MEMORANDUM

TO: SLDMWA Board of Directors. Alternates
SLDMWA Water Resources Committee Members, Alternates

FROM: Scott Petersen, Water Policy Director
Cynthia Meyer, Special Programs Manager

DATE: September 12, 2022

RE: Recommendation to Board of Directors to Authorize Execution of Agreement with Friant Water Authority for Joint Funding of Consultant Services Relating to Phase 3b of the Delta Smelt Structured Decision Making Project

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BACKGROUND

On May 19, 2022, the State Water Contractors entered into a Consulting Services Agreement with Compass Resource Management, Ltd., for completion of the Delta Smelt Structured Decision Making Project – Phase 3b – Completion of Round 1 Structured Decision Making Evaluation. Consistent with historical funding practices, SLDMWA staff engaged in cost sharing discussions with Contra Costa Water District and Friant Water Authority to spread the costs of funding the study more equitably across the various Delta-reliant federal contractors participating in CSAMP/CAMT.

As a reminder, the proposal to CAMT for the Delta Smelt Structured Decision Making Project envisioned three phases:

1. **Phase 1 – Project Initiation:** Set up the necessary structures and processes to manage and implement the multi-year project, including the CSAMP Steering Committee and Technical Working Group. *COMPLETE*
2. **Phase 2 – Foundation Work:** Focus on foundational work necessary for the Delta Smelt-related components of the SDM process. *COMPLETE*
3. **Phase 3a – SDM Evaluation (front end):** Specify management portfolios (distinct combinations of actions) to evaluate and methods for modeling or otherwise capturing their effects. *COMPLETE*
4. **Phase 3b – Complete Round 1 SDM Evaluation:** Formal evaluation of Delta Smelt recovery actions/portfolios along with the full suite of objectives: Salmon, Longfin Smelt, Water Supply, and Cost.

The current project would complete the first round of structured decision making evaluation for delta smelt recovery actions/portfolios, further informing upcoming regulatory processes and advancing the analysis of tradeoffs between various recovery actions. To date, SLDMWA has funded the prior Delta Smelt SDM work on a 50-50 basis with the State Water Contractors.

ISSUE FOR DECISION

Whether the Water Resources Committee should recommend to the Board that it authorize, in substantially similar form, the execution of the Agreement for Joint Funding of Consultant Services Related to Phase 3b of the Collaborative Science and Adaptive Management Program Delta Smelt Structured Decision Making Project.

RECOMMENDATION

Staff recommends the Committee recommend that the Board authorize execution, in substantially similar form, of the proposed agreement.

ANALYSIS

The SLDMWA Board has provided staff direction to work to increase the funding partners for SLDMWA jointly funded science programs with other contractor participants, particularly CSAMP and CAMT. The proposed agreement would reduce expenditures for SLDMWA member agencies participating in the Science Program funding by 18.89% for this project, consistent with Board direction.

BUDGET

The Science Program budget includes a total of $392,500 for new Science Studies/Efforts, of which SLDMWA staff has earmarked $180,000 for support of CAMT/CSAMP efforts.

The total fee estimate for Structured Decision Making Phase 3b is $424,722, which has traditionally been funded by a 50-50 cost share between the State Water Contractors and SLDMWA. Metropolitan Water District provided an initial $40,000 contribution to advance the project, leaving the remaining scope of work to be $384,722 (Exhibit 2).

If the federal contractor participants match the historical cost share between state and federal contractors, the federal share of the work would be $212,361, of which Contra Costa Water District has executed a cost share agreement directly with the State Water Contractors for $30,000, leaving the remaining federal contractor share to be $182,361.

The breakdown of costs (assuming this cost split) is below:

CSAMP Delta Smelt Structured Decision Making Phase 3b	
Total Cost	$424,722
State PWA Share	$212,361
Federal PWA Share	$212,361
Contra Costa WD	*$30,000 (to date)*
SLDMWA	*$182,361*
FWA (18.89% of SLDMWA cost (EC match))	*$34,448*

The agreement is structured in such a way that Friant Water Authority will participate in the funding for this project at the same rate as the Exchange Contractors participation percentage in the Leg-Ops Fund (18.89%).

EXHIBITS

1. Agreement for Joint Funding of Consultant Services Related to Phase 3b of the Collaborative Science and Adaptive Management Program Delta Smelt Structured Decision Making Project
2. State Water Contractors Consulting Services Agreement with Compass Resource Management Ltd.

Agreement for Joint Funding of Consultant Services Related to Phase 3b of the Collaborative Science and Adaptive Management Program Delta Smelt Structured Decision Making Project

This Agreement is made and entered into this ____ day of September, 2022, between the San Luis & Delta-Mendota Water Authority ("SLDMWA") and the Friant Water Authority ("FWA"), which are referred to herein individually as a "Party" or collectively as "Parties," for the joint funding of consultant services related to Phase 3b of the Collaborative Science and Adaptive Management Program ("CSAMP") Delta Smelt Structured Decision Making project.

The Parties agree as follows:

1. **Need for Agreement**. The State Water Contractors ("SWC") entered into a Consulting Services Agreement with Compass Resource Management Ltd. ("Consultant") effective May 19, 2022 ("Consulting Agreement"). The Consulting Agreement is attached hereto as Exhibit A. Pursuant to the Consulting Agreement, SWC retains Consultant to provide consulting services related to Phase 3b of the CSAMP Delta Smelt Structured Decision Making project. The Consulting Agreement specifies that the total fees for work performed under the Consulting Agreement shall not exceed $384,722. Of this amount, $212,361 will be funded by federal contractor participants in the CSAMP. At the time of this Agreement, Contra Costa Water District has contributed $30,000 toward the federal contractor share, thus $182,361 is required to complete the federal contractor share of funding. This outstanding balance of $182,361 shall hereinafter be referred to as the "remaining federal share." Because Parties have agreed to jointly fund the remaining federal share for Consultant's services pursuant to the Consulting Agreement, this Agreement is necessary and appropriate to set forth the responsibilities of each Party with respect to payment obligations.

2. **Effective Date and Term**. This Agreement will be effective as of the date last signed by either of the Parties and shall remain in effect until the earlier of June 30, 2023 or the termination of the Consulting Agreement.

3. **Payment Obligations**. Through this Agreement, SLDMWA agrees to pay the remaining federal share, and FWA agrees to reimburse SLDMWA for 18.89% of SLDMWA's expenses, but not to exceed 18.89% of $182,361.

4. **Invoicing**. The Parties agree that SLDMWA will bill FWA for its share of the cost as specified in this Agreement. FWA agrees to pay SLDMWA for its allocated share of the costs within 30 days of receipt of the invoice from SLDMWA.

5. **Amendment and Modification**. This Agreement may be amended or modified only by a subsequent writing, approved and signed by both Parties.

6. **Indemnification**. No Party, nor any officer or employee of a Party, shall be responsible for any damage or liability occurring by reason of anything done or omitted to be done by another Party under or in connection with this Agreement.

7. **Entire Agreement**. This Agreement constitutes the sole, entire, integrated and exclusive agreement between the Parties regarding the contents herein. Any other contracts, agreements terms, understandings, promises or representations not expressly set forth or referenced in this writing are null and void and of nor force and effect.

IN WITNESS WHEREOF, the Parties executive this Agreement on the date set forth below.

SAN LUIS & DELTA-MENDOTA WATER AUTHORITY	FRIANT WATER AUTHORITY
By: _____ Federico Barajas, Executive Director	By: _____ Jason Phillips, Chief Executive Officer
Date:_____	Date:_____

LIST OF EXHIBITS:

Exhibit A – Consulting Agreement

Exhibit A

STATE WATER CONTRACTORS CONSULTING SERVICES AGREEMENT WITH

COMPASS RESOURCE MANAGEMENT LTD.

This Consulting Services Agreement, hereafter referred to as "Agreement," is entered into effective May 19, 2022 by and between the State Water Contractors, hereinafter referred to as "SWC," and Compass Resource Management Ltd., hereinafter referred to as "Consultant." Under this Agreement, Consultant will provide the services as identified in Attachment A, attached hereto. SWC and Consultant may hereinafter be referred to individually as a "Party" and collectively as the "Parties".

1. Scope of Services

a. SWC retains Consultant to provide consulting services necessary to complete the tasks set forth in Attachment A (the "Services" or the "Scope of Work"). Consultant agrees that all work required under this Agreement must be accomplished in a professional, technically competent, and timely manner.

b. Consultant shall provide SWC with monthly progress reports, as outlined in Section 4(c). Consultant will also hold regular status briefings in person, by phone, or by email depending on the topics to be addressed.

c. In performance of the Services requested under this Agreement, Consultant shall report to and receive instructions from the SWC General Manager.

2. Financial Arrangements

a. All payments by SWC to Consultant under this Agreement shall be consistent with the budget and schedule of fees set out in Attachment B. Fees under this Agreement shall be established and billed on an hourly basis. SWC shall directly reimburse the Consultant for hard, out-of-pocket costs (at no mark-up), including travel, major shipping, etc., reasonably incurred in performing the Services upon submission of reasonable supporting documentation. For individual expenditures of $1,000 or more, Consultant shall obtain the prior written approval of the SWC as a condition precedent to Consultant's right to reimbursement under this section.

b. Total fees, including expenses for work performed under this Agreement shall not exceed $384,722. Consultant agrees to provide prompt written notice to SWC when expenditures under this Agreement reach seventy-five per cent (75%) of the total task expenditures.

3. Term and Termination

a. This Agreement shall be effective on May 19, 2022 and shall remain in effect until June 30, 2023 unless terminated earlier pursuant to this Agreement. This Agreement may be terminated at any time by SWC with or without cause upon written notice. Consultant may terminate this Agreement only with cause upon sixty (60) days' written notice. Upon termination initiated by SWC without cause, SWC shall pay Consultant for Services and expenses up to and including the effective date of termination.

b. All finished and unfinished data, studies, documents, and reports prepared by Consultant in performing the Services ("Work Product") are and shall remain SWC's property and Consultant shall deliver such items to the SWC upon the termination of this Agreement. SWC acknowledges and agrees that Consultant retains exclusive ownership of all works of authorship created by or for Consultant prior to or separate from the performance of Services under this Agreement, including without limitation, Consultant's proprietary information and Services, media lists, lists of political and community contacts and third party relationships held by Consultant, except that Consultant grants SWC a non-exclusive, perpetual license to the same but only to the extent necessary for SWC's reasonable use and enjoyment of the Work Product.

4. Billings and Payments

a. Any notice, demand, or request regarding this Agreement shall be in writing, and shall be personally served or sent First Class U. S. Mail, postage prepaid, to the address supplied herein:

Consultant	**State Water Contractors**
Compass Resource Management Ltd Suite 302, 788 Beatty Street Vancouver, B.C. V6B 2M1 Canada	1121 L Street Suite 1050 Sacramento, CA 95814 Attention: Jennifer Pierre

b. Either the Consultant and/or SWC may, at any time, by written notice to the other party, designate different or additional persons or different addresses for the giving of notices hereunder.

c. The consultant shall submit a monthly progress report/invoice on or before the 7th day of each month to SWC. Invoices received after this date will be processed during the next invoice cycle. The invoice shall be submitted via email to: **swcscience_invoices@swc.org**. The progress report/invoice shall contain a brief description of the work performed, broken down by task and hours billed by person, including total expenditures to date. Appropriate documentation shall be provided for all direct expenses billed by Consultant. The description of work performed shall be of a form that is appropriate for briefing the SWC Board of Directors and Member Agencies.

d. SWC shall pay Consultant's billings within thirty (30) days of approval of such billings, or it shall issue Consultant a written denial of such billings within the same period.

5. Staffing

a. Consultant has represented to SWC that certain key personnel will perform and coordinate the Services ("Key Personnel"). Should one or more of such personnel become unavailable, Consultant may substitute other personnel of at least equal competence upon written approval of SWC. In the event that SWC and Consultant cannot agree as to the substitution of Key Personnel, SWC shall be entitled to terminate this Agreement for cause. The Key Personnel for performance of this Agreement are hereby designated as follows: Sally Rudd, Brian Crawford, Dan Ohlson, Alejandra Ibarra.

b. The Consultant is authorized to subcontract with other consultants in connection with the work called for herein, with the prior written approval of SWC.

6. Code of Conduct

a. SWC is committed to maintaining a professional, collegial work environment in which all individuals are treated with fairness, respect and dignity. Consultant shall, at all times, enforce good order among its employees and those of any subcontractors or any other persons acting on its behalf.

b. If any person employed by Consultant or any subcontractor of Consultant appears to SWC, in its sole and absolute discretion, to be incompetent or to act in a disorderly or improper manner, such person shall immediately cease performance of any Services under this Agreement upon request by SWC. Such person shall not again perform any Services for the remainder of the term of the Agreement. If Consultant fails to take all reasonable and appropriate steps to remove such person upon the request of SWC, then SWC may terminate this Agreement with cause and shall have the right to refuse payment to Consultant for any Services or expenses from the date of the request. Any removal of such person shall not be the basis for any claim of compensation or damages against SWC.

7. Governing Law & Venue

a. The Consultant shall perform such Services in accordance with recognized professional standards and will comply with all applicable regulatory requirements, including federal, state, and local laws, rules and regulations, codes, criteria, and standards in effect at the time the Services are performed for an expert in the Services.

b. To the furthest extent permitted by law, any dispute between the Parties that arises out of, relates to, or is incident to this Agreement, its subject matter, or the acts contemplated hereunder shall be governed by the laws of the State of California with venue in the Superior Court of California for the County of Sacramento for cases within that Court's jurisdiction or the federal judicial district in which such venue is situated cases within that Court's jurisdiction.

8. Entire Agreement

a. It is mutually agreed and understood that this Agreement represents the complete agreement of SWC, and that no alteration or variation of the terms of the Agreement shall be valid and binding unless made in writing and signed by SWC herein.

9. Other Terms and Conditions

a. The Consultant shall not release or disclose information obtained in the course of consultant's work for the SWC under this Agreement to others without receiving prior written permission from the SWC or its designee.

b. No delay or failure by either party to exercise or enforce at any time any right or provision of this Agreement shall be considered a waiver thereof or of such party's right thereafter to exercise or enforce each and every right and provision of this Agreement. A waiver to be valid shall be in writing but need not be supported by consideration. No single waiver shall constitute a continuing or subsequent waiver.

c. Consultant will furnish consulting Services in the capacity of an independent contractor and neither consultant nor any of its employees shall be considered, or be, an employee or agent of SWC.

d. Consultant agrees to refrain from accepting assignments from other entities or individuals on issues within the Scope of Services provision of Section 1 of this Agreement, unless the specific assignment(s) has been submitted to SWC and approved by the General Manager.

e. In the performance of Consultant's Services, the Services and hours Consultant is to work in any given day will be within Consultant's control and SWC will rely upon Consultant to put in such number of hours as is reasonably necessary to fulfill the spirit and purpose of this Agreement and accomplish Consultant's assignments.

f. The execution of this Agreement by the parties hereto shall constitute an authorization to proceed whereupon Consultant will commence hereunder. Consultant shall promptly notify SWC of any anticipated delays or circumstances beyond Consultant's control that may affect any agreed-to work schedule.

g. All data, studies, and documents shall be furnished to and become property of SWC. SWC acknowledges and agrees that Consultant retains exclusive ownership of all works of authorship created by or for Consultant prior to or separate from the performance of Services under this Agreement, including without limitation, Consultant's proprietary information and Services, media lists, lists of political and community contacts and third-party relationships held by Consultant.

10. Indemnity

a. Consultant assumes all risk of injury to its employees, agents and contractors, including loss or damage to property.

b. To the furthest extent permitted by law, Consultant shall defend, indemnify and hold harmless SWC, its board of directors, officers, employees and agents from and against all claims, suits or causes of action for injury to any person or damage to any property arising out of any intentional or negligent acts or errors or omissions arising out of its performance of the Services under this Agreement.

11. Reporting and Deliverables

a. Written reports that summarize work performed and the state of completion shall be provided by the Consultant to SWC **quarterly**. When significant work is performed, the report should also include a summary of that work, problems encountered, and conclusions. Consultant shall use the reporting template included in **Attachment C** to report work done under this Agreement absent the prior written consent of SWC to another form.

b. A one- to two-page fact sheet will be provided by the Consultant to SWC within 30 days of the effective date of this Agreement. Consultant shall use the fact sheet template included in **Attachment C** to this Agreement absent the prior written consent of SWC to another form.

c. A final fact sheet will be provided by the Consultant to SWC within 60 days of completion of the Project and will follow the same template as the initial fact sheet. Consultant shall

use the fact sheet template included in **Attachment C** to this Agreement absent the prior written consent of SWC to another form.

d. Consultant will participate in periodic in-person, web-conferencing, or telephone briefings, reasonably requested by SWC.

Deliverable	Due Date
Project Fact Sheet (initial)	July 15, 2022
Quarterly Reports	March 31, June 30, September 30, December 31
Final Fact Sheet	July 15, 2023

12. Counterparts

This Agreement may be executed in counterparts. Each counterpart shall be deemed an original, and all counterparts shall be deemed the same instrument with the same effect as if all parties hereto had signed the same signature page.

IN WITNESS WHEREOF, SWC and Consultant have executed this Agreement on the date set forth below.

STATE WATER CONTRACTORS

DocuSigned by:

BY: Jennifer Pierre
F72228395FAD400...

DATE: 6/10/2022 | 10:30 AM PDT

Jennifer Pierre
General Manager

COMPASS RESOURCE MANAGEMENT LTD.

DocuSigned by:

BY: DW Ohlson
3912BB1B43A049F...

DATE: 6/9/2022 | 6:06 PM PDT

Dan Ohlson
Principal

ATTACHMENT A

SCOPE OF WORK

Compass Resource Management Ltd.
302 – 788 Beatty St.
Vancouver, B.C. V6B 2M1 Canada
Phone: 604.345.8542
www.compassrm.com

Date: May 26, 2022

Jennifer Pierre and Darcy Austin
State Water Contractors
1121 L Street, Suite 1050
Sacramento, CA 95814
916.447.7357

Re: Draft Letter Proposal for Discussion – Delta Smelt Structured Decision Making Project – Phase 3b – Completion of Round 1 SDM Evaluation

Dear Jennifer and Darcy:

Please accept this letter proposal regarding a possible scope of work for Phase 3b of the Delta Smelt Structured Decision Making (SDM) project. There are two main goals for this project:

1. Build consensus across CSAMP membership on a portfolio of recommended management and science actions to advance Delta Smelt goals.
2. Support more coordinated management of Delta Smelt, where possible, to integrate three important spheres of activity: science, decision making, and implementation of management actions.

Review of Work to Date

As a reminder, building on the success of the SDM Demo and Scoping projects, our original proposal to CAMT envisioned three phases for the current project:

1. **Phase 1 – Project Initiation:** Set up the necessary structures and processes to manage and implement the multi-year project including the CSAMP Steering Committee and Technical Working Group. *COMPLETE*
2. **Phase 2 – Foundation Work:** Focus on foundational work necessary for the Delta Smelt-related components of the SDM process. *COMPLETE*
3. **Phase 3a – SDM Evaluation (front end):** Specify management portfolios (distinct combinations of actions) to evaluate and methods for modeling or otherwise capturing their effects. *NEARING COMPLETION*
4. **Phase 3b – Complete Round 1 SDM Evaluation:** Formal evaluation of Delta Smelt recovery actions/portfolios along with the full suite of objectives: Salmon, Longfin Smelt, Water Supply, and Cost

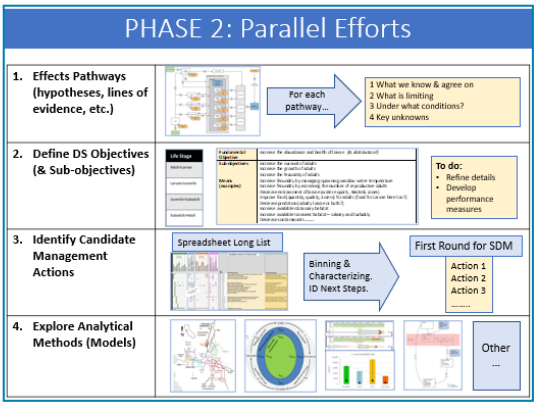
The key deliverable in **Phase 1** was the development of Process Guidelines[1] that described how CSAMP would work through the SDM process. This included the following process principles:

- All participants will recognize multiple interests and the need for considering tradeoffs in decisions related to water supply, endangered species and other related policy issues.
- The process will respect and does not alter existing legal rights, authorities and responsibilities.
- Meaningful participation will be facilitated.
- The process will strive for consensus.
- All relevant and acceptable information will be used.
- The process will support decision making under uncertainty on an ongoing basis and improve information over time to inform future decisions.

The Guidelines also set up two key groups to serve the process and collaboration needs of the project – a Technical Working Group composed of representatives of CAMT members and an SDM Steering Committee composed of Policy Group representatives.

Phase 2 involved dozens of facilitated meetings with the Delta Smelt Technical Working Group (TWG), and numerous updates and presentations to the SDM Steering Committee, CAMT and the CSAMP Policy Group. The deliverable was a Phase 2 report that documented the following:

1. **Effects Pathways:** An SDM-style conceptual model / effects pathway with online documentation.
2. **DS Goal / Objectives:** CSAMP agreement on a Delta Smelt Goal; objectives and sub-objectives aimed at improved growth and survival across each life stage.
3. **Management Actions:** ~40 candidate management actions brainstormed by TWG members to target specific pathways of effect / potential bottlenecks; characterized by scope/timing/spatial application; 'binned' in terms of stage of development (prefeasibility to mature for implementation).



[1] Compass Resource Management, July 2019. *Process Guidelines: CSAMP Delta Smelt Structured Decision Making Project.* Approved by CSAMP Policy Group on July 22, 2019.

4. **Analytical Methods:** Exploration of models and analyses (e.g., life cycle models, bioenergetics model, etc.) that will be used to further refine and develop management actions and support estimation of their consequences.

In Phase 3a, Compass provided deliverables in three work streams:

1. CSAMP Organizational Framework for Delta Smelt (hereafter referred to as "Organizational Framework")
2. Pre-feasibility analysis of early concept management actions
3. SDM evaluation (estimating the effects of alternative management actions and portfolioson Delta Smelt and other objectives)

Workstream 1 (Develop Organizational Framework) is complete – the CSAMP Organizational Framework for Delta Smelt was finalized in July 2021.

Workstream 2 (Pre-feasibility analysis of early concept management actions) was the focus of the TWG from January to July 2021. This involved TWG discussion on about 30 early concept candidate management actions that were identified in Phase 2. While there are still various lines of inquiry that could be pursued to get more information on how promising some of these actions would be for Delta Smelt, Compass worked with the TWG to synthesize across all of these discussions to sort which actions should be focused on for a Round 1 SDM Evaluation, which actions should be re-considered for a Round 2 SDM Evaluation and which actions to drop for the purposes of this project. This sorting was documented in memos to CAMT/Policy Group in August/September 2021. At our presentation to the Policy Group on September 1, 2021, Policy Group members raised a concern about how the Fall X2 and OMR management actions would be addressed in the development of portfolios for SDM evaluation. This precipitated increased facilitation effort with the Steering Committee and TWG to support resolution of this question.

Workstream 3 (SDM evaluation) – is ongoing and it is this workstream that we are seeking additional funding for through this proposal. In Phase 3a, we have completed the following deliverables for this work stream:

- **Dynamic Habitat Analysis Tool** to support the TWG in identifying opportunities to improve dynamic habitat for delta smelt (the overlap of suitable salinity, turbidity, temperature and food conditions);
- Definition of **11 Draft Portfolios** - each portfolio is composed of a different combination of management actions and represents a unique strategy for increasing delta smelt populations that will have different effects for other objectives such as salmon, water supply, and financial cost.
- **Draft Management Action Specification Sheets** for the 20 management actions included in Round 1
- **TWG workshop and work plan** for completing the delta smelt modeling of the 11 Draft Portfolios.
- **Technical analysis** to support the modeling of portfolios/actions (documented through various spreadsheets that are on the TWG SharePoint and will be used in Phase 3b).

Phase 3b Scope of Work

The scope of work and budget presented here for Phase 3b includes all steps within the first round ("**Round 1**") of the SDM evaluation. Round 1 involves:

- Finalizing a set of "base" portfolios and sensitivity analysis approach. The TWG has currently specified 11 base portfolios (Table X) using different combinations of actions (Table 2), and they have proposed conducting a sensitivity analysis using a subset of those portfolios and varying levels of (a) X2 management, (b) tidal wetland restoration, and (c) supplementation.
- Evaluating outcomes for Delta Smelt (population growth and habitat metrics) and other objectives (salmon, longfin smelt, water supply, and management costs) for each portfolio and sensitivity analysis scenario.
- Conducting workshops with CSAMP members to review and discuss results, deliberate on important trade-offs among portfolios and objectives, and identify science and management recommendations for Delta Smelt recovery that have broad support.

Given the large scale and complexity of analytical steps involved in the SDM evaluation, it is difficult to know if the current budget and timeline will allow for a "Round 2" where the group specifies an updated set of portfolios based on insights gained in Round 1, re-evaluates outcomes across all objectives, and deliberates again to explore tradeoffs and recommendations. We also anticipate substantial insights to be gained from Round 1 of the SDM evaluation, and it's quite possible that a Round 2 will not be needed/desired in the short-term. Rather, it may make sense to do additional research/studies before a Round 2 SDM evaluation is commenced.

Phase 3b will include seven tasks over the next year that will build on the progress of Phase 3a. These tasks are described further below and a detailed break-down of the tasks and budget are provided in Appendix 1.

Task 1 - Facilitation, Communication and Secretariat Services: Compass will continue to engage the Delta Smelt Technical Working Group, the SDM Steering Committee, CAMT and the CSAMP Policy Group throughout this phase of work as we did in Phase 3a. Our proposed budget has assumptions for the number of meetings for which we would facilitate and/or make presentations. The majority of the budget for this task is for planning, delivery, and documentation of monthly meetings/workshops of the TWG, as well as TWG sub-group meetings that focus on specific details of the SDM evaluation as necessary (e.g., modeling of the effects of portfolios/actions on delta smelt).

Task 2 – Delta Smelt Evaluation Coordination, Modeling and Communication: This task will continue progress of the TWG to develop modeling approaches and complete an effects analysis of the consequences of management portfolios on Delta Smelt population outcomes. This will include evaluation of at least 11 base portfolios (Table 1), 22 management actions (Table 2) and possible variants of these actions and sensitivity analyses for X2, tidal wetland restoration and supplementation. We've done a detailed break-down of the sub-tasks within Task 2 to help convey the scale of what will be done. **Tasks 2.1-2.20** include coordinating and assisting with the development of technical proposals for modeling each management action being evaluated in Round 1. To date, Compass has identified individuals from within and outside of the TWG to lead proposals for each action. These proposals will specify recommended, evidence-based approaches for modeling the effects of an action and document important assumptions. These will be reviewed, discussed, and approved by the TWG. Tasks 2.21-2.26 include coordination of data inputs / outputs across multiple modelling approaches and completion of Round 1 analysis that predicts

the consequences of a set of management portfolios on Delta Smelt population growth. Our budget assumes that Compass will run the Individual Based Model in R (IBMR) with supervision from Will Smith (USFWS) for all portfolios, as well as coordinate evaluation of a subset of management portfolios/actions across 3 other Delta Smelt population models.

Ultimately, it is not possible for us to predict the level of effort that will be required to complete the delta smelt evaluation to the satisfaction of all CSAMP members and so this is an uncertainty that must be accepted and managed. Our level of effort represents our best guess based on our experience working on the project to date and based on an assumption that TWG members and delta smelt modelers will also make the required effort. Compass will need to actively manage our time to stay within our estimated budget and we will encourage efficiency in the analysis through encouraging TWG members to balance the level of modeling complexity (and precision of results) with expected benefits of learning.

We have also included a placeholder budget for technical support tasks that may be taken on by Compass or other consultants/experts, with direction from the CSAMP TWG and other groups (e.g., SDM Steering Committee).

Tasks 3 to 5 – Evaluation of other objectives (salmon, longfin smelt, water supply, management cost): The evaluation of portfolios for salmon and longfin smelt objectives will be a coarse and qualitative evaluation that relies on the participation of experts as identified through the CSAMP network. Compass will coordinate experts and lead the required workshops to elicit qualitative judgements on the performance of portfolios for salmon and longfin smelt.

The evaluation of portfolios for water supply will be quantitative and will rely on either hydrology/operations modeling support from DWR and/or a consultant. A placeholder budget for MBK Engineers has been included in the draft budget. We have not yet spoken to MBK Engineers about this work and so this would be required to confirm their budget and scope.

The evaluation of portfolios for management cost will be ball-park estimates of financial cost for implementing the portfolios and these estimates rely on the availability/willingness of knowledgeable individuals to inform these estimates. We will also be able to build on the financial estimates from the SDM demo project for a subset of management actions.

Task 6 – Deliberation on the Round 1 Consequence Table and Writing of Round 1 SDM Report: This task represents the culminating step of Phase 3b, where we will conduct workshops with CSAMP members to review and discuss results from the Round 1 SDM evaluation, deliberate on important trade-offs and uncertainties among portfolios and objectives, and identify science and management recommendations with broad support. Compass will plan and facilitate these workshops, as well as document all recommendations and areas of remaining disagreement in a final report for Round 1 of the SDM evaluation.

Task 7 – Project Management: This task includes time for general project management and coordination of sub-contractors.

Table 1: Draft Portfolios for Round 1 SDM Evaluation

Short ID & name	Category	Description
1a: Post-2008 BiOp	Baseline/ reference	Includes all actions/regulations that were being implemented after the 2008 federal Record of Decision

5

Short ID & name	Category	Description
		(ROD) and Biological Opinion (BiOp) for the long-term operation of the Projects.
1b: Post-2020 BiOp/ITP	Baseline/ reference	Includes all actions/regulations that are currently being implemented under the State's Incidental Take Permit (ITP) and the 2020 federal Record of Decision (ROD) and Biological Opinion (BiOp) for the long-term operation of the Projects.
2a: Immediate & intensive mgmt	Short-term	Specifies flow actions for "emergency measures for the wild population," which could be implemented immediately (i.e., beginning in 2022/23) in ways that are reactive/responsive to poor conditions for Delta Smelt. This would entail monitoring conditions (e.g., temperature patterns) and reactively allocating water to dampen stressors on Delta Smelt throughout the year, to the extent that water is available.
2b: Cache Slough focus	Short-term	Specifies actions that could be implemented in the short-term in Cache Slough – especially in the Deep Water Ship Channel (DWSC), which is the last place where significant numbers of Delta Smelt adults and larvae have been found.
2c: Cache Slough and Suisun Marsh focus	Short-term	Specifies actions that could be implemented in the short-term to provide year-round refuges where Delta Smelt have seemed to do well historically - namely the DWSC and Suisun Marsh (Montezuma Slough in particular).
2d: Risk-sensitive OMR management	Short-term	The general concept of a risk-sensitive approach to entrainment mitigation is to restrict pumping more than current during higher risk periods and less during lower risks periods.
3a: Self-sustaining/ permanent mgmt	Long-term	Specifies actions that could be implemented in the long-term and are more self-sustaining or permanent in nature and thus require less oversight and continual intervention.
3c: Focus on spawning resilience	Long-term	Building on important factors identified in recent work using the Life Cycle Model (Smith et al. 2021), specifies actions to promote good conditions for spawning and larval survival.
3d: Remove food, temperature	Long-term	Building on important factors identified in recent work using a limiting factor analysis (Hamilton & Murphy

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Short ID & name	Category	Description
limitations and reduce larval predation		2021), focuses on actions to address hypothesized factors limiting Delta Smelt population, such as food in spring and summer, temperature in spring, and larval predation.
3e: Improve habitat connectivity	Long-term	Specifies restoration and other non-flow actions to improve and connect habitat in the Confluence and Lower Rivers, between areas currently with relatively good habitat (Suisun Marsh and DWSC).
3f: Fish Friendly Diversions	Long-term	"Fish Friendly Diversions" are sub-surface water diversions that would virtually eliminate direct entrainment. As indirect entrainment would still be an issue, the current approach to OMR management is maintained in this portfolio.

Table 2: Management Actions for Round 1 SDM Evaluation

Action Category	Action
Dynamic habitat (overlap of suitable salinity, turbidity, temperature and/or food habitat)	Outflow augmentation / X2 management (including spring/summer outflow augmentation and Fall X2 management)
	Operation of the Suisun Marsh Salinity Control Gates
	Flow pulses to trigger spawning or Engineered first flush
	Cold water flow to extend spawning season
	Sediment supplementation in the Low Salinity Zone
	Aquatic weed control
	North Delta Food Subsidies (Summer/Fall and/or Nov-March with Yolo Bypass Big Notch Project)
	Sacramento DWSC Food Transport and Subsidies
	Managed wetland food and drain operations in Suisun Marsh (includes Roaring River Distribution System Food Production)
	Spring pulse flows on San Joaquin to move food downstream
	Reoperation of existing storage and/or creation of new storage through new off-stream reservoirs or groundwater storage (to support water needs of some of above actions)
	Tidal wetland restoration

Action Category	Action
Stationary habitat actions	Habitat restoration with temperature focus
	Franks Tract restoration
	Spawning habitat augmentation (restoring beaches taken over by invasive Arundo)
Other (entrainment, predation, contaminants, supplementation)	Old and Middle River (OMR) Management (current approach)
	Risk-sensitive OMR Management
	Fish friendly diversions
	Silverside population management / predation control
	Physical point-source contaminants restoration (Ulatis Creek +)
	Hatchery supplementation
	Protective nursery on Delta Islands for young hatchery fish

Deliverables

The key deliverable for Phase 3b will be a "Round 1 SDM Report" documenting the outcomes of the Round 1 SDM evaluation and all science and management recommendations that emerge from CSAMP discussions of the Round 1 SDM results. This report will include the following detailed appendices that can be updated for future rounds of SDM evaluation:

- Action Specification Sheets for each management action included in the Round 1 SDM Evaluation that include a general description of the action, influence diagram, specification details (location, timing and/or triggering conditions),
- Performance Measure Info Sheets for each objective evaluated (delta smelt, salmon, longfin smelt, water supply, management costs) that detail the methods used for estimating the effects of portfolios on the objectives.

Through the completion of this project, the following delta smelt population or habitat models/tools will also be further developed and made available to the CSAMP membership:

- IBMR model and documentation along with new distribution sub-model (led by Will Smith, FWS)
- Hamilton & Murphy limiting factors model with distribution sub-model (led by Scott Hamilton)
- Updated Maunder & Deriso model and document (led by Mark Maunder and funded by Metropolitan Water)
- Dynamic Habitat Analysis Tool (developed by Compass with direction from the TWG)

Project Team

Compass will maintain the same team members as per Phase 3a and will add a junior analyst:

- **Sally Rudd** – will act as the Project Manager and will co-facilitate the Delta Smelt Technical Working Group with Brian Crawford. Sally will also coordinate all technical analysis for estimating the consequences of alternative management actions on objectives.
- **Brian Crawford –** will co-facilitate the Delta Smelt Technical Working Group with Sally Rudd. Brian will support Sally in coordinating all technical analysis for estimating the consequences of alternative management actions on objectives – including leading the analysis of management portfolios with the Individual Based Model in R (IBMR) with supervision from Will Smith (USFWS).
- **Dan Ohlson –** will act as a strategic advisor to the project, supporting work on an as needed basis.
- **Alejandra Ibarra** – will provide secretariat services – i.e., meeting notes, distributing documents, and other administrative support.

Budget and Scope Assumptions

For this scope of work, we estimate a total consultant fee budget of $373k with a travel budget of $11,700 for the period between June 1, 2022 and March 31, 2023 (see Annex 1 for break-down). The total budget (fees + expenses) is 384,700.

The estimate for Compass fees includes the following assumptions:

- Facilitation and process assumptions:
    - Compass will act as the Secretariat for the SDM project (scheduling meetings, meeting notes, etc.) – i.e. taking over the services provided by Kearns & West in Phase 2
    - Bruce DiGennaro will provide facilitation support for the Delta Smelt SDM Steering Committee and will help with liaising between this SDM project and CAMT, Policy Group, and the Delta Coordination Group
    - FlowWest will continue to manage the GitHub website for process and modeling documentation
    - ~1 Technical Working Group (TWG) workshop per month along with shorter meetings as necessary with sub-sets of the TWG to advance methods

- Technical analysis assumptions:
    - Compass has included scope in the budget to undertake a limited amount of technical analysis and scientific literature review to support TWG discussions, including leading analysis of portfolios with the IBMR
    - Compass is not scoped to do additional, significant technical/scientific analysis (e.g., modeling Delta Smelt outcomes with other population models)
    - Will Smith (USFWS) will lead analysis of portfolios with the LCME Delta Smelt model, as well as assist with IBMR modeling
    - Scott Hamilton will lead analysis of portfolios with the Hamilton and Murphy Delta Smelt model
    - Shawn Acuna will coordinate analysis of portfolios by Mark Maunder with the Maunder and Deriso Delta Smelt model
    - Sub-contractors will be used to do technical analysis for delta smelt and water supply as necessary and guided by the TWG and Steering Comittee
    - CAMT members and other experts (e.g., CVPIA SIT Team, DWR, USBR) will be needed to estimate outcomes for salmon, longfin smelt, and watery supply.

I hope this letter meets your expectations and needs; if not, please do not hesitate to contact me to discuss.

Sincerely,

Dan Ohlson
Principal, Compass Resource Management Ltd.

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ATTACHMENT B

SCHEDULE OF FEES AND BUDGET

ANNEX 1 – Phase 3b Budget

CSAMP Delta Smelt SDM - Phase 3b - Complete Round 1 SDM Evaluation
June 1, 2022 to March 30, 2023

PROPOSED BUDGET

TASKS	Tasks	Description	Dan Ohlson $/day	Sally Rudd / Brian Crawford $/day	Junior Associate $/day	Technical Support (either Compass or Sub-contractors) $/day	Compass Days per task	Fees per task	Fee Subtotals
		$/hour	$ 200	$ 150	$ 100	$ 150			
		$/day	$ 1,600	$ 1,200	$ 800	$ 1,200			
			Days	Days	Days	Days			
1	**Facilitation, Communication and Secretariat Services**								$ 98,600
1.1	Delta Smelt TWG Meetings (Prep, Delivery, Notes)	Assume 10 meetings x 4 hours each	2	30	15	5	47	$ 57,200	
1.2	Technical Sub-group Meetings (Prep, Delivery, Notes)	Assume 12 meetings x 1.5 hour each		6			6	$ 7,200	
1.3	Steering Committee Meetings (Prep, Delivery, Notes)	Assume 5 meetings x 1.5 hours each	2	13			15	$ 18,200	
1.4	CAMT Engagement (Prep & Delivery)	Assume 4 presentations		8			8	$ 9,600	
1.5	Policy Group Engagement (Prep & Delivery)	Assume 2 presentations	1	4			5	$ 6,400	
2	**Delta Smelt Evaluation Coordination, Modeling and Communication**								$ 141,600
2.1	OMR mgmt / exports	Coordinate with M. Eakin to develop modeling proposal and Action Specification Sheet				1	1	$ 1,200	
2.2	Fall X2 and Summer X2 management	Coordinate with M. Eakin and W. Smith to develop modeling proposal and Action Specification Sheet				1	1	$ 1,200	
2.3	Outflow augmentation	Coordinate with W. Smith to develop modeling proposal and Action Specification Sheet				1	1	$ 1,200	
2.4	Summer-fall operation of SMSCG	Coordinate with R. Hartman and M. Eakin to develop modeling prooposal and Action Spec Sheet				1	1	$ 1,200	
2.5	Engineered first flush	Coordinate with M. Eakin to develop modeling proposal and Action Spec Sheet				2	2	$ 2,400	
2.6	Pulse flows on San Joaquin in April	Coordinate with S. Hamilton to develop modeling proposal and Action Spec Sheet				2	2	$ 2,400	
2.7	Cold water flow to extend spawning season	Coordinate with Lauren and Ching-Fu on modeling proposal, Action Spec Sheet and do coarse feasibility modeling				2	2	$ 2,400	
2.8	Sediment supplementation in the LSZ	Coordinate with Ching-Fu on modeling proposal, Action Spec Sheet				1	1	$ 1,200	
2.9	Aquatic weed control	Coordinate with S. Acuna/ B. Mahardja on modeling proposal, Action Spec Sheet				2	2	$ 2,400	
2.10	North Delta Food Subsidies	Coordinate with Brian/Kristi on modeling proposal, Action Spec Sheet				1	0.5	$ 600	
2.11	Sacramento DWSC Food Actions	Coordinate with Brian/Erwin on modeling proposal, Action Spec Sheet				1	0.5	$ 600	
2.12	SM & RR Managed Wetland Food Production	Coordinate with Randy/Shaun P. on modeling proposal, Action Spec Sheet				1	1	$ 1,200	
2.13	Tidal Wetland Restoration	Coordinate with Randy and other experts on modeling proposal, Action Spec Sheeet, model tidal wetland restoration-food effect pathway				5	5	$ 6,000	
2.14	Franks Tract Restoration	Coordinate with Ching-Fu on modeling proposal, Action Spec Sheet				2	2	$ 2,400	
2.15	Spawning habitat augmentation	Coordinate with Lauren/Jim Hobbs on modeling proposal, Action Spec Sheet				2	2	$ 2,400	
2.16	Physical Point Source Contaminant Restoration	Coordinate with Shawn/Wayne Davis on modeling proposal, Action Spec Sheet				3	3	$ 3,600	
2.17	Silverside population management	Coordinate with Bill B. on modeling proposal, Action Spec Sheet				2	2	$ 2,400	
2.18	Protective nursery	Coordinate on modeling proposal, Action Spec Sheet				2	2	$ 2,400	
2.19	Fish friendly diversions	Coordinate with S. Hamilton on modeling proposal, Action Spec Sheet				2	2	$ 2,400	
2.20	Risk-sensitive OMR management	Coordinate with S. Hamilton on modeling proposal, Action Spec Sheet				2	2	$ 2,400	
2.21	Delta Smelt IBMR Modeling & Communication	Model Round 1 Portfolios with IBMR (supervised by W. Smith) and communicate results (10 Portfolios x 3 sensitivity analyses for subset)				10	10	$ 12,000	
2.22	Delta Smelt LCME Modeling & Communication	Coordinate with Will to do LCME modeling and communicate results				3	3	$ 3,600	
2.23	Delta Smelt Hamilton Modeling & Communication	Coordinate with S. Hamilton to do LF modeling and communicate results				3	3	$ 3,600	
2.24	Dynamic Habitat Modeling & Communication	Estimate changes in Dynamic Habitat Suitability across 10 Portfolios x 3 sensitivity analyses for subset		3		25	28	$ 33,600	
2.25	DS Modeling Results Synthesis & Communication	Review, synthesize, interpret and communicate DS modeling results		4		25	29	$ 34,800	
2.26	DS Performance Measure Info Sheet	Documents the methods and interpretations for the Delta Smelt performance measures		5		5	10	$ 12,000	

CSAMP Delta Smelt SDM - Phase 3b - Complete Round 1 SDM Evaluation

June 1, 2022 to March 30, 2023

PROPOSED BUDGET

TASKS				Dan Ohlson $/day	Sally Rudd / Brian Crawford $/day	Junior Associate $/day	Technical Support (either Compass or Sub-contractors) $/day	Compass Days per task	Fees per task	Fee Subtotals
			$/hour	$ 200	$ 150	$ 100	$ 150			
			$/day	$ 1,600	$ 1,200	$ 800	$ 1,200			
	Tasks	Description		Days	Days	Days	Days			
4	**Water Supply Evaluation**									$ 43,200
4.1	Develop Water Supply Objectives and Performance Measure Methods and Info Sheet				3			3	$ 3,600	
4.2	Hydrology/Operations Modeling of Round 1 Portfolios				4		20	24	$ 28,800	
4.3	Results synthesis and communication/documentation				4		5	9	$ 10,800	
5	**Management Cost Evaluation**									$ 15,600
5.1	Capital and operating cost estimates for all actions	Coordinate with action leads to get ball-park cost estimates			10			10	$ 12,000	
5.2	Develop and document methods and results				3			3	$ 3,600	
6	**Results Deliberations & Round 1 SDM Evaluation Report**									$ 38,400
6.1	CSAMP Workshops to review results and discuss recommendations	Assume three 6-hour workshops		2	10			12	$ 15,200	
6.2	Develop first draft	Report will have resuls of Round 1 SDM Evaluation and identify key insights, recommendations and questions from the evaluation; Appendices will include Action Specification Sheets, Portfolio Specification Sheet, Delta Smelt Performance Measure (PM) Info Sheet that documents on metrics and models, Salmon PM Info Sheet, Longfin Smelt PM Info Sheet, Water Supply PM Info Sheet, Mgmt Cost PM Info Sheet		1	10			11	$ 13,600	
6.3	Integrate comments and develop 2nd draft				5			5	$ 6,000	
6.4	Integrate comments and develop 3rd draft				3			3	$ 3,600	
7	**Project Management**									$ 11,600
7.1	Sub-contractor Coordination				2			2	$ 2,400	
7.2	Project Planning and Coordination			2	5			7	$ 9,200	
				10	**144**	**15**	**144**	**308**		**$ 373,000**
				16,000	172,200	12,000	172,800			

Total Fees	**$**	**373,000**
Total Expenses	**$**	**11,700**
Total	**$**	**384,700**

Maximum Amount Payable: **$384,722**

ATTACHMENT C

TEMPLATES

SWC Invoice

November 8, 2021

State Water Contractors
1121 L Street, Suite 1050
Sacramento, CA 95814

Attention:	**swcscience_invoices@swc.org**
Contract Number:	
Project Title:	
Contractor Name:	
Contractor Address:	
Invoice Number:	
Invoice Period:	
Current Invoice Total:	**$**

Summary of Work Performed by task during this invoice period:

Task 1:

Task 2:

Task 3:

Task 4:

Task 5:

Page **1** of **4**

SWC Invoice

Labor this invoice:

Task 1:	Hours	Rate	Amount
Professional Category			
Staff name	0	$	$
		Labor Total	**$0.00**
		ODC Total	**$0.00**
		TASK 1 TOTAL	**$0.00**

Task 2:	Hours	Rate	Amount
Professional Category			
Staff name	0	$	$
		Labor Total	**$0.00**
		ODC Total	**$0.00**
		TASK 2 TOTAL	**$0.00**

Task 3:	Hours	Rate	Amount
Professional Category			
Staff name	0	$	$
		Labor Total	**$0.00**
		ODC Total	**$0.00**
		TASK 3 TOTAL	**$0.00**

Page **2** of **4**

SWC Invoice

Task 4:	Hours	Rate	Amount
Professional Category			
Staff name	0	$	$
		Labor Total	**$0.00**
		ODC Total	**$0.00**
		TASK 4 TOTAL	**$0.00**
		INVOICE TOTAL	**$0.00**

Task 5:	Hours	Rate	Amount
Professional Category			
Staff name	0	$	$
		Labor Total	**$0.00**
		ODC Total	**$0.00**
		TASK 5 TOTAL	**$0.00**
		INVOICE TOTAL	**$0.00**

SWC Invoice

Cumulative Invoices [from contract start date] through [current invoice date] (Contract amount $xxxx)

Month	Task 1	Task 2	Task 3	Task 4	Task 5	Task 6	Task 7	Task 8	Task 9
July									
August									
September									
October									
November									
December									
January									
February									
March									
April									
May									
June									
Total Year to Date									
Total Budgeted									
Percentage Complete									
Amount Remaining									

Project Title:

Principal Investigator and Affiliation:

Co-Investigators and Affiliations:

Project Cost:

Contract Number:

Purpose and Management Relevance:

(How will this research help to inform management actions and decisions?)

Layperson Summary:

How does this research address one or more SWC Science Objective?[1]

[1] Regulatory Compliance, Collaborative Adaptive Management Team, Municipal Water Quality Investigations Team, Entrainment Effects, Non-operational Stressor Reduction, Management Tools, Habitat, Outflow, Science Development

Hypotheses and Objectives:

Maps and Figures:

Tasks, Timelines, and Deliverables:

SWC Science Project Quarterly Report

Project Title:

Quarterly report period:

Contract Number:

Start Date:

End Date:

Approved Cost:

Principal Investigator and Affiliation:

Project Purpose and Management Relevance:

[e.g., how does this project/research benefit SWC? How is it relevant to the Delta?]

Task Summary:

Task	Product/Deliverable	Due Date	Completion Date

Budget Summary:

Date	Invoice #	Amount Paid	Balance	Comment

Page 1

Quarterly Progress:

1. Activities

2. Key Results/Findings

3. Deliverables

4. Issue(s) encountered and proposed solution

Project Title:
Contract Number:
Contract Duration:

Project Information	
Principal Investigator and Co-investigators:	Recipient Organization:
Project Cost:	Cost Share: (*For SWC to fill out*)
Purpose and Management Relevance: *(How does this research help to inform water/habitat management actions and decisions?)*	
How did this research address one or more SWC Science Objective?[1] (*For SWC to fill out*)	
Research Location:	
Research Hypotheses:	
Research Objectives:	
Deliverables:	
Research Findings:	
Research Conclusions:	
Is further research required? If so, what questions need to be answered?	
Research Partners:	

Photo of Primary Investigator	**Short Bio of Primary Investigator (300 Words)**

[1] OCAP and Regulatory Compliance, Collaborative Adaptive Management Team, Municipal Water Quality Investigations Team, Entrainment Effects, Non-operational Stressor Reduction, Management Tools, Habitat, Outflow, Science Development