will be responsible for the accountability of subcontractors. Additionally, they will be responsible for reporting, cost validation, and presentation as part of their overall resonsibilities.

Other Direct Costs. Provide any other direct costs not already covered.

None, if any other costs are incurred, they wll be funded by the contingency monies

Indirect Costs. Explain what is encompassed in the overhead rate (indirect costs). Overhead should include costs associated with general office requirements such as rent, phones, furniture, general office staff, etc., generally distributed by a predetermined percentage (or surcharge) of specific costs.

None, if any other costs are incurred, they wll be funded by the contingency monies

Executive Summary

Inventorying and Evaluating Best Management Practices for the Reduction of Non-Nutrient Pollutant Loads

Best Management Practices are the desiganted as Tier 1 implementation options for improving ecosystem water quality impaired from non-point source contaminants. This project will provide urban and agricultural stakeholders facing the need to reduce their non-point source loads with an inventory and evaluation of BMPs applicable to their land uses. By evaluating BMPs that could help with sediment, pesticides, boron, salt, selenium, metals and other contaminants, the land managers will be able to choose BMPs that provide them with multiple benefits for their particular water quality improvement needs. This project began from stakeholders in the San Joaquin River Dissolved Oxygen TMDL steering committee discussing their needs to have BMPs that could help with multiple contaminant reduction needs that they faced. This project will involve stakeholders from beginning to end with the belief that the more involved the stakeholders are in developing solutions to the problems, the more likely they will be to implement those solutions. This project will advance other Ecosystem Restoration Program goals and objectives by evaluating BMPs for wetlands and riparian filter strips. This will provide more information to local stakeholders on the cost and benefits of these land use options that they presently often lack.

Proposal

Power Hydrodynamics

Inventorying and Evaluating Best Management Practices for the Reduction of Non-Nutrient Pollutant Loads

Bill Power, Power Hydrodynamics

Title:	**Inventorying and Evaluating Best Management Practices for the Reduction of Non-Nutrient Pollutant Loads**
Applicant:	Power Hydrodynamics
Investigator:	William Thomas Power III, Power Hydrodynamics Power_Hydrodynamics@email.msn.com (209) 606-6832
Contributors:	Jane Rundquist jane@bizline.com (530) 758-5866
Collaborators:	NRCS, UC Coop Extension, crop and industry associations, farmers San Joaquin River Dissolved Oxygen TMDL Steering Committee,
Location:	San Joaquin River watershed
Proposed Budget*:	$125,450 or **$89663** **(**See Note* below.)
Potential Funding:	CALFED 2002 PSP - Ecosystem Restoration Funds (Prop, 133 Dissolved Oxygen Account)
Date:	October 3, 2001
Note*:	*This project can work together with the proposed Inventorying and Evaluation of BMPs for Nutrient Reduction or it can stand-alone. The budget notes which tasks and line items would be changed if both projects were funded.

A. Project Description: Project Goals and Scope of Work

1. Problem

Non-point source loading of sediment, salt, boron, selenium, pesticides, and metals is occurring within the San Joaquin River watershed. Regulating agencies including the US EPA and the Regional Water Quality Control Board are now or will likely be implementing TMDLs on non-point sources of these pollutants of concern in order to meet Clean Water Act requirements. Both urban and rural lands and land use practices are suspected sources of these contaminants.

Best Management Practices are designated by state law as the Tier 1 implementation method for reducing non-point source loads. Presently, it is difficult to estimate how effective BMPs would be to help meet any pending TMDL because there is no known overall evaluation of what the literature says is possible with different BMPs on different types of soils for different types of land uses. Over the years, UC Coop Extension, the Natural Resource Conservation Service and other entities have conducted studies on the effectiveness of different BMPs to loading issues. Many of the BMPs that they studied are beneficial towards reducing the negative impact of more than one pollutant of concern. The San Joaquin River Dissolved Oxygen TMDL Steering Committee is supporting a similar BMP evaluation project for nutrients and oxygen demanding precursors. (If that one were funded, this project's cost would be lowered by $44,082.50)

Without understanding what the literature says can be expected in load reduction with the implementation of different BMPs, neither stakeholders nor the Regional Board

may be satisfied with an analysis of non-point source load reduction strategies. In addition, different BMPs may have secondary impacts on such important resources as water supply, groundwater levels, salt build-up and fish and wildlife habitat. Some BMPs may also help resolve other pollutant loading problems and knowledge about multiple benefits will be helpful in determining which BMPs should be prioritized. An evaluation of which BMPs do the most good and least harm for multiple constituents on different land uses will be valuable in many ways.

2. Justification (including conceptual model, hypotheses and selection of project type)

Inventorying and evaluating the research on BMPs is essential for providing stakeholders with the information they need to develop restoration plans that will reduce non-point source loading of contaminants. Hundreds of studies have been conducted on different land uses and on different soils but it is difficult to find this information and there is no known evaluation of this literature. Because this project will involve leaders from the stakeholder communities and organizations from the beginning to the final report, it is much more likely that they will accept the conclusions and use the information to form their local approaches to reducing their contaminant loading problems. A comprehensive inventory and evaluation will also help prioritize which BMPs should undergo additional research before widespread implementation and which ones stakeholders can be confident of their cost effectiveness.

Main Hypothesis:

An inventory and evaluation of Best Management Practices relevant to the soils and land uses of the San Joaquin Valley will provide stakeholders with the information they need to craft implementation plans which will help reduce the loads of sediment, salt, boron, selenium, pesticides, sediment and/or metals that comes from five non-point sources: urban landscaping/city streets, orchards/vineyards, row crops, pasture/forage/rangeland, and riparian/wetlands.

Conceptual Model:

Land use practices affect the amount of polluting substances that enter the ground and surface water supplies and negatively impact the aquatic environment of the San Joaquin River and its tributaries. Best Management Practices can reduce pollutant loads, though possibly not to the level needed to meet regulatory requirements. The effectiveness of BMPs will depend on the land use and soil type along with other factors. Some BMPs may cause harm (e.g. salt loading on crops), which may make them more costly in the long run. Other BMPs may reduce or increase water application rates, which could affect groundwater and surface water supplies. Both urban and rural load reduction BMPs may have positive impacts on other pollutants of concern (e.g. stormwater runoff and sediment runoff). In order to thoroughly evaluate the viability and cost-effectiveness of implementing different BMPs within different geographic regions in the San Joaquin watershed, the literature about BMPs and their secondary impacts should be reviewed and evaluated as best as possible.

Experience shows that local stakeholders whose watersheds may be allocated a load reduction target for different pollutants of concerns are the best people to develop implementation plans to meet their new requirements. When they help devise the solution, they more effectively implement it. An evaluation of BMPs for different land uses and different soils will provide these stakeholders with a critically important resource for evaluating the effectiveness of non-point source load reduction strategies. The estimates on the costs and effectiveness of BMPs will be important to determine how and if non-point source load reduction strategies can be effective in meeting different load reduction requirements for existing or pending TMDLs.

This inventory and evaluation of BMPs for different land uses and different soils will involve local land managers from its beginning and will encourage their involvement and review through to the publishing of the final reports. In the end, land managers in watersheds throughout the San Joaquin Valley will have an important resource for evaluating the effectiveness of integrated non-point source load reduction strategies.

Project Type: Restoration Planning

This project falls in the category of Restoration Planning because it evaluates the preferred implementation methods for resolving non-point source pollutant loading problems. State law requires that Tier 1 implementation for reduction on non-point loads be from Best Management Practices. Restoring water quality in the tributaries of and in the mainstem San Joaquin River will benefit greatly from a clear understanding of what the literature says can be accomplished with different BMPs. And since many BMPs can effectively reduce loads for multiple contaminants, this project will provide the stakeholders and CALFED with an assessment of the best options for integrated solutions.

3. Approach

Task 1. Involve the Stakeholders in Advising the Inventory and Evaluation Project

The principal investigator will hold an initial open meeting of all stakeholders interested in this project. At this meeting, the primary and secondary metadata fields will be finalized by the group. Among the proposed fields are the standard metadata such as author, title, abstract and keywords plus secondary metadata fields such as secondary impacts, soils, economic costs and benefits and peer review. The stakeholder advisory committee will also help provide access to BMP research and reference material located at the NRCS, USDA, CDFA, USBR, Farm Bureau, UC Cooperative Extension, Resource Conservation Districts, SAREP, the web, university libraries and other locations. Once documents are located, the research team will review them to determine whether the material is worth referencing in the metadata database, and whether a copy should be made for more detailed analysis when the BMP evaluation report is written. The team will utilize the MetaPartner software that was used in the dissolved oxygen and aeration literature review completed under a CALFED grant in 2000. The metadata database will be entered into the CERES San Joaquin Metadata Catalog and made available on-line.

These same stakeholders will have opportunities to evaluate the research as the gathered metadata is put on line on a biweekly basis. Before the papers are drafted, the Principal Investigator will organize the research into a matrix that summarizes the information on each BMP to land use and soil type. The stakeholders will be able to check the on-line metadata database to verify what the references conclude and if the matrix properly summarizes the research. When the stakeholders review the draft papers, they will have access to a well-linked and easy-to-use base of information to evaluate the conclusions. Since the stakeholders will be the end users of the information, this level of involvement will provide significant long-term benefits on how trusted the information is.

Task 1 also includes funding for all the customized reports that the Principal Investigator and stakeholders will need from the database. This includes the use of the database to organize information in the matrixes and link it back to the database.

Task 2. Inventory Research on Non-point Source BMPs.

Using the leads provided by the stakeholders and other expected sources of information, the research team will locate and review each document to determine whether the material is worth referencing in the metadata database, and whether a copy should be made for more detailed analysis when the BMP evaluation report is written. The team will utilize the MetaPartner software that was used in the dissolved oxygen and aeration literature review completed under a CALFED grant in 2000 (see www.sjrtmdl.org/technical/literature_review/index.html). MetaPartner will be customized to include the fields that the stakeholders have requested so that the researchers have a checklist of key issues to look for as they review each document. Each customized field will provide an opportunity to include comments on that issue. For example, the soil field will allow the researcher to include comments on the soils upon which the BMP was studied. With the economic field comment section, the researcher would add quotes from the paper on specific cost/benefit details that the authors included in their paper. By adding this level of information into the database, the research inventorying team will provide enough detail so that the researchers and stakeholders do not have to locate and read the original document to learn the answers to these important questions.

Every two weeks, new database entries will be updated into the CERES San Joaquin Metadata Catalog and made available on-line as a downloadable file similar to the dissolved oxygen literature review is done now (see above URL). Stakeholders and BMP experts will be encouraged to review the database, suggest additions and provide feedback via an on-line comment process to the research team.

This project expects to inventory 600 BMP-related research papers (300 if the Nutrient BMP Inventorying project is also funded) with an emphasis on the San Joaquin Valley. This database will provide value to stakeholders and researchers across the state and country. The CERES catalog is designed so that future researchers can add additional items to this database and thus help keep the information current.

Task 3. Evaluate and Analyze BMP Research.

Once the inventory is completed, the PI will use the information to develop a matrix of land use categories with corresponding BMPs to soil types, economic costs and benefits, environmental impacts, effects on other pollutants, impacts to surface and groundwater supplies, and other issues. This matrix will summarize all the information gathered by the inventorying team. Because it will link back to the database, it will be easy for readers to check the original metadata to see if the matrix properly reflects the research.

The matrix will also make it easy to identify areas in which research information is lacking. Identifying critically important missing information will be valuable as the stakeholders in each watershed determine which BMPs should be implemented on a pilot/research project basis versus which BMPs should be planned for immediate widespread implementation. If, for example, the research concludes that tailwater recovery systems in certain soil types provide excellent multiple benefits, but there is little or no research on that BMP for other soil types and crops, then it is logical to implement that tailwater recovery BMP as a pilot project on the soils upon which it hasn't been tested. To create an adaptive management plan for their watershed, the stakeholders will need to have a base of knowledge on what the existing research concludes and doesn't conclude in order to craft the implementation actions and monitoring/evaluation programs that foster improvements in their adaptive management plan over time.

Task 4. Write Reports.

The PI will use the matrix developed in Task 3 to draft a report on each of the five major land use categories and the BMPs that may provide the best benefit for each major pollutant of concern for that land use. Each section will include a discussion and conclusion on its effectiveness of the BMPs in different types of soil, secondary impacts on other chemicals of concern including whether it may increase salt loading in soils, the economic impacts and other issues as identified by the stakeholders. Each report will have an executive summary, which condenses the issues in the report.

In addition, the PI will draft a synthesis report that summarizes the five land use category reports and makes recommendations on BMPs that may most effectively cross over land use types and other areas of integration that may not be identified in each individual report.

Each of these six draft reports will be sent to the stakeholders and BMP experts for review. The PI will use this stakeholder feedback to write a second draft. Based on the review of the second draft, the PI will publish a final report.

Task 4. Desalinate Reports and Database.

The final reports will be made available on-line via a new website tentatively titled www.sjrbmps.org for two years. After this, it will be transferred to a permanent site with the expectation that some public agency will host the information. The database will be entered into the CERES San Joaquin Valley Metadata Catalog. Written copies and

CDs of the report and database will be sent to 100 different libraries, organizations and individuals.

4. Feasibility

All aspects of this proposal are imminently feasible. MetaPartner software for data inventorying was successfully used by the CALFED funded Dissolved Oxygen and Aeration Inventorying project. Stakeholders are very interested in this proposal and will participate in the advisory committee and evaluation process. Libraries and collections of BMP research are accessible to the public. Bill Power has a great deal of experience in evaluating BMPs and will be able to effectively and fairly evaluate the research as well as help direct the inventorying team. The CERES website has a San Joaquin Metadata Catalog and it will not be that difficult to batch update a BMP category with the new metadata on a regular basis. Compiling the existing research in an easy to use database, evaluating the information on different specific issues, and writing reports through an interactive stakeholder process are all highly practical and feasible.

Performance Measures

5. Performance Measures

The ultimate performance measure will be in how many of the BMPs prioritized from this project are implemented by land users over the next five years. Measuring that accomplishment is beyond the scope of this project.

Phase	**Performance Measures**	**Completion Schedule**
Stakeholder involvement	Stakeholder organizations have representatives on advisory committee. Leading agency experts participate. Database fields finalized. Software customized.	August 2002
Inventory and build database	600 (300*) references entered. Regular updating of the CERES metadata catalog.	December 2002
Analysis	Creation of a matrix with links back to database. Matrix reviewed and improved with stakeholder feedback.	February 2002
Write Reports	Write first draft. Edit to second draft. Write six final reports.	May 2003
Distribute products	Create email list and website for. regular updates on all aspects of project. Produce and mail 100 cds and/or hard copy reports and databases to libraries and stakeholders.	June 2003

6. Data Handling

Inventorying information will be entered into an Access 97 and 2000 database using the MetaPartner software. Database updates will be provided to the public via the CERES San Joaquin Metadata Catalog and the www.sjrbmps.org website. Draft and final reports and products will be distributed to libraries and stakeholders via the web, cd-rom and hardcopy.

7. Expected Products

a. A metadata database of approximately 600 (300*) applicable BMPs will be created. The database can be expanded for ongoing data entry and can provide the stakeholders with long-term, on-line access to this information.

b. A set of reports including a summary matrix on each will provide the stakeholders with information to evaluate the effectiveness of different BMPs for their specific situations.

8. Work Schedule

This project will begin as soon as possible. The Advisory Committee can meet soon after contract confirmation. (If the Nutrient BMP project is also funded, the advisory committee will be the same for both projects and each meeting will advance both projects.) Inventorying will start immediately after the meeting and continue intensively for 12 weeks. If the Nutrient BMP project is funded, the Non-Nutrient BMP inventorying will occur after the Nutrient inventorying is completed. The matrix will be organized as the inventorying is being conducted. The first draft report is expected 4-5 months after the project begins. The final reports can be completed within 9 months after the project begins. Distribution of material will be ongoing.

B. Applicability to CALFED ERP and Science Program Goals and Implementation Plan and CVPIA Priorities

1. ERP, Science Program and CVPIA Priorities.

The Ecosystem Restoration Plan lists MR-5 as an important goal for the entire region and SJ-5 as important to the San Joaquin watershed. This project provides a foundation of information needed to advance BMPs for the reduction of non-point source contaminant loading of selenium, pesticides and other pollutants to the tributaries, mainstem San Joaquin and Delta. Because many of the BMPs cut across regions, the evaluation will benefit the Sacramento Valley as well as other locations around the state and nation.

By evaluating wetlands, riparian filter strips and tail water recovery ponds as potential BMPs to improve downstream DO conditions, the reports will also evaluate these BMPs for their secondary environmental benefits for wildlife. This advances priority MR-2.

2. Relationship to Other Ecosystem Restoration Projects.

This project can work together with the proposed Inventorying and Evaluation of BMPs for Nutrient Reduction or it can stand alone. The budget notes which tasks and line items would be changed if both projects were funded.

Restoration of water quality in the San Joaquin has a significant relationship with other Ecosystem Restoration Program objectives, including those related to at-risk species recovery, aquatic habitat restoration, wildlife friendly agriculture and long term sustainability of restoration measures. These relationships apply multi-regionally in the San Joaquin, Sacramento and Delta Ecology Management Zones.

3. Requests for Next-Phase Funding.
Not Applicable

4. Previous Recipients of CALFED Program or CVPIA funding.
Not Applicable

5. System-Wide Ecosystem Benefits.
This project will provide benefits to improving water quality wherever BMPs for non-point source reduction is applicable. Since this project will evaluate BMPs applicable to these five major land uses, for different soils and different pollutants, the information it will inventory and evaluate has widespread ecosystem benefits.

Many potential water quality restoration plans will need to involve BMPs that provide benefits for multiple pollutants of concern. Some of these BMPs such as wildlife friendly agricultural practices, wetland and riparian filter strips will provide wildlife habitat benefits. Some of the BMPs may provide water conservation benefits. Collectively, this evaluation will provide a foundation of information important to many restoration options for the San Joaquin and Delta.

9. Additional Information for Proposals Containing Land Acquisition.
The proposed project does not include land acquisition.

C. Qualifications
This section describes the qualifications and readiness of the SJR DO Steering Committee and the Project Coordinator.

a. Principal Investigator - Bill Power is the owner and lead consultant for Power Hydrodynamics, an agricultural based consulting firm specializing in water and energy conservation. For the last eight years Mr. Power has helped develop and evaluate BMPs on all aspects of agricultural irrigation. In this work he has evaluated existing research documents. He knows how to supervise a team of assistants in this type of technical work. Bill Power has completed all course work in Cal Poly's School of Irrigation Management. He specializes in agricultural consulting in the San Joaquin Valley

b. Metadata Database developer - Jane Rundquist has been working in the area of metadata and databases for four years. Two years ago, she began developing the MetaPartner software using Microsoft Access as the platform. She knows a great deal about the state and federal metadata standards and has taught classes in it for different clients. She customized the MetaPartner software for the Dissolved Oxygen and Aeration Literature Review as part of a CALFED PSP grant provided to the SJR TMDL DO Steering Committee in 2000.

c. Web site developer - Kevin Wolf
Kevin Wolf and Associates built and have been maintaining the www.sjrtmdl.org website for the dissolved oxygen TMDL stakeholders since 1999. This website adds new material on an almost daily basis. Mr. Wolf has been helping develop websites for stakeholder groups since 1995. Mr. Wolf is also the facilitator of the dissolved oxygen stakeholder process.

D. Cost

1. Budget
DRAFT Budget for Inventorying and Evaluating Best Management Practices for Nutrient Load Reduction

Note: Tasks with * can be eliminated completely if the Evaluation of BMPs for Nutrient Reduction proposal is funded. Tasks with ** can be reduced to the amount indented on the next line if the Nutrient Reduction proposal is funded.

Task 1. Inventory Research

1. Organize a meeting among interested stakeholders to finalize the metadata fields that will be completed with the review of each reference document. Set up an advisory committee that meets via email to review and comment on related issues as they arise.

a. Principal Investigator to organize, facilitate and write notes - 1.5 days
$ 1125
b. Jane Rundquist, MetaPartner consultant - 1 day @ $750 $ 750
c. Setup and run email list - 8 months at $50/month $ 400

2. Customize the metadata database using MetaPartner software.

a. Database and report/matrix customization and production and software training and phone help - 8 days @$750 $ 6000**
** 4 days at $750 - $3000
b. Software License in kind

Task 2. Locate documents. Evaluate and enter data in database. Copy selected material.

a. 600** documents at 60 minutes per reference (600 hours total)
*** 300 documents because of overlap in nutrient references*
PI - 120 hours at $93.75/hrs to research and supervise $11250

*** 60 hours - $5625*

Research assistants - 550 hours at $50/hr $27500

*** 225 hours - $13750*

b. 3500 photo copies x $.15 each $ 525

*** 1500 copies - $263*

Subtotal for Task 1 - ***$47550***

**** Subtotal - $24913*

Task 3. Evaluate and Analyze BMP Research

1. Principal Investigator - 5 days per report x 6 reports @ $750/day ***$22500***

*** 3.5 days per report - $15750*

Task 4: Write reports

1. P.I. - First draft of six reports - 4 days per report @$750/day $18000
2. P.I. - Circulate reports and review comments - 1.5 day/report
   $ 6750
3. P.I. - Write final reports and appendixes - 2 days/report $ 9000

Subtotal for Task 4
$33750

Task 5. Distribute Reports and Database

1. Publish database on the CERES metadata catalog

a. Software programming - 3 days at $750/day - $ 2250
   ** No cost

b. 10 bi-weekly or so updates at $75 each $ 750

2. Place matrixes, draft and final reports, appendices on website

a. Register domain name and 24 months fees
   $ 500

b. Programming - 60 hours @ $50/hour $ 3000

3. Distribution of hardcopy and CD reports

a. Copy and mail draft reports to 30 people without email @$25 each $ 750

b. Copy and mail final reports to 60 locations @ $35 each $ 2100

c. Make and mail CDs with everything to 60 stakeholder and libraries $ 900
   ** No additional cost

Subtotal for Task 5 ***$10250***

***Subtotal - $7100*

Contingency

10% of total which includes covering travel and phone $11400

*** $8150*

TOTAL **$125450**

***** Total - $89663***

2. **Cost-Sharing**

This project includes approximately 5% of in-kind services the team that will work on the project. More importantly, it is anticipated that hundreds of hours will be contributed by the Advisory Committee in meetings and review of draft documents and the database.

E. Local Involvement

This proposal developed from a discussion by stakeholders in the San Joaquin River Dissolved Oxygen TMDL Steering Committee on the value of being able to integrate the need for a nutrient and oxygen demanding substances reduction plan with the pending requirements to reduce the loading of other contaminants. The Farm Bureau believes that integration of different non-point source TMDLs would help save farmers money and resources as they could implement BMPs that advance multiple goals. Thus this proposal developed from the expressed need of local stakeholders in the San Joaquin Valley. It is designed to involve local stakeholders and BMP experts in the project from start to finish. The ultimate goal is to have the local stakeholders use the information in these reports to implement water quality restoration plans on the lands they manage. Involving them throughout the project will increase the ultimate success.

F. Compliance with Standard Terms and Conditions

The proposed project and the Project Coordinator, William Thomas Power III, Power Hydrodynamics, are prepared to comply with the Standard Terms and Conditions contained in the 2002 Ecosystem Restoration Program PSP.

G. Literature Cited

None

CITY of MODESTO

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Hearing and Speech Impaired Only
TDD 1-800-735-2929

Administration
209/577-5213
209/571-5521 Fax

Airport
209/577-5318
209/576-1985 Fax

Capital Improvement Services
209/577-5215
209/522-1780 Fax

Public Transit
209/577-5295
209/571-5521 Fax

Solid Waste Management
209/577-5494
209/521-4801 Fax

Traffic and Development Services
209/571-5557
209/521-4801 Fax

Traffic Signals Street Lighting
209/342-2296
209/491-5993 Fax

September 10, 2001

Bill Power
Power Hydrodynamics
Power_Hydrodynamics@email.msn.com
6301 Bearden Lane
Modesto, CA 95357

Dear Mr. Power:

Subject: Inventorying and Evaluating Best Management Practices for the Reduction of Nutrient and Oxygen Demanding Substances in the San Joaquin Valley and Inventorying and Evaluating Best Management Practices for the Reduction of Non-Nutrient Pollutant Loads.

Our organization supports your proposals "Inventorying and Evaluating Best Management Practices for the Reduction of Nutrient and Oxygen Demanding Substances in the San Joaquin Valley" and " Inventorying and Evaluating Best Management Practices for the Reduction of Non-Nutrient Pollutant Loads." These projects will be important to our constituents as they seek to understand what the existing research says about how different BMPs may help them solve the growing restrictions they face in contaminate load reduction.

Both of these projects will be important because many BMPs will cross over and help with different load reduction needs. Land managers know that depending on their land use and the soil type, different practices may or may not be relevant to their situation. Having a comprehensive, easy-to-review inventory and evaluation of the all-relevant BMPs for different land uses and soils will give the stakeholders the information they need to learn for themselves what is possible and applicable to their particular situation.

We appreciate the opportunity the project offers to participate at the very beginning in the development of the research parameters and at the end in the review of the draft documents. By having each document linked with a matrix of land uses to BMPs and secondary impacts, and then having the matrix linked directly to the reference database, we will gain confidence in the conclusions that are drawn from the available literature. Ultimately, the end user, the land

manager will need to have confidence in the report and providing easy access to the underlying references will be helpful in accomplishing this.

BMP research will continue for years to come. By placing the database in the CERES San Joaquin Valley Metadata Catalog, future BMP researchers can add additional information about their studies and provide stakeholders with an updated database.

We hope that your proposals are funded. The inventory and evaluations you complete will be useful in many ways.

If you have any questions, please give Robert Meleg a call at (209) 571-5149.

Sincerely,

Jack Crist
City Manager

SOUTH DELTA WATER AGENCY

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Jerry Robinson, Chairman
Robert K. Ferguson, Vice-Chairman
Alex Hildebrand, Secretary
Natalino Bacchetti
Mark Bacchetti

Counsel:
John Herrick
Engineer:
Gerald T. Orlob

September 14, 2001

Mr. Bill Power
Power Hydrodynamics
6301 Bearden Lane
Modesto, CA 95357

Dear Mr. Power:

Our organization supports your proposals "Inventorying and Evaluating Best Management Practices for the Reduction of Nutrient and Oxygen Demanding Substances in the San Joaquin Valley" and "Inventorying and Evaluating Best Management Practices for the Reduction of Non-Nutrient Pollutant Loads." These projects will be important to our constituents as they seek to understand what the existing research says about how different BMPs may help them solve the growing restrictions they face in contaminate load reduction.

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Very truly yours,

JOHN HERRICK