

Board of Directors Water Planning and Stewardship Committee

7/12/2016 Board Meeting

8-4

Subject

Authorize payments of up to \$3.73 million for participation in the State Water Contractors, Inc. and the State Water Project Contractors Authority for fiscal year 2016/17

Executive Summary

Authorization is requested to continue funding and participation in the State Water Contractors, Inc. (SWC) and the State Water Project Contractors Authority (SWPCA). Participation in these organizations allows Metropolitan to advocate for the effective management of the State Water Project (SWP), particularly with respect to operations and activities in the Bay-Delta. The SWC provides a unified voice among the contractors to provide input to the Department of Water Resources (DWR) on the management of the SWP. The SWPCA provides a means, through service agreements, for DWR to utilize the expertise and capabilities of participating SWP contractors in the implementation of SWP programs and projects.

A total of \$4.27 million was included in the fiscal year (FY) 2016/17 budget for Metropolitan's participation in both organizations. The requested authorization amount is up to \$3.73 million, which is less than was budgeted.

Details

State Water Contractors

The SWC is a nonprofit association of 27 public agencies from northern, central, and southern California with contracts to purchase water from the SWP, including Metropolitan. The SWC's role and activities are intended to provide input into DWR's policy decision-making process. The SWC effectively represents the interests of Metropolitan and the other contractors in discussions with DWR, and through interactions with other state, federal, and local entities. The SWC's work efforts and associated revenue collections are divided into three areas:

- 1. <u>Basic Dues Fund</u>: Provides funding for SWC activities including general operating expenses and supporting activities such as DWR cost management, ensuring sufficient infrastructure and supply reliability, and water quality;
- 2. <u>Energy Fund</u>: Provides funding for SWC staff and consultants working with DWR energy and management staff, at both the strategic and technical levels, to develop and implement energy strategies to achieve cost-effective energy for the SWP; and
- 3. <u>Bay-Delta Fund</u>: Supports SWC involvement in Bay-Delta fish monitoring, environmental review processes, facilities planning processes, coordinated activities with the Central Valley Project and the Bay Delta Conservation Plan (BDCP), protection of existing operations, collecting scientific data, and planning for the future.

Experience has shown that the united voice of the SWC provides value in achieving favorable outcomes. The SWC's influence is especially focused on restoring supply benefits currently impaired by Bay-Delta constraints.

Refer to **Attachment 1** for a more detailed report on SWC accomplishments in FY 2015/16 and **Attachment 2** for objectives for FY 2016/17.

State Water Project Contractors Authority

The SWPCA was formed in 2003 as a joint powers organization of interested SWP contractors. Its objective is to provide DWR the additional resources required to improve the reliability and efficiency of the SWP. It consists of an organization overseeing three specific project committees. The SWPCA can provide services in those areas where the DWR is challenged due to lack of experienced staff, state budget-related constraints, or a need for specialized expertise. It also provides an opportunity for greater responsiveness and input into major decisions.

Metropolitan actively participates in the following organizational units:

- 1. SWPCA Board of Directors; and
- 2. Specific Project Committees which include:
 - a. Delta Specific Project Committee (DSPC) Provides a mechanism for broad SWP contractor participation in the BDCP and the Delta Habitat Conservation and Conveyance Program (DHCCP). Funding for the State and Federal Water Contractors Authority Joint Powers Authority is managed through the DSPC.
 - b. Municipal Water Quality Investigation (MWQI) Provides SWP contractors with water quality information as it relates to drinking water regulations through monitoring, studies, analyses, and forecasting.
 - c. East Branch Enlargement Specific Project Committee (EBESPC) Provides a mechanism for seven SWP contractors to participate in the design and review of the enlargement of the SWP's East Branch. (No activities or funding planned in FY 2016/17).

Summary of Payment Distribution

The current and proposed costs for participation in the SWC and the SWPCA are summarized in the tables below:

SW	IC	Payments

	FY 2015/16	FY 2016/17
Dues Fund	\$ 1,144,736	\$ 1,127,077
Energy Fund	\$ 304,150	\$ 327,322
Bay-Delta Fund	\$ 935,928	\$ 1,226,726

Subtotal: \$ 2,384,814 \$ 2,681,125

SWPCA Payments

		FY 2015/16	FY 2016/17 (est.)
SWPCA		\$ 760,859	\$ 1,052,800
	Grand Total:	\$ 3,145,673	\$ 3,733,925

The cost increase from 2015/16 to 2016/17 for the SWC payment is primarily due to legal support for work on SWRCB permits to change the place of diversion for CalWaterFix and legal matters relating to illegal diversions in the Delta. The cost increase for the SWPCA payment is related to habitat restoration projects required by Biological Opinions governing Delta operations. In total, Metropolitan's payment to SWC for FY 2016/17 is approximately \$530,000 below what was initially included in Metropolitan's budget.

SWPCA is in process of finalizing their FY 2016/17 budget. When approved, Metropolitan will be invoiced for its share of costs. Staff requests approval to pay up to \$1.05 million for funding SWPCA. This amount is consistent with the 2016/17 budget, and includes administrative, MWQI and DSPC costs. Costs for 2015/16 reflected carryover funds which are not available for 2016/17. Historically, SWPCA's dues invoice has been less than Metropolitan's budgeted amount.

Staff recommends approval of these budgeted items, which will help with continued advocacy for Metropolitan's interests as the largest SWP contractor. In total, these requests are approximately \$530,000 below budget.

Policy

Metropolitan Water District Administrative Code Sections 11202 and 11203: Payment of Dues and Participation in Projects or Programs Serving District Purposes. This item is subject to a two-thirds vote requirement.

By Minute Item No. 45348, the Board, at its May 13, 2003 meeting, authorized entering into an agreement with the State Water Project Joint Powers Authority.

By Minute Item No. 47735, the Board, at its December 9, 2008 meeting, authorized the General Manager to execute the Delta Habitat Conservation and Conveyance Program Memorandum of Agreement and three related funding and management agreements.

California Environmental Quality Act (CEQA)

CEQA determination for Option #1:

The proposed actions are not defined as a project under CEQA because they involve continuing administrative activities such as general policy and procedure making (Section 15378(b)(2) of the State CEQA Guidelines). In addition, the proposed actions are not subject to CEQA because they involve other government fiscal activities, which do not involve any commitment to any specific project that may result in a potentially significant physical impact on the environment (Section 15378(b)(4) of the State CEQA Guidelines).

The CEQA determination is: Determine that the proposed actions are not defined as a project and are not subject to CEQA pursuant to Sections 15378(b)(2) and 15378(b)(4) of the state CEQA Guidelines.

CEQA determination for Option #2:

The proposed actions are not defined as a project under CEQA because they involve continuing administrative activities such as general policy and procedure making (Section 15378(b)(2) of the State CEQA Guidelines). In addition, the proposed actions are not subject to CEQA because they involve other government fiscal activities, which do not involve any commitment to any specific project that may result in a potentially significant physical impact on the environment (Section 15378(b)(4) of the State CEQA Guidelines).

The CEQA determination is: Determine that the proposed actions are not defined as a project and are not subject to CEQA pursuant to Sections 15378(b)(2) and 15378(b)(4) of the state CEQA Guidelines.

Board Options

Option #1

Adopt the CEQA determination that the proposed actions are not defined as a project and are not subject to CEQA and, by a two-thirds vote,

- a. Authorize the General Manager to make payment of \$2.68 million to the State Water Contractors; and
- b. Authorize the General Manager to make payment up to \$1.05 million to the State Water Project Contractors Authority.

Fiscal Impact: Expenditures for participation in SWC and SWPCA in FY 2016/17 would be up to \$3.73 million. The authorization is approximately \$530,000 less than the FY 2016/17 budget for participation in the SWC and SWPCA.

Business Analysis: Metropolitan would benefit from the SWC and SWPCA representing positions with DWR, legislators, regulatory, and third-party groups that advance its SWP strategic initiatives.

Option #2

Adopt the CEQA determination that the proposed actions are not defined as a project and are not subject to CEQA and, by a two-thirds vote,

Authorize the General Manager to make payments to a selected grouping of one or more of the components comprising Metropolitan's FY 2016/17 SWC and SWPCA payments.

Fiscal Impact: Expenditures for participation in SWC and SWPCA in FY 2016/17 would be less than \$3.73 million. A total of \$4.27 million has been budgeted for these activities in Metropolitan's FY 2016/17 budget.

Business Analysis: Metropolitan would be less effective in advancing its SWP and SWPCA strategic initiatives if the full membership is not approved. Reduced participation would limit Metropolitan's representation on key issues and activities. Metropolitan would need to develop alternative means to manage the risk of higher costs or greater operational restrictions on supply deliveries.

Staff Recommendation

Option #1

Kevin A. Donhoff

6/21/2016 Date

Interim Manager, Water Resource Management

Jeffrey Kightlinger General Manager 6/29/2016

Date

Attachment 1 – FY 2015/16 Accomplishments of the State Water Contractors

Attachment 2 – FY 2016/17 Objectives for State Water Contractors

Ref# wrm12642993

FY 2015/16 Accomplishments of the State Water Contractors

Strategic SWP Power and Transmission Plan – Coordinate with DWR on near-term and long-term Resource Plan.

- The SWC Energy Committee has begun to implement its 2014/2015 Strategic Plan that identified its priority objectives for the next 18 to 24 months. The significant effort is focused on the State's effort to expand the CAISO into a regional entity to address problems created by utilities using 50% renewables to supply customers. It is being guided by the SWC Energy Steering Committee with a work group comprised of SWC staff, advocates of member agencies, and outside legal, technical and communications experts.
- The SWC provided input and periodic updates on the DWR Flexible Resources Study intended to analyze the operational and economic impacts of California's carbon reduction policy and to define the role the SWP may play in integrating renewables into the power grid.
- The SWC participated in meetings facilitated by Legislative staff with diverse and influential stakeholders to identify issues associated with expansion of the CAISO into a regional entity.

Near-Term Risk Management – Coordinate with DWR on power resource, transmission, staffing, and State energy policy issues.

- The Energy Committee has participated in negotiations between the Joint Interveners (including DWR, TANC, SMUD, CPUC, and several other utilities) that are opposed to PG&E's latest \$310 million/25% annual increase in its Transmission Revenue Requirements.
- The Energy Committee met with the legislative advocates of the SWC members to develop and ensure there is a proactive effort that protects the interests of the SWP as the State develops its post-2020 energy plan.
- The SWC staff provided assistance to DWR with organizational and accountability activities in its compliance office in continuing effort to comply with Western Electric Coordinating Council reliability standards.
- The SWC staff is on the Board of Directors for the California Municipal Utilities Association and the Member Advisory Committee of Peak Reliability to fulfill the objective of elevating the profile of the SWP and to represent the perspective of the SWP Contractors related to the activities of the associations.
- The Energy Committee continues to monitor the decommissioning of the Reid Gardner Power Plant and its cleanup.

Defend SWP against Energy Liabilities and Claims – Assure proper legal representation for potential litigation.

• The SWC intervened in transmission rate proceedings at the Federal Energy Regulatory Commission.

FERC Relicense Settlement – Advocate solutions for a new license for the Oroville complex consistent with the Settlement agreement. Initiate relicensing activities associated with SoCal facilities.

- The Energy Committee is coordinating with DWR in initiating the relicensing of the hydroelectric facilities in Southern California.
- The SWC staff participated in the Oroville Recreation Advisory Committee and Supplemental Benefits Fund Committee.

Sisk Dam Seismic Stability & Dam Raise Study - Work with the USBR and DWR in the review of the new seismic stability analysis and potential remedial actions for the embankment.

The SWC staff participated in the formal meeting of the Consultant Review Board. The SWC staff also
participated in the formal USBR Risk Reduction Workshop where a stability mitigation strategy was
selected.

Aqueduct Subsidence and SWP Capacity Retention – Work with DWR in determining the quantity, rate, and capacity reduction impacts of/and subsidence in the San Joaquin Valley. Target projects/repairs to assure capacity is restored or preserved to assure long-term operational reliability.

• Establishing a new Operations Maintenance Engineering (OME) Committee workgroup to focus on the efforts to inspect, evaluate, and prioritize repairs of California Aqueduct panel damage.

Perris Dam Remediation of Seismic Deficiency - Track cost/progress/schedule on foundation strengthening and embankment stabilization, outlet tower stability improvement, and emergency release facility improvements.

• The SWC staff and the OME Committee continues to work with DWR to monitor the construction progress of the seismic stabilization work for the embankment.

Reporting - Coordinate with Contractors to develop business requirements for SWP reporting.

- The SWC staff worked with the Contractors' SWP Reporting Development Workgroup to finalize the Contractors' Financial Enhancement Vision and Goals document provided to the DWR.
- The SWC staff continues to work with the Contractors' SWP Reporting Strategy Workgroup to develop reporting strategies to meet the near-term and long-term reporting requirements for the SWP.

Cost Recovery/Statement of Charges Oversight (Estimated Costs) – Provide oversight over DWR's estimated costs and recovery of those costs through review of the future project cost projections, the Delta Water Charge calculation, and Rate Management Credits review.

• The SWC staff provided materials to improve the productivity of the Contractors' financial evaluation by creating educational materials, reporting tools to streamline and/or direct the Contractors evaluation with minimal impact to DWR.

Job Costing Oversight (Actual Costs) - Provide oversight over DWR's actual expenditures compared to estimated costs.

• The SWC staff provided extraordinary operation and maintenance budget materials to the Audit-Finance Committee, to assist with the review of the 2016 Statement of Charges.

Future Capital Projects and Capital Financing Oversight - Develop a process to track, plan and prioritize all existing and foreseeable capital projects which are funded by the SWP Contractors.

• The SWC staff continues to develop financial modeling to assist Contractors in decisions regarding participation in additional facilities such as CA WaterFix, Sites Reservoir, South of Delta Storage, and Dry/Average Year Transfer Programs.

Financial Audit and Dispute Oversight – Work with Contractors and DWR to identify and resolve existing and potential protest items.

• The SWC staff has participated in the Protest Resolution Workgroup with a goal to provide closure on protest items, which includes either resolution or determining the necessity of filing a claim against DWR. To date, 132 of the 295 identified items have been resolved and removed from the protest item list. Another 42 are complete pending review by the Contractors. An additional 53 are being actively worked on.

Water Management Contract Amendment - Coordinate SWP Contractors involvement in Contract Amendment Discussions on CA WaterFix Cost Allocation and Water Management Activities.

 The SWC has coordinated numerous discussions amongst the SWP Contractors to address needs for both cost and water allocation related to the CA WaterFix and water management activities.

SWRCB Activities – Present testimony and participate in hearings on Phases 1 and 2 Bay Delta Water Quality Control Plan Updates and related activities such as San Joaquin River water rights and illegal diversions.

- The SWC filed a water rights complaint against those water users south of the San Joaquin River.
- The SWC staff monitored and participated in regulatory proceedings relating to curtailments to protect SWC/CVP stored water.
- The SWC staff monitored and participated in several proceedings related to the Temporary Urgency Change Petitions filed by USBR/DWR.

OCAP Compliance - Monitor progress of implementation of required habitat and other Reasonable and Prudent Alternatives (RPA) under OCAP Biological Opinions.

• The SWC staff has worked with DWR to form a new Delta Compliance Committee to plan and review all Delta regulatory efforts related to SWP operations.

Water Operations Evaluation - Develop documentation for ongoing Delta Water Supply Operations including water losses from regulatory actions. Develop analysis tool to evaluate water supply and predict water supply allocations during the runoff season.

• The SWC staff developed weekly outreach materials to provide estimates of water losses due to implementation of the OCAP Biological Opinions and estimates of potential water supply with implementation of the California WaterFix.

Delta Related Litigation - Work with DWR in defending Monterey Plus EIR against litigation. Continue challenging the CEQA and authority of the Delta Stewardship Council to implement certain Delta Plan activities.

- The SWC continued to participate in the Monterey Litigation, which is now on appeal.
- The SWC argued against the regulations adopted by the Delta Stewardship Council.
- The SWC has been monitoring and filed intervention papers in the curtailment litigation filed by several in Delta water users.

Collaborative Adaptive Management Team - Observe CAMT participation by SWC and SFCWA members and provide support as needed.

- The SWC General Manager has been assigned to be a Public Water Agency representative on the CAMT and has been involved in directing the management of CAMT efforts.
- The SWC members and consultants provided input to the CAMT efforts to evaluate the effectiveness of management actions under the OCAP biological opinions.

	Objective	Description	Priority	SWC Assignment
Energy Operations	Strategic SWP Power and Transmission Plan	Address threats and opportunities to SWP Operations and Economics under Post-2020 Energy Policy.		Haines
	Near-Term Risk Management	Improve understanding of spot and near-term resource procurement and practices to manage risk.		Haines
	Greenhouse Gas/Renewable Policies	Work with DWR on appropriate greenhouse gas and renewable policies that reflect SWP utility characteristics and rate concerns.	0	Haines
nergy (FERC Relicense Settlement	Advocate solutions related to obtaining new license for the Oroville complex consistent with the Settlement agreement. Initiate relicensing activities associated with SoCal facilities.	0	Haines
Ш	Defend SWP against Energy Liabilities and Claims	Assure proper legal representation for potential litigation.	0	Haines
	Hyatt Unit 1,3,5 new runners, bearings, TSV refurb	Track progress, cost, and operation impact for the replacement of new runners and bearings for units 1, 3, 5 to restore reliability and eliminate high downthrust loads.		Chapman
Infrastructure	Oroville Dam River Valves	Track progress, cost, schedule, and impact to operations related to the follow-up work on the 2014 emergency restoration.		Chapman
	Sisk Dam Seismic Stability & Dam Raise Study	Work with the USBR and DWR in the review of the new seismic stability analysis and potential remedial actions for the embankment. Also, participate in the USBR's Project Alternative & Risk study for a potential dam raise.		Chapman
	Aqueduct Subsidence, Liner Integrity, and SWP Capacity Retention	Work with DWR in determining the quantity, rate, and capacity reduction impacts of/and subsidence in the San Joaquin Valley. Target projects/repairs to assure capacity is restored or preserved to assure long-term operational reliability.		Chapman
	Motor/Generator Refurbishments	Track cost, progress, and schedule, the operational impact of new stator core, rewinds, and pump casing reconditioning. Long-term task in several of SWP plants.	•	Chapman
	Edmonston Pump Replacement/Refurbishment	Track performance/efficiency of four new units. Work with DWR in the value engineering process to select action (replacement vs. refurbishment) for aging east wing units.	0	Chapman
	SWP Asset Management	Work with DWR as they develop/document/implement an asset management system and capital improvement program including assessing vulnerabilities, the required risk mitigation strategies, and management policy and objectives.	•	Chapman

	Objective	Description	Priority	SWC Assignment
	Perris Dam-Remediation of seismic deficiency	Track cost, progress, and schedule on foundation strengthening and embankment stabilization, outlet tower stability improvement, and emergency release facility improvements.	0	Chapman
	Thermalito Plant Post-fire rebuild	Track the progress, cost, and operation impact related to the restoration and modernization of the Thermalito plant.	0	Chapman
	Control System Upgrade	Track progress, cost, and schedule on the implementation of phase IV of the control system upgrade, which involves upgrading SWP plants south of the Delta.	0	Chapman
	Fire System Modernization	Track the design and implementation of DWR's new corrective measures and proactive fire systems to increase personnel safety and prevent catastrophic fires in SWP facilities.	0	Chapman
	Valve Refurbishments/ Replacements	Track progress, cost, and schedule on the replacement or refurbishments of major valves within SWP plants.	0	Chapman
	Financial Enhancements	Coordination of DWR and Contractors on Financial Enhancements being negotiated under contract amendments.		Ramsay/Lightle
	Reporting	Coordinating the Development of Contractors' SWP Reporting Requirements.		Ramsay/Lightle
ses	Cash and Financing Oversight	Oversight and coordination of Contractors' policy and decisions related to cash flow and financing activities.		Ramsay/Lightle
Processes	Job Costing Oversight (Actual Costs)	Oversight and coordination of SWP allocation and classification of expenditures.		Ramsay/Lightle
III	Future Projects and Financing Oversight	Coordination of DWR's Bulletin 132 capital project estimates.	0	Ramsay/Lightle
Business	Cost Recovery/Statement of Charges Oversight (Estimated Costs)	Coordination of DWR's Bulletin 132 extraordinary and baseline estimates.	0	Ramsay/Lightle
	Financial Audit and Dispute Oversight	Work with Contractors and DWR to identify and resolve existing and potential protest items.	0	Ramsay/Lightle
	Appropriations and Other Funding	Work with Contractors and DWR to identify, ensure collection, and track usage of non-State Water Project Contractor funding.	0	Ramsay/Lightle

	Objective	Description	Priority	SWC Assignment
	California WaterFix	Obtain ROD for California WaterFix. Proceed with Implementation Activities including SWRCB Change Petition.		Erlewine
	Water Management Contract Amendment	Coordinate SWP Contractors involvement in Contract Amendment discussions on California WaterFix Cost Allocation and Water Management Activities.		Erlewine
	Coordinated Operations Agreement (COA)	Coordinate with DWR and SWC members in developing information for and participating in discussions of possible COA modifications.		Febbo
	State Water Resource Control Board Activities	Present testimony and participate in hearings on updating the Bay-Delta Water Quality Control Plan and related activities such as San Joaquin River water rights and illegal diversions.		Morris
	Facilitate Water Transfers	Work with DWR and potential sellers in the Sacramento Valley to implement dry year transfers, including facilitating regulatory approvals. Begin planning for implementation of long-term transfers.	0	Chapman
Water Supplies	Upstream Water Supply Augmentation	Work with CVP Contractors and upstream water users to identify water supply operations to address existing and potential regulatory obligations.	•	Erlewine
er Su	Delta Levee Strategy	Work with MWD and DWR in identifying and evaluating alternative approaches for levee improvements to project SWP water supplies.	0	Erlewine
Wate	OCAP and Regulatory Compliance	Collaborate with DWR on planning and implementation of required habitat and other RPAs under OCAP Biological Opinions. Monitor progress of implementation of the Suisun Marsh Agreement.	•	Febbo
	Water Operations Improvements	Identify and implement Delta and/or upstream operations strategies to minimize reductions to near term exports and increase water supply reliability using existing facilities or with additional features.	0	Febbo
	Water Operations Evaluation	Develop documentation for ongoing Delta water supply operations including water losses from regulatory actions. Develop analysis tool to evaluate water supply and predict water supply allocations during the runoff season.	•	Febbo
	Delta Related Litigation	Defend or intervene in litigation to protect SWP water supply. Pursue methods for State Water Resources Control Board to protect stored water through curtailments and participate in litigation and administrative proceedings that could impact stored water. Continue challenging the CEQA and authority of the Delta Stewardship Council to implement certain Delta Plan activities.	•	Morris

	Objective	Description	Priority	SWC Assignment
	Collaborative Adaptive Management Team	Participate in Collaborative Adaptive Management Team through membership on CAMT, identification and formulation of study projects, and involvement in work efforts of scoping teams.	0	Erlewine
	Wastewater Discharge and Water Quality Issues	Follow-up on remaining litigation efforts related to Sacramento Regional CSD discharge permits. Participate in development and review of discharge standards for other Delta Watershed dischargers. Participate in processes related to methylmercury regulations.	0	Morris
		Priority I (Highest Priority) Objectives		
		Priority II (High Priority) Objectives		
		Priority III (Medium Priority) Objectives		

State Water Project Contractors Authority (SWPCA) FY 2016/17 Objectives

Near-term objectives

- Leverage SWPCA's unique tools as a public agency to carry out the mission and principles.
- Focus and manage the SWPCA organization through the Board of Directors and create Specific Project Committees as opportunities arise.
- Provide services, supplies, equipment, and other resources to cost-effectively and efficiently meet the requirements of the SWP.
- Prepare for potential financing of various projects, as needed.
- Coordinate and collaborate with other public agencies to carry out SWPCA's mission.
- Determine "value added" component of potential projects or services provided to DWR or other State agencies.

Long-term objectives

- Ensure safe, reliable, and efficient operations and maintenance of all SWP facilities and equipment.
- Maintain the SWPCA public agency structure and take on project or service opportunities as they present themselves.
- Keep policies and administrative procedures up to date to keep organization ready to take on projects or provide services.
- Strengthen communication and partnership with the State and other agencies as appropriate to achieve effective management, operation, and maintenance of the SWP.

SWPCA's Municipal Water Quality Investigations (MWQI) Specific Project Committee (SPC) will continue to provide funds to perform supplemental water quality related services for the MWQI Program to ensure that work is completed in a timely and cost-effective manner. The program will focus on water quality data collection, analysis, and management in the Delta and provide early warning of water quality events and water quality forecasting. The SPC will complete the SWP Watershed Sanitary Survey. The survey report evaluates the adequacy of the source water and will evaluate the watershed for surface water sources and vulnerability. Additionally, an SPC program is in progress to elucidate limiting nutrient dynamics in the SWP based on historical data as well as problematic algal and aquatic macrophyte growth dynamics. Light as a factor limiting growth is also being explored. Field work and algae sampling efforts are underway. This project will provide valuable information that could lead to improved prevention or management of taste and odor episodes, filter clogging algae, and excessive macrophyte growth.