



Morro Bay National Estuary Program
Bipartisan Infrastructure Law (BIL)
Workplan & Budget – Year 3
(Fiscal Year 2024)

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Work Plan & Budget – FY24

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1. Introduction

Bipartisan Infrastructure Law

On November 15, 2021, President Biden signed the Bipartisan Infrastructure Law (P.L. 117-58), also known as the “Infrastructure Investment and Jobs Act of 2021” (IIJA) or “BIL.” The law includes \$50 billion to the U.S. Environmental Protection Agency (EPA) for water infrastructure, the single largest investment in water that the federal government has ever made. The BIL provides \$132 million in funding for the 28 longstanding National Estuary Programs (NEPs) for fiscal years 2022 through 2026. This funding will be evenly distributed to the NEPs, annually providing each with approximately \$900,000 in BIL funds. Funding through the BIL provides a historic investment to the NEP, more than doubling the current base funding of \$850,000 per estuary annually.

A core emphasis of the NEP BIL funding is the acceleration of environmental and community restoration goals within the Comprehensive Conservation & Management Plans (CCMPs). The substantial increase in NEP funding appropriated in the BIL is expected to significantly enhance NEP capacities to do this work, as well as enable the NEPs to develop and strengthen partnerships necessary to make the most effective use of these new funds.

Environmental justice (EJ) and addressing climate change are key EPA priorities reflected in the Agency’s Fiscal Year (FY) 2022–2026 EPA Strategic Plan, which provides the framework for EPA to integrate EJ considerations into its programs, plans, and actions, and to ensure equitable and fair access to the benefits from environmental programs for all individuals. The Strategic Plan’s first two goals are to:

- “Tackle the Climate Crisis” by reducing emissions that cause climate change and accelerating resilience and adaptation to climate change impacts; and
- “Take Decisive Action to Advance Environmental Justice and Civil Rights” by promoting EJ and protecting civil rights at the federal, state, and local levels.

EPA is embedding these goals in its programs, policies, and activities, including the implementation of the NEP BIL funds. NEP projects funded through BIL should seek to:

- Accelerate and more extensively implement CCMPs
- Ensure that benefits reach disadvantaged communities
- Build the adaptive capacity of ecosystems and communities
- Leverage additional resources

Morro Bay National Estuary Program (Estuary Program)

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 CCMP for Morro Bay, which is currently undergoing an update. The three Estuary Program programmatic focus areas are:

- Habitat protection and restoration
- Environmental monitoring and research
- Public participation, education, and outreach.

Morro Bay was accepted into the National Estuary Program in 1995 when the Administrator of the U.S. EPA accepted Governor Wilson's nomination of the program. With financial support from EPA, Estuary Program staff worked with government agencies, nonprofits, businesses, and the local community to develop a watershed-based management plan, the CCMP. This plan 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 the CCMP in January 2001 and has continued to provide significant grant funding to further the implementation of that plan. Every CCMP action plan is 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 and by EPA in 2022. 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.

This BIL Workplan describes the Estuary Program's planned efforts for FY 2024, which covers the period from November 1, 2023 to September 30, 2024. This Work Program follows the final guidance released by the EPA on July 26, 2022, in the memorandum, "National Estuary Program Bipartisan Infrastructure Law Funding Implementation Memorandum for Fiscal Years 2022 - 2026." Unless otherwise noted in the EPA BIL memorandum, the FY 2021 – FY 2024 Clean Water Act §320 National Estuary Program Funding Guidance also applies to BIL funding.

BIL funding for the NEP is in addition to funding allocated through Section 320 of the Clean Water Act (CWA). The expected BIL funding available to the Estuary Program for FY24 is \$910,000. The remaining years including FY25 and FY26 will require approved annual work programs with anticipated funding of \$909,800 available annually.

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 (EC) oversees the progress of the annual workplan and is the policy decision-making body for the Estuary Program. While Section 320 funding requires a non-federal match of at least one-to-one, BIL funding match

requirements are waived for FY22 and 23. As the Estuary Program prepared and submitted an “Equity Strategy” that was approved by EPA in 2023, this approved Equity Strategy waives future match requirements associated with BIL funding. The Estuary Program anticipates leveraging BIL funds with state, local, private, and in-kind resources and will document such efforts in a similar method as for 320 funds.

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, Invasive Species 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 EC is the key decision-making body for the 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 2024

This workplan describes the Estuary Program’s broad goals, specific projects, and planned budget for FY24 BIL Funding. This workplan will guide Estuary Program efforts and provide a mechanism to measure program 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. Additionally, this BIL workplan was developed to complement the approved FY24 320 workplan.

CCMP Program Goals

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: Residents 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 an informed and engaged community for the future health of Morro Bay and a vision that community members will increasingly become stewards of the estuary.

Fostering Collaboration: Community members, 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.

Workplan tasks have been strategically developed to meet overarching CCMP program goals. In addition, workplan tasks have been prioritized to meet BIL specific guidance to: accelerate and more extensively implement CCMPs, ensure benefits reach disadvantaged communities, build the adaptive capacity of ecosystems and communities, and leverage additional resources. These goals are embedded in several workplan activities and projects as summarized in Table 2.1.

Table 2.1. Workplan Tasks and NEP BIL Priorities.

Workplan Task	Implement CCMP	Benefits to DA Communities	Build Adaptive Capacity	Leverage Resources
Capacity-1: Capacity Building	X		X	
Capacity-2: BIL Management and Equity Strategy Development	X	X	X	
Monitoring-1: Tracking Bay Health	X	X	X	X
Monitoring-2: Tracking Creek Health	X	X	X	X
Monitoring-3: Eelgrass Monitoring and Research	X		X	X
Monitoring-4: Data Analysis and Management	X		X	
Restoration-1: Invasive Species Management	X		X	X
Restoration-2: Habitat Restoration and Climate Planning	X	X	X	X
Restoration-3: Fish Habitat Monitoring and Improvement	X		X	X
Restoration-4: Open Space Habitat and Access	X	X	X	X
Restoration-5: Implement BMPs in Watershed	X		X	X
Water-1: Stormwater Improvement	X	X	X	X
Water-2: Groundwater Monitoring	X	X	X	X
E&O-1: Communication	X	X	X	
E&O-2: Environmental Education	X	X	X	
E&O-3: Nature Center	X	X		
E&O-4: Community Engagement and Stewardship	X	X	X	

Accelerate and more extensively implement CCMPs

All workplan tasks will accelerate the implementation of the Estuary Program’s CCMP. Workplan tasks and specific projects in this workplan have been prioritized based on need, readiness, and to maximize impacts in several program areas. This workplan was developed to efficiently use funds in the context of the entire five-year BIL funding period, and the Estuary Program finalized a BIL Long-Term Plan that was approved by the Management Conference and submitted to EPA on June 1, 2023.

Ensure benefits reach disadvantaged communities

Workplan tasks highlighted in Table 2.1 have potential benefits to disadvantaged communities. The Estuary Program submitted a Management Conference-approved Equity Strategy to the EPA on June 1, 2023. The strategy will also develop a baseline to understand how our NEP (pre-BIL) has implemented projects that benefit disadvantaged communities. This baseline will help develop a numeric target tailored to our study area and methods for tracking benefits.

Several tasks in this workplan include multi-year projects that will be implemented through the lens of equitable and fair access. Several projects listed in this workplan will consider environmental justice issues in implementation, including, but not limited to:

- Free access to an upgraded nature center with increased educational opportunities.
- Partnering with local environmental education organizations to increase opportunities for disadvantaged communities to access field trips and camps.
- Teacher training and development of online educational content.
- Monitoring groundwater to ensure safe drinking water for surrounding communities.
- Restoring water quality and increasing habitat.
- Supporting open space and access improvements.

Build the adaptive capacity of ecosystems and communities

Understanding, planning, and implementing adaptation strategies to address climate impacts are at the forefront of the Estuary Program's efforts. The Estuary Program builds off its 2021 Climate Vulnerability Assessment to implement the CCMP in the context of climate impacts. Most tasks listed in this workplan aim to build the adaptive capacity of ecosystems and communities. Specific examples include:

- Implementing a robust monitoring program that will measure changes occurring in the estuary and creeks.
- Understanding the impact of droughts on the landscape, habitat, and water supply.
- Modeling the impacts of sea level rise on the estuary habitats and developing adaptation strategies.
- Increasing educational programming on climate change topics.
- Finalizing a Conservation Planning Initiative that will identify and prioritize future actions.

Leverage additional resources

The Estuary Program has a history of significantly leveraging and supporting program implementation with additional federal and non-federal resources. While match is not a required component of this workplan, activities were strategically selected to complement partner efforts and further projects that otherwise would not have the resources to be implemented. Additionally, this workplan has been tailored in the context of focusing efforts to prioritize projects, collaborating with partners and stakeholders to identify opportunities, and

identifying sources of additional leveraged funding to maximize the impact of projects and efficiently utilize BIL funds. Examples of how the Estuary Program will leverage additional resources include:

- Collaborating with partners to identify and apply to grant funding sources for larger scale projects, leveraging BIL funding as match.
- Utilizing BIL funding to help further planning and permitting for higher cost projects including stormwater improvements and fish passage barrier removal.
- Partnering with local organizations to combine shared goals and resources to develop and implement more impactful education and outreach projects.

3. Budget and Staff Elements

Tables 3.1, 3.2, and 3.3 provide an overview of the budget for BIL funding for FY24. The Estuary program has a waiver for the match requirement for this workplan as an Equity Strategy was approved by EPA.

Budget Overview

Table 3.1: Budget Overview for BIL funding for FY24

Category	Subcategory	BIL FY24 Request
Personnel	Salaries	\$ 198,659
	Fringe	\$ 55,848
	<i>Subtotal</i>	<i>\$ 254,507</i>
Supplies	Computers, software	\$ 5,500
	Monitoring supplies	\$ 55,912
	Education and Outreach supplies	\$ 35,000
	<i>Subtotal</i>	<i>\$ 96,412</i>
Travel	<i>includes local mileage</i>	<i>\$ 3,500</i>
	<i>Subtotal</i>	<i>\$ 3,500</i>
Contractual	Capacity Building	\$ 5,000
	Monitoring	\$ 136,081
	Restoration	\$ 212,000
	Water Infrastructure	\$ 30,000
	Education and Outreach	\$ 24,000
	<i>Subtotal</i>	<i>\$ 407,081</i>
Other	Training, Prof. Dev.	\$ 3,500
	Restoration Subawards	\$ 145,000
	<i>Subtotal</i>	<i>\$ 148,500</i>
TOTAL		\$ 910,000

Detailed Budget

Table 3.2: Direct Expenses by Program Area for BIL funding (FY24)

Program Area	Workplan Task	FY24
Capacity Building	Capacity-1: Capacity Building	\$ 267,007
	Capacity-2: BIL Management and Equity Strategy Development	\$ 5,000
	<i>Subtotal</i>	<i>\$ 272,007</i>
Environmental Monitoring and Research	Monitoring-1: Tracking Bay Health	\$ 53,629
	Monitoring-2: Tracking Creek Health	\$ 122,164
	Monitoring-3: Eelgrass Monitoring and Research	\$ 15,000
	Monitoring-4: Data Analysis and Management	\$ 1,200
	<i>Subtotal</i>	<i>\$ 191,993</i>
Habitat Restoration and Protection	Restoration-1: Invasive Species Management	\$ 70,000
	Restoration-2: Habitat Restoration and Climate Planning	\$ 245,000
	Restoration-3: Fish Habitat Monitoring and Improvement	\$ 37,000
	Restoration-4: Open Space Habitat and Access	\$ -
	Restoration-5: Implement BMPs in Watershed	\$ 5,000
	<i>Subtotal</i>	<i>\$ 357,000</i>
Water Infrastructure	Water-1: Stormwater Improvement	\$ 30,000
	Water-2: Groundwater Monitoring	\$ -
	<i>Subtotal</i>	<i>\$ 30,000</i>
Education and Outreach	E&O-1: Communication	\$ 5,000
	E&O-2: Environmental Education	\$ 23,000
	E&O-3: Nature Center	\$ 20,000
	E&O-4: Community Engagement and Stewardship	\$ 11,000
	<i>Subtotal</i>	<i>\$ 59,000</i>
TOTAL		\$ 910,000

Summary of Spending and Staff Time

Table 3.3. Summary of BIL Spending and Staff Time for FY24.

Workplan Task	BIL FY24 Budget		Total
	Other Expenses	Staff Time	
CAPACITY-1 (Capacity Building)	\$24,619	\$2,652	\$27,272
CAPACITY-2 (BIL Management and Equity Strategy Development)	\$5,000	\$3,874	\$8,874
MONITORING-1 (Tracking Bay Health)	\$53,629	\$19,226	\$72,855
MONITORING-2 (Tracking Creek Health)	\$122,164	\$19,226	\$141,390
MONITORING-3 (Eelgrass Monitoring and Research)	\$15,000	\$19,226	\$34,226
MONITORING-4 (Data Analysis and Management)	\$1,200	\$9,861	\$11,061
RESTORATION-1 (Invasive Species Management)	\$70,000	\$16,884	\$86,884
RESTORATION-2 (Climate Research, Planning and Adaptation)	\$245,000	\$23,927	\$268,927
RESTORATION-3 (Fish Habitat Monitoring and Improvement)	\$37,000	\$19,906	\$56,906
RESTORATION-4 (Open Space Habitat and Access)	\$-	\$9,060	\$9,060
RESTORATION-5 (Implement BMPs in Watershed)	\$5,000	\$9,326	\$14,326
WATER-1 (Stormwater Improvement)	\$30,000	\$4,954	\$34,954
WATER-2 (Groundwater Monitoring)	\$-	\$1,502	\$1,502
E&O-1 (Communication)	\$5,000	\$18,230	\$23,230
E&O-2 (Environmental Education)	\$23,000	\$28,775	\$51,775
E&O-3 (Nature Center)	\$20,000	\$18,174	\$38,174
E&O-4 (Community Engagement and Stewardship)	\$11,000	\$17,583	\$28,583
TOTAL Budget	\$667,612	\$242,388	\$910,000

Program Staffing Anticipated for FY24

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. Staff time budget in Table 3.3 reflects anticipated costs for each staff member. It is presumed that staff listed in the Estuary Program's EPA 320 FY24 workplan will also play a critical role in implementing BIL associated tasks as specified in this workplan. In addition to all personnel listed in the Estuary Program's FY24 320 workplan (including the Executive Director, Assistant Director, Finance & Operations Coordinator, and programmatic staff), several BIL-funded staff members will aid in the implementation of BIL projects and support administration. These personnel positions may be modified and include:

- Administrative Assistant: Support administration tasks associated with project development, contract management, and grant reporting.
- Restoration Coordinator: Supports restoration and monitoring program efforts. Provides GIS, project implementation, contract/grant management, grant/report writing support. Assists the Restoration Program Manager and monitoring team in implementing Estuary Program projects and supporting CCMP efforts.
- Monitoring Technician: Supports program monitoring efforts. Conducts fieldwork, equipment maintenance, data quality assurance, and data management tasks. Supports volunteer training and management. Supports data analysis and reporting.
- Education and Outreach Coordinator: Supports education and outreach efforts. Works with Community Engagement Projects Manager to implement projects, support communications efforts, coordinate with partners, and engage the community through outreach and stewardship events.
- Intern(s) (as needed): Assists with field work, data management, analysis, education, outreach, and planning. These are part-time, temporary positions.

Fringe Details (\$55,848)

- Expenses:
 - Worker's 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.

Monitoring supplies: (\$55,912)

- Expenses:
 - Bacteria monitoring supplies – Reagents, 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. Additional gear including supplies, GPS devices, computers, and technology.

Education and Outreach supplies: (\$35,000)

- Expenses:
 - Communications – website design, printing, and other communications related costs.
 - Education – printing, materials, and supplies needed for education programming and teacher training events.
 - Nature Center – supplies to upgrade the Nature Center, including maintenance supplies and exhibit materials.
 - Stewardship/Restoration Event – materials needed for clean-up events and community restoration events.

Subawards: (\$145,500)

- Expenses:
 - RESTORATION-2: Habitat Restoration and Climate Planning – partnering with USGS to conduct sea level rise and adaptation scenario modelling; partnering with the San Francisco Estuary Institute and/or other non-profits to conduct a historical ecology study.

Compliance with Build America Buy America (BABA) Act Requirements

Congress passed the BABA Act in 2021, concurrently with the BIL. BABA is a domestic preference program to create long-term opportunities for domestic manufacturers and manufacturing jobs, and to build resilient domestic supply chains for a wide range of products used in construction and infrastructure, including iron and steel products, manufactured products, and construction materials. The Estuary Program will work with EPA to determine the types of products that may be covered under this new law and will support compliance where necessary. In FY22 to FY24, no BIL-funded projects triggered BABA requirements.

4. Proposed Projects and Funding Needs for Fiscal Year 2022 and 2023 BIL Funding

BIL funding will be used to support the following proposed projects and activities. Proposed projects and activities are grouped into the following categories: capacity building, environmental monitoring and research, habitat restoration and planning, water infrastructure, and education and outreach.

Capacity Building

Capacity-1: Capacity Building

Project Status: ongoing

Objective: Maintain staff capacity to support all programmatic areas including BIL administration and implementation.

Description: The increase in programmatic activity will require additional staff to administer and implement projects. Staff will support the administration of BIL funding, reporting, and grant/contract management. Additionally, staff will support restoration, monitoring, and education/outreach needs. This activity includes increasing associated technology needs such as equipment and software to perform programmatic tasks. This activity also includes professional development for training opportunities for staff.

Leads, Partners, and Roles: Estuary Program

Anticipated Output(s) or Deliverables(s): Staff capacity that supports programmatic areas. Increase in technology needs as necessary.

Estimated Milestones: Retain staff capacity associated with BIL projects.

Anticipated Long-term Outcome(s): Increased organizational capacity to implement CCMP actions.

CCMP Action Plan: All

How the project/activity supports the CWA: Supports contribution toward all CWA core programs.

Estimated Budget: \$267,007 (FY24)

Capacity-2: BIL Management and Equity Strategy Development

Project Status: ongoing

Objective: Support BIL planning, management, and implementation.

Description: Conduct strategy planning for BIL projects and update/implement the approved Equity Strategy. Develop and implement reporting metrics and performance tracking methods for BIL projects and CCMP actions.

Leads, Partners, and Roles: Estuary Program

Anticipated Output(s) or Deliverables(s): Long-term BIL Strategy, Equity Strategy

Estimated Milestones: Annual review of Long-term BIL Strategy and Equity Strategy, and development BIL FY25 Workplan.

Anticipated Long-term Outcome(s): Strategic planning and resource utilization to further CCMP implementation.

CCMP Action Plan: All

How the project/activity supports the CWA: Supports contribution toward all CWA core programs.

Estimated Budget: \$5,000 (FY24)

Environmental Monitoring and Research

Monitoring-1: Tracking Bay Health

Project Status: ongoing

Objective: Collect high quality data set to support understanding of estuary health.

Description: Monitoring to understanding changing conditions is a primary goal of the Estuary Program. The program will continue tracking key environmental indicators, working with partners to develop and implement monitoring efforts, and collecting data related to the impacts of climate change. Efforts will include coordinating with researchers on data generated by continuous monitoring sensors as part of the Central & Northern California Ocean Observing System (CeNCOOS) buoy network; supporting the Estuary Program's long-running monitoring in the bay of indicator bacteria to safeguard swimming and shellfish farming; supporting research efforts related to bay tidal prism; conducting bacteria indicator analysis in shellfish growing waters; and monitoring nutrients in the bay's waters to better understand impacts to eelgrass and other aquatic life.

Leads, Partners, and Roles: In addition to the Estuary Program, lead partners in monitoring efforts include California Polytechnic State University San Luis Obispo (Cal Poly) who serves as the technical lead in the installation and maintenance of the CeNCOOS sensors and the tidal prism work; Cuesta College is a lead partner, providing lab facilities and technical support for bacteria monitoring efforts; the California Department of Public Health (CDPH) who manages

the water quality in shellfish growing areas; the two commercial oyster farms; and Cal Poly who serves as a technical lead in sample collection and analysis for bay nutrient efforts. Partners who utilize Estuary Program data and provide landowner access (where applicable) include California State Parks, San Luis Obispo (SLO) County Public Health Department, SLO County Parks and Recreation, Cal Poly, Cuesta College, CeNCOOS, California Department of Public Health, Los Osos Community Services District, Central Coast Regional Water Quality Control Board (CCRWQCB), SWRCB, Camp KEEP, and commercial oyster farmers.

Anticipated Output(s) or Deliverables(s): Data delivered semi-annually to the California Environmental Data Exchange Network (CEDEN), a SWRCB-maintained data portal that makes data widely available. Indicator bacteria results shared monthly with partners via a memo. Updates on CeNCOOS reporting efforts in semi-annual reports. Data available through CeNCOOS data dashboard. Activities will be described in semi-annual reports.

Estimated Milestones: Bacteria and nutrient monitoring data utilized by SWRCB for assessing 303(d) and TMDL status in next data solicitation, date TBD. Semi-annual submittals of data to CEDEN.

Anticipated Long-term Outcome(s): Data support an increase in understanding of long-term trends in ambient water quality in the estuary. Helps promote safe swimming and supports aquaculture in the bay. Data supports identification of projects to address bacteria and nutrient pollution.

CCMP Action Plan: MON-2 (Monitor Environmental Indicators), MON-4 (Maintain Volunteer Monitoring Program), MON-5 (Support Partners), MON-6 (Support Research Activities), ECR-10 (Nutrient and Bacteria Dynamics), CLIM-1 (Improve Understanding of Climate Change Impacts, USE-2 (Shellfish Farming)

How the project/activity supports the CWA: Identifying polluted waters and developing plans to restore them (TMDLs). Addressing diffuse, nonpoint sources of pollution. Protecting coastal waters through the National Estuary Program.

Estimated Budget: \$53,629 (FY24).

Monitoring-2: Tracking Creek Health

Project Status: ongoing

Objective: Collect high quality data to support our understanding of watershed creek health.

Description: Monitoring to understand changing conditions is a primary goal of the Estuary Program. The program will continue tracking key environmental indicators, working with partners to develop and implement monitoring efforts, and collecting data related to the impacts of climate change. Efforts will include monitoring of: bacteria indicators in watershed creeks to determine safe swimming and impacts to bay water quality; low flow conditions to assess drought impacts; creek nutrients, toxicity, and pesticides in areas impacted by agriculture and other discharges; and extended deployments for water quality in creeks.

Leads, Partners, and Roles: In addition to the Estuary Program, lead partners in these efforts include Cuesta College, providing lab facilities and technical support for bacteria monitoring efforts; Creek Lands Conservation (CLC), providing technical expertise in flow sensor maintenance and data analysis to support drought monitoring; the Central Coast Water Quality Preservation, Inc. and the CCRWQB, providing technical input on site and analyte selection; and the CCRWQCB and CLC providing guidance on sensor selection and troubleshooting. Partners who utilize Estuary Program data and provide landowner access (where applicable) include California State Parks, San Luis Obispo (SLO) County Public Health Department, SLO County Parks and Recreation, Cal Poly, Cuesta College, California Department of Public Health, Central Coast Regional Water Quality Control Board (CCRWQCB), SWRCB, Camp KEEP, CDFW, CLC, and commercial oyster farmers.

Anticipated Output(s) or Deliverables(s): Data delivered semi-annually to CEDEN, a SWRCB-maintained data portal that makes data widely available. Indicator bacteria results shared monthly with partners via a memo. Activities will be described in semi-annual reports.

Estimated Milestones: Bacteria and nutrient monitoring data utilized by SWRCB for assessing 303(d) and TMDL status as part of next data solicitation, date TBD. Semi-annual submittals of data to CEDEN.

Anticipated Long-term Outcome(s): Data support an increase in understanding of long-term trends in ambient water quality in the creeks and estuary. Helps promote safe swimming and supports management of aquaculture in the bay. Data supports identification of projects to address bacteria and nutrient pollution as well as water conservation projects. Data provides better understanding of algal impacts in creeks, potentially resulting in water quality improvement projects.

CCMP Action Plans: MON-1 (Support Development of TMDLs), MON-2 (Monitor Environmental Indicators), MON-4 (Maintain Volunteer Monitoring Program), MON-5 (Support Partners), ECR-10 (Nutrient and Bacteria Dynamics), FWR-3 (Understand Flow for Public Trust Resources), CLIM-1 (Improve Understanding of Climate Change Impacts), USE-2 (Shellfish Farming)

How the project/activity supports the CWA: Identifying polluted waters and developing plans to restore them (TMDLs). Addressing diffuse, nonpoint sources of pollution. Protecting coastal waters through the National Estuary Program.

Estimated Budget: \$122,164 (FY24).

Monitoring-3: Eelgrass Monitoring and Research

Project Status: ongoing

Objective: Conduct eelgrass monitoring to determine distribution in the bay as well as bed health.

Description: Eelgrass is a valued habitat type in Morro Bay, providing multiple benefits. It enhances water quality and water clarity, reduces erosion, and provides habitat for wildlife. Morro Bay's eelgrass has undergone rapid changes recently, with a steep decline in acreage from 2007 to 2017 and a rebound after that. Baywide mapping of eelgrass allows for tracking of bed health and indicates when there is a need for restoration efforts. Projects will include implementation of a macroalgae monitoring study to understand impacts to eelgrass habitat and eelgrass prokaryote analysis to better understand how eelgrass supports the estuarine ecosystem. The Estuary Program will also continue to collaborate with Cal Poly on research efforts related to eelgrass health.

Leads, Partners, and Roles: The Estuary Program is the lead on the macroalgae monitoring project. Cuesta College is the lead on the eelgrass prokaryote work. The partners in this effort are Cal Poly as the entity leading research related to bay water quality. Partners include those utilizing the data and those providing landowner access, including California State Parks, local oyster farmers, and the city of Morro Bay. National Oceanic and Atmospheric Administration (NOAA), United States Fish and Wildlife Service (USFWS), EPA, and others have provided funding and technical support for the effort. Other users of the data include the State Coastal Conservancy (SCC), the Pacific Marine and Estuarine Fish Habitat Partnership, the Black Brant Group, the city of Morro Bay, and other local businesses.

Anticipated Output(s) or Deliverables(s): An annual eelgrass report, including a summary of partner research results and macroalgae monitoring results.

Estimated Milestones: Research results expected in summer 2024, to be included in 2024 eelgrass report expected in 2025.

Anticipated Long-term Outcome(s): To track the factors impacting eelgrass in the bay.

CCMP Action Plans: ECR-7 (Eelgrass Data and Research), ECR-8 (Eelgrass Restoration), ECR-9 (Regional and National Collaboration), MON-6 (Support Research Activities)

How the project/activity supports the CWA: Protecting coastal waters through the National Estuary Program.

Estimated Budget: \$15,000 (FY24).

Monitoring-4: Data Analysis and Management

Project Status: Ongoing

Objective: Analyze and maintain data in state-compatible format.

Description: The Estuary Program 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 public to help inform decision-making. Data must be available in the correct format for analysis and must be maintained in a data management system that allows for easy sharing of results. Projects include: calculation of California Stream Condition Index (CSCI) scores with the program's bioassessment data to determine the relative health of a site in comparison to other areas; and updates to the program's database for storing and outputting data in response to the state's update of their data management system.

Leads, Partners, and Roles: The lead is the Estuary Program, with partner support from the CCRWQB and SWRCB who as users of the data provide input on data collection, analysis, and sharing.

Anticipated Output(s) or Deliverables(s): An updated database for storing program-generated data and outputting it in formats that support easy sharing of the data through CEDEN. Calculated metrics for bioassessment data that can be easily utilized by the CCRWQCB and others to assess TMDLs, 303(d) status, etc.

Estimated Milestones: Submittal of program data to CEDEN semi-annually. Inclusion of program data in SWRCB data solicitation to assess 303(d) status, date TBD. Database update complete by end of FY24. CSCI calculation expected to be complete in fall 2024.

Anticipated Long-term Outcome(s): Data that is available in formats that are useful and accessible increases the reach and impact of the data.

CCMP Action Plan: 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)

How the project/activity supports the CWA: Identifying polluted waters and developing plans to restore them (TMDLs). Addressing diffuse, nonpoint sources of pollution. Protecting coastal waters through the National Estuary Program.

Estimated Budget: \$1,200 (FY24).

Habitat Restoration and Protection

RESTORATION-1: Invasive Species Management

Project Status: ongoing

Objective: Prioritize, manage, and implement invasive species management in the estuary and watershed.

Description: The Estuary Program will continue to work towards identifying locations and removing feasible locations of invasives including giant reed (*Arundo donax*) within the Morro Bay watershed to support native riparian plant species. Support monitoring, possible mapping, and removal of invasive plants such as ice plant (*Carpobrotus*), salt cedar (*Tamarisk ramosissima*), cobweb bush (*Plechostachys serpylliflora*), and purple pampas grass (*Cortaderia jubata*) on the Morro Bay sandspit and adjacent estuary habitats. Staff will complete sensitive species survey on sandspit before invasive management. Support weed management on the restored floodplain area of the Chorro Creek Ecological Reserve (CCER). Funding may include additional invasive treatment to support ongoing removal within State Parks property. Staff will also apply for grant funding to support these efforts.

Leads, Partners, and Roles: SLO County is the lead for *Arundo donax* management with support from the Estuary Program. The Estuary Program will be the lead for invasive species management on the sand spit and other areas owned by State Parks adjacent to the estuary in partnership with landowners, State Parks and the City of Morro Bay. The Estuary Program will serve as the lead for weed management at CCER with coordination with partners CDFW and California Conservation Corps (CCC).

Anticipated Output(s) or Deliverables(s): Map of *Arundo donax* locations in Morro Bay watershed. Map of vegetation along the Morro Bay sandspit.

Estimated Milestones: Identify locations of *Arundo donax*. Complete treatment of ice plant in fall/winter 2023 and potentially other invasives along the northern section of the sandspit. Continue weed management at CCER to establish native riparian habitat along Chorro Creek.

Anticipated Long-term Outcome(s): Improved diversity of plant species and protection of sensitive plant species.

CCMP Action Plan: ECR-9 (Regional and National Collaboration), ECR-16 (Invasive Species Action Plan)

How the project/activity supports the CWA: Protecting coastal waters through the National Estuary Program.

Estimated Budget: Total: \$70,000 (FY24).

RESTORATION-2: Habitat Restoration and Climate Planning

Project Status: ongoing

Objective: Support research and planning that furthers understanding of climate impacts to estuary and watershed habitats. Implement restoration projects to improve habitat acreage or conditions.

Description: Model estuary habitat conditions under multiple sea level rise scenarios and consider adaptation actions with stakeholder involvement. Conduct a historical ecology study of the estuary and parts of the watershed to inform restoration planning, prioritization, and outreach. Finalize a Conservation Planning Initiative report that identifies relevant habitat types and key species in the Morro Bay watershed, incorporates climate change vulnerability, and prioritizes restoration/conservation efforts with measurable objectives. Further planning and designs of additional habitat restoration projects within the watershed and estuary.

Leads, Partners, and Roles: The Estuary Program is the lead on these efforts. USGS is a partner, conducting monitoring, analysis, and modeling to understand sea level rise impacts to the estuary and marsh. The Estuary Program will engage multiple local partners on adaptation actions related to sea level rise including Morro Bay State Parks, City of Morro Bay, SLO County, Morro Coast Audubon Society, among others. The Estuary Program will partner with San Francisco Estuary Institute to complete historic mapping and understanding of watershed processes. The Estuary Program will partner with Cal Poly on two upcoming floodplain enhancement projects along Walters Creek. The program will continue to partner with CDFW to ensure floodplain benefits and access to CCER are maintained.

Anticipated Output(s) or Deliverables(s): Maps of sea level rise vulnerability on estuarine habitats. Historical habitat maps, likely incorporated into a report and/or Story Map. Final Conservation Planning Initiative report.

Estimated Milestones: Complete technical advisory meetings for sea level rise planning.

Anticipated Long-term Outcome(s): With stakeholder involvement, identification of adaptation measures related to sea level rise and possibly other climate change impacts to the watershed.

CCMP Action Plan: ECR-3 (Wetlands Protection and Enhancement), ECR-4 (Wetlands Inventory), ECR-7 (Eelgrass Data and Research), ECR-8 (Eelgrass Restoration), ECR-11 (Conserve Ecosystem Functions), CLIM-1 (Climate Change Information), CLIM-2 (Climate Action Plans)

How the project/activity supports the CWA: Protecting coastal waters through the National Estuary Program.

Estimated Budget: Total: \$245,000 (FY24).

RESTORATION-3: Fish Habitat Monitoring and Improvement

Project Status: ongoing

Objective: Support research, monitoring, and management to increase understanding of fish habitat conditions and populations. Prioritize and further implementation of fish passage barrier improvement projects.

Description: Conduct baseline fish monitoring in the estuary to understand response in abundance and diversity after recent eelgrass expansion. Conduct juvenile steelhead growth and habitat use surveys in Chorro Creek watershed. Conduct pre-assessment studies to further planning for removal of San Luisito Creek Fish Passage Barriers at Adobe Rd. in conjunction with Highway 1. Continue pikeminnow management efforts in the watershed.

Leads, Partners, and Roles: The Estuary Program is the lead for these efforts. Stillwater Sciences is a primary partner for monitoring as they hold the permit for implementation (e.g., e-fishing and pit tags). The CCC's may provide field support. The Estuary Program is the lead for fish barrier projects, in partnership with the county of SLO, Caltrans, and CDFW.

Anticipated Output(s) or Deliverables(s): Memo summarizing fisheries monitoring in the estuary. Annual memo summarizing juvenile steelhead growth, habitat use, and tracking.

Estimated Milestones: Establishment of additional sites in the Chorro Creek watershed, expanding from pikeminnow management locations, to get a full picture of habitat use in the mainstem and tributaries systems.

Anticipated Long-term Outcome(s): Improved understanding of steelhead habitat use, population, and movement to inform future restoration project prioritization. Support tracking of a fisheries focused measurable target within the Conservation Planning Initiative.

CCMP Action Plan: ECR-3 (Wetlands Protection and Enhancement), ECR-13 (Population Dynamics), ECR-14 (Support Recovery Plans), ECR-15 (Steelhead Barriers and Habitat), MON-5 (Support Partners)

How the project/activity supports the CWA: Protecting coastal waters through the National Estuary Program.

Estimated Budget: Total: \$37,000 (FY24).

RESTORATION-4: Open Space Habitat and Access

Project Status: ongoing

Objective: Further plans and implementation to restore habitat and improve conditions at coastal access sites.

Description: Collaborate with community stakeholders and partner organizations to further plans to restore habitat and improve conditions at coastal access sites. Evaluate Pasadena Point for habitat restoration opportunities and access improvements including completing a cultural

resources survey. Support habitat restoration opportunities and access improvements at established and protected open spaces in the watershed. Consider further acquisitions or conservation easements for the protection of habitats.

Leads, Partners, and Roles: The Estuary Program is a partner on conservation and easement efforts, working with SLO County Parks, the Land Conservancy of San Luis Obispo County (LCSLO), and Morro Coast Audubon Society.

Anticipated Output(s) or Deliverables(s): Completed cultural resources survey memo at Pasadena Point access location.

Estimated Milestones: Completed cultural resources survey memo at Pasadena Point access location. Activities reported in semi-annual reports.

Anticipated Long-term Outcome(s): Improved public access to estuary habitats.

CCMP Action Plan: ECR-3 (Wetlands Protection and Enhancement), ECR-13 (Population Dynamics), BMP-5 (Support BMPs by private landowners and municipalities)

How the project/activity supports the CWA: Protecting coastal waters through the National Estuary Program.

Estimated Budget: Total: \$0 (FY24).

RESTORATION-5: Implement BMPs in Watershed

Project Status: ongoing

Objective: Implement best management practices (BMPs) in the watershed to support improved water quality and quantity.

Description: Collaborate with partners and landowners to prioritize and implement BMPs. A range of BMPs will be completed including improvements to gully erosion areas, roads, fencing, culverts, and others. Install fencing along riparian corridors to limit grazing. Support Cuesta College's sustainable agriculture program to install a water tank, interior fencing, and complete road improvements.

Leads, Partners, and Roles: CSLRCD will be the lead for implementing BMPs and riparian fencing on private lands. Cuesta College will be the lead for improvements to the sustainable agriculture program. The Estuary Program will serve a partner role, providing funding and technical input for these efforts.

Anticipated Output(s) or Deliverables(s): A description of task will be provided in the semi-annual progress report provided to the EPA.

Estimated Milestones: Implementation of a range of BMPs in the Los Osos watershed.

Anticipated Long-term Outcome(s): Work with landowners to maintain BMPs so that they continue to be effective. Furthering of sustainable agricultural practices education for community college students.

CCMP Action Plan: BMP-1 (Agricultural and Grazing BMPs), BMP-2 (Rural Roads Erosion), BMP-5 (Support BMPs by private landowners and municipalities), ECR-2 (Riparian Corridors), ECR-9 (Regional and National Collaboration), EO-4 (Formal Education Programs)

How the project/activity supports the CWA: Addressing diffuse, nonpoint sources of pollution. Protecting coastal waters through the National Estuary Program.

Estimated Budget: Total: \$5,000 (FY24).

Water Infrastructure

WATER-1: Stormwater Improvement

Project Status: ongoing

Objective: Prioritize and further implementation of stormwater improvement projects that improve the health of the bay.

Description: Engage stakeholders on further planning, data collection, and prioritization of stormwater projects that could be supported with BIL funding. Further planning designs and/or permits for selected stormwater improvement project(s) in Los Osos, Morro Bay, and/or Camp SLO.

Leads, Partners, and Roles: The Estuary Program would likely be the lead, working with potential partners such as City of Morro Bay, County of San Luis Obispo, Camp SLO, and community stakeholders.

Anticipated Output(s) or Deliverables(s): Memo summarizing the Stormwater Site Planning Study in the Chorro Creek watershed (Camp SLO, CCC Center, Cuesta College). Designs and/or permits for selected stormwater improvement project(s) completed. Report on activities in semi-annual reports.

Estimated Milestones: Memo summarizing and prioritizing potential stormwater improvement projects in the study area. Designs and/or permits for selected stormwater improvement project(s) completed.

Anticipated Long-term Outcome(s): Reduction of pollutants and high flows to creek systems and directly to the bay.

CCMP Action Plan: BMP-5 (Support BMPs by private landowners and municipalities), BMP-7 (Support Stormwater BMPs)

How the project/activity supports the CWA: Addressing diffuse, nonpoint sources of pollution. Protecting coastal waters through the National Estuary Program.

Estimated Budget: Total: \$30,000 (FY24)

WATER-2: Groundwater Monitoring

Project Status: ongoing

Objective: Support monitoring of groundwater for the community of Los Osos.

Description: Increasing drought and groundwater supply is a major issue, in particular for vulnerable communities. The community of Los Osos depends primarily on groundwater for its water supply. Water withdrawals are increasing saltwater intrusion into the lower aquifer. To halt this threat to the aquifer, the SLO County Los Osos Basin Management Committee is planning to install monitoring and municipal wells farther to the east. This project involves supporting the rehabilitation of an existing well to provide crucial water quality data to all purveyors in the basin.

Leads, Partners, and Roles: The lead partner in this effort is the Los Osos Community Services District (LOCSO). The LOCSO is a special district recognized by the state to provide services to the community such as water, solid waste, stormwater management, parks, etc. They will act as the fiscal sponsor and lead agency for the project. They will own the rehabilitated monitoring well and share the data collected with the public and with all other partners. Partners include the County [Los Osos Basin Management Committee](#) (LOBMC), S&T Municipal Water, and Golden State Water. These entities work with the LOCSO to manage groundwater monitoring and supply, and all will utilize the data collected from the monitoring well.

Anticipated Output(s) or Deliverables(s): The rehabilitation of an existing monitoring well allows for an expanded groundwater data set to track impacts to the aquifer from salt water, nitrates, etc. The LOBMC issues annual reports summarizing the groundwater monitoring results.

Estimated Milestones: The well is expected to be installed in spring 2024. The first annual LOBMC monitoring report will be issued in summer 2024.

Anticipated Long-term Outcome(s): Increased groundwater monitoring dataset and information to inform potential future management actions and modelling efforts.

CCMP Action Plan: FWR-1 (Manage Freshwater Resources), FWR-3 (Understand Flow for Public Trust Resources)

How the project/activity supports the CWA: Safeguarding drinking water

Estimated Budget: Total: \$0

Education and Outreach

E&O-1: Communications

Project Status: Ongoing

Objective: Implement a communications strategy and develop multi-media content to share the story of the Estuary Program, highlight projects, and engage a variety of audiences.

Description: Enhance and develop the Estuary Program’s website, media content, and library to effectively communicate projects, highlight progress on the CCMP, and engage a wide variety of audiences.

Leads, Partners, and Roles: The Estuary Program serves as the lead for all program communication, with support from outside contractors for web development and multi-media content.

Anticipated Output(s) or Deliverables(s): A dynamic and regularly updated website that communicates Estuary Program efforts to a variety of audiences. A variety of media products that translate science and effectively tell the story of the Estuary Program. Activities summarized in semi-annual reports.

Estimated Milestones: Regularly updated program webpages that highlight CCMP implementation progress. Regular posting of engaging blogs and stories featuring BIL projects. Frequent public-friendly communication that translates the science behind Estuary Program activities to a variety of audiences.

Anticipated Long-term Outcome(s): Increased traffic on the Estuary Program website, more participation in community science projects, increased community engagement, increased following and reach on social media platforms.

CCMP Action Plan: All, depending on activity, but particularly EO-1 (Public Education and Outreach)

How the project/activity supports the CWA: Protecting coastal waters through the National Estuary Programs.

Estimated Budget: \$5,000 (FY24)

E&O-2: Environmental Education

Project Status: Ongoing

Objective: Provide environmental watershed and estuary-based education opportunities for students and teachers.

Description: Continue to develop relationships with local outdoor education organizations to support bay field trips and curriculum. Develop and implement watershed and estuary-based curriculum and projects in schools within the watershed. Host teacher training workshops and professional development opportunities for educators with custom curriculum focused on

watershed, estuary, and ocean literacy. Partner with One Cool Earth to create a “Watershed Week” for all schools they work in throughout SLO County, dedicating one week to watershed curriculum and environmental stewardship.

Leads, Partners, and Roles: The Estuary Program serves as the lead, working with partners including Camp Ocean Pines, One Cool Earth, El Chorro Camp KEEP by the Sea, Cal Poly, and educators.

Anticipated Output(s) or Deliverables(s): Educational opportunities for students, with a focus on underserved communities. Education tools, including watershed and estuary-based curriculum, for local outdoor organizations and K-12 schools. Estuary and watershed-based teacher training workshops. Activities summarized in semi-annual reports.

Estimated Milestones: Development and implementation of an estuary and watershed teacher training series, self-hosted with partner organizations for support by end of FY24. Engage teachers and students in schools within the watershed and beyond. Increase participation and opportunities for students from disadvantaged communities in outdoor education programs. Increase training on estuary and watershed science and restoration for outdoor education organizations.

Anticipated Long-term Outcome(s): Increased engagement and educational opportunities for teachers and students. Increased participation in education programs of students and teachers in disadvantaged communities. Development of curriculum that incorporates estuary and watershed science, climate change, and restoration/conservation management.

CCMP Action Plan: EO-1 (Public Education and Outreach), EO-4 (Formal Education Programs), USE-1 (Recreational Uses), CLIM-3 (Climate Adaptation and Education)

How the project/activity supports the CWA: Protecting coastal waters through the National Estuary Programs.

Estimated Budget: \$23,000 (FY24)

E&O-3: Nature Center

Project Status: Ongoing

Objective: Design and install new exhibits, upgrade and maintain exhibits, and support education and outreach programming for the Nature Center.

Description: Upgrade and redesign exhibits in the Nature Center, as well as establish education and outreach programming in the Nature Center. Integrate more technology and interactive exhibits to engage with various age groups in the Nature Center. Integrate climate change and environmental justice into exhibits. Continue to maintain the Nature Center. Implement strategies to advertise for the Nature Center to draw more visitors. Continue to update and maintain the virtual Nature Center on the Estuary Program website.

Leads, Partners, and Roles: The Estuary Program is the lead for Nature Center maintenance and upgrades, in coordination with partners such as Morro Bay State Parks and the Morro Bay Natural History Museum.

Anticipated Output(s) or Deliverables(s): Two new exhibits installed in the Nature Center. New signage in the Nature Center. Continue recurring education events in the Nature Center and hosting the space for various field trips. Activities summarized in semi-annual reports.

Estimated Milestones: Design and installation of two new exhibits and update signage by the end of FY24. Ongoing maintenance of Nature Center exhibits and infrastructure.

Anticipated Long-term Outcome(s): An increase in annual visitors to the Nature Center. Interactive and engaging exhibits suitable for a wide variety of audiences. Increased supplemental programming that provides education and stewardship opportunities for visitors.

CCMP Action Plan: EO-3 (Nature Center), EO-1 (Public Education and Outreach)

How the project/activity supports the CWA: Protecting coastal waters through the National Estuary Programs.

Estimated Budget: \$20,000 (FY24)

E&O-4: Community Engagement and Stewardship

Status: Ongoing

Objective: Provide community engagement and stewardship opportunities by hosting events and partnering with environmental organizations.

Description: Continue recurring clean-up events to engage the community and address marine debris and nonpoint source pollution. Organize habitat restoration events for community volunteers to participate in restoration project activities. Facilitate opportunities for community science projects. Co-develop community project with indigenous tribal communities.

Leads, Partners, and Roles: Efforts are led by the Estuary Program with the support of partners such as ECOSLO, tribal communities, local environmental organizations, community members, and California State Parks.

Anticipated Output(s) or Deliverables(s): Co-developed community project with tribe(s), cleanup events to reduce debris and litter in the watershed, restoration, and stewardship opportunities for community members. Activities summarized in semi-annual reports.

Estimated Milestones: Regularly hosted clean-up events. Developing a meaningful collaboration with local indigenous tribe to support a community project.

Anticipated Long-term Outcome(s): Establishing a strong network of volunteers. Keeping the watershed and estuary clean of litter and debris. Establishing more community engagement opportunities between the public and the Estuary Program. Incorporating traditional ecological knowledge in Estuary Program activities through partnerships with local indigenous tribes.

CCMP Action Plan: EO-1 (Public Education and Outreach), USE-1 (Recreational Uses), ECR-12 (Upland Habitats)

How the project/activity supports the CWA: Addressing diffuse, nonpoint sources of pollution. Protecting coastal waters through the National Estuary Program.
Estimated Budget: \$11,000 (FY24).

5. Program Accomplishments

Multiple Monitoring Efforts Underway

Since the Estuary Program's BIL grant was awarded in January 2023, staff have worked to implement numerous monitoring efforts.

As part of the Tracking Bay Health task, staff worked with Cal Poly faculty to coordinate the purchase of three sensor arrays for deployment in the bay. These continuous monitoring sensors are designed to withstand the rigorous conditions during long-term marine deployments. Cal Poly installed and will continue to maintain the sensors. The monitoring stations are part of the Central & Northern California Ocean Observing System (CeNCOOS) network of sensors along the coast. Data are available on the portal on the CeNCOOS website: https://data.caloos.org/?&sensor_version=v2cache#metadata/45/sensor_source. The data support the monitoring and research efforts of the Estuary Program and its partners on work related to eelgrass, climate change, aquaculture, and water quality. Future BIL support will provide calibration services for the sensors to help maintain data quality. Other efforts in this task which have also been initiated include purchase of monitoring supplies to support safe swimming indicator bacteria monitoring, monitoring of bay nutrients to support climate change research, and purchase of a tide gauge sensor for a Cal Poly researcher to study Morro Bay tidal prism change.

To support efforts in the Tracking Creek Health task, the Estuary Program has completed the installation of pressure transducer sensors throughout the watershed to support continuous flow monitoring. The purpose of the data is to identify reaches that go dry during the critical spring/summer timeframes for sensitive species such as *Onchrychuss mykiss* so that water conservation projects can be developed with landowners. Sensor installation was completed in advance of the dry season, and data collection is underway. Another project that has hit significant milestones is the expanded agricultural monitoring in the watershed. With BIL funding, staff has been able to expand the number of sites for nutrient monitoring and add in a toxicity monitoring component. Efforts are also underway to add pesticide monitoring to the effort in FY24. This expanded monitoring in areas impacted by agriculture and other inputs will support the efforts of the State Water Board to assess 303(d) water body status, assess TMDL implementation progress, etc. Also completed as part of this task was the purchase of four continuous water quality monitoring sensors for deployment in the creeks. In particular, the continuous oxygen and chlorophyll sensors allow for better understanding of creek conditions and whether they support sensitive aquatic life. Other efforts in this task involved the purchase of supplies to support bacteria indicator monitoring in the creeks.

In the Eelgrass Monitoring & Research task, bay-wide eelgrass mapping is underway to develop a map of subtidal and intertidal eelgrass in the bay. This is of particular interest given the heavy winter storms of early 2023, and anecdotal observations indicate moderate eelgrass loss in the bay. BIL funding also supported the development and implementation of a macroalgae monitoring effort in response to observed areas where macroalgae was beginning to outcompete eelgrass. A full season of monitoring data will be available this fall with a report completed next year.

All major monitoring projects have either been completed (e.g., purchases of equipment) or are currently underway.

Laying the Groundwork for Habitat Restoration Efforts

The Estuary Program will partner with the San Francisco Estuary Institute (SFEI) to complete a Morro Bay Historical Ecology Study. The historical ecology research will document landscape conditions prior to recent Euro-American modification, providing foundational information to inform management and restoration planning and enhance climate resilience. Primary outcomes of the study will include a well-documented digital map representing the configuration of habitat and channel types present prior to major Euro-American modification of the landscape, and an illustrated report describing early landscape patterns and processes. In FY23, the Estuary Program completed development of a subaward agreement, draft scope of work, and contract with the project set to kick-off in fall 2023. This effort is anticipated to be a two-year project.

Staff contracted with the USGS to conduct a robust sea level rise vulnerability assessment and adaptation strategies assessment to inform management actions and provide critical information to stakeholders such as State Parks, City of Morro Bay, and Morro Coast Audubon Society. The USGS will work with the Estuary Program to complete this assessment for tidal marsh and transition zone habitats and will leverage existing and new data with innovative modeling efforts. Staff completed sediment monitoring including feldspar markers, sediment tiles, and surface elevation tables in the Morro Bay tidal marshes in winter and summer 2023 to inform modeling. The USGS modeling effort began in summer 2023 with initial results anticipated to be shared in December 2023.

The Estuary Program and the CSLRCD have been collaborating to engage landowners and develop on-farm BMPs across the Morro Bay watershed to improve water quality through reduced sediment and nutrient loading. Several high priority projects, including riparian fencing and associated stockwater on upper Los Osos, Chorro, and Warden Creeks, have been developed. The project is anticipated to be completed by the end of 2023.

Additionally, the Estuary Program has partnered with the CSLRCD to implement projects at Camp SLO Army National Guard Base to address stormwater and soil erosion. Bioswales were constructed to capture and infiltrate stormwater while slowing flow to reduce erosion in the current drainages. Construction including excavation, grading, and rock structure implementation was completed in August of 2023. BIL funding for the CSLRCD will be used to support the final phase of construction and capturing actual implementation elevations and changes through surveys and as-built designs. The survey and as-built designs will capture grading and structure implementation following the ground disturbing activities like heavy equipment operation and prior to vegetation establishment and initial rains. During heavy equipment operation, several field changes were required. This effort will capture and document those changes and to support future bioswale efforts.

The Estuary Program is also partnering with Cuesta College's Sustainable Agriculture Program to improve facilities to support the community college's ranch education program that focuses on regenerative agricultural management. BIL funds will be used to install approximately 1,900 linear feet of piping to carry water to designated pasture sites for the program. Contracting and planning is underway, with implementation expected in 2024.

Expanding Education & Outreach Opportunities

In the Education & Outreach arena, the BIL funding increased the Estuary Program's capacity to tackle two larger efforts: teacher training and Nature Center upgrades.

During FY23, Estuary Program staff focused on teacher training program development. Staff planned and hosted two teacher training workshops in collaboration with [Project WET](#) and [Project WILD](#), both larger scale efforts to expand outdoor education. Staff also hosted a workshop over the summer on nature journaling. These teacher/educator training workshops have connected the program with over 20 different schools and over 30 different teachers/educators throughout our watershed and beyond. The effort allowed for the establishment of strong partnerships with Morro Bay State Park and Cal Poly for these professional development workshops. In FY24, we are planning on self-hosting a series of three teacher training workshops with all curriculum focused on the estuary. The Estuary Program's Nature Center is a free center open year-round and contains exhibits to provide education on wildlife, climate, water quality, and other topics. During FY23, staff developed and installed two new exhibits supported by BIL funding. The Augmented Reality topographic sandbox provides a hands-on experience "building" a watershed and looking at how water moves with different topographic features. A touchscreen kiosk displays educational posters on a variety of topics, including estuary and watershed science, local history, and climate change. As space is limited in the Nature Center and there is little room for displaying posters, the electronic kiosk allows for display and sharing of an unlimited number of posters.

Other updates to the Nature Center include the addition of speakers to play underwater sounds to feel immersed in the estuary, development of rotating activities in the newly established Kid’s Corner, repairing our virtual nature center kiosk, and designing and producing a new Nature Center logo and artwork for the entrance.

6. Travel Expenses

Since BIL funding is new, no travel expenses were applied to either FY22 or FY23. BIL funding may support professional development for staff, including travel to conferences or trainings, and has been allocated in the budget.

7. Glossary

The following terms and acronyms are used in this workplan:

Acronym	Explanation
BABA	Build America Buy America Act
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
CCC	California Conservation Corps
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
CSCI	California Stream Condition Index
CSLRCD	Coastal San Luis Resource Conservation District
CWA	Clean Water Act, the enabling legislation for the National Estuary Program
EC	Executive Committee
EJ	Environmental Justice
EPA	Environmental Protection Agency
Estuary Program	Morro Bay National Estuary Program
FY	Fiscal Year
IIJA	Infrastructure Investment and Jobs Act of 2021
LCSLO	The Land Conservancy of San Luis Obispo County
LOBMC	Los Osos Basin Management Committee
LOCSO	Los Osos Community Services District
MBNEP	Morro Bay National Estuary Program
MCAS	Morro Coast Audubon Society
NEP	National Estuary Program

Acronym	Explanation
NEPORT	National Estuary Program Online Report Tool
NOAA	National Oceanic and Atmospheric Administration
SCC	State Coastal Conservancy
SLO	San Luis Obispo
TAC	Technical Advisory Committee
TMDL	Total Maximum Daily Load
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
VMP	Volunteer Monitoring Program