



**Morro Bay National Estuary Program**  
**Bipartisan Infrastructure Law (BIL)**  
**Semi-Annual Report**  
**November 1, 2022 to March 31, 2023**  
**(FY22-23 Workplan)**

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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 \$750,000 per estuary annually.

A core emphasis of the NEP BIL funding is the acceleration of environmental and community restoration goals within the Comprehensive Conservation and Management Plans (CCMPs). The substantial increase in NEP funding appropriated in the BIL is expected to significantly enhance NEP capacity 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)

In early 2023, the Estuary Program completed administrative grant requirements to initiate activities in the BIL FY22-23 Workplan. This workplan was approved by the US Environmental Protection Agency and the Estuary Program's Executive Committee on August 17, 2022. Our BIL spending under the grant (Grant Number 4T-98T47301) as of March 31, 2023, were \$188,715.

The Estuary Program requests EPA's continued participation on the Executive Committee and assistance with meeting relevant administrative and programmatic grant conditions. During this period, the Estuary Program continued to coordinate with EPA staff to get relevant BIL administration information, particularly related to the development of an equity strategy and BIL reporting metrics in NEPORT.

The following report summarizes activities and deliverables completed during the first period of BIL funding. Subawards are a component of the FY 2022/2023 BIL Workplan, however these specific projects are in the planning phase and have not yet been initiated. Thus, subaward monitoring activities carried out under 2 CFR 200.331(d) do not yet apply.

## 2. NEP BIL Priorities

A core emphasis of BIL funding is the acceleration of goals and actions in the Estuary Program's Comprehensive Conservation and Management Plan (CCMP). Additionally, the EPA has specified goals to embed in BIL funded projects and activities. This section highlights several activities that incorporate EPA goals for BIL funding that were completed or in process during this period. These activities are specified in the Estuary Program's approved BIL FY22/23 Workplan.

### **Accelerate and more extensively implement the Estuary Program's CCMP**

- Recruited and hired staff to support BIL projects and CCMP implementation.
- Initiated planning and early phases of several workplan tasks.

### **Ensure that benefits reach disadvantaged communities**

- In process of developing an Equity Strategy to guide BIL project prioritization and measure benefits to communities.
- Began plans to upgrade the nature center to provide increased educational opportunities.
- Developed partnerships with local environmental education organizations to increase opportunities for disadvantaged communities to access field trips and camps.
- Initiated planning for teacher training events in partnership with Cal Poly and Project WET.

### **Build the adaptive capacity of ecosystems and communities**

- Initiated several projects that address sea level rise and flooding impacts.
- Developed initial planning to pursue a study and concept design to restore riparian habitat by addressing a fish passage barrier modification.

- Coordinated with stakeholders and partners to begin prioritizing potential stormwater improvement projects to pursue.
- Expanded drought monitoring efforts to identify potential water conservation project opportunities.
- Acquired sensor systems to collect high-resolution water parameters to support the Central and Northern California Ocean Observing System (CeNCOOS) program that will inform changing conditions and research/modelling in the Bay.

### 3. Project updates

The following section provides updates to BIL projects and activities 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:** Increase and maintain staff capacity to support all programmatic areas including BIL administration and implementation.

**Description:** The addition of BIL funding requires additional staff capacity 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 task includes increasing associated technology needs such as equipment and software to perform programmatic tasks. General monitoring and restoration equipment and supplies that can support multiple program efforts are included in this task. This activity also includes professional development training opportunities for staff.

**Progress Towards Milestones:** The Estuary Program successfully recruited and hired staff to build capacity to support the implementation of BIL projects. A full-time Restoration Coordinator, Education & Outreach Specialist, and Monitoring Technician were hired.

**Comparison of Actual Accomplishments with Anticipated Outputs/Outcomes:** Newly hired staff were hired and directly support BIL projects and implementation of the CCMP.

**Problems Encountered:** None.

**Deliverables:** None.

**Activities Planned for the Next Six Months:** The Estuary Program will continue to support newly filled positions and recruit one additional position to support administrative and grant needs.

**Pending Deliverables:** None.

## **Capacity-2: BIL Management and Equity Strategy Development**

**Project Status:** new

**Objective:** Support BIL planning, management, and implementation.

**Description:** Conduct strategy planning for BIL projects and develop an Equity Strategy. Develop and implement reporting metrics and performance tracking methods for BIL projects and CCMP actions.

**Progress Towards Milestones:** The Estuary Program has employed a contractor to help support the development of an Equity Strategy using EPA guidance. Staff are working to finalize a long-term BIL spending strategy to be submitted to EPA.

**Comparison of Actual Accomplishments with Anticipated Outputs/Outcomes:** These efforts directly support the task outcome of effectively managing BIL funding and developing the Equity Strategy to guide program EJ efforts.

**Problems Encountered:** None.

**Deliverables:** None.

**Activities Planned for the Next Six Months:** The Estuary Program will have a newly developed Equity Strategy to and long-term BIL strategy to support BIL workplan development and implementation.

**Pending Deliverables:** Equity Strategy and long-term BIL spending strategy.

## 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 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 included purchasing and maintaining 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; and monitoring nutrients in the bay's waters to better understand impacts to eelgrass and other aquatic life.

**Progress Towards Milestones:** Staff worked with Cal Poly to purchase two sets of sensors for the CeNCOOS network. Efforts are underway to purchase a third sensor by the end of FY23. Staff recruited, trained, and coordinated Cuesta College students to conduct monitoring in the bay for indicator bacteria. The volunteers are collecting high quality bacteria data from the bay to support safe swimming and shellfish farming efforts. The Estuary Program is coordinating

with Cal Poly faculty and students to collect monthly nutrient samples from bay shoreline sites. Data is being shared with partners to facilitate resource management and support efforts to safeguard human health.

**Comparison of Actual Accomplishments with Anticipated Outputs/Outcomes:** Activities for this task involved collecting and sharing high quality data that increases understanding of the long-term trends in ambient water quality in the estuary, promotes safe swimming and aquaculture, and supports identification of projects to address bacteria and nutrient pollution.

**Problems Encountered:** None.

**Deliverables:** Example of monthly indicator bacteria memos shared with partners. Data for [front bay](#) and [back bay](#) sites available via CeNCOOs data dashboard. Activities as described in semi-annual reports.

**Activities Planned for the Next Six Months:** Continue data collection and coordination with partners.

**Pending Deliverables:** Data managed in an Access-based system for submittal to the California Environmental Data Exchange Network (CEDEN). Monthly bacteria result memos.

## **Monitoring-2: Tracking Creek Health**

**Project Status:** ongoing

**Objective:** Collect high quality data to support our understanding of watershed creek 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 monitoring of: bacteria indicators in watershed creeks to determine safe swimming and impacts to creek water quality; low flow conditions to assess drought impacts; creek water quality in areas impacted by agriculture; and extended deployments for water quality monitoring in creeks.

**Progress Towards Milestones:** Staff conducted monitoring to track key environmental indicators in the watershed. We worked with partners to develop and implement monitoring efforts, including installation of pressure transducers to track surface flows and coordination with the Central Coast Ambient Monitoring Program (CCAMP) to prepare for sediment and water toxicity monitoring. Staff worked with Cuesta College volunteers to collect and analyze creek samples for indicator bacteria. Staff expanded nutrient and water quality parameter monitoring and prepared for water and soil toxicity testing at agriculturally impacted sites. Staff purchased water quality equipment and deployed it throughout the watershed to expand our continuous monitoring data set.

**Comparison of Actual Accomplishments with Anticipated Outputs/Outcomes:** Activities for this task involve working with partners to develop and implement monitoring efforts to increase understanding of the long-term trends in ambient water quality in the watershed.

**Problems Encountered:** None.

**Deliverables:** A quality data set that meets the parameters outlined in the Quality Assurance Project Plan (QAPP). Monthly indicator bacteria memo (see example).

**Activities Planned for the Next Six Months:** Continue data collection. Conduct spring bioassessment monitoring. Submit data to CEDEN.

**Pending Deliverables:** Monthly bacteria memos. Data submittal to CEDEN.

### **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 a baywide eelgrass map in 2023 and the implementation of a macroalgae monitoring study to understand impacts to eelgrass habitat.

**Progress Towards Milestones:** A contractor was selected to complete a bay wide eelgrass map via drone and sonar mapping, with data acquisition to be conducted throughout the spring and a final map created in late 2023. MBNEP staff developed a macroalgae monitoring protocol, which will be implemented in the spring.

**Comparison of Actual Accomplishments with Anticipated Outputs/Outcomes:** Monitoring and planning for mapping efforts as well as working with research partners all support the outcome of better understanding of eelgrass stressors and dynamics. This improved understanding directly supports the outcome of development of eelgrass monitoring and restoration.

**Problems Encountered:** None.

**Deliverables:** None.

**Activities Planned for the Next Six Months:** Contractor will complete field mapping in April and May 2023, with a final eelgrass map of the bay completed in fall 2023. Macroalgae monitoring will occur in May/June 2023 and in fall 2023.

**Pending Deliverables:** 2023 bay-wide map of eelgrass in Morro Bay.

## **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.

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

**Progress Towards Milestones:** Staff attends meetings of the SWRCB CEDEN staff to stay abreast of updates to the CEDEN system. Staff has begun planning needed updates to the Access data management system. Staff coordinated with contractor to conduct CSCI analysis for the 2023 bioassessment data.

**Comparison of Actual Accomplishments with Anticipated Outputs/Outcomes:** Activities such as storing and submitting data accomplished the outcome of making available to the public and state a high quality data set that supports TMDL analysis, 303(d) assessment, land management, etc.

**Problems Encountered:** None.

**Deliverables:** None.

**Activities Planned for the Next Six Months:** Continue to work with SWRCB on CEDEN updates. Contract for Access database work. Conduct CSCI analysis.

**Pending Deliverables:** None.

## Habitat Restoration and Protection

### **RESTORATION-1: Invasive Species Management**

**Project Status:** new

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

**Description:** Identify locations and remove invasive 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. Explore the possibility of conducting sensitive species surveys on sandspit before invasive management. Support weed management on the restored floodplain area of the Chorro Creek Ecological Reserve (CCER).

**Progress Towards Milestones:** Initial coordination with a consultant to map *Arundo donax* and possibly other invasive species within the watershed was completed. Invasive species mapping at Camp SLO has already occurred with partner funding. A survey of Morro shoulderband snails on the sandspit was completed with a consultant and Estuary Program staff to support ice plant removal permitting. Staff are working on a restoration plan for USFWS permitting to remove ice plant.

**Comparison of Actual Accomplishments with Anticipated Outputs/Outcomes:** Still on schedule. Ice plant removal can only occur outside of snowy plover breeding season and is set to occur in October 2023. Weeding of Chorro Creek Ecological Reserve also typically occurs in the April-October timeframe.

**Problems Encountered:** None.

**Deliverables:** None.

**Activities Planned for the Next Six Months:** Hire a consultant to map *Arundo donax* in coordination with MBNEP and possibly other invasive species within the watershed. Complete permitting for ice plant removal. Work with the CCC's to complete weeding of the floodplain restoration site.

**Pending Deliverables:** None.

## **RESTORATION-2: Habitat Restoration and Climate Planning**

**Project Status:** new

**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. Continue baseline oyster surveys on the shoreline of the estuary. Further planning and designs of additional habitat restoration projects within the watershed and estuary.

**Progress Towards Milestones:** Initial tidal marsh sediment field and lab work to inform sea level rise planning was completed from January-March 2023. An outline of the Conservation Planning Initiative report and mapping assessment have been completed.

**Comparison of Actual Accomplishments with Anticipated Outputs/Outcomes:** Sediment monitoring is on schedule and other projects slightly delayed.

**Problems Encountered:** Delays due to development of subaward administrative and contractual requirements.

**Deliverables:** None.

**Activities Planned for the Next Six Months:** Contracts for the sea level rise modeling (USGS) and habitat ecology study (SFEI) are anticipated to be completed. Sediment field and lab work to inform the sea level rise modeling will also occur from June-August 2023. A draft of the Conservation Planning Initiative report will be completed.

**Pending Deliverables:** To be determined as contracts are completed over the next six months.

## **RESTORATION-3: Fish Habitat Monitoring and Improvement**

**Project Status:** new

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

**Description:** Conduct baseline fisheries 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 of San Luisito Creek Fish Passage Barriers at Adobe Rd. in conjunction with Highway 1.

**Progress Towards Milestones:** A request for quote to consultants to support baseline fisheries monitoring in the estuary was shared with contractor selection expected in May. A consultant was selected for the juvenile steelhead growth and habitat use surveys. MBNEP staff have been in coordination with SLO County, who own the San Luisito Creek Fish Passage Barrier at Adobe Rd., and have discussed tasks in a consultant contract. The request for quote document is under development and review by partners.

**Comparison of Actual Accomplishments with Anticipated Outputs/Outcomes:** Project tasks are so far on schedule.

**Problems Encountered:** None.

**Deliverables:** None.

**Activities Planned for the Next Six Months:** Develop consultant contract for baseline fisheries monitoring with possible surveys beginning during this time. Juvenile steelhead growth and habitat use surveys will begin in September/October 2023. Compete and select a consultant to complete pre-design tasks (e.g., geomorphology, hydrology, alternatives analysis) for the Adobe Rd. barrier.

**Pending Deliverables:** Summary report on baseline fisheries monitoring in the estuary and juvenile steelhead growth and habitat use survey in the Chorro Creek watershed.

#### **RESTORATION-4: Open Space Habitat and Access**

**Project Status:** new

**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 Sweet Springs Nature Preserve and other established and protected open spaces in the watershed. Consider further acquisitions or conservation easements for the protection of habitats.

**Progress Towards Milestones:** Fencing was installed at the Sweet Springs Nature Preserve to protect sensitive habitats. Estuary Program staff consulted with a landowner and the SLO Land Conservancy on a possible easement along the floodplain of Chorro Creek.

**Comparison of Actual Accomplishments with Anticipated Outputs/Outcomes:** Staff implemented one open space access improvement with the Morro Bay Audubon Society and continue to collaborate with partners to prioritize projects.

**Problems Encountered:** None.

**Deliverables:** None.

**Activities Planned for the Next Six Months:** Coordinate with SLO Land Conservancy and private landowner on possible easement and funding allocated, if needed. Work with SLO County on Pasadena Point habitat project.

**Pending Deliverables:** None.

### **RESTORATION-5: Implement BMPs in Watershed**

**Project Status:** new

**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.

**Progress Towards Milestones:** MBNEP staff have been in coordination with partners including the CSLRCD and Cuesta College on project implementation and draft statement of works have been completed.

**Comparison of Actual Accomplishments with Anticipated Outputs/Outcomes:** Project is slightly delayed with contracts expected to be finalized in the next couple months.

**Problems Encountered:** Delays due to development of subaward administrative and contractual requirements.

**Deliverables:** None.

**Activities Planned for the Next Six Months:** Complete contracting for the CSLRCD project supporting road BMP’s with private landowners in the watershed and with Cuesta College for installing agriculture program infrastructure.

**Pending Deliverables:** None.

## Water Infrastructure

### **WATER-1: Stormwater Improvement**

**Project Status:** new

**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 prioritizing 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.

**Progress Towards Milestones:** MBNEP staff hired a consultant to support review of existing stormwater projects to focus on projects with the most benefits given costs.

**Comparison of Actual Accomplishments with Anticipated Outputs/Outcomes:** Project is just getting underway.

**Problems Encountered:** None.

**Deliverables:** None.

**Activities Planned for the Next Six Months:** MBNEP will be supporting implementation of the Calaveras Ave. stormwater improvement project on Camp SLO, which will occur in July 2023. BIL funding will also support partial designs on a chosen stormwater project in the watershed.

**Pending Deliverables:** None.

## **WATER-2: Groundwater Monitoring**

**Project Status:** new

**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 leading to saltwater intrusion into the lower aquifer. To halt this threat to the aquifer, the Los Osos Basin Management Committee and the Los Osos Community Services District (LOCSD) are planning to install monitoring and municipal wells farther to the east. This project involves supporting the installation of a monitoring well and rehabilitation of existing well(s) to provide crucial water quality data to all purveyors in the basin.

**Progress Towards Milestones:** Staff are working with the LOCSD to develop a subaward agreement and contract for the work. Installation is expected to be complete by the end of 2023.

**Comparison of Actual Accomplishments with Anticipated Outputs/Outcomes:** The project supports the outcome of expanding monitoring of groundwater for the community of Los Osos to ensure access to clean safe drinking water.

**Problems Encountered:** Delays due to development of subaward administrative and contractual requirements.

**Deliverables:** None.

**Activities Planned for the Next Six Months:** Complete subaward agreement with LOCSD. LOCSD staff will conduct procurement and select contractors to complete the work.

**Pending Deliverables:** None.

## 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.

**Progress Towards Milestones:** Regularly updated webpages on the Estuary Program’s website, added new pages for more information, and updated photos where applicable. The website 37,656 visits in the first half of FY23. Staff are developing an approach to communicate CCMP progress on the website.

**Comparison of Actual Accomplishments with Anticipated Outputs/Outcomes:** Progress towards updating the Estuary Program’s website and program pages.

**Problems Encountered:** None.

**Deliverables:** Communications statistics shared in the semi-annual report (see above).

**Activities Planned for the Next Six Months:** Updating more webpages and making the website more user friendly.

**Pending Deliverables:** None.

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

**Project Status:** New

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

**Description:** Develop relationship with local outdoor education organizations to support bay field trips and curriculum. Develop and implement watershed and estuary-based curriculum and projects in schools and within the watershed. Partner with local education programs to implement watershed-based teacher training to benefit students across the county through professional development opportunities for teachers.

**Progress Towards Milestones:** Solidified education partnerships with Camp Ocean Pines, California State Parks, and Cal Poly. Coordinated and facilitated a field trip with 35 students from the Fresno area with the California Health Collaborative and supported from a CA State Coastal Conservancy Explore the Coast grant. Staff worked on coordinating and hosting Project WET and Project Wild teacher and educator training workshops focused on the Morro Bay estuary and watershed.

**Comparison of Actual Accomplishments with Anticipated Outputs/Outcomes:** Development of education partnerships increased educational opportunities for students and teachers and resulted in curriculum development.

**Problems Encountered:** Storm and flooding events cancelled the Project WET training planned for March. This has been rescheduled for May 2023.

**Deliverables:** Environmental education statistics shared in semi-annual report (see above).

**Activities Planned for the Next Six Months:** Working on educational panels for a watershed model at Monarch Grove, a local Title I elementary school. Hosting the Project WET and Project Wild training workshops.

**Pending Deliverables:** Field trip and teacher training statistics.

### **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. Implement and design rotating displays. Integrate climate change and environmental justice into exhibits. Upgrade and maintain the Nature Center, including signs, flooring, paint, and display cases. Implement strategies to advertise for the Nature Center to draw more visitors. Update and maintain the virtual Nature Center on the Estuary Program website.

**Progress Towards Milestones:** Staff created plans for two new interactive exhibits in the Nature Center selected a designer to work on signage and exhibits and began implementing updates. Started the planning stages of a new recurring educational program in the Nature Center. The Nature Center had 6,782 visitors during the first half of FY23.

**Comparison of Actual Accomplishments with Anticipated Outputs/Outcomes:** Nature Center updates support the task outcomes to create engaging exhibits and develop supplemental programming that will increase annual visitation.

**Problems Encountered:** None.

**Deliverables:** Nature Center statistics shared in the semi-annual report (see above).

**Activities Planned for the Next Six Months:** Staff plans to implement a new recurring educational program in the Nature Center, add two new interactive exhibits, and update the entrance and logo of the Nature Center. Staff will also create a communications and advertising plan to bring in more visitors to the Nature Center.

**Pending Deliverables:** Programming statistics and Nature Center usage statistics.

#### **E&O-4: Community Engagement and Stewardship**

**Status:** New

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

**Description:** Partner with local nonprofit ECOSLO to implement an adopt-a-spot program in Los Osos and the Embarcadero. Establish 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 project activities. Co-develop community project with indigenous tribal communities.

**Progress Towards Milestones:** Staff focused on State of the Bay events in Spring 2023 and opportunistically partnered with other organizations to engage the community. Programming from this task is still in planning stages and will be implemented in the next six months.

**Comparison of Actual Accomplishments with Anticipated Outputs/Outcomes:** Activities conducted support the workplan task outcomes of increasing volunteer engagement and developing the infrastructure to keep the estuary free of litter.

**Problems Encountered:** Winter rain and storm events set staff back from implementing the Adopt-a-Spot program with ECOSLO. The program is expected to start in the late summer or fall of 2023.

**Deliverables:** Event statistics included in the semi-annual report (see above).

**Activities Planned for the Next Six Months:** Planning and implementing Adopt-a-Spot in Los Osos and/or Morro Bay. Implementing a recurring outreach program.

**Pending Deliverables:** Event statistics and amount of trash picked up.

## 4. Budget Overview

Tables 1 and 2, represent costs associated with BIL activities since the beginning of the BIL grant agreement on December 12, 2022. An amendment was approved by the Executive Committee and EPA on March 16, 2023. These costs are associated with the workplan and budget for BIL funding for FY22 and FY23. The Estuary program has a waiver for the match requirement for this workplan. Future BIL workplans will have match waived with an approved Equity Strategy.

### Budget Overview

Table 1: Costs expended during this semi-annual report period (November 1, 2022 – March 31, 2023). These costs represent cumulative costs since the initiation of BIL activities.

Category	Subcategory	BIL FY22-23 Funds	Total Cumulative Funds
Personnel	Salaries	\$ 52,992	\$ 52,992
	Fringe	\$ 6,881	\$ 6,881
	<i>Subtotal</i>	\$ 59,873	\$ 59,873
Supplies	Computers, software	\$ 3,503	\$ 3,503
	Monitoring supplies	\$ 22,027	\$ 22,027
	Education and Outreach supplies	\$ 1,090	\$ 1,090
	<i>Subtotal</i>	\$ 26,619	\$ 26,619
Equipment	Monitoring equipment	\$ 96,548	\$ 96,458
	<i>Subtotal</i>	\$ 96,548	\$ 96,548
Contractual	Capacity Building	\$ 0	\$ 0
	Monitoring	\$ 4,917	\$ 4,917
	Restoration	\$ 0	\$ 0
	Water Infrastructure	\$ 0	\$ 0
	Education and Outreach	\$ 0	\$ 0
	<i>Subtotal</i>	\$ 4,917	\$ 4,917
Other	Training, Prof. Dev.	\$ 758	\$ 758
	Restoration Subawards	\$ 0	\$ 0
	Water Infrastructure Subawards	\$ 0	\$ 0
	<i>Subtotal</i>	\$ 758	\$ 758
<b>TOTAL</b>		<b>\$ 188,715</b>	<b>\$ 188,715</b>

Table 2: Costs by Program Area and Task for BIL funding (FY22 and FY23)

<b>Program Area</b>	<b>Workplan Task</b>	<b>BIL FY22-23 Funds</b>	<b>Total Cumulative Funds</b>
Capacity Building	Capacity-1: Capacity Building	\$ 64,134	\$ 64,134
	Capacity-2: BIL Management and Equity Strategy Development	\$ 0	\$ 0
	<i>Subtotal</i>	\$ 64,134	\$ 64,134
Environmental Monitoring and Research	Monitoring-1: Tracking Bay Health	\$ 96,548	\$ 96,548
	Monitoring-2: Tracking Creek Health	\$ 25,561	\$ 25,561
	Monitoring-3: Eelgrass Monitoring and Research	\$ 0	\$ 0
	Monitoring-4: Data Analysis and Management	\$ 0	\$ 0
	<i>Subtotal</i>	\$ 122,109	\$ 122,109
Habitat Restoration and Protection	Restoration-1: Invasive Species Management	\$ 0	\$ 0
	Restoration-2: Habitat Restoration and Climate Planning	\$ 1,382	\$ 1,382
	Restoration-3: Fish Habitat Monitoring and Improvement	\$ 0	\$ 0
	Restoration-4: Open Space Habitat and Access	\$ 0	\$ 0
	Restoration-5: Implement BMPs in Watershed	\$ 0	\$ 0
	<i>Subtotal</i>	\$ 1,382	\$ 1,382
Water Infrastructure	Water-1: Stormwater Improvement	\$ 0	\$ 0
	Water-2: Groundwater Monitoring	\$ 0	\$ 0
	<i>Subtotal</i>	\$ 0	\$ 0
Education and Outreach	E&O-1: Communication	\$ 0	\$ 0
	E&O-2: Environmental Education	\$ 600	\$ 600
	E&O-3: Nature Center	\$ 97	\$ 97
	E&O-4: Community Engagement and Stewardship	\$ 393	\$ 393
	<i>Subtotal</i>	\$ 1,090	\$ 1,090
<b>TOTAL</b>		<b>\$ 188,715</b>	<b>\$ 188,715</b>