



**WORK PLAN & BUDGET**  
**FOR**  
**FISCAL YEAR 2023**

**MORRO BAY NATIONAL ESTUARY PROGRAM  
WORK PROGRAM & BUDGET  
FISCAL YEAR 2023**

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# 1. Introduction

The Morro Bay National Estuary Program (Estuary Program) works to protect and restore the Morro Bay estuary and its watershed through the implementation of our Comprehensive Conservation and Management Plan (CCMP) for Morro Bay, which is currently undergoing an update. The three Estuary Program programmatic focus areas are: (1) habitat protection and restoration, (2) environmental monitoring and research, and (3) public participation, education, and outreach. This Work Program describes our planned efforts for Fiscal Year (FY) 2023, which covers the period from October 1, 2022 through September 30, 2023.

Morro Bay was accepted into the National Estuary Program in 1995 when the Administrator of the U.S. Environmental Protection Agency (EPA) accepted Governor Wilson's nomination of the program. With financial support from EPA, Estuary Program staff worked with government agencies, non-profits, businesses, and the local community to develop a watershed-based management plan, the Comprehensive Conservation and Management Plan for Morro Bay (CCMP). The CCMP defines the priority issues facing the estuary and watershed, and identifies specific Action Plans to address them. It also defines the management structure of the organization, which is based on collaboration and partnerships between the many groups that make up the Estuary Program.

The EPA formally approved our CCMP in January 2001 and has continued to provide significant grant funding to further the implementation of that plan. Almost every CCMP action plan was initiated, and nearly half are either complete or fully in place and ongoing. The CCMP was revised in 2012 through a public process and approved by the Estuary Program's Management Conference in February 2013. The CCMP was updated in 2020, with approval by the Estuary Program's Management Conference. We are working with EPA to finalize the updated plan. Various action plans from the CCMP are referenced in this workplan. The Estuary Program works with its many partners to implement these actions in the watershed.

Congress allocates funding for the National Estuary Program (NEP) under Section 320 of the Clean Water Act (CWA). EPA provides a portion of those funds to each of the 28 National Estuaries. The expected funding available to the Estuary Program through these Section 320 funds for FY23 is \$750,000.

The Bay Foundation of Morro Bay, a 501(c)(3) nonprofit corporation, will continue to serve as the legal and fiscal agent for the Estuary Program by employing staff, signing contracts, and applying for grants. The Estuary Program Executive Committee oversees the progress of the annual workplan and is the policy decision-making body for the Estuary Program. The Section 320 funding requires a non-federal match of at least one-to-one. The Estuary Program will meet that match through both direct expenditures of local and state funds awarded directly to the Estuary Program, and through tracking the in-kind match that our many partner organizations are spending to help implement the Management Plan.

The Estuary Program is excited to continue our work to protect and restore the Morro Bay Estuary and watershed, and we are thankful for the financial and technical support of EPA, as well as the ongoing participation of many partners in the Morro Bay watershed and beyond.

## **Management Conference Structure and Membership**

**Technical Advisory Committees** – The Technical Advisory Committees (TAC) are composed of experts in various areas that provide technical advice and input to the program. These TACs are formed for specific technical topics such as Sedimentation Monitoring, Pikeminnow Management, Estuarine Habitats, and Education and Outreach. These TACs provide advice to staff in many areas: collaborating and reviewing Community Project options, investigating technical issues, providing advisory oversight to monitoring, restoration, and education efforts,

recommending changes to the CCMP, and tracking and reporting on implementation. The TACs meet on an as-needed basis. Membership is not limited to a specific number of seats, and members are invited by staff to join.

**Executive Committee** – The Executive Committee (EC) is the key decision-making body for the Morro Bay National Estuary Program. It provides broad policy direction, approves priorities for CCMP implementation, seeks and develops funding sources, and approves CCMP changes, as necessary. Specific responsibilities include: approving funding requests for the Morro Bay Restoration Fund, monitoring and evaluating the performance of the program, approving the annual workplan, and providing leadership and overall direction for the Estuary Program. The EC meets quarterly. Membership includes representatives from specific agencies and interest group seats that are appointed through a majority vote of the EC and serve two-year terms.

**Bay Foundation Board of Directors** – The Bay Foundation is the nonprofit home of the Estuary Program, and its board of directors approves priorities for CCMP implementation, workplans, Community Projects, and other major components of the work of the Estuary Program. The Board of Directors works collaboratively with the Executive Committee on strategic direction and priorities of the Estuary Program.

## 2. Goals for CCMP Implementation in Fiscal Year 2023

This workplan describes the Morro Bay National Estuary Program’s broad goals, specific projects, and planned budget for FY23, which spans from October 1, 2022 to September 30, 2023. This workplan will guide Estuary Program efforts in FY23 and provide a mechanism to measure our success over the coming year. It is important to recognize that the nature of a collaborative, non-regulatory program such as the Estuary Program demands flexibility; just as some planned projects may be delayed, other unforeseen opportunities and partnerships to further implementation of the CCMP will present themselves. The program goals are summarized below.

**Water Quality Protection and Enhancement:** Water quality in the Morro Bay watershed and estuary supports diverse habitats and wildlife populations, safe recreation, clean drinking water, and well-balanced economic uses.

One of the main tenets of the NEP is to protect and restore water quality, as the NEP is part of the federal Clean Water Act. This goal illustrates the aspiration for clean water that supports a variety of uses by people and wildlife in Morro Bay.

**Ecosystem Restoration and Conservation:** The Morro Bay watershed and estuary sustain a resilient community with high habitat connectivity, ample biological integrity, proper ecosystem function, and a vibrant economy.

This goal illustrates the Estuary Program’s interest in conserving and restoring habitats, biodiversity, and ecosystem processes, all of which affect the local economy. The goal also envisions a healthy ecosystem and economy even in the face of change.

**Public Education, Outreach, and Stewardship:** Citizens and visitors around Morro Bay understand basic estuary science and the impacts of specific actions on estuary health and are engaged stewards of the Morro Bay estuary and watershed.

This goal represents the importance of informed and engaged citizens for the future health of Morro Bay and a vision that community members will increasingly become stewards of the estuary.

**Fostering Collaboration:** Citizens, local government, nonprofits, state and federal agencies, and public and private landowners collaborate and leverage resources to facilitate effective management and increased scientific knowledge of the Morro Bay estuary and watershed.

Another core tenet of the NEP is collaboration, as described in the Clean Water Act. This goal showcases the Estuary Program’s commitment to fostering collaboration to effectively understand and manage the resources of Morro Bay.

Actions to complete these goals are described in detail in Section 4.

### 3. Budget and Staff Elements

Tables 3.1, 3.2, and 3.3 provide an overview of the budget for FY23. The Estuary Program meets a portion of the EPA’s one-to-one match requirement using the Estuary Program-managed Morro Bay Restoration Fund. These funds are private, locally-controlled, and already committed and available for these projects. Other sources of match funds include local and state funds, private donations, volunteer time, and contributed services and facilities.

**Table 3.1: Budget Overview for FY23**

Category	Subcategory	FY23 Anticipated Request	Match	Total
Personnel	Salaries	\$500,586	\$7,264	\$507,850
	Fringe	\$79,628	\$562	\$80,190
	Management Conference	\$0	\$10,616	\$10,616
	<b>Subtotal</b>	<b>\$580,214</b>	<b>\$18,443</b>	<b>\$598,656</b>
Travel	(category includes local mileage)	\$6,850	\$0	\$6,850
Supplies	Computers, software	\$2,500	\$0	\$2,500
	Monitoring supplies	\$11,000	\$3,500	\$14,500
	Misc. office supplies	\$8,150	\$0	\$8,150
	<b>Subtotal</b>	<b>\$21,650</b>	<b>\$3,500</b>	<b>\$25,150</b>
Contractual	Audit/Taxes/Accounting	\$15,470	\$6,710	\$22,180
	Education and Outreach	\$29,200	\$230,369	\$259,569
	Monitoring and Research	\$10,000	\$151,517	\$161,517
	Restoration and Protection	\$8,255	\$308,405	\$316,660
	<b>Subtotal</b>	<b>\$62,925</b>	<b>\$697,001</b>	<b>\$759,926</b>
Other	Rent	\$57,384	\$13,056	\$70,440
	Utilities	\$2,618	\$0	\$2,618
	Postage	\$500	\$0	\$500
	Copying, Printing	\$2,315	\$0	\$2,315
	Training, Prof. Dev.	\$1,000	\$3,000	\$4,000
	Telephone, Internet	\$4,640	\$0	\$4,640
	Repairs and Maintenance	\$5,000	\$0	\$5,000
	Insurance	\$2,904	\$0	\$2,904
	Vehicle maintenance, fuel	\$2,000	\$0	\$2,000
	Community Projects	\$0	\$15,000	\$15,000
	<b>Subtotal</b>	<b>\$78,361</b>	<b>\$31,056</b>	<b>\$109,417</b>
	<b>TOTAL</b>	<b>\$750,000</b>	<b>\$750,000</b>	<b>\$1,500,000</b>

Note: \$15,000 of Community Projects match and \$40,000 for CCER comes from Restoration Fund. Remaining match is from partners.

**Table 3.2: Budget Detail of Direct Expenses by Program Area**

Program Area	Project	320 Grant Request	Match (non-federal)		Total
			MB Restoration Fund	Other	
Education and Outreach <b>A</b>	Communications 1	\$14,000	\$0	\$16,359	\$30,359
	Community Partners 2	\$500	\$0	\$0	\$500
	Bay Friendly Recreation 3	\$0	\$0	\$17,300	\$17,300
	Clean Boating 4	\$1,000	\$0	\$64,000	\$65,000
	Education and Nature Center 5	\$3,200	\$0	\$124,710	\$127,910
	State of the Bay 6	\$10,000	\$0	\$8,000	\$18,000
	Other E&O Tasks 7	\$500	\$0	\$0	\$500
	<b>Subtotal</b>	<b>\$29,200</b>	<b>\$0</b>	<b>\$230,369</b>	<b>\$259,569</b>
Monitoring and Research <b>B</b>	Benthic Invertebrate Monitoring	\$0	\$0	\$8,248	\$8,248
	Eelgrass Monitoring 1	\$5,000	\$0	\$0	\$5,000
	Water Quality Monitoring 2	\$5,000	\$0	\$143,269	\$148,269
	<b>Subtotal</b>	<b>\$10,000</b>	<b>\$0</b>	<b>\$151,517</b>	<b>\$161,517</b>
Habitat Protection and Restoration	Restoration Maintenance and Monitoring	\$5,000	\$0	\$0	\$5,000
	Eelgrass Restoration	\$0	\$0	\$0	\$0
	Chorro Creek Eco Res	\$0	\$40,000	\$0	\$40,000
	Other Restoration	\$3,255	\$0	\$213,293	\$216,548
	Conservation & Restoration Proj Dev	\$0	\$0	\$0	\$0
	Invasive Management	\$0	\$0	\$55,112	\$55,112
	<b>Subtotal</b>	<b>\$8,255</b>	<b>\$40,000</b>	<b>\$268,405</b>	<b>\$316,660</b>
	<b>TOTAL</b>	<b>\$47,455</b>	<b>\$40,000</b>	<b>\$650,291</b>	<b>\$737,746</b>

Note: Total for Restoration Fund match is **\$55,000** because it includes \$15,000 for Community Projects and \$40,000 for Chorro Creek Ecological Reserve. Expenses shown combined contractual, supplies, and equipment expenses by Program Area to more clearly represent the resources devoted to these aspects of the Estuary Program FY23 Work Program. This table does not include Estuary Program staff time or overhead.

Education and Outreach Expenses (section A):

1. Communications expenses include graphic design work and printing for the annual report; design and printing of pamphlets and publications; and ongoing maintenance expenses for our blog and website.
2. Community Partners includes support for partner education efforts such as Coastal Cleanup Day and the Los Osos Community Services District conservation efforts.
3. Bay Friendly Recreation includes the Mutts for the Bay program to promote recreation while protecting water quality.

4. Clean Boating includes supplies or services to maintain bay pumpout facilities.
5. Education and Nature Center includes expenses such as aquarium maintenance, binoculars, display repairs and upgrades, watershed model demonstration supplies, handouts, microscopes, educational activity supplies, and coloring supplies.
6. State of the Bay includes report card printing, event advertisements, space rental, etc. for producing report card and holding events to share results.
7. Other E&O Tasks category includes work on various community efforts as opportunities arise. Includes costs such as printing, development of education materials, renting venues for scientific talks, and conducting surveys of the public to determine changes in behavior and attitude.

Monitoring and Research Expenses (section B):

1. Eelgrass Monitoring expenses includes imagery collection and analysis to track eelgrass extent in the bay.
2. Water Quality Monitoring expenses include analytical laboratory services (couriers, sample analysis, and data reporting), small equipment purchases, and data management support (technical support for maintaining our data management system and submitting data to a state-wide data portal).



**Table 3.3: Summary of 320 Spending and Match for FY23**

FY23 Workplan Task	320 Budget Other Expenses	320 Budget Staff time	Projected match	Total
REST-1: Habitat Protection	\$0	\$8,661	\$0	\$8,661
REST-2: Restoration Maintenance	\$5,000	\$3,188	\$0	\$8,188
REST-3: Chorro Creek Eco Res	\$0	\$10,784	\$40,000	\$50,784
REST-4: Other Restoration	\$3,255	\$14,867	\$213,293	\$231,415
REST-5: Conservation Proj Dev	\$0	\$39,830	\$0	\$39,830
REST-6: Aquatic Invasives	\$0	\$9,033	\$55,112	\$64,145
MONITORING-1: Coordination	\$15,200	\$15,548	\$155,017	\$185,765
MONITORING-2: Reporting & Analysis	\$0	\$20,892	\$0	\$20,892
MONITORING-3: Data Management	\$0	\$19,879	\$0	\$19,879
MONITORING-4: Quality Assurance	\$500	\$27,039	\$0	\$27,539
MONITORING-5: Project Effectiveness	\$300	\$15,653	\$0	\$15,953
MONITORING-6: Eelgrass Monitoring	\$5,000	\$54,082	\$0	\$59,082
MONITORING-7: Partner Research	\$0	\$19,873	\$0	\$19,873
MONITORING-8: State of the Bay Analysis	\$0	\$27,710	\$0	\$27,710
E&O-1: Communications	\$14,000	\$61,481	\$16,359	\$91,840
E&O-2: Education	\$700	\$23,884	\$124,710	\$149,294
E&O-3: Nature Center Update	\$2,500	\$7,429	\$0	\$9,929
E&O-4: Other E&O	\$2,000	\$8,226	\$64,000	\$74,226
E&O-5: Mutts for the Bay	\$0	\$9,205	\$17,300	\$26,505
E&O-6: State of the Bay Planning	\$10,000	\$29,242	\$8,000	\$47,242
PM-1: Manage Committees	\$0	\$29,578	\$10,616	\$40,194
PM-2: Grants & Contracts	\$21,570	\$49,231	\$6,710	\$77,511
PM-3: General Administration	\$89,761	\$48,144	\$23,883	\$161,788
PM-4: Tracking Implementation of CCMP	\$0	\$16,204	\$0	\$16,204
PM-5: Community Projects Program	\$0	\$10,548	\$15,000	\$25,548
<b>TOTAL Budget</b>	<b>\$169,786</b>	<b>\$580,214</b>	<b>\$750,000</b>	<b>\$1,500,000</b>

**Program Staffing Anticipated for FY23**

All personnel are employees of the Bay Foundation of Morro Bay. As in any small organization, the roles of personnel are fluid enough to change with the needs of the organization.

- **Executive Director:** Leads the organization and Management Plan implementation. Responsible for CCMP update. Manages CWA 320 grant, staffs committees, and non-profit board. Oversees general operations – budgeting, accounting, records management, and human resources. Supervises Estuary Program staff. Principal liaison to other agencies and organizations. Principal liaison to EPA. Serves as the public face of the organization. Represents the Estuary Program on local and regional committees.

Oversees CCMP tracking, annual report, and workplan. Attends Association of NEP (ANEP)/EPA meetings.

- Assistant Director: Responsible for assisting the Executive Director with CCMP implementation, managing CWA 320 and other grants, and staffing committees and non-profit board. Supports budgeting, accounting, records management, and managing NEP staff. Assists with CCMP tracking, annual reports, and workplan. Coordinates project development and grant management across the organization. Manages monitoring program strategy and other special projects, such as State of the Bay. Manages match tracking and NEPORT submission. Attends ANEP/EPA meetings.
- Restoration Projects Manager: Develops and implements restoration efforts. Oversees restoration projects, including partner agency coordination, grant management, permitting, and outside services procurement. Manages monitoring and maintenance of restoration projects. Coordinates a diverse set of external experts to assist with technical aspects of specific projects.
- Communications and Outreach Coordinator: Responsible for public relations and marketing work to engage community, targeted outreach campaigns geared towards increasing environmental stewardship, weekly blog posts, website updates, and representing the Estuary Program at public events. Implements the Finance Plan with Executive Director and nonprofit board. Other projects include field trips and tours, educational brochures, press releases, planning outreach efforts, and various other public outreach projects. Represents the Estuary Program in outreach settings, including on relevant local and regional committees.
- Monitoring Coordinator: Conducts Estuary Program monitoring efforts. Under direction of the Assistant Director, completes data analysis, reports, and protocols. Assists with volunteer recruitment, training, and fieldwork. Reviews and updates Quality Assurance Project Plan (QAPP), monitoring protocols, and indicators/baselines work. Manages QA/QC functions. Manages and shares data with partners and the general public.
- Finance & Operations Administrator: Manages day-to-day bookkeeping and accounting, financial records, annual audit requirements, and provides administrative support for human resources. Responsible for ensuring all operational accounting and financial support is timely, accurate, and consistent with all organization policies and procedures. Coordinates match tracking and supports NEPORT data collection and synthesis.
- Science Writer and Editor: Supports outreach and education efforts for blogs, social media posts, press releases, and other publications. This is a part-time position.
- Intern(s) and Technician(s) (as needed): Assists with field work, data management, analysis, and outreach. These are part-time, temporary positions.

**Fringe Details: \$79,628**

- Expenses:
  - Workers' Compensation – Workers' compensation insurance as required by law and specific to each position.
  - Health Insurance – Health insurance costs that the Bay Foundation of Morro Bay covers for eligible full-time employees.
  - IRA Match – Bay Foundation match payments for eligible employees' IRA contributions.

**Miscellaneous Office Supplies: \$8,150**

- Expenses:
  - Supplies (printer paper, toner, pens, checks, post-it notes, batteries, business cards, etc.)

- Water delivery
- Office furniture
- Meeting space rentals and materials
- Phone maintenance and repairs
- Forms, checks, and employee policy posters and guides
- First aid supplies and CPR training

**Monitoring Supplies: \$11,000**

- Expenses:
  - Bacteria monitoring supplies – Reagent, supplies, and other ancillary items needed to monitor bacteria levels. This includes supplies needed for health and safety and for quality assurance procedures.
  - Water quality monitoring supplies – Reagent, calibration supplies, small equipment, batteries, and other ancillary items for monitoring conventional water quality parameters in the estuary and creeks. This includes necessary items for health and safety and for quality assurance procedures.
  - Field gear – Protective gear to ensure that staff and volunteers can work effectively and safely.

## 4. New and Ongoing Project Information

Where applicable, the estimated budgets include project and staff costs.

### Habitat Protection and Restoration Activities

**REST-1: Land Conservation and Planning**

**Project Status:** *Ongoing*

**Objective:** Conserve land as opportunities arise.

**Description:** The CCMP calls for protection of ecologically-valuable habitats in part to help minimize nonpoint sources of pollution entering the estuary and to promote clean water in the bay. Over 5,000 acres of land have been protected through conservation easements and fee title acquisitions by the Estuary Program and partners. In FY23, the Estuary Program expects to work with The Land Conservancy of San Luis Obispo County (LCSLO) and other partners to develop conservation easements with interested landowners in the watershed. The Estuary Program is participating in community efforts within Morro Bay to support open space preservation around the city. This task represents an anticipated share of staff time to develop these opportunities and support partner efforts.

**Partners and Their Roles:** LCSLO is experienced in working with landowners to develop easements and acquisitions, obtaining funds for these deals, and overseeing the monitoring and management of the protected lands. Their role is to interface with landowners and the funders to develop easements and acquisitions. Other partners with interest in land conservation in Los Osos and Morro Bay include Morro Bay Open Space Alliance, California Department of Fish & Wildlife (CDFW), California State Coastal Conservancy (SCC), Wildlife Conservation Board, Morro Coast Audubon Society, California State Parks, Coastal San Luis Resource Conservation District (CSLRCD), and private landowners.

**Output/Deliverables:** The deliverable will be a map or similar documentation of acquisitions or easements.

**Estimated Milestones:** Easement timelines are dependent on landowner and funding timelines.

**Estimated Budget:** Depends on acquisition and easement opportunities. Staff time: \$8,661. Match: \$0.

**Long-Term Outcomes:** Achieve land conservation projects as opportunities arise, with a focus on the Los Osos Valley.

**CWA Implementation:** Addressing diffuse nonpoint sources of pollution. Protecting wetlands. Protecting coastal waters through the National Estuary Program.

**CCMP Action Plans Addressed:** LP-1 (Protect Special Habitats/Species), LP-3 (Direct Urban Development)

## **REST-2: Restoration Maintenance**

**Project Status:** *Ongoing*

**Objective:** Complete maintenance for conservation easements and restoration projects, as necessary.

**Description:** The Estuary Program with its partners has implemented multiple complex restoration projects that require ongoing maintenance. This work includes maintenance of riparian fencing and off-creek water systems as well as best management practice (BMP) projects

**Partners and Their Roles:** Army National Guard Base Camp San Luis Obispo (Camp SLO), CDFW, California Polytechnic State University San Luis Obispo (Cal Poly), Pacific Gas & Electric, and US Forest Service. Their role is to permit land access and maintain project sites.

**Outputs/Deliverables:** Activities documented in semi-annual reports.

**Estimated Milestones:** Work is on an as-needed basis.

**Estimated Budget:** Staff time: \$3,188. Supplies and gear: \$5,000. Match: \$0.

**Long-term Outcomes:** Work with landowners to maintain restoration work so that it continues to be effective.

**CWA Core Program Project Supports:** Addressing diffuse, nonpoint sources of pollution. Protecting coastal waters through the National Estuary Program.

**CCMP Action Plans Addressed:** BMP-1 (Agricultural and Grazing BMPs), BMP-2 (Rural Road Erosion), ECR-1 (In-Stream Habitat), ECR-2 (Riparian Corridors), ECR-3 (Wetland Protection and Enhancement)

## **REST-3: Chorro Creek Ecological Reserve Restoration Monitoring and Maintenance**

**Project Status:** *Ongoing*

**Objective:** Conduct monitoring and maintenance of the Chorro Creek Ecological Reserve Restoration Project.

**Description:** In 2003, the Chorro Creek Ecological Reserve, a 580-acre parcel at the base of Hollister Peak, was purchased with Estuary Program support and leadership to prevent future development. The property was transferred to CDFW for ownership and management. Conceptual designs were completed in 2008 to address floodplain restoration and gully remediation, but it was agreed upon that the 2008 designs strayed from the overall goals of the site and the high project costs could have prevented implementation. As a result of efforts in FY16 to obtain funding and begin planning, coordination with CDFW was conducted through early 2017 in developing designs for a restoration project. With CDFW and California State Coastal Conservancy (SCC) funding, the project was largely implemented in summer and fall 2019. Two floodplain side channels were constructed, large wood structures and willow baffles were put in place, a creek crossing was improved, and native plants were planted. The final phase of the project involved planting native plants and conducting the final reporting for funders. The revegetation efforts are monitored quarterly to track survival for a minimum of three to five years (permit requirements). Vegetation will also be watered on an as needed basis. A California Rapid Assessment Monitoring (CRAM) survey was conducted to assess habitat health. The side channels were activated by a ten-year storm event in January 2021. Fish were monitored within the floodplain to assess possible stranding issues. Additional geomorphic monitoring such as cross-sectional and longitudinal profiles of channels and an aerial drone elevation survey were conducted to look at changes from the large storm event. Additionally, floodplain flows activated the channel during two storm events in December 2021. The channel was monitored and no fish strandings were observed. The storm events did remove some of the riparian vegetation but the project is still within permitting targets and additional caging has been installed on many plantings to enhance survival. Efforts for 2023 include plant monitoring to ensure survival targets are getting met and additional monitoring and analysis of how the site performs during high flow events. Ongoing site

maintenance such as wedding and irrigating will be conducted in 2023.

**Partners and Their Roles:** Project partners include CDFW as they are both a funder and the landowner. Other partners include the SCC, who provides review and feedback and is a funder; EPA, who offers technical assistance and is a funder through the Climate Ready Estuaries program; and California Conservation Corps (CCC) who provides technical expertise and project labor.

**Outputs/Deliverables:** Monitoring report summaries for permit agencies.

**Estimated Milestones:** Complete plant, geomorphic, and flow monitoring on site.

**Estimated Budget:** Staff time: \$10,784. Match: \$40,000 from Restoration Fund.

**Long-term Outcomes:** Project implementation supports climate ready estuary goals including floodplain restoration.

**CWA Core Programs the Project Supports:** Addressing diffuse, nonpoint sources of pollution. Protecting wetlands. Protecting coastal waters through the National Estuary Program.

**CCMP Action Plans Addressed:** LP-2 (Restore Floodplains), ECR-1 (In-stream Habitat), ECR-2 (Riparian Corridors)

#### **REST-4: Other Restoration Efforts**

**Project Status:** *Ongoing*

**Objective:** Engage in other restoration efforts that arise to help achieve CCMP goals.

**Description:** Additional water quality and habitat restoration opportunities often arise in the course of the year that are worthy of immediate attention. This task reserves some staff time for these opportunities. Some examples include riparian fencing, the San Luis Obispo (SLO) County Integrated Regional Water Management Group, the Central Coast Water Conservancy, supporting partner restoration projects on private property, and supporting the city of Morro Bay and stakeholders in eelgrass management efforts. The Estuary Program will act as a partner on water conservation, habitat restoration, and steelhead projects as needed. Invasive species management will continue in the watershed, and the Estuary Program will continue to work with partners on these efforts. The Estuary Program will work with partners such as United States Geological Survey (USGS) to develop projects to study future sea level rise impacts on the estuary habitats such as the salt marsh, mudflats, eelgrass, sandspit, and transition zones. The Estuary Program will work with State Parks to conduct invasive sea lavender monitoring and removal. The Estuary Program worked with partners to create a habitat Conservation Planning Initiative. The plan identifies the indicators, projects, and partners involved in protecting and preserving each habitat type. The Estuary Program will work with partners to implement the Conservation Planning Initiative.

**Partners and Their Roles:** Potential partners include SLO County, the city of Morro Bay, the Los Osos Community Services District, CSLRCD, Cal Poly, Camp SLO, the Morro Bay Harbor Advisory Board, CDFW, State Parks, and others. These are partners in funding, planning, and implementation. Partners for the Conservation Planning Initiative are numerous and include the city of Morro Bay, California State Parks, SLO County, local consultants, and local experts.

**Output/Deliverables:** If the opportunity arises and work is conducted for this item, then a description will be provided in the semi-annual progress report provided to the EPA Project Officer (semi-annual report).

**Estimated Milestones:** As opportunities arise.

**Estimated Budget:** Staff time for partnership support and participation on committees: \$14,867. Support of partner projects: \$3,255. Other expenses depend on opportunities that arise. Match: \$213,415.

**Long-term Outcomes:** Restoration efforts support CCMP implementation and partner projects.

**CWA Core Programs the Project Supports:** Addressing diffuse, nonpoint sources of pollution, protecting wetlands. Protecting coastal waters through the National Estuary Program.

**CCMP Action Plans Addressed:** Depending on project opportunities that arise, work could impact the following Action Plans: BMP-1 (Agricultural and Grazing BMPs), ECR-1 (In-stream Habitat), ECR-2 (Riparian Corridors), ECR-3 (Wetlands Protection and Enhancement), ECR-14 (Support Recovery Plans), ECR-15 (Steelhead Barriers and Habitat), ECR-16 (Invasive Species Action Plan), FWR-5 (Water Conservation)

## **REST-5: Conservation and Restoration Project Development**

### **Project Status: *Ongoing***

**Objective:** To develop project plans and initial scoping for conservation and restoration efforts.

**Description:** Often plans, permits, and initial monitoring must be conducted before a project is eligible for funding. This task reserves some staff time to work with partners to conduct these initial efforts. Efforts anticipated for FY23 include coordination with CSLRCD to implement a project to address nutrient and sediment impacts in the Warden and Los Osos Creek subwatersheds. Estuary Program staff will also support Camp SLO in stormwater management projects. Efforts may also include engaging landowners in implementing BMPs on private property throughout the watershed. Discussions are underway with Caltrans, SLO County, and other partners on a fish passage barrier removal project on San Luisito Creek, with the Estuary Program planning to provide support for preliminary work needed for project development. Another potential effort is a CSLRCD project with 319(h) funding (applied) to implement BMPs on private property in the watershed. Additionally, studies or implementation projects may also be completed (e.g., identify sediment basins, floodplains, migration space) that were identified in the Conservation Planning Initiative. Numerous energy related projects are under development in the watershed and near-shore area that could impact Morro Bay and its watershed. Staff will track these potential projects and provide input where appropriate. Staff will work with project partners such as Cal Poly, The Nature Conservancy, and others on studying native oyster restoration in the bay. Work could potentially take place at Pasadena Point to protect sensitive habitats, and staff will work with partners on this effort as it develops. The Estuary Program has provided some initial support to develop stormwater projects on Camp San Luis Obispo (Camp SLO), and this work is expected to continue into FY23. Staff will seek opportunities to develop water conservation projects such as groundwater recharge or rainwater catchment efforts.

**Partners and Their Roles:** The primary partners for landowner best management practices are the CSLRCD and the National Resource Conservation Service. Instream flow projects could potentially include Creek Lands Conservation with the role of winning and managing funding and providing technical expertise; the CCC, who would contribute technical expertise, materials and field support; and potential landowners. The primary partners for the steelhead habitat efforts are Creek Lands Conservation, the city of SLO, and CDFW with the role of providing technical expertise; CCC who would contribute technical expertise, materials, and field support; Stillwater Sciences who would contribute technical expertise and equipment; and the city of SLO who would provide technical expertise. For conservation planning and invasive species management, primary partners include California State Parks and SLO County, who provide technical expertise and field support. Partners for stormwater projects include Camp SLO, Watershed Progressive, Creek Lands Conservation, and the CCC. Partners on energy related projects include the city of Morro Bay, SLO County, and the Coastal Commission. These entities take on the role of providing guidance and oversight as these efforts develop. Partners on oyster restoration projects include Sea Grant, Cal Poly, The Nature Conservancy, and Elkhorn Slough National Estuarine Research Reserve as technical resources, and local oyster farms as research partners. Protecting habitats at Pasadena Point would involve SLO County (as the landowner and implementation partner) and private citizens who have an interest in protecting the area. Camp SLO, as a landowner and funding partner, will be involved in developing stormwater projects on the base. Potential partners for water conservation efforts include Creek Lands Conservation (technical resource) and Camp SLO and Cal Poly as potential partners and landowners.

**Output/Deliverables:** If this condition arises (need before funding) and work is conducted for this item, then a description will be provided in the semi-annual report.

**Estimated Milestones:** Depends on funding deadlines. For conservation and steelhead projects, the milestones are to be determined depending on funding and permitting.

**Estimated Budget:** Staff: \$39,830. Match: \$0.

**Long-term Outcomes:** Expand steelhead access to areas in the watershed with the habitat and water quality to support sensitive species. Expand landowner water conservation efforts to protect surface flows. Best management practices to address sediment and water quality concerns. Enhance habitat quality through native species restoration. Assist in development of sustainable energy projects while protecting environmental resources.

**CWA Core Programs the Project Supports:** Addressing diffuse, nonpoint sources of pollution.

**CCMP Action Plans Addressed:** Depending on project opportunities that arise, work could impact the following Action Plans: BMP-1 (Agricultural and Grazing BMPs), ECR-1 (In-stream Habitat), ECR-2 (Riparian Corridors), ECR-3 (Wetlands Protection and Enhancement), ECR-14 (Support Recovery Plans), ECR-15 (Steelhead Barriers and Habitat), ECR-16 (Invasive Species Action Plan), FWR-5 (Water Conservation)

### **REST-6: Aquatic Invasive Species Management**

**Project Status:** *Ongoing*

**Objective:** To implement invasive management efforts for pikeminnow and other opportunities as they arise.

**Description:** Steelhead recovery in Chorro Creek is inhibited by invasive Sacramento pikeminnow (*Ptychocheilus grandis*). Pikeminnow were introduced to the watershed and inhibit steelhead recovery by reducing juvenile abundance and survival through predation and competition for food and habitat. A management plan to control pikeminnow was developed in 2017. Recent efforts have nearly eliminated the source pikeminnow population in Chorro Creek Reservoir, and annual efforts have demonstrated an effective approach to suppressing pikeminnow and increasing abundance of steelhead. In FY22, the Estuary Program conducted pikeminnow management in Chorro Creek as well as Chorro Reservoir. In FY23, the Estuary Program will continue to work with partners to manage the pikeminnow population in accordance with the management plan. FY23 will be the second year of a three-year grant from CDFW to manage pikeminnow in the watershed.

**Partners and Their Roles:** The primary partners for this project will include Stillwater Sciences who hold the permit for implementation. CCC will provide technical input and field support. CDFW will provide technical support. USFWS offers project oversight and issues the permit for the work. CDFW is a funder of the project and a landowner in the watershed.

**Output/Deliverables:** A summary report of pikeminnow management efforts (e.g., number of fish caught) will be completed yearly.

**Estimated Milestones:** The number of steelhead in relation to pikeminnow observed in select sampled reaches of Chorro Creek will increase after management.

**Estimated Budget:** Staff time: \$9,033. Match: \$55,112.

**Long-term Outcomes:** Measurable targets are met in the 2017 Pikeminnow Management Plan. For example, the ratio of steelhead (all ages) to pikeminnow (all ages) of greater than one-to-one in habitat units sampled with multiple pass electrofishing within five years of full funding (\$60K annually).

**CWA Core Programs the Project Supports:** Protecting coastal waters through the National Estuary Program.

**CCMP Action Plans Addressed:** ECR-14 (Support Recovery Plans), ECR-15 (Steelhead Barriers and Habitat), ECR-16 (Invasive Species Action Plan)

## **Environmental Monitoring and Research**

Work for all Environmental Monitoring and Research tasks is aimed at achieving results for the following Outcomes:

1. Project effectiveness evaluations conducted in partnership with relevant agencies and parties are shared broadly.
2. Understanding of TMDL effectiveness and the actions needed to eventually de-list local waterbodies is improved.
3. Overall understanding of waterbody status for 303(d) listed waterbodies in the watershed is improved.
4. Increase understanding of the effectiveness of stormwater management efforts.
5. Understand the impact of implementation actions on long-term, watershed-wide trends.
6. Strengthen collaboration among watershed partners while implementing actions laid out in the CCMP.

## **MONITORING-1: Monitoring Program Coordination**

### **Project Status: *Ongoing***

**Objective:** Continue coordination of Monitoring Program and collect data that meets Quality Assurance Project Plan guidelines.

**Description:** The Estuary Program has an extensive and rigorous volunteer monitoring program. The Volunteer Monitoring Program (VMP) plays a lead role in the program's monitoring efforts. Without volunteers, the program could not collect as extensive a dataset. The VMP will continue ongoing volunteer monitoring, tracking of key environmental indicators, and developing new efforts to monitor effectiveness of implementation projects. This task includes monitoring coordination, volunteer recruitment and training, equipment maintenance, and program management tasks.

**Partners and Their Roles:** Primary partners in the Estuary Program monitoring effort include the Central Coast Regional Water Quality Control Board (CCRWQCB), whose Central Coast Ambient Monitoring Program (CCAMP) lends technical advice, monitoring equipment, and field support. Landowners such as California State Parks, Cal Poly, Camp SLO, SLO County, the city of Morro Bay, and numerous private landowners are also partners, allowing access on their land for monitoring. Cuesta College provides technical support, access to their property, and lab space. Program coordination follows the approved QAPP (a deliverable under Task MONITORING-4) and data is submitted to the California Environmental Data Exchange Network (CEDEN) database (a deliverable under Task MONITORING-3).

**Outputs/Deliverables:** A summary of work conducted for this item will be provided in the semi-annual report.

**Estimated Milestones:** As appropriate, monitoring protocols are updated to reflect changes to sites, monitoring methodologies, etc.

**Estimated Budget:** Staff time: \$15,548. Monitoring supplies: \$11,000. Laboratory analysis: \$4,200. Match: \$155,017.

**Long-Term Outcomes:** An increase in understanding of the long-term trends in ambient water quality in the watershed and estuary. Identification of potential projects and assessment of existing projects.

**CWA Core Programs the Project Supports:** Identifying polluted waters and developing plans to restore them (TMDLs). Addressing diffuse, nonpoint sources of pollution. Protecting coastal waters through the National Estuary Program.

**CCMP Action Plans Addressed:** MON-1 (Support Development of TMDLs), MON-2 (Monitor Environmental Indicators), MON-3 (Monitor Project Effectiveness), MON-4 (Maintain VMP), MON-5 (Support Partners), MON-6 (Support Research Activities)

## **MONITORING-2: Monitoring Program Reporting and Analysis**

### **Project Status: *Ongoing***

**Objectives:** Analyze data and share results with grantors, partners, local landowners, and the public.

**Description:** The Estuary Program continuously compiles and analyzes program-generated data to assess long-term trends and project-specific effects on water quality and other indicators of environmental quality. These analyses are shared with program partners, local landowners, and the general public to help inform decision-making. A series of data summary memos will be completed in FY23. This includes an analysis of the sediment impacts to macroinvertebrate populations and overviews of bay and creek health. The task also includes responding to data requests from partners, landowners, and others.

**Partners and Their Roles:** Primary partners in the reporting and analysis of monitoring data include the CCRWQCB, whose CCAMP lends technical advice to the program. Public and private landowners make use of the data in their own land management and monitoring efforts. Cal Poly also lends technical expertise.

**Outputs/Deliverables:** When work occurs for this item, a summary will be provided in the semi-annual report.

**Estimated Milestones:** Monitoring updates for bioassessment, creek health, and bay health are expected in 2023.



**Estimated Budget:** Staff time: \$20,892. Match: \$0.

**Long-Term Outcomes:** Outcomes include making analysis available for agencies, project partners, and others throughout the state to inform and improve their own efforts to protect and restore.

**CWA Core Programs the Project Supports:** Identifying polluted waters and developing plans to restore them (TMDLs). Addressing diffuse, nonpoint sources of pollution. Protecting coastal waters through the National Estuary Program.

**CCMP Action Plans Addressed:** MON-1 (Support Development of TMDLs), MON-2 (Monitor Environmental Indicators), MON-3 (Monitor Project Effectiveness), MON-4 (Maintain VMP), MON-5 (Support Partners), MON-6 (Support Research Activities)

### **MONITORING-3: Monitoring Program Data Management**

**Project Status:** *Ongoing*

**Objectives:** Maintain data in SWAMP-compatible format.

**Description:** This task includes the on-going maintenance of program-generated data in a SWAMP-compatible data format. SWAMP (Surface Water Ambient Monitoring Program) is a State Water Resources Control Board (SWRCB) program to increase usability and compatibility of water quality data from various sources. Data is quality controlled and entered into a SWAMP-compatible database to increase access for groups, including the general public, throughout the state.

**Partners and Their Roles:** Primary partners in the Estuary Program monitoring effort include the CCRWQCB, whose CCAMP lends technical advice and data management support to the program. The SWRCB is a partner, providing support for the state's California Environmental Data Exchange Network (CEDEN).

**Outputs/Deliverables:** When work is conducted for this item, a summary will be provided in the semi-annual report. Program data available on the [CEDEN website](#).

**Estimated Milestones:** Continual input of data into SWAMP-compatible database. Semi-annual submittals of data to the CEDEN and/or SWAMP system.

**Estimated Budget:** Staff time: \$19,879. Match: \$0.

**Long-term Outcomes:** A high-quality dataset available to the public and the state for use in TMDL analysis, 303(d) assessment, land management, etc.

**CWA Core Programs the Project Supports:** Identifying polluted waters and developing plans to restore them (TMDLs).

**CCMP Action Plans Addressed:** MON-1 (Support Development of TMDLs), MON-2 (Monitor Environmental Indicators), MON-3 (Monitor Project Effectiveness), MON-4 (Maintain VMP), MON-5 (Support Partners), MON-6 (Support Research Activities)

### **MONITORING-4: Monitoring Program Quality Assurance**

**Project Status:** *Ongoing*

**Objective:** Maintain an approved Quality Assurance Project Plan and implement necessary quality assurance methods.

**Description:** The monitoring program maintains a Quality Assurance Project Plan (QAPP), approved by EPA, which documents the program's monitoring methodologies, sites, and equipment. This task includes laboratory sample analysis to aid in assessment of quality assurance. In addition, some staff time is necessary to keep the QAPP up-to-date. The monitoring program collects scientifically rigorous data valued by many of our partners, and the QAPP ensures that the data collection and analysis methods maintain this high level of scientific quality. Data submitted to CEDEN now requires that an accompanying QAPP be included to document the data quality.

**Partners and Their Roles:** The EPA Region 9 Office of QA and EPA Headquarters are primary partners, providing oversight of the QAPP and technical assistance. The SWRCB Quality Assurance (QA) Officer also provides review and oversight of the QAPP. Other partners include laboratories that analyze Estuary Program samples and partners conducting monitoring in the area such as the CCRWQCB's CCAMP, Central Coast Water Quality

Preservation, Inc., and others.

**Output/Deliverables:** The deliverable will be an EPA-approved QAPP document.

**Estimated Milestones:** The updated document is submitted on an annual basis. The timing is dependent upon the EPA approval schedule.

**Estimated Budget:** Staff time: \$27,039. QA laboratory analysis: \$500. Match: \$0.

**Long-term Outcomes:** A high quality data set with data supporting efforts throughout the watershed including 303(d) and TMDL assessment.

**CWA Core Programs the Project Supports:** Identifying polluted waters and developing plans to restore them (TMDLs).

**CCMP Action Plans Addressed:** MON-1 (Support Development of TMDLs), MON-2 (Monitor Environmental Indicators), MON-3 (Monitor Project Effectiveness), MON-4 (Maintain VMP), MON-5 (Support Partners), MON-6 (Support Research Activities)

#### **MONITORING-5: Project Effectiveness Monitoring**

**Project Status:** *Ongoing*

**Objective:** Complete monitoring to show project effectiveness for various restoration projects.

**Description:** Many monitoring efforts to demonstrate effectiveness of restoration or other projects are conducted by program staff (rather than volunteers) due to safety concerns, technical challenges, or a landowner's request. This task encompasses protocol development and monitoring work that falls into this category. This task will include monitoring of restoration projects and monitoring the freshwater seeps in Los Osos. The seeps are expected to demonstrate reduced nitrate contamination of groundwater by septic systems since the Los Osos Water Reclamation Facility came online in 2016. Monitoring data will be compiled to support restoration projects, partner data requests, etc. Staff monitor flows on Pennington Creek to assess the impacts of a project to improve a diversion. Currently, ongoing restoration monitoring occurs on the Maino Conservation Easement. These activities will continue. As appropriate, compliance monitoring and photo documenting will be conducted.

**Partners and Their Roles:** Project partners include landowners or responsible entities such as Cal Poly, Camp SLO, and the SLO County Office of Education. Project partners lending expertise and funding include Trout Unlimited, Creek Lands Conservation, Stillwater Sciences, the California Department of Public Health, and others.

**Output/Deliverables:** When work is conducted for this item, a summary will be provided in the semi-annual report. Maino Easement monitoring to be completed in Spring 2023.

**Estimated Milestones:** Monitoring and data reports will be compiled as needed.

**Estimated Budget:** Staff time: \$15,653. Laboratory analysis of seeps samples: \$300. Match: \$0.

**Long-term Outcomes:** Conduct monitoring and develop analysis that informs future management and restoration efforts. Conservation easement monitoring is completed annually and landowner communications continue.

**CWA Core Programs the Project Supports:** Identifying polluted waters and developing plans to restore them (TMDLs).

**CCMP Action Plans Addressed:** MON-1 (Support Development of TMDLs), MON-2 (Monitor Environmental Indicators), MON-3 (Monitor Project Effectiveness), MON-4 (Maintain VMP), MON-5 (Support Partners), MON-6 (Support Research Activities)

#### **MONITORING-6: Eelgrass Monitoring and Research**

**Project Status:** *Ongoing*

**Objective:** Conduct research and monitoring efforts for eelgrass to determine distribution in the bay as well as bed health.

**Description:** Seasonal eelgrass monitoring is conducted to aid efforts to protect and restore eelgrass habitat. In

FY23, the Estuary Program will continue to monitor according to the robust approach designed to maximize data quality. The effort is engaging experts and agency participants to help inform the monitoring approach and to seek funding to support research and monitoring (see more information under Task MONITORING-7). This task also involves a component of research collaboration with partners to understand eelgrass stressors. While eelgrass survival depends on many factors, sediment is a primary driver for eelgrass health because of its impacts on elevation and light limitation. Analysis will be conducted of an intertidal estuary-wide light detection and ranging (LIDAR) map created in 2022. Analysis will include this data to help determine sediment accumulation and change over time while informing eelgrass health. The information will help assess the role of eelgrass in bay sedimentation, erosion, and circulation. Staff will also conduct monitoring of eelgrass restoration efforts in fall 2023 to assess restoration success. In FY23, the Estuary Program will conduct mapping of eelgrass to track changes in eelgrass acreage and location over time.

**Partners and Their Roles:** Project partners include Cal Poly, whose expertise is supporting expanded monitoring and research efforts to study sedimentation, circulation, and water quality. We are partnered on a Restore America's Estuaries (RAE) Coastal Watersheds Grant (CWG) project to conduct eelgrass restoration, monitoring, and research which will conclude in the early part of FY23. Cuesta College, the local community college, conducts research related to wasting disease and eelgrass health. Other partners include CDFW, a potential funder for the effort. NOAA, USFWS, and others have provided funding and technical support for the effort. EPA provides both funding and technical support. Secondary partners with an interest in eelgrass in Morro Bay include the SCC, the Pacific Marine and Estuarine Fish Habitat Partnership (PMEP), the city of Morro Bay, State Parks, local oyster farms, the Black Brant Group, and other local businesses.

**Output/Deliverables:** The deliverables include an eelgrass monitoring report and reporting required by funders for research efforts.

**Estimated Milestones:** Provide a summary in the semi-annual report when work is conducted for this item.

**Estimated Budget:** Staff time: \$54,082. Contract to assess eelgrass extent: \$5,000. Match: \$0.

**Long-term Outcomes:** To better understand eelgrass dynamics and stressors, thus enabling the Estuary Program to track eelgrass health in the bay.

**CWA Core Programs the Project Supports:** Protecting coastal waters through the National Estuary Program.

**CCMP Action Plans Addressed:** MON-1 (Support Development of TMDLs), MON-2 (Monitor Environmental Indicators), MON-3 (Monitor Project Effectiveness), MON-4 (Maintain VMP), MON-5 (Support Partners), MON-6 (Support Research Activities), ECR-7 (Eelgrass Data and Research), ECR-8 (Eelgrass Restoration)

## **MONITORING-7: Partner Research Efforts**

**Project Status:** *Ongoing*

**Objective:** Support science partners in pursuing research efforts relevant to the goals of the Estuary Program.

**Description:** The Estuary Program collaborates with partners such as Cal Poly to facilitate research projects through data sharing, the pursuit of project development, and contributed time. Cal Poly and the Estuary Program were awarded NEP CWG funding for a project focused on building coastal resilience through eelgrass restoration and monitoring. Work was conducted throughout 2022 focused on bay water quality, bay erosion and deposition, and eelgrass mapping. Final analysis and conclusions will be developed in the beginning of FY23. Other potential efforts include further planning to address sea level rise around the bay, bay water quality including ocean acidification (OA), bay sediment characteristics, native oyster restoration, microplastics monitoring, and others. Reports and results will be compiled in the Estuary Program library. A decadal review of MPA monitoring data is currently underway. Estuary Program staff will participate in the effort to share program data and learn from other program's monitoring efforts.

**Partners and Their Roles:** Cal Poly is a primary partner in these joint efforts. Cal Poly will conduct monitoring of water quality parameters, eelgrass mapping, and analysis as part of the CWG project. Other research collaboration partners have included University of San Francisco, Southern California Coastal Water Research Program, USGS, Cuesta College, and others. The Central Coast Wetland Group, who is leading the decadal MPA data review, serves as a technical resource.

**Output/Deliverables:** Deliverables are dependent on partner projects and vary by funding sources. A list will be provided in the semi-annual report of partner efforts during the reporting period. A final report for the CWG project will be completed in early FY23.

**Estimated Milestones:** Variable, depending on funding sources.

**Estimated Budget:** Staff time: \$19,873. Match: \$0.

**Long-term Outcomes:** Improve understanding of resources in order to better target efforts such as monitoring and restoration.

**CWA Core Programs the Project Supports:** Protecting coastal waters through the National Estuary Program.

**CCMP Action Plans Addressed:** MON-1 (Support Development of TMDLs), MON-2 (Monitor Environmental Indicators), MON-3 (Monitor Project Effectiveness), MON-4 (Maintain VMP), MON-5 (Support Partners), MON-6 (Support Research Activities), ECR-7 (Eelgrass Data and Research), ECR-8 (Eelgrass Restoration)

## **MONITORING-8: State of the Bay Analysis and Reporting**

**Project Status:** *Ongoing*

**Objective:** Complete analysis of trend and project effectiveness data for the triennial State of the Bay environmental report card. Compile data to be shared with the general public.

**Description:** Every three years, the Estuary Program hosts a State of the Bay (SOTB) event series to share knowledge about the status of the estuary and watershed in terms of clean water and healthy habitats. In FY22, the Estuary Program gathered and reviewed available data, conducted data analysis, and prepared the document for the triennial report card, which will be released a few months prior to the State of the Bay events to take place in FY23. This report will provide data and summary information on the state of the estuary and watershed according to a suite of environmental indicators. Staff will finalize the printed report, compile additional content for the online version, and help present the data in public-friendly ways.

**Partners and Their Roles:** Project partners include the monitoring partners who share their data and expertise with the Estuary Program. These include the California Department of Public Health, CCAMP, Central Coast Water Quality Preservation, Inc., CDFW, Cal Poly, Audubon, the CCC, USGS, shellfish farmers, environmental consultants, and private citizens.

**Outputs/Deliverables:** The deliverables include a printed report and an electronic version for the web.

**Estimated Milestones:** Both the electronic and print versions of the report card will be completed by spring 2023.

**Estimated Budget:** Staff time: \$27,710. Match: \$0.

**Long-term Outcomes:** To share the results of monitoring by the Estuary Program and its partners, with the goal of increasing education on nonpoint source pollution, restoration, etc.

**CWA Core Programs the Project Supports:** Identifying polluted waters and developing plans to restore them (TMDLs). Addressing diffuse, nonpoint sources of pollution. Protecting wetlands. Protecting coastal waters through the National Estuary Program.

**CCMP Action Plans Addressed:** MON-1 (Support Development of TMDLs), MON-2 (Monitor Environmental Indicators), MON-3 (Monitor Project Effectiveness), MON-4 (Maintain VMP), MON-5 (Support Partners), MON-6 (Support Research Activities), EO-1 (Public Education & Outreach), EO-2 (State of the Bay)

## **Public Participation, Education and Outreach**

**E&O-1: Communications**

**Project Status:** *Ongoing*

**Objective:** Communicate with a variety of audiences using presentations, printed materials, online presence, social media, and other venues.

**Description:** The Estuary Program’s Education and Outreach program conducts regular communication with a variety of audiences. Several channels will be employed during FY23 to reach these audiences with meaningful information to educate the public about the program’s efforts. These efforts include the following:

- **Website:** The Estuary Program website ([www.mbnep.org](http://www.mbnep.org)) will be updated with content on a regular basis.
- **Blog:** The Estuary Program will continue the [Estuary Program blog](#). Posts are made once a week and can be viewed on the website or by subscription. They are also shared via social media.
- **Social Media:** The Estuary Program utilizes Facebook, Instagram, and LinkedIn extensively; these have proven to be important tools to communicate with the community. Photos and status updates are posted to the Facebook page multiple times a week (<https://www.facebook.com/mbestuary>), and Instagram posts (<https://www.instagram.com/morrobaynep/>) are made at least once per week. Posts are strategic and integrated with the messaging incorporated into our website and blog. Messages cover a variety of topics, such as project and fieldwork highlights, volunteer opportunities, community events, presentations given by Estuary Program staff, and other information related to the Estuary Program mission. Currently, the Estuary Program has more than 2,489 Facebook followers, 2,515 Instagram followers, and 201 LinkedIn followers. In FY23, the Estuary Program will continue to increase two-way communication using social media tools.
- **Annual Report:** The annual report summarizes the reach and impact made by the Estuary Program across all programs. The report is created annually and is available online and in limited print.
- **Speaking and Exhibit Engagements:** Estuary Program staff present watershed and estuarine information for interested groups throughout the area.
- **News Releases:** News releases will be distributed for news-worthy activities or milestones, such as volunteer opportunities and completed major projects. Key messages will be drafted and incorporated into the news releases. These key messages will be integrated into other communication channels.
- **Brochures and Other Print Materials:** Brochures and other print materials about the Estuary Program, issues related to the health and stewardship of the Morro Bay estuary, volunteer opportunities, and formal educational opportunities will be distributed at the Morro Bay Estuary Nature Center, community events, and presentations in which Estuary Program staff participate. They will also be made available online when possible. In FY23, the Estuary Program will continue to work to translate some of our most popular materials into target languages to better serve visitors and residents whose primary language is not English.

**Partners and Their Roles:** Partners in Estuary Program communication efforts include the city of Morro Bay, SLO County, the Morro Bay Natural History Museum, California State Parks, the San Luis Obispo Marine Protected Area Collaborative (SLOMPAC), and others. These partners provide resources and expertise, promote Estuary Program events, and share our materials and message with the public.

**Output/Deliverables:** A summary of work conducted for this item will be included in the semi-annual report.

**Estimated Milestones:** The Estuary Program maintains a social media and blog schedule that addresses current events and other topics and is updated in real time.

**Estimated Budget:** Staff time: \$61,481. Design and printing, website maintenance, hosting and design, translation of materials: \$14,000. Match: \$16,359.

**Long-term Outcomes:** Residents and visitors better understand their roles as stewards of the Morro Bay estuary. They practice behaviors that help keep our waters clean.

**CWA Core Programs the Project Supports:** Protecting coastal waters through the National Estuary Programs.

**CCMP Action Plans Addressed:** EO-1 (Public Education and Outreach), EO-2 (State of the Bay), EO-3 (Nature Center), EO-4 (Formal Education Programs)

## **E&O-2: Education**

**Project Status:** *Ongoing*

**Objective:** Develop formal education partnerships and services, and continue to maintain the Nature Center and other education efforts.

**Description:** In FY23, the Estuary Program will continue working with partners to integrate estuary-focused activities into existing formal educational programming. The Estuary Program continues to work to develop an education partnership to allow for expanded fieldtrip opportunities. We are reaching out to local organizations including Camp KEEP and Creek Lands Conservation. In FY23, we plan to finalize at least one and begin working with that partner to deliver educational content. Potential educational activities include watershed model demonstrations in virtual or in-person classrooms, microplastics monitoring with local high school students, hosting estuary fieldtrips for student groups, and supporting other watershed education by partners. The Estuary Program will also continue to provide trainings to local docents, online educational resources, and a select number of educational opportunities that are unique to the program (e.g., Mutts for the Bay education efforts). The Estuary Program staff will also continue to provide presentations and talks as requested for K-12 students as well as undergraduate and graduate classes. In addition, the Estuary Program will maintain the Estuary Nature Center. During years in which travel and visitorship is not affected by a pandemic, the Nature Center receives approximately 5,200 individuals monthly during the high season, with an average of 25,000 people visiting each year. In addition, Estuary Program staff and guest speakers present research and projects that relate to the health of the Morro Bay estuary through our annual Morro Bay Science Explorations with the Estuary Program speaker series as part of State of the Bay events. The series will potentially be held online depending on the public health situation. The goal of this speaker series is to educate the general public about issues facing the Morro Bay estuary as well as stewardship actions that people can take to help protect it.

**Partners and Their Roles:** Partners include the Morro Bay Museum of Natural History, a direct collaborator in creating education programs. Teachers, parents, and volunteers from local schools reach out to the Estuary Program for direct support in developing education programs on topics such as watersheds and the water cycle. Cal Poly and Cuesta College faculty are also partners, bringing classes to the estuary to conduct research and field trips. Staff also visit or present remotely to classrooms from primary through college-level to present the results of our work. The San Luis Obispo and Monterey Marine Protected Area Collaboratives are also key partners, helping to produce and distribute estuary and marine-focused stewardship education materials across the state of California.

**Outputs/Deliverables:** The deliverables will be Nature Center statistics, presentation statistics, Marine Protected Area (MPA) kids' education content statistics. Included in semi-annual reports to EPA.

**Estimated Milestones:** The Nature Center promotional materials and statistics will be ongoing. The statistics on speaking engagements and field trips will be included in the semi-annual report.

**Estimated Budget:** Staff time: \$23,884. Supplies: \$700. Match: \$124,710.

**Long-term Outcomes:** Formal educational partnerships disseminate estuary-related messages to local students. The Estuary Nature Center serves as a learning center about the estuary with updated and engaging exhibits.

**CWA Core Programs the Project Supports:** Addressing diffuse, nonpoint sources of pollution. Protecting coastal waters through the National Estuary Program.

**CCMP Action Plans Addressed:** EO-1 (Public Education and Outreach), EO-2 (State of the Bay), EO-3 (Nature Center), EO-4 (Formal Education Programs)

### **E&O-3: Nature Center Update**

**Project Status:** *Ongoing*

**Objective:** Update the content and displays in the Nature Center.

**Description:** About 25,000 visitors have stopped by the Estuary Program's Nature Center each year since it was established in 2005. A fish tank, a watershed mural, a wildlife viewing station with high-powered viewing scopes, a touch-screen educational kiosk, and stereoscopic photo images are some of the most popular exhibits. After more than a decade of heavy use, the Nature Center's worn displays need to be updated or replaced. In FY23, the Estuary Program will continue to seek funding for this update effort and engage local partners in developing exhibits and funding. The Estuary Program will develop grant applications, reports, and deliverables for funders. We expect to be able to complete updates to two exhibits in FY23. Additionally, through a USFWS grant, we will be developing exhibits related to eelgrass and to women in science as a component of an eelgrass grant.

**Partners and Their Roles:** The Morro Bay Museum of Natural History will be a partner in this effort, lending their expertise in the development of exhibits and seeking funding for such efforts. Others such as the Monterey Bay National Marine Sanctuary, the Historical Society of Morro Bay, and the UC Santa Cruz Seymour Marine Discovery Center lend advice and expertise.

**Output/Deliverables:** A summary description of work conducted for this item will be included in the semi-annual report.

**Estimated Milestones:** Updates to two exhibits will be completed by the end of FY23.

**Estimated Budget:** Staff time: \$7,429. Exhibit updates and maintenance: \$2,500. Match: \$0.

**Long-term Outcomes:** The Estuary Nature Center serves as a learning center about the estuary, with updated and engaging exhibits.

**CWA Core Programs the Project Supports:** Addressing diffuse, nonpoint sources of pollution. Protecting coastal waters through the National Estuary Program.

**CCMP Action Plans Addressed:** EO-1 (Public Education and Outreach), EO-2 (State of the Bay), EO-3 (Nature Center), EO-4 (Formal Education Programs)

#### **E&O-4: Other E&O Tasks/Community Partner Projects**

**Project Status:** *Ongoing*

**Objective:** Support outreach projects in the community that further the Management Plan goals.

**Description:** Opportunities for projects with partners will be maximized throughout the year as they arise. Beyond these new opportunities, standing community partner projects include:

- **San Luis Obispo Marine Protected Areas Collaborative:** The Estuary Program is a key member of the SLOMPAC, which provides education and outreach materials for students and community groups related to local MPAs, including the Morro Bay estuary. The group also provides training related to MPAs for local enforcement agencies and provides a collaborative space for community members and enforcement agents to meet and share concerns related to the health of MPAs. SLOMPAC projects are collaboratively devised and executed. The Estuary Program houses the SLOMPAC's remotely operated vehicle (ROV) unit and facilitates the checkout and reporting procedures for it. An education staff member from the Estuary Program participates in collaborative meetings. The Estuary Program has received and managed grant funding to implement SLOMPAC projects, as well as collaborative projects between the SLOMPAC and the Monterey Marine Protected Area Collaborative.
- **Sewage Pumpout Monitoring:** In partnership with the Bay Foundation of Santa Monica and the San Francisco Estuary Partnership, the Estuary Program participates in an effort to monitor the usability and efficacy of pumpout units in the Morro Bay estuary. With funds provided by the Bay Foundation of Santa Monica, the Estuary Program monitors pumpout units three times a year, provides signage for pumpout stations, and provides or facilitates the purchase of consumable replacement parts for these sewage pumpout units. The pumpout units serviced through this program are owned by the Harbor Department of Morro Bay and the Morro Bay Yacht Club.

Staff will continue to seek opportunities for partnership on water conservation, marine debris, and efforts to protect bay waters.

**Partners and Their Roles:** Partners include the 28 member organizations of the SLOMPAC, California State Parks through their SeaLife Stewards program, the city of Morro Bay's Harbor Department, the Morro Bay Yacht Club, San Francisco Estuary Partnership, Bay Foundation of Santa Monica, the Los Osos Community Services District, and local recreational boating business owners. This effort also includes supporting ECOSLO, a local organization, in executing annual cleanups within the Morro Bay watershed.

**Outputs/Deliverables:** Materials completed as projects develop.

**Estimated Milestones:** Materials are completed as projects develop.

**Estimated Budget:** Staff time: \$8,226. Miscellaneous expenses: \$2,000. Match: \$64,000.

**Long-term Outcomes:** Coordinate with partner organizations about key messages associated with each community project. Rollout of the messages and education and outreach material will be closely tied to the project implementation.

**CWA Core Programs the Project Supports:** Addressing diffuse, nonpoint sources of pollution.

**CCMP Action Plans Addressed:** EO-1 (Public Education and Outreach), EO-2 (State of the Bay), EO-3 (Nature Center), EO-4 (Formal Education Programs)

#### **E&O-5: Mutts for the Bay**

**Project Status:** *Ongoing*

**Objective:** Manage pet waste management program to prevent bacterial contamination in the bay.

**Description:** The Estuary Program has managed a Mutts for the Bay Program since 2008. The effort involves accepting donations, installing dispensers, coordinating volunteers, and working with partners to install and maintain pet waste bag dispensers throughout the watershed. By using the bags, pet owners prevent bacteria from pet waste from reaching the estuary, where shellfish farms and recreational bay users require clean water.

**Partners and Their Roles:** Partners include the City of Morro Bay and SLO County, the two entities responsible for stormwater management efforts in the urban areas surrounding the estuary. A portion of the effort involves public education to share a clean water message and encourage responsible pet owner behavior. A private foundation awarded the Estuary Program multiple years of funding to support operational and educational costs related to the effort.

**Outputs/Deliverables:** Program statistics and milestones will be provided in the semi-annual reports.

**Estimated Milestones:** Program statistics will be ongoing.

**Estimated Budget:** Staff time: \$9,205. Miscellaneous items: \$0. Match: \$17,300.

**Long-term Outcomes:** Responsible behavior by pet owners reduces bacterial loading to the estuary, protecting beneficial uses such as shellfish farming and recreation.

**CWA Core Programs the Project Supports:** Addressing diffuse, nonpoint sources of pollution. Protecting wetlands. Protecting coastal waters through the National Estuary Program.

**CCMP Action Plans Addressed:** EO-1 (Public Education and Outreach), EO-2 (State of the Bay), EO-3 (Nature Center), EO-4 (Formal Education Programs), BMP-6 (Reduce Pet Waste)

#### **E&O-6: State of the Bay Events**

**Project Status:** *New*

**Objective:** Planning and implementing events to share the triennial State of the Bay report content and messaging.

**Description:** Every three years, the Estuary Program hosts a SOTB conference/event series to share knowledge about the status of the estuary and watershed in terms of clean water and healthy habitats. In FY23, the Estuary Program will finalize planning and implement events throughout the spring. The Estuary Program will share the results of a public-friendly report to share data collected by our program and our partners. The series of events will be held throughout the spring of 2023 to share the data as well as a clean water message.

**Partners and Their Roles:** Partners include the Central Coast State Parks Association, ECOSLO (a local nonprofit focused on environmental conservation), and other education partners assisting in spreading the SOTB clean water messaging.

**Outputs/Deliverables:** Program statistics and milestones will be provided in the semi-annual reports.

**Estimated Milestones:** The 2023 SOTB report will be available in early 2023, and events will be held throughout the spring.

**Estimated Budget:** Staff time: \$29,242. Miscellaneous expenses: \$10,000. Match: \$8,000.

**Long-term Outcomes:** To share the results of monitoring by the Estuary Program and its partners, with the goal of increasing education on nonpoint source pollution, restoration, etc.



**CWA Core Programs the Project Supports:** Addressing diffuse, nonpoint sources of pollution. Protecting wetlands. Protecting coastal waters through the National Estuary Program.

**CCMP Action Plans Addressed:** EO-1 (Public Education and Outreach), EO-2 (State of the Bay)

## Program Management

Work for all Program Management tasks is aimed at achieving results for the following Outcomes:

1. Morro Bay National Estuary Program will maintain good standing with the EPA and ANEP.
2. Morro Bay National Estuary Program will continue to improve administration and program management to successfully support environmental goals and manage resources in a fiscally responsible manner.
3. Morro Bay National Estuary Program will facilitate effective partnerships and stakeholder engagement in implementation of the CCMP.

### **PM-1: Manage Committees and Build Partnerships**

**Project Status:** *Ongoing*

**Objective:** Hold quarterly committee meetings and support partnerships.

**Description:** The Estuary Program will continue to coordinate the Executive Committee on a quarterly basis. Staff create meeting materials and help facilitate the meetings. The Estuary Program will convene technical advisory committees on an as-needed basis to provide support for project development, etc. Staff participate in collaborative efforts to build partnerships on a broader scale. As a member of the Central Coast Climate Collaborative, staff participate in this regional partnership to develop equitable climate solutions and build resilience on the Central Coast. The Chumash National Marine Sanctuary (NMS) effort is underway in the area, and staff will participate in stakeholder meetings related to monitoring, restoration, and education issues.

**Partners and Their Roles:** The Management Conference committees are made up of representatives from various governmental, economic, environmental, and educational organizations. The TACs that support monitoring, restoration, and education are made up of local experts who can advise the Estuary Program in these various programmatic areas. The Bay Foundation board includes community members, local educators, business owners, and volunteers.

**Outputs/Deliverables:** Deliverables include Executive Committee meeting minutes, agendas, staff reports, and other materials.

**Estimated Milestones:** These deliverables are produced quarterly.

**Estimated Budget:** Staff time: \$29,578. Match: \$10,616.

**Long-term Outcomes:** Committees meet as needed to provide input and direction for the Estuary Program and to ensure that other partnerships are well supported.

**CWA Core Programs the Project Supports:** Support contribution toward all CWA core programs.

**CCMP Action Plans Addressed:** This task supports all Action Plans.

### **PM-2: Grants and Contracts Administration and Financial Management**

**Project Status:** *Ongoing*

**Objective:** Develop workplan, administer grants, and complete annual financial management tasks.

**Description:** Each year, the Estuary Program evaluates the prior year's progress, anticipates the upcoming year's potential, and develops a workplan and budget. The workplan for FY24 is due to EPA Region 9 in May 2023. Other grants and financial management tasks include reporting and tracking for grants, preparing financial reports for the Bay Foundation and management committees, and completing year-end financial statements and an annual audit. Estuary Program staff will attend the fall 2022 and spring 2023 NEP Tech Transfer meetings. Bipartisan Infrastructure Bill (BIL) funding is expected to be available in FY23 for project implementation. Staff will develop projects, administer contracts, and conduct reporting related to the funding.

**Partners and Their Roles:** Partners include the Bay Foundation, the board that serves as the bursar for the Estuary Program. EPA is a primary partner, providing oversight and guidance for the program.

**Outputs/Deliverables:** The deliverables include the work program and budget (Spring 2023), biannual EPA grant reports (Fall 2022 and Spring 2023), an annual/end of year report (Fall 2022), annual financial statements submitted to the federal clearinghouse (Spring 2023), and annual state and federal tax submissions to the State of California and the IRS (Spring 2023).

**Estimated Milestones:** See above.

**Estimated Budget:** Staff time: \$49,231. Accounting/auditing and travel: \$21,570. Match: \$6,710.

**Long-term Outcomes:** Grant administration and financial management tasks are completed in a timely and accurate manner.

**CWA Core Programs the Project Supports:** Support contribution toward all CWA core programs.

**CCMP Action Plans Addressed:** This task supports all Action Plans.

### **PM-3: General Administration and Human Resources Management**

**Project Status:** *Ongoing*

**Objective:** Maintain accurate financial and human resource records and manage personnel.

**Description:** The Estuary Program requires ongoing financial and administrative functions, including recordkeeping and filing, bookkeeping, preparing audited financial statements, equipment and office space upkeep, and interacting with the general public. In addition, the Director spends time managing staff performance and workplan progress. Other human resources tasks include training and professional development, recruitment, managing staff, and keeping all personnel policies and procedures current, including those related to emergency preparedness for operations. Staff maintains up-to-date bookkeeping records, public-friendly office space, orderly and properly operating office and field equipment, annual staff performance reviews, and updated policies and procedures. Bi-weekly staff meetings will be conducted.

**Partners and Their Roles:** The primary partner for this task is the Bay Foundation board. As the employer of Estuary Program staff, they set the policies and procedures for the organization.

**Outputs/Deliverables:** The Estuary Program provides program management updates in the EPA semi-annual reports.

**Estimated Milestones:** See above.

**Estimated Budget:** Staff time: \$48,144. Professional development: \$1,000. Operational expenses: \$89,761. Match: \$23,883.

**Long-term Outcomes:** Policies and procedures must remain up to date so that the organization can function smoothly, allowing staff to focus on attaining the goals of the organization.

**CWA Core Programs the Project Supports:** Support contribution toward all CWA core programs.

**CCMP Action Plans Addressed:** This task supports all Action Plans.

### **PM-4: Tracking Implementation of the Management Plan and Workplan**

**Project Status:** *Ongoing*

**Objective:** Track workplan and CCMP implementation.

**Description:** The Estuary Program tracks progress on the CCMP Action Plans on a biannual basis. Workplan implementation is tracked with biannual reports on deliverables. Tracking project and program effectiveness is ongoing and includes biannual reports, NEPORT reporting, grant reporting, monitoring, and general project management. Staff are working to develop a public-friendly version of CCMP Action Plan tracking to be shared on our website.

**Partners and Their Roles:** The primary partner is the Bay Foundation board who oversees the organization's finances.

**Outputs/Deliverables:** The deliverables include semi-annual reports to EPA (Fall 2022 and Spring 2023) and NEPORT data (Summer 2023).

**Estimated Milestones:** See above.

**Estimated Budget:** Staff time: \$16,404. Match: \$0.

**Long-term Outcomes:** Management Plan and workplan tracking occurs to ensure that tasks are completed in a timely and accurate manner.

**CWA Core Programs the Project Supports:** Support contribution toward all CWA core programs.

**CCMP Action Plans Addressed:** This task supports all Action Plans

#### **PM-5: Community Projects Program**

**Project Status:** *Ongoing*

**Objective:** Provide support for community projects that further the goals of the Management Plan and engage the community.

**Description:** Community Projects allow community members to be active participants in conservation efforts by helping to implement the Management Plan. The Community Projects Program has a special focus on projects that engage the community. The Estuary Program staff meets with community members to develop projects, prepare contracts, and monitor and evaluate products. The Estuary Program will continue to oversee current projects and develop new projects in FY23.

**Partners and Their Roles:** Partners for past Community Projects have included the City of Morro Bay Harbor Department, Cal Poly and Cuesta College researchers, California State Parks, SLO County, and the SLOMPAC.

**Outputs/Deliverables:** The semi-annual report will detail the projects completed in FY23. Final reports from Community Projects.

**Estimated Milestones:** Project ideas are considered twice a year, dependent on budget, and will be listed in the semi-annual reports.

**Estimated Budget:** Staff time: \$10,548. Match: \$15,000 in Restoration Fund money to fund projects. Additional match from project partners, to be determined.

**Long-term Outcomes:** All projects meet guidelines on community involvement and Management Plan nexus.

**CWA Core Programs the Project Supports:** Addressing diffuse, nonpoint sources of pollution. Protecting wetlands. Protecting coastal waters through the National Estuary Program.

**CCMP Action Plans Addressed:** This task can support all Action Plans, depending on the project type and partners involved.

## **5. Accomplishments**

This section reports on major projects that were completed by December 2021. These accomplishments are also included in the semi-annual reports submitted to the EPA in October 2021 and April 2022.

### **Monitoring Efforts**

**Project Objective:** Changes to the Estuary Program's robust bioassessment monitoring effort, to utilize the latest methods and analyses.

The primary goals of the program are to collect high-quality data to support tracking of long-term trends, to help identify potential restoration projects, and to assess the effectiveness of project implementation. The Estuary Program has conducted a rigorous bioassessment monitoring effort since the early 2000s. This high-quality data set allows for tracking of long-term conditions for the biota in the creeks.

When conducting bioassessment monitoring per the state's protocol, detailed data is collected on the physical habitat of the site. Macroinvertebrate samples are collected and sent to a certified lab for sorting, counting, and identification. Up to 600 specimens are identified for each site. This detailed data can be difficult to work with.

Estuary Program staff worked with the CCRWQCB and Moss Landing Marine Labs to gather historical data and analyze it for California Stream Condition Index (CSCI) scores. This is the method currently in use by the SWRCB. By calculating this metric for our long-running data set, additional data is now available to the State for their 303(d) process, TMDL analysis, and other efforts. The analysis also included development of habitat scores for each site, which will also allow for additional tracking of long-term health at our 15 monitoring sites.

A component of the CSCI method is to compare the results for a site to a local reference site that is in good condition. The Estuary Program had previously been monitoring a reference site in a neighboring watershed. With the switch to CSCI, staff sought a reference site that was more representative of conditions in the Morro Bay watershed. Two potential sites were selected and monitored in 2021. They will be monitored again in 2022 to choose the optimal reference location.

These recent efforts bring our analysis in line with the methods used by the state, making the data more useful for water resource management efforts.

The efforts supported the following CCMP Action Plans: MON-1 (Support Development of TMDLs), MON-2 (Monitor Environmental Indicators), MON-3 (Monitor Project Effectiveness), MON-5 (Support Partners), MON-6 (Support Research Activities)

### **Eelgrass Restoration and Monitoring**

**Project Objective:** Conduct transplants and restoration monitoring to determine method and locations for larger-scale eelgrass restoration efforts.

Eelgrass, a submerged aquatic vegetation, is a valuable habitat type in Morro Bay. It provides nursery habitat for juvenile species, dampens wave action, and helps stabilize the bay bottom. Precipitous declines in eelgrass acreage from 2007 to 2017 were of great concern. The Estuary Program has been working closely with Cal Poly researchers as well as other eelgrass experts to conduct experimental transplanting (2017 to 2019) in different regions of the bay. The transplants were then monitored according to a scientific methodology to determine the optimal season, locations, depths, anchoring methods, etc. for planting eelgrass. Based on information from experimental transplanting efforts in 2017 and 2018, the Estuary Program conducted additional planting efforts in the spring of 2019, 2020, and 2021. Each year, the Estuary Program continues to implement lessons learned.

During the FY22 reporting period, the Estuary Program completed three and six-month post-project monitoring of 2021 restoration sites with a grant from RAE CWG and the USFWS. In spring 2021, 31 rebar, 128 bamboo, and 15 plots were planted at both intertidal and subtidal locations. Overall, most of the sites are doing well. A few sites have had varying success, and it appears that macroalgae density has been high and has outcompeted eelgrass at some portions of sites that were planted.

In spring 2022, we will complete eelgrass transplanting efforts at four locations using 24 bamboo pieces in locations where eelgrass is not as dense in the mid-bay. Between eelgrass restoration efforts and natural recruitment, eelgrass acres have increased since the recent decline leading to a reduction in planned restoration.

In fall 2021, the Estuary Program partnered with Cal Poly to collect baywide imagery to create an eelgrass map. Efforts are still underway to analyze the imagery and a map is expected in summer 2022.

As part of the RAE CWG project, Cal Poly is conducting water quality monitoring experiments in the bay to look at parameters such as oxygen and temperature as well as nutrients and carbonate chemistry analytes. Results of this work are expected at the end of 2022.

The efforts support the following CCMP Action Plans: MON-5 (Monitoring Partners), MON-6 (Support Research Activities), ECR-7 (Data and Research to Protect Eelgrass)

### **Education Partnerships**

Project Objective: Work with MPA Collaborative partners to create and share educational content.

The Estuary Program strives to reach students, residents, and visitors with estuarine science and stewardship messaging. Partnerships are essential to these education and outreach efforts. One such partnership is the program's participation in the San Luis Obispo Marine Protected Areas Collaborative (SLOMPAC). The group provides education and outreach materials for students and community groups related to local MPAs, including the Morro Bay estuary. SLOMPAC projects are collaboratively devised and executed. The Estuary Program has received and managed grant funding to implement SLOMPAC projects, as well as collaborative projects between the SLOMPAC and the Monterey Marine Protected Area Collaborative.

In 2021, the Estuary Program worked with the San Luis Obispo and Monterey Marine Protected Area Collaboratives to rework and expand two popular bilingual education and outreach resources for kids. The MPA Coloring Book and the Coastal Explorer's Guide introduce kids to the wonders of the California coastline. In the updated versions of these books, 3D augmented reality coloring sheets have been added that feature a lingcod, a California two-spot octopus, and a snowy plover. Students can color and then bring these animals to life using the free Quiver 3D Coloring App on a smartphone or tablet. The app also includes educational games that allow the user to experience a marine protected area through the eyes of the octopus and lingcod. Due to generous support from the California Ocean Protection Council and Coastal Quest, this content was updated and 39,200 copies distributed to each of the MPA collaboratives along the California coast. These resources are available online at [www.MPAcollaborative.org/kids](http://www.MPAcollaborative.org/kids)

These efforts support the following CCMP Action Plans: EO-1 (Public Education and Outreach), EO-4 (Formal Education Programs)

### **Community Projects**

Project Objective: Provide support to Community Projects that address the goals of the Estuary Program.

The Estuary Program's Community Projects Program involves staff working closely with partners to develop projects that directly address our goals and support our Action Plans. The total annual budget for the program is \$15,000 per year, and the maximum dollar amount for a project is \$10,000.

Recently completed projects are as follows:

- Monarch and Pollinator Habitat Restoration and Education: CSLRCD restored habitat for monarchs and pollinators on Morro Coast Audubon Society's Sweet Springs Preserve located in Los Osos. The effort included volunteer planting days to install 750 plants, three outreach events that engaged 60 community members, and development and installation of an interpretive sign to educate Sweet Springs visitors about the importance of pollinators and monarch butterflies in the local coastal ecosystems.
- Watershed Demonstration Station: California State Parks build a station that demonstrates how rain water reacts with various surfaces, from pavement to native grasses. This tool provides a strong visual demonstration of watershed concepts. The station is currently set up in the Morro Bay Museum of Natural History and is being utilized by docents to present watershed concepts to visitors of all ages.

One project is still underway using FY21 funding. A microplastics monitoring effort by Dr. Nikki Adams developed a monitoring effort and began implementing it in spring 2021 in Morro Bay. Due to COVID, the monitoring effort was delayed. Thus, the project timeline was extended through fall 2022 to allow for a full year of data collection to take place. Initial results show evidence of microplastics at all three monitoring sites.

Through collaboration with partners, the Estuary Program developed two projects that are currently underway with FY22 funding.

- **Watershed Education: Camp KEEP (Kern Environmental Education Program)** is Kern County Superintendent of Schools organization that offers outdoor education opportunities for students from Kern County and beyond. Their project involves refurbishing an outdoor watershed model to be utilized in their watershed curriculum. The group will utilize local volunteers for the work. They will also purchase two tabletop watershed models for use in classrooms, at outdoor locations, etc.
- **Oil Spill Containment and Response:** The City of Morro Bay Harbor Department maintains robust clean marina efforts to protect bay water quality. An important component of this program is providing oil absorbent pads free of charge to boat owners so that they are ready to contain spills when conducting work on their vessels. The project involved the purchase of approximately a four-year supply of pads. The program is an exchange program for boat owners to hand in used pads to the Harbor Department and receive clean ones. This provides an opportunity for Harbor Department staff to share Estuary Program clean boating materials and share a clean boating message.

All projects help implement the CCMP with an emphasis on engaging the community in the project. Funds used to support Community Projects come from the Morro Bay Restoration Fund, a match source to the EPA 320 funding.

## 6. Areas of Special Interest

The EPA's Office of Water has several priority areas of interest relevant to the NEPs. The following summarizes Estuary Program activities in these four areas.

### Reductions in Nutrient Pollution

The issue of elevated nutrients is one of the priority problems facing the Morro Bay estuary and its watershed. The monitoring, restoration, and education efforts of the Estuary Program and its partners often focus on this issue. Multiple efforts are on-going and planned to specifically address nutrient management.

- **Resource Conservation District Partnerships to Address Nutrients:** The Estuary Program worked with the CSLRCD through a grant to develop plans for BMPs on private property. The CSLRCD received a Water Board grant to implement these efforts throughout the watershed, thus reducing nutrient and sediment pollution.
- **Monitoring Data Support for Regulators:** The Estuary Program collects nutrient data from throughout the watershed. The data is submitted to the California Environmental Data Exchange Network (CEDEN), where it is then available to the CCRWQCB and SWRCB to support TMDL assessment, 303(d) review, implementation of a new Agricultural Order, etc. The program is conducting bay nutrient monitoring in partnership with Cal Poly as part of the CWG project.
- **Los Osos Water Reclamation Facility Effectiveness:** The Estuary Program collects nutrient data from the bay shoreline seeps in the community of Los Osos to track changes in nitrate concentrations in the shallow groundwater. The Los Osos Water Reclamation Facility coming online in 2016 should result in reductions in nitrates.

- **Stormwater Management Efforts:** The Estuary Program partnered with OPC and State Parks to implement a parking lot upgrade at the State Park Marina to reduce stormwater pollution reaching the bay. Staff is also collaborating with Camp SLO to collect preliminary data and develop designs for stormwater projects on the base.

## **Water Reuse and Conservation**

- **Water Conservation Efforts:** The Los Osos Community Services District (LOCSO) is one of the principal water purveyors for the community of Los Osos. As such, one of their roles is to work with the community to encourage water conservation. In 2021, the LOCSO water conservation program gave out rebates for water metering devices that allowed customers to view their water usage rate in real time via a smart phone or computer. Additionally, water conservation outreach is integrated throughout our Bay Friendly Gardening online content.
- **Flow Study:** As part of our Conservation Planning Initiative effort to identify potential projects to protect and restore habits in the bay and watershed, the Estuary Program partnered with Stillwater Sciences to conduct an analysis of rainfall and surface flows. The goal was to establish flow targets to maintain adequate water in the creeks for wildlife. This analysis will provide valuable information when planning restoration and conservation efforts in the future.

## **Marine Litter Reduction**

- **Microplastics Monitoring:** In FY21, the Estuary Program partnered with Dr. Nikki Adams of Cal Poly on a Community Project to develop a microplastics monitoring protocol for sediment in the estuary. Coordination is underway and the project is expected to be completed in late FY22. The plan is for the monitoring to continue after the project is complete, coordinated by the Estuary Program and Cal Poly.
- **Central Coast Clean:** We have seen a large increase in litter along the coastline since the advent of COVID, in particular because of the use of takeout containers for dining. We also frequently see pet owners using bags to pick up pet waste but then leaving them by the side of the trail rather than disposing of them properly. To support a message of marine litter reduction, we began a partnership with SLO County to join their campaign to address trash issues on the Central Coast. This effort is a partnership of multiple municipalities as well as the County to pool resources to create unified messaging related to litter. Our campaign focused on pet waste to align with our clean water messaging. The project consultant developed a social media campaign on this topic with a bay focus, greatly expanding the reach of our message.
- **Creeks to Coast Day:** Each year, a local environmental organization hosts a county-wide cleanup day focused on waterways in this effort formerly known as Coastal Cleanup Day. The Estuary Program supports the effort in two ways. We often act as a sponsor for the event and contribute some funding. We also assist in distributing cleanup kits for volunteers in the Morro Bay and Los Osos areas. We helped publicize the event as well.

## **Green Infrastructure and Resiliency**

Assessment of vulnerabilities in our study area and implementation of efforts to increase coastal environment resiliency are important goals for the Estuary Program.

- **Green Infrastructure Restoration Efforts:** The Estuary Program conducted eelgrass restoration and related efforts to increase eelgrass in the bay. This plant, which puts down roots in the bay bottom, serves to improve water quality, reduce wave action, and provide valuable habitat. Additionally, the Estuary Program completed construction on a floodplain restoration project on the Chorro Creek Ecological Reserve. Efforts to monitor and remove invasive sea lavender and ice plant on the sandspit help increase the resiliency of the

delicate habitats surrounding the bay. Native oyster restoration efforts are also getting started, hopefully resulting in the reintroduction of a native species that was once abundant.

- Green Infrastructure Monitoring Efforts: The Estuary Program is involved in sediment elevation table (SET) monitoring which maps elevational changes in the fragile salt marsh area. Models predict that this habitat could switch over from marsh to mudflats as sea levels rise.

## 7. Travel Expenses

The following table contains the travel expenses charged to 320 funds in the first half of FY22.

Event	Location	Trip Purpose	Dates	Staff Attended	Costs Included	Total Amount
Salmonid Restoration Federation Conference	Santa Cruz, CA	Information sharing on restoration and monitoring	4/21/2022 to 4/22/2022	Makenzie O'Connor	Lodging	\$403

Note that the travel had not yet occurred and the only expense to date was the lodging, which needed to be prepaid. Mileage, meals, and incidental charges will be incurred in April 2022.

The following table contains the travel expenses projected to be charged to 320 funds in the second half of FY22.

Event	Location	Trip Purpose	Dates	Staff Attended	Costs Included	Estimated Amount
Salmonid Restoration Federation Conference	Santa Cruz, CA	Information sharing on restoration and monitoring	4/21/2022 to 4/22/2022	Makenzie O'Connor	Meals, incidentals	\$200
Bioassessment field training	TBD	Receive training from the state on the bioassessment monitoring protocol	TBC	Makenzie O'Connor, Nick Soares	Mileage, lodging, meals, incidentals	\$1,200

## 8. Glossary

The following terms and acronyms are used in this workplan:

Acronym	Explanation
ANEP	Association of National Estuary Programs
BIL	Bipartisan Infrastructure Law
BMP	Best management practice
Cal Poly	California Polytechnic State University, San Luis Obispo
Camp SLO	Army National Guard Base Camp San Luis Obispo
CCAMP	Central Coast Ambient Monitoring Program
CCC	California Conservation Corps



<b>Acronym</b>	<b>Explanation</b>
CCER	Chorro Creek Ecological Reserve
CCMP	Comprehensive Conservation and Management Plan
CCRWQCB	Central Coast Regional Water Quality Control Board
CDFW	California Department of Fish and Wildlife
CEDEN	California Environmental Data Exchange Network
CRAM	California Rapid Assessment Method
CSCI	California Stream Condition Index
CSLRCD	Coastal San Luis Resource Conservation District
CWA	Clean Water Act, the enabling legislation for the National Estuary Program
CWG	Coastal Watersheds Grant
EC	Executive Committee
EPA	Environmental Protection Agency
Estuary Program	Morro Bay National Estuary Program
FY	Fiscal Year
LCSLO	The Land Conservancy of San Luis Obispo County
LIDAR	Light Detection And Ranging
LOCSD	Los Osos Community Services District
MBNEP	Morro Bay National Estuary Program
MPA	Marine Protected Area
NEP	National Estuary Program
NEPORT	National Estuary Program Online Report Tool
NMS	National Marine Sanctuary
NOAA	National Oceanic and Atmospheric Administration
NPS	Non-Point Source
OA	Ocean acidification
OPC	Ocean Protection Council
PMEP	Pacific Marine and Estuarine Fish Habitat Partnership
QAPP	Quality Assurance Project Plan
QA/QC	Quality Assurance/Quality Control
RAE	Restore America's Estuaries
ROV	Remotely Operated Vehicle
SCC	State Coastal Conservancy
SET	Sediment Elevation Tables
SLO	San Luis Obispo
SLOMPAC	San Luis Obispo Marine Protected Area Collaborative
SOTB	State of the Bay
SWAMP	Surface Water Ambient Monitoring Program
SWRCB	State Water Resources Control Board
TAC	Technical Advisory Committees
TMDL	Total Maximum Daily Loads
USFWS	United States Fish & Wildlife Service
USGS	United States Geological Survey
VMP	Volunteer Monitoring Program