# Morro Bay National Estuary Program

# Infrastructure Investment and Jobs Act of 2021 (IIJA)
# Workplan & Budget – Year 4

# (Fiscal Year 2025)

**Morro Bay National Estuary Program**

**Infrastructure Investment and Jobs Act of 2021 (IIJA) Work Plan & Budget – FY25**

# Contents

# 1. Introduction

The Morro Bay National Estuary Program (Estuary Program) is a locally driven, non-regulatory program established under Section 320 of the Clean Water Act (CWA) and further supported by the Protect and Restore America's Estuaries Act (PRAE Act). As one of 28 National Estuary Programs (NEPs) across the country, the Estuary Program works in partnership with federal, state, and local agencies, as well as community stakeholders, to protect and restore the health of Morro Bay and its watershed. The program operates under the guidance of its Comprehensive Conservation and Management Plan (CCMP) which serves as a strategic framework for addressing key water quality, habitat, and resource management challenges in the region.

This Fiscal Year 2025 (FY25) workplan outlines the Estuary Program's priority actions for the coming year, leveraging base funding from the U.S. Environmental Protection Agency (EPA) alongside supplemental funding provided through the Infrastructure Investment and Jobs Act (IIJA) of 2021. These resources allow the Estuary Program to accelerate progress on its CCMP goals in ways that directly support the objectives of the CWA and PRAE Act – enhancing water quality, strengthening habitat resilience, and ensuring the long-term health of the estuary for both ecological and economic benefits.

The proposed work aligns with the federal commitment to improving water infrastructure, supporting coastal and watershed resilience, and ensuring that local communities benefit from sustainable resource management. Through targeted initiatives, the Estuary Program will advance efforts to reduce pollutants, restore critical habitats, and enhance the natural processes that sustain Morro Bay's estuarine ecosystem. In doing so, the program supports the national priorities through the Core Programs of Section 320 of the CWA: establishing water quality standards; identifying polluted waters and developing plans to restore them; addressing diffuse, nonpoint sources of pollution; protecting wetlands; and protecting coastal waters through the National Estuary Program. These efforts protect water resources and foster collaboration among agencies, industries, and local stakeholders.

The National Estuary Program was originally enacted in 1987 when the CWA was amended to establish the program. As stated in the act, the purpose of the program is to:

- "assess trends in water quality, natural resources, and uses of the estuary";
- "collect, characterize, and assess data on toxics, nutrients, and natural resources within the estuarine zone to identify the cause of environmental problems";
- "develop the relationship between the inplace loads and point and nonpoint loading of pollutants to the estuarine zone and the potential uses of the zone, water quality, and natural resources";
- "develop a comprehensive conservation and management plan that— (A) recommends priority corrective actions and compliance schedules addressing point and nonpoint sources of pollution to restore and maintain the chemical, physical, and biological

integrity of the estuary, including restoration and maintenance of water quality, a balanced indigenous population of shellfish, fish and wildlife, and recreational activities in the estuary, and assure that the designated uses of the estuary are protected; (B) addresses the effects of recurring extreme weather events on the estuary, including the identification and assessment of vulnerabilities in the estuary and the development and implementation of adaptation strategies; and (C) increases public education and awareness of the ecological health and water quality conditions of the estuary"; and

- "monitor the effectiveness of actions taken pursuant to the plan."

On January 13, 2021, the PRAE Act was signed into law to recognize the economic and environmental importance of wetlands and coastlines. The purpose of the act is to "address the recurring extreme weather events on the estuary, including the identification and assessment of vulnerabilities in the estuary and the development and implementation of adaption strategies," and "increase public education and awareness of the ecological health and water quality conditions of the estuary."

By investing in science-based management actions and community-driven solutions, the Estuary Program continues to uphold the intent of the Clean Water Act and the PRAE Act, ensuring that Morro Bay remains a thriving natural resource for future generations.

## Infrastructure Investment and Jobs Act of 2021

On November 15, 2021, the Infrastructure Investment and Jobs Act of 2021" (IIJA) (P.L. 117-58) was enacted. The law includes $50 billion to the EPA for water infrastructure, the single largest investment in water that the federal government has ever made. The IIJA provides $132 million in funding for the 28 longstanding NEPs for fiscal years 2022 through 2026. This funding will be evenly distributed to the NEPs, annually providing each with approximately $900,000 in IIJA funds. Funding through the IIJA provides a historic investment to the NEP, more than doubling the current base funding of $850,000 per program annually.

A core emphasis of the NEP IIJA funding is the acceleration of environmental and community restoration goals within the CCMPs. The substantial increase in NEP funding appropriated in the IIJA 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.

## Morro Bay National Estuary Program

The Estuary Program works to protect and restore the Morro Bay estuary and its watershed through the implementation of our CCMP for Morro Bay, which was approved in 2022. The three Estuary Program programmatic focus areas are:

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

Morro Bay was accepted into the National Estuary Program in 1995 when the Administrator of the 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 IIJA workplan describes the Estuary Program's planned efforts for FY25, which covers the period from March 1, 2025 to September 30, 2027. IIJA funding for the NEP is in addition to funding allocated through Section 320 of the Clean Water Act (CWA). The expected IIJA funding available to the Estuary Program for FY25 is $910,000.

The Bay Foundation of Morro Bay, a 501(c)(3) nonprofit corporation, will continue to serve as the legal and fiscal agent for the Estuary Program by employing staff, signing contracts, and applying for grants. The Estuary Program Executive Committee (EC) oversees the progress of the annual workplan and is the policy decision-making body for the Estuary Program. Consistent with the statute (IIJA of 2021 P.L. 117-58) no match is required for IIJA funding from FY24 through FY26. EPA waives the previous non-Federal match/cost-share requirements for IIJA funds for all NEPs during those fiscal years.

The Estuary Program anticipates leveraging IIJA funds with state, local, private, and in-kind resources.

## 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 approved through a majority vote of the EC and serve three-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 EC on strategic direction and priorities of the Estuary Program.

## 2. Goals for CCMP Implementation in Fiscal Year 2025

This workplan describes the Estuary Program's broad goals, specific projects, and planned budget for FY25 IIJA 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 IIJA workplan was developed to complement the approved FY25 320 base funding 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.

## 3. Budget and Staff Elements

Tables 3.1, 3.2, and 3.3 provide an overview of the budget for IIJA funding for FY25. The Estuary program has a waiver for the match requirement for this workplan.

### Budget Overview

Table 3.1: Budget Overview for IIJA funding for FY25

| Category | Subcategory | IIJA FY25 Request |
|---|---|---|
| **Personnel** | Salaries | $ 294,355 |
| | Fringe | $ 66,822 |
| | *Subtotal* | *$ 361,176* |
| **Supplies** | Computers, software | $ 5,500 |
| | Monitoring supplies | $ 33,629 |
| | Education and Outreach supplies | $ 7,000 |
| | *Subtotal* | *$ 46,129* |
| **Travel** | *includes local mileage* | *$ 3,500* |
| | *Subtotal* | *$ 3,500* |
| **Contractual** | Capacity Building | $ 0 |
| | Monitoring | $ 169,694 |
| | Restoration | $ 224,000 |
| | Water Infrastructure | $ 0 |
| | Education and Outreach | $ 24,000 |
| | *Subtotal* | *$ 417,694* |
| **Other** | Training, Prof. Dev. | $ 3,500 |
| | Restoration & Monitoring Subawards | $ 78,000 |
| | *Subtotal* | *$ 81,500* |
| **TOTAL** | | **$ 910,000** |

## Detailed Budget

Table 3.2: Direct Expenses by Program Area for IIJA funding (FY25)

| Program Area | Workplan Task | FY25 |
|---|---|---|
| Capacity Building | Capacity-1: Capacity Building | $ 373,677 |
| | *Subtotal* | *$ 373,677* |
| Environmental Monitoring and Assessment | Monitoring-1: Tracking Bay Health | $ 47,763 |
| | Monitoring-2: Tracking Creek Health | $ 73,860 |
| | Monitoring-3: Eelgrass Monitoring and Assessment | $ 80,500 |
| | Monitoring-4: Data Analysis and Management | $ 1,200 |
| | *Subtotal* | *$ 203,323* |
| Habitat Restoration and Protection | Restoration-1: Invasive Species Management | $ 102,000 |
| | Restoration-2: Habitat Restoration and Coastal Community Resilience Planning | $ 85,000 |
| | Restoration-3: Fish Habitat Monitoring and Improvement | $ 45,000 |
| | Restoration-4: Open Space Habitat and Access | $ - |
| | Restoration-5: Implement BMPs in Watershed | $ 20,000 |
| | *Subtotal* | *$ 252,000* |
| Water Infrastructure | Water-1: Stormwater Improvement | $ - |
| | Water-2: Groundwater Monitoring | $ 50,000 |
| | *Subtotal* | *$ 50,000* |
| Education and Outreach | E&O-1: Communication | $ 0 |
| | E&O-2: Environmental Education | $ 16,000 |
| | E&O-3: Nature Center | $ 15,000 |
| | E&O-4: Community Engagement and Stewardship | $ 0 |
| | *Subtotal* | *$ 31,000* |
| | **TOTAL** | **$ 910,000** |

## Summary of Spending and Staff Time

Table 3.3. Summary of IIJA Spending and Staff Time for FY25.

| | IIJA FY25 Budget | | Total |
|---|---|---|---|
| **Workplan Task** | **Other Expenses** | **Staff Time** | |
| CAPACITY-1 (Capacity Building) | $ 100,657 | $ 8,572 | **$ 109,229** |
| MONITORING-1 (Tracking Bay Health) | $ 47,763 | $ 28,707 | **$ 76,470** |
| MONITORING-2 (Tracking Creek Health) | $ 73,860 | $ 28,707 | **$ 102,567** |
| MONITORING-3 (Eelgrass Monitoring and Assessment) | $ 80,500 | $ 28,707 | **$ 109,207** |
| MONITORING-4 (Data Analysis and Management) | $ 1,200 | $ 15,182 | **$ 16,382** |
| RESTORATION-1 (Invasive Species Management) | $ 102,000 | $ 17,023 | **$ 119,023** |
| RESTORATION-2 (Habitat Restoration and Coastal Community Resilience Planning) | $ 85,000 | $ 23,102 | **$ 108,102** |
| RESTORATION-3 (Fish Habitat Monitoring and Improvement) | $ 45,000 | $ 22,129 | **$ 67,129** |
| RESTORATION-4 (Open Space Habitat and Access) | $ - | $ 9,572 | **$ 9,572** |
| RESTORATION-5 (Implement BMPs in Watershed) | $ 20,000 | $ 10,103 | **$ 30,103** |
| WATER-1 (Stormwater Improvement) | $ - | $ 5,615 | **$ 5,615** |
| WATER-2 (Groundwater Monitoring) | $ 50,000 | $ 2,652 | **$ 52,652** |
| E&O-1 (Communication) | $ - | $ 16,014 | **$ 16,014** |
| E&O-2 (Environmental Education) | $ 16,000 | $ 25,093 | **$ 41,093** |
| E&O-3 (Nature Center) | $ 15,000 | $ 16,467 | **$ 31,467** |
| E&O-4 (Community Engagement and Stewardship) | $ - | $ 15,376 | **$ 15,376** |
| **TOTAL Budget** | **$ 636,980** | **$ 273,020** | **$ 910,000** |

**Program Staffing Anticipated for FY25**

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. The 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 base funding FY25 workplan will also play a critical role in implementing IIJA associated tasks as specified in this workplan. In addition to all personnel listed in the Estuary Program's FY25 320 base funding workplan (including the Executive Director, Assistant Director, Finance & Operations Administrator, and programmatic staff), several IIJA-funded staff members will aid in the implementation of IIJA projects and support administration. These personnel positions may be modified and include:

- Administrative Assistant: Supports 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(s): 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 other education staff 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 ($66,822)**

- 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.
    - Retirement Match – Bay Foundation match payments for eligible employees' retirement contributions.

**Monitoring supplies: ($33,629)**

- 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: ($7,000)**

- Expenses:
    - 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.

**Subawards: ($78,000)**

- Expenses:
    - RESTORATION-1: Invasive Species Management – partnering with SLO County to manage priority invasive species in Chorro Creek.
    - WATER-2: Groundwater Monitoring – partnering with the Los Osos Community Services District (LOCSD) on an electrical resistivity geophysics survey to assess saltwater intrusion in the Los Osos groundwater basin.

## Compliance with Build America Buy America (BABA) Act Requirements

Congress passed the BABA Act in 2021, concurrently with the IIJA. 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 FY25, no IIJA-funded projects triggered BABA requirements.

# 4. Proposed Projects and Funding Needs for Fiscal Year 2025

IIJA 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 assessment, habitat restoration and planning, water infrastructure, and education and outreach.

## Capacity Building

The Program Capacity and Management tasks provide the foundation for implementing all actions outlined in this workplan. These efforts directly support the full range of priorities established under Section 320 of the CWA and the PRAE Act by ensuring the effective administration, oversight, and execution of projects that protect water quality, restore habitat, engage communities, and improve coastal resilience. Additionally, these tasks align with the IIJA by supporting the management and reporting of federally funded projects.

Capacity building ensures that the Estuary Program maintains the staff expertise and resources necessary to implement its ongoing work in restoration, monitoring, and education. As program activities continue, it is critical to sustain staffing levels to administer IIJA funding, manage grants and contracts, and implement projects that advance the CWA's priorities, including "protecting wetlands," "addressing diffuse, nonpoint sources of pollution," and "monitoring the effectiveness of actions taken pursuant to the plan." Maintaining up-to-date technology, equipment, and software supports the efficiency and effectiveness of program operations, while professional development ensures that staff remain equipped with the knowledge and skills to lead estuarine protection efforts. These efforts also fulfill the PRAE Act's mandate to "increase public education and awareness of the ecological health and water quality conditions of the estuary."

Grant management is critical for ensuring the strategic execution of IIJA-funded projects and their alignment with the CCMP. Staff will continue to refine planning strategies, develop performance tracking methods, and implement reporting metrics that demonstrate progress in restoring water quality, enhancing habitat resilience, and reducing the impacts of extreme weather events. These efforts fulfill Section 320's requirement to "monitor the effectiveness of actions taken pursuant to the plan" and directly support the PRAE Act's directive to "identify and assess vulnerabilities in the estuary and develop and implement adaptation strategies."

By sustaining program capacity and ensuring effective management of IIJA resources, the Estuary Program enhances its ability to fulfill the objectives of the CWA and PRAE Act—protecting and restoring Morro Bay's estuarine and watershed ecosystems for the benefit of both natural communities and the people who depend on them.

**Capacity-1: Capacity Building**
**Project Status:** ongoing
**Objective:** Maintain staff capacity to support all programmatic areas including IIJA administration and implementation.

**Description:** The increase in programmatic activity requires additional staff time to administer and implement projects. Staff will support the administration of IIJA 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. This task also includes professional development for training opportunities for staff. Continue strategy planning and management of IIJA projects. Develop and implement reporting metrics and performance tracking methods for IIJA projects and CCMP actions.
**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 IIJA projects. Annual review of Long-term IIJA Strategy and development IIJA FY26 workplan.
**Anticipated Long-term Outcome(s):** Increased organizational capacity to implement CCMP actions. 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: $373,677, $3,268 Staff Time (FY25)**

## Environmental Monitoring and Assessment

The Environmental Monitoring and Assessment tasks directly support the Core Programs of the Section 320 CWA, including "establishing water quality standards", "identifying polluted waters and developing plants to restore them," "addressing diffuse, nonpoint sources of pollution," "protecting wetlands," and "protecting coastal waters through the National Estuary Program." These efforts also align with the mandate of the PRAE Act by "addressing the effects of recurring extreme weather events on the estuary, including the identification and assessment of vulnerabilities in the estuary and the development and implementation of adaptation strategies," and by "increasing public education and awareness of the ecological health and water quality conditions of the estuary."

Tracking environmental conditions in Morro Bay and its watershed is essential for understanding long-term changes and guiding management efforts. In alignment with Section 320 of the CWA, the Estuary Program will continue to "assess trends in water quality, natural resources, and uses of the estuary" by monitoring key indicators of bay and creek health. Working with partners, the program will "collect, characterize, and assess data on toxics, nutrients, and natural resources within the estuarine zone to identify the cause of environmental problems." Efforts will include tracking water quality trends, coordinating with partners on real-time sensor data, monitoring bacteria levels to safeguard recreational users and shellfish farming, and assessing nutrients and harmful algal blooms to better understand impacts on aquatic life.

Eelgrass habitat, a critical component of the Morro Bay ecosystem, will also remain a priority. In support of Section 320's directive to "assess trends in water quality, natural resources, and uses of the estuary," the Estuary Program will conduct baywide eelgrass mapping, study the effects of macroalgae growth, and support assessment on eelgrass health, including genetic analysis of wasting disease. These efforts help track changes in eelgrass beds over time, inform restoration strategies, and protect the ecological functions that eelgrass provides, such as improving water quality, stabilizing sediment, and supporting aquatic life.

Data analysis and management play a key role in ensuring that monitoring efforts translate into actionable insights. To fulfill Section 320's directive to "develop the relationship between inplace loads and point and nonpoint loading of pollutants to the estuarine zone and the potential uses of the zone, water quality, and natural resources" and to "monitor the effectiveness of actions taken pursuant to the plan," the Estuary Program compiles and interprets monitoring data to assess long-term trends, calculates metrics to support data analysis and sharing, and provide accessible information to stakeholders. By maintaining a robust data management system, the program ensures that decision-makers, landowners, and the public can use scientific findings to support estuary and watershed protection.

Through these monitoring and assessment initiatives, the Estuary Program fulfills its role under Section 320 of the CWA – providing critical information to protect water quality, manage natural resources, and support the long-term health of the Morro Bay estuary and watershed.

**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 to track long-term trends. Efforts will include coordinating with partners 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 recreation and shellfish farming; supporting efforts related to bay tidal prism; partnering on phytoplankton studies to track harmful algal blooms within the bay; 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; Cuesta College is a lead partner, providing lab facilities and technical support for bacteria monitoring efforts; and Cal Poly who serves as a technical lead in sample collection and analysis for efforts related to bay nutrients and phytoplankton. Partners who utilize Estuary Program data, share technical expertise, 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, LOCSD, Central Coast Regional Water Quality Control Board (CCRWQCB), SWRCB, 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. 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 in the next Integrated Report data solicitation. Semi-annual submittals of data to CEDEN.

**Anticipated Long-term Outcome(s):** Data supports 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), ECR-10 (Nutrient and Bacteria Dynamics), USE-1 (Recreational Use), 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: $47,763; $28,707 Staff Time (FY25)**.

### 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 short and long-term changing environmental conditions. Efforts will include monitoring of: bacteria indicators in watershed creeks to determine safe swimming and impacts to bay water quality and shellfish growing waters; creek nutrients, toxicity, and pesticides in areas impacted by agriculture and other discharges; support for monitoring and restoration efforts in the watershed; 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; the Central Coast Water Quality Preservation, Inc. and the CCRWQB, providing technical input on site and analyte selection; and the CCRWQCB and Creek Lands Conservation (CLC), a local nonprofit, providing guidance on sensor selection and troubleshooting. For support by the California Conservation Corps (CCC) program in partnership with AmeriCorps, corpsmembers serving with the program will provide on-the-ground support for fieldwork. Partners who utilize Estuary Program data and provide landowner access (where applicable) include California State Parks, SLO County Public Health Department, SLO County Parks and Recreation, Cal Poly, Cuesta College, California Department of Public Health, 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 Integrated Report data solicitation. 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. Help 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), USE-1 (Recreational Use), 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: $73,860; $28,707 Staff Time (FY25)**.

### Monitoring-3: Eelgrass Monitoring and Assessment

**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 genetic analysis of wasting disease to better understand its impact on the bay's eelgrass. The Estuary Program will also continue to collaborate with Cal Poly on efforts related to eelgrass health.

**Leads, Partners, and Roles:** The Estuary Program is the lead on the macroalgae monitoring project and the baywide eelgrass mapping project. Cuesta College is the lead on the eelgrass wasting disease work. The partners in this effort are Cal Poly as the entity leading work 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), the California Department of Fish and Wildlife (CDFW), 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 local businesses.

**Anticipated Output(s) or Deliverables(s):** An annual eelgrass report, including a summary of partner monitoring results and macroalgae monitoring results. A bay-wide eelgrass map for 2025.

**Estimated Milestones:** Study results expected to be included in the 2024 eelgrass report to be released 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)
**How the project/activity supports the CWA:** Protecting coastal waters through the National Estuary Program.
**Estimated Budget: $80,500; $28,707 Staff Time (FY25)**.

### 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.
**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):** 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. Inclusion of program data in SWRCB data solicitation to assess 303(d) status in the next Integrated Report. CSCI calculations expected to be complete in fall 2025.
**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)
**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; $15,182 Staff Time (FY25)**.

## Habitat Restoration and Protection

The Habitat Restoration and Protection tasks directly support the Core Programs of Section 320 of the CWA by "protecting wetlands," "addressing diffuse, nonpoint sources of pollution," and "developing the relationship between inplace loads and point and nonpoint loading of pollutants to the estuarine zone and the potential uses of the zone, water quality, and natural resources." These efforts also align with the PRAE Act by supporting habitat restoration projects that "address the effects of recurring extreme weather events on the estuary, including the identification and assessment of vulnerabilities in the estuary and the development and implementation of adaptation strategies."

Invasive species management efforts will focus on identifying and removing invasive plant species that threaten native riparian and estuarine habitats. The Estuary Program will collaborate with partners to monitor and remove priority invasive species. These efforts align with Section 320's mandate to "assess trends in water quality, natural resources, and uses of the estuary" and will protect critical habitat by reducing competitive pressures on native plant communities.

Habitat restoration and coastal resilience planning efforts will address long-term habitat protection through monitoring and modeling, and planning initiative projects will continue to model estuary conditions under multiple scenarios and engage stakeholders in strategies to safeguard infrastructure and coastal resources. The implementation of the Habitat Protection and Restoration Strategy (HPRS) will prioritize restoration and conservation efforts with measurable objectives, in line with Section 320's directive to "monitor the effectiveness of actions taken pursuant to the plan." Additionally, the Estuary Program will collaborate on the design of restoration projects such as low-tech process-based restoration in Walters Creek, reinforcing natural floodplain processes and improving resilience to hydrological changes.

Fish habitat monitoring and improvement efforts will support the protection and recovery of sensitive species like steelhead by monitoring and improving habitat conditions. The Estuary Program will complete bay fish population surveys and conduct juvenile steelhead growth and habitat use surveys in the Chorro Creek watershed. These efforts help fulfill Section 320's requirement to "collect, characterize, and assess data on toxics, nutrients, and natural resources within the estuarine zone to identify the cause of environmental problems."

Open space habitat and access projects will balance habitat protection with managed public access. The Estuary Program will collaborate with stakeholders to restore and enhance coastal sites, including Pasadena Point, where staff will assess habitat restoration opportunities and access improvements. The program will also support restoration initiatives at existing open spaces and explore conservation easements or acquisitions to protect priority habitats. These efforts align with the objectives of the CWA to ensure the long-term protection of estuarine and riparian ecosystems while allowing for sustainable public use.

Implementation of best management practices (BMPs) in the watershed will reduce nonpoint source pollution, improve water quality, and enhance habitat conditions. Projects will address erosion control through improvements to gully areas, roads, and culverts, while riparian fencing projects will help limit grazing impacts on sensitive waterways. Additionally, the Estuary Program will support rainwater capture efforts, such as a project at the Cal Poly Beef Center to reduce reliance on riparian well water and improve watershed sustainability. These projects fulfill Sections 320's goal to "develop the relationship between inplace loads and point and nonpoint loading of pollutants to the estuarine zone and the potential uses of the zone, water quality, and natural resources."

Through these habitat restoration and protection initiatives, the Estuary Program continues to fulfill its mandate under the CWA and PRAE Act – ensuring that estuarine and watershed ecosystems are resilient, ecologically healthy, and well-managed for the benefit of both natural communities and human use.

**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 invasive species including giant reed *(Arundo donax)* within the Morro Bay watershed to support native riparian plant species. In the estuary, staff will support monitoring, possible mapping, and removal of invasive plants such as ice plant (*Carpobrotus)*, European sea lavender (*Limonium duriuscilum*), salt cedar (*Tamarisk ramosissima)*, cobweb bush (*Plechostachys serpyliflora)*, and purple pampas grass (*Cortaderia jubata)* on the Morro Bay sandspit and adjacent estuary habitats. Staff will complete sensitive species surveys on the sandspit before invasive management. Staff will also 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. A partnership with University of California, Santa Barbara (UCSB) on a biocontrol project to target invasive cape ivy on CSLRCD property and potentially other locations in the watershed is being developed. 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 sandspit and other State Parks owned areas 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 CDFW and the CCC. UCSB would be the lead for the cape ivy biocontrol project.

**Anticipated Output(s) or Deliverables(s):** Map of *Arundo donax* locations in Morro Bay watershed. Map of vegetation along the Morro Bay sandspit. Map of European sea lavender occurrences during bay-wide annual monitoring.
**Estimated Milestones:** Complete treatment of *Arundo donax.* Continue treatment of ice plant in fall/winter 2024 and potentially other invasives along the northern section of the sandspit. Continue weed management at CCER to establish native riparian habitat along Chorro Creek. Continue discussion with partners on biocontrol of cape ivy.
**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: $102,000; $17,023 Staff Time (FY25)**.

**RESTORATION-2: Habitat Restoration and Coastal Resilience Planning**

**Project Status:** ongoing
**Objective:** Further understanding of short- and long-term environmental impacts to estuary and watershed habitats. Implement restoration projects to improve habitat acreage or conditions.

**Description:** Shifts in environmental conditions pose a threat to sensitive estuary habitats. Monitoring, modeling, and planning efforts can help communities prepare for mitigating the impacts of these changes within the watershed and estuary. The Estuary Program will support multiple efforts focused on restoring habitats to support coastal resilience against threats such as flooding and severe weather events. The historical ecology study of the estuary and parts of the watershed will inform restoration planning, prioritization, and outreach. Staff will finalize the Habitat Protection Restoration Strategy (HPRS) that identifies relevant habitat types and key species in the Morro Bay watershed and prioritizes restoration/conservation efforts with measurable objectives. Staff will work with partners to complete conceptual designs of a low-tech process-based restoration project (e.g., beaver dam analogs, post-assisted log structures, gully packing) on middle/upper Walters Creek to enhance floodplain processes. The program will potentially consider work on other reaches of Walters Creek as funding allows. The effort includes completion of feasibility and conceptual designs for a road crossing along Walters Creek and tributary at Cal Poly. Staff will also conduct 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. The Estuary Program will continue a partnership with San Francisco Estuary Institute to complete historic mapping and understanding of watershed processes. The Estuary Program will partner with Cal Poly and Trout Unlimited on two upcoming floodplain enhancement projects and a road

crossing 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):** Historical habitat maps, likely incorporated into a report and/or StoryMap. Final HPRS.
**Estimated Milestones:** Conceptual designs for Walters Creek projects.
**Anticipated Long-term Outcome(s):** With stakeholder involvement, an improved understanding of historical conditions will guide and inform future restoration.
**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)
**How the project/activity supports the CWA:** Protecting coastal waters through the National Estuary Program.
**Estimated Budget: Total: $85,000; $23,102 Staff Time (FY25).**

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

**Project Status:** ongoing
**Objective:** Support assessment, monitoring, and management to increase understanding of fish habitat conditions and populations. Prioritization and further implementation of fish passage barrier improvement projects.

**Description:** Many of the habitat restoration and project efforts of the Estuary Program target the protection of sensitive species, including steelhead. Monitoring and management of fish populations and their habitats directly supports this work. The Estuary Program will complete a baseline fish monitoring effort in the estuary to understand response in abundance and diversity after recent eelgrass expansion. Staff will conduct juvenile steelhead growth and habitat use surveys in Chorro Creek watershed and continue pikeminnow management to support steelhead populations. Staff will work with partners to complete planning for removal of fish passage barriers throughout 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. Additional partners include the Army Corps of Engineers, CDFW, State Parks, and landowners throughout the watershed. The Estuary Program is the lead for fish barrier projects, in partnership with the county of SLO, Caltrans, and CDFW. The Estuary Program is leading stakeholder engagement on fish passage barrier projects.
**Anticipated Output(s) or Deliverables(s):** Memo summarizing fish monitoring in the estuary. 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 fish focused measurable target within the HPRS.
**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: $45,000; $22,129 Staff Time (FY25).**

### 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:** The Estuary Program strives to protect sensitive open space habitats while supporting human access to these areas. We collaborate with community stakeholders and partner organizations to advance efforts to restore habitat and improve conditions at coastal access sites. Initial efforts are underway at the Pasadena Point coastal access point to identify habitat restoration opportunities and access improvements including completing on-site pre-implementation surveys. Staff will support habitat restoration opportunities and access improvements at established and protected open spaces in the watershed and 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 pre-implementation site survey memo at Pasadena Point access location.
**Estimated Milestones:** Completed pre-implementation site 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: $9,572 Staff Time (FY25).**

**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:** The Estuary Program collaborates 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. Installing fencing along riparian corridors to limit grazing is another tool to protect habitats. Our program will provide support to a project to store rainwater and high flow capture to offset riparian well use at Cal Poly Beef Center. Funding may be used for planning, designs, implementation, or repairs for rainwater harvesting projects.
**Leads, Partners, and Roles:** CSLRCD will be the lead for implementing BMPs and riparian fencing on private lands. As the landowner and land manager, Cal Poly is a project partner. The Estuary Program will serve as a partner role, providing funding and technical input for these efforts.
**Anticipated Output(s) or Deliverables(s):** A description of activities will be provided in the semi-annual progress report provided to the EPA.
**Estimated Milestones:** Implementation of a range of BMPs in the watershed.
**Anticipated Long-term Outcome(s):** Work with landowners to maintain BMPs so that they continue to be effective.
**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: $20,000; Staff Time $10,103 (FY25).**

## Water Infrastructure

The Water Infrastructure tasks directly support the Core Programs of the Section 320 CWA by "identifying polluted waters and developing plans to restore them," "addressing diffuse, nonpoint sources of pollution," and "protecting wetlands"; and "protecting coastal waters through the National Estuary Program." Additionally, these tasks align with the PRAE Act mandate to "address the effects of recurring extreme weather events on the estuary, including the identification and assessment of vulnerabilities in the estuary and the development and implementation of adaptation strategies."

Stormwater management is critical to protecting the health of the estuary and its tributaries. In collaboration with stakeholders, the Estuary Program will support the planning, data collection, and prioritization of stormwater improvement projects that reduce nonpoint source pollution

and protect sensitive habitats. These actions fulfill Section 320's objectives to "assess trends in water quality" and "develop the relationship between inplace loads and point and nonpoint loading of pollutants to the estuarine zone."

Groundwater monitoring is essential for managing the region's water resources, particularly for the community of Los Osos, which relies on groundwater for its water supply. Increased water withdrawals have accelerated saltwater intrusion into the lower aquifer, posing a risk to drinking water quality. To improve understanding of this threat, the Estuary Program will support the Los Osos Basin Management Committee's (LOBMC) planned study, which will help track saltwater intrusion and inform sustainable groundwater management. This effort aligns with Section 320's directive to "collect, characterize, and assess data on toxics, nutrients, and natural resources within the estuarine zone to identify the cause of environmental problems" and "monitor the effectiveness of actions taken pursuant to the plan."

By advancing these stormwater and groundwater initiatives, the Estuary Program continues to fulfill the objectives of the CWA and PRAE Act while working to protect the long-term health and resilience of the Morro Bay estuary and its surrounding communities.

**WATER-1: Stormwater Improvement**

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

**Description:** Stormwater management is an effective tool for protecting sensitive habitats such as our estuary and creeks. The Estuary Program will engage stakeholders on planning, data collection, and prioritization of stormwater projects that could be supported with IIJA funding. Staff will also support further planning designs and/or permits for selected stormwater improvement project(s) in Los Osos, Morro Bay, 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. Potential tasks include project development, applying for grants, and implementing stormwater construction projects.
**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 hydrology, groundwater, and geotechnical conditions to consider feasibility of 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 runoff 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: $5,615 Staff Time (FY25)**

### WATER-2: Groundwater Monitoring

**Project Status:** ongoing
**Objective:** Support monitoring of groundwater for the community of Los Osos.

**Description:** Increasing drought and limited groundwater supply is a major issue, especially for small 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 better understand this threat to the aquifer, the SLO County Los Osos Basin Management Committee is planning to conduct an electrical resistivity geophysics survey which can track saltwater intrusion. This project provides crucial water quality data to all purveyors in the basin to better manage groundwater.
**Leads, Partners, and Roles:** The lead partner in this effort is the LOCSD, which 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 conduct the survey and share the data collected with the public and with all other partners. Partners include the LOBMC, S&T Municipal Water, and Golden State Water. These entities work with the LOCSD to manage groundwater monitoring and supply, and all will utilize the data collected from the survey.
**Anticipated Output(s) or Deliverables(s):** The survey improves understanding of the extent of saltwater intrusion, allowing for better management of groundwater in the basin. The LOBMC issues annual reports summarizing the groundwater monitoring results.
**Estimated Milestones:** The survey is expected in fall 2025. The results are expected in early 2026.
**Anticipated Long-term Outcome(s):** Expanded groundwater monitoring dataset and information to inform 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:** Identifying polluted waters and developing plans to restore them
**Estimated Budget: Total: $50,000; $2,652 Staff Time (FY25)**

## Education and Outreach

The Education and Outreach tasks directly support the Core Programs of Section 320 of the CWA by "protecting coastal waters through the National Estuary Program." These efforts ensure that residents, visitors, educators, and community members have the knowledge and tools to actively participate in the protection and stewardship of Morro Bay. Additionally, stewardship activities align with broader CWA goals by addressing nonpoint source pollution and promoting community-driven conservation actions. Efforts also align with the PRAE act to "increase public education and awareness of the ecological health and water quality conditions of the estuary."

Communication efforts ensure public access to information about estuarine health, restoration progress, and best practices for watershed stewardship. By enhancing the Estuary Program's website, media content, and online library, staff will expand outreach and engagement, ensuring that residents, visitors, and decision-makers can take informed action to protect coastal waters.

Environmental education initiatives strengthen watershed and estuary literacy through partnerships and curriculum development. The Estuary Program will collaborate with local outdoor education organizations to support field trips, develop estuary-based projects in schools, and host a third year of professional development workshops for educators. These efforts align with Section 320's directive to "assess trends in water quality, natural resources, and uses of the estuary" by equipping the next generation with knowledge to protect these resources. Additionally, through a partnership with One Cool Earth, the program will implement "Watershed Week" in San Luis Obispo County schools, reinforcing environmental stewardship principles.

The Nature Center provides free public access to education about the estuarine environment and conservation. Staff will continue to maintain and enhance exhibits, incorporating technology and interactive displays to engage residents and visitors of all ages. Programming will be expanded to provide additional learning opportunities, ensuring broad access to resources that promote coastal stewardship in alignment with the CWA's goal of protecting coastal waters.

Community engagement and stewardship initiatives provide direct opportunities for public participation in conservation. The Estuary Program will organize volunteer-based clean-ups to address marine debris and nonpoint source pollution, lead habitat restoration events, and facilitate community science projects that contribute data to ongoing monitoring and studies. These efforts directly support Section 320's goal to "monitor the effectiveness of actions taken pursuant to the plan." Additionally, the program will collaborate with the community to co-develop or support a community-based project, reinforcing shared stewardship goals.

Through these education and outreach efforts, the Estuary Program advances the objectives of the Clean Water Act and the PRAE Act by fostering environmental awareness, promoting

science-based stewardship, and ensuring the long-term protection of the Morro Bay estuary and its watershed.

### 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:** A primary goal of the Estuary Program is to educate residents and visitors of all ages on how to be good stewards of the bay. Communication in various forms is essential to this work, allowing us to effectively share the status of our work, to highlight progress on CCMP implementation, and to engage a wide variety of audiences. Staff plans to enhance and develop the Estuary Program's website, media content, and online library.
**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 IIJA 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: $16,014 Staff Time (FY25)**

### E&O-2: Environmental Education

**Project Status:** Ongoing
**Objective:** Provide environmental watershed and estuary-based education opportunities for students and educators.

**Description:** Partnerships are key to attaining our program's environmental education goals. Staff work with partners to support bay field trips and develop curriculum. The Estuary Program will continue to develop relationships with local outdoor education organizations to support bay field trips and curriculum. Staff will develop and implement watershed and estuary-based curriculum and projects in schools within the watershed. Our program will host a third year of teacher training workshops and professional development opportunities for educators with custom curriculum focused on watershed, estuary, and ocean literacy. These workshops will have the same cohort of educators attending all three sessions, in addition to three optional sessions to obtain a Project WET certification. The Estuary Program will partner with One Cool Earth to implement "Watershed Week" in schools located throughout SLO County to teach materials on watersheds and environmental stewardship.

**Leads, Partners, and Roles:** The Estuary Program serves as the lead, coordinating with partners including Camp Ocean Pines, One Cool Earth, El Chorro Camp KEEP by the Sea, Cal Poly, and local educators to expand environmental education efforts. Staff will develop and implement watershed and estuary-based curriculum, support bay field trips, and lead professional development workshops for teachers. Tasks include organizing and facilitating the teacher training series, designing hands-on learning experiences, and integrating estuary science into K-12 education. The program will also co-lead "Watershed Week," ensuring students across San Luis Obispo County receive watershed and stewardship education. Staff will maintain partnerships, track engagement metrics, and compile program impact reports.

**Anticipated Output(s) or Deliverables(s):** Educational opportunities for students. 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:** Implementation of an estuary and watershed teacher training series by end of FY25. Engage teachers and students in schools within the watershed and beyond. Increase participation and opportunities for students 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. Development of curriculum that incorporates estuary and watershed science, short- and long-term extreme weather impacts, and restoration/conservation management.

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

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

**Estimated Budget: $16,000; $25,093 Staff Time (FY25)**

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

**Project Status:** Ongoing
**Objective:** Design and install new exhibits, upgrade and maintain exhibits, and support education and outreach programing for the Nature Center.

**Description:** The Estuary Program maintains a free Nature Center open to the public to share messaging about the estuarine environment and stewardship. Staff will maintain and upgrade exhibits in the Nature Center, as well as establish education and outreach programming in the Nature Center. Plans include increased integration of technology and expanded use of interactive exhibits to engage with various age groups. Staff will implement strategies to enhance visitor experiences in the Nature Center. Staff will maintain the virtual Nature Center pages on the Estuary Program website.
**Leads, Partners, and Roles:** The Estuary Program serves as the lead for maintaining and enhancing the Nature Center, coordinating with partners such as Morro Bay State Parks and the Morro Bay Natural History Museum. Staff will enhance the Nature Center with updated exhibits, signage, and ensure ongoing exhibit maintenance to keep educational materials relevant and engaging. Additional tasks include integrating technology and interactive displays to improve visitor engagements, developing new education and outreach programming within the Nature Center, and maintaining virtual resources on the Estuary Program website. Staff will also use the Nature Center to host field trips and recurring education events while tracking engagement metrics and summarizing activities in semi-annual reports.
**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 using the space to host field trips. Activities summarized in semi-annual reports.
**Estimated Milestones:** Design and installation of two new exhibits and update signage by the end of FY25. Ongoing maintenance of Nature Center exhibits and infrastructure.
**Anticipated Long-term Outcome(s):** Continued access to a free Nature Center that incorporates current information to promote environmental literacy. 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: $15,000; $16,467 Staff Time (FY25)**

**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:** The Estuary Program engages with partners to collaborate in efforts to engage the community and promote environmental stewardship. Volunteer efforts are a particularly powerful way to engage the public. Staff will continue recurring clean-up events to engage the community and address marine debris and nonpoint source pollution. Our program will work with partners to organize habitat restoration events for community volunteers to participate in restoration project activities. Staff will also facilitate opportunities for community science projects. Staff will also work to co-develop or provide support for a community project.
**Leads, Partners, and Roles:** The Estuary Program leads community engagement and stewardship efforts in collaboration with partners and community members. Staff will organize and facilitate recurring clean-up events to reduce marine debris and nonpoint source pollution, coordinate habitat restoration events for community volunteers, and support opportunities for community science participation. The program will work to co-develop or support a community project. Staff will track volunteer participation, document project outcomes, and summarize engagement efforts in semi-annual reports.
**Anticipated Output(s) or Deliverables(s):** Co-developed community project, cleanup events to reduce debris and litter in the watershed, and restoration and stewardship opportunities for community members. Activities summarized in semi-annual reports.
**Estimated Milestones:** Regularly hosted clean-up events. Developing a meaningful community project.
**Anticipated Long-term Outcome(s):** Establishing a strong network of volunteers. Reducing litter and debris in the watershed and estuary and increasing awareness of their impacts. Establishing more community engagement opportunities between the public and the Estuary Program.
**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: $15,376 Staff Time (FY25).**

# 5. Program Accomplishments

## Monitoring Morro Bay Eelgrass

Eelgrass is a valuable habitat type in Morro Bay that helps improve water quality, reduce erosion, and provide habitat for wildlife. The Estuary Program has been involved in efforts to

map, monitor, assess, and restore eelgrass for over 20 years. The recent precipitous decline and rapid recovery only emphasized the need for regular monitoring to better understand this habitat in the bay.

Various individuals and agencies have mapped bay-wide eelgrass since the 1960s. The Estuary Program mapping efforts began in the early 2000s and have continued at regular intervals ever since. While the maps created in the 1960s were made with a map and a compass, recent efforts have involved drones, sonar, and sophisticated software. While these changes in methodology do not allow for direct comparisons of acreage over the years, the information does allow for tracking of broader trends in eelgrass acreage and health.

In 2023, the Estuary Program contracted for the development of a bay-wide eelgrass map that included both intertidal and subtidal eelgrass. This was accomplished through the use of drones in the intertidal areas and sonar in the subtidal areas, including deeper channels. These two data sets were collected in April to June of 2023. The survey targeted the spring season because less macroalgae is typically present at this time of year, which makes identification of eelgrass easier. The aerial imagery collected by drone was processed and mosaicked into an image of areas within the 0 to +2.5 foot meal lower low water (MLLW) depth range. The sonar data captured the extreme lower intertidal and subtidal portions of the bay, from +1 to -12 foot MLLW depth range. The two data sets were combined to cover a total of 2,310 acres that spanned from a maximum depth of -46.5 feet to a maximum elevation of +8 feet MLLW.

The map, which was completed in spring 2024, indicated 750 acres of eelgrass in the bay. Approximately 704 acres were mapped at intertidal depths, and 46 acres were distributed in the subtidal region. Note that the map was created per guidance in the California Eelgrass Mitigation Policy (CEMP), which defines eelgrass cover as one or more plants per square meter. This means that if a single eelgrass plant is present, a one square-meter buffer is drawn around that plant and the entire area is considered to be eelgrass. While this method takes into account the potential growth possible in patchy eelgrass beds, it likely contributes to higher acreage estimates than maps created without this buffer. Despite its appearance on the map, eelgrass, particularly in the back bay, is typically more patchy than dense. In some prior years of mapping, eelgrass cover was only included in the total acreage if a one-meter squared area was completely covered in eelgrass, and any area smaller than one meter squared was not included.

While the program, our partners, and the community are excited to see such extensive eelgrass, the amount of acreage in 2023 is higher than previous mapping efforts and the bay is considered to be at or near its carrying capacity for eelgrass. It is uncertain whether we will continue to see higher than historic acreages of eelgrass or if a more moderate amount (e.g., 200 to 400 acres) will be present. Changes in elevation (among other factors of the bay) could again impact the total area suitable for eelgrass growth. After the most recent eelgrass decline, we saw erosion of intertidal areas, which may have created more favorable elevations in the bay for eelgrass growth. Observations of seed production have also been very high. The past two years of cooler ocean conditions potentially created more favorable conditions for eelgrass

as well. Eelgrass acreage has fluctuated greatly over the last ten years. The Estuary Program will continue to monitor and map this valuable habitat type to better understand its health and so that we can respond quickly to any potential signs of an impending decline.

## Laying the Groundwork for Habitat Restoration Efforts

The Estuary Program continued its extensive conservation and restoration efforts with support from IIJA funding. The organization is partnering with the San Francisco Estuary Institute (SFEI) to complete a Morro Bay Historical Ecology Study. The historical ecology project will document landscape conditions prior to recent Euro-American modification, providing foundational information to inform management and restoration planning and enhance planning to protect infrastructure. 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 kicking off in fall 2023. This effort is anticipated to be a two-year project.

The Estuary Program and the CSLRCD collaborated 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, were completed.

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. IIJA funding for the CSLRCD will be used to support the final phase of construction. 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 support future bioswale efforts.

The Estuary Program also partnered with Cuesta College's Sustainable Agriculture Program to improve infrastructure to support the community college's ranch education program that focuses on regenerative agricultural management. IIJA funds were used to install approximately 1,900 linear feet of piping to carry water to designated pasture sites for the program. The project was completed in 2024 and supports the education of a future generation of ranchers in the latest techniques and approaches.

## Expanding Our Educational Reach

IIJA funding has increased the Estuary Program's capacity for education and outreach efforts. In FY23, the Estuary Program launched a teacher training series to share curriculum to support environmental education. During FY24, Estuary Program staff expanded this effort with a series of three workshops. These teacher/educator training workshops connected the program with over 30 different schools and over 100 different teachers/educators from our watershed and beyond. This professional development effort allowed for the establishment of strong partnerships with Morro Bay State Park and Cal Poly. In FY24, staff restructured the event to require participants to attend all three workshops. This approach allowed educators to dive deeper into the material and build a cohort among other participants. All curriculum focused on the estuary, watershed, and environmental literacy. The final workshop in the series focused on hands-on stewardship and local restoration efforts. Twenty-five educators participated in a hands-on restoration event removing invasive ice plant from the dune ecosystem on the sandspit. The group hand-pulled over 3,500 pounds of ice plant to help improve habitat for tidal marsh species, including the federally-endangered California seablite. The educators were able to directly participate in environmental stewardship and literacy, gaining skills to develop curriculum and apply these concepts in their individual classrooms. The teacher training series has received great feedback, and plans are already underway for a FY25 effort. The program continues to be fine-tuned based on feedback and partnerships. Selected participants from the FY24 cohort have undergone additional training to become co-facilitators for the FY25 series. This new component of developing teacher leaders will help maximize the impact of the program by enabling teachers to train other teachers.

Our program also reaches out to residents and visitors through our Nature Center. This is a free center open year-round that contains exhibits on wildlife, water quality, and other topics. During FY23, staff developed and installed two new exhibits supported by IIJA funding. An augmented reality topographic sandbox provides a hands-on experience of “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 and local history. 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, repair of our virtual Nature Center kiosk, and design and production of a new Nature Center logo and artwork for the entrance. These updates replace aging exhibits and signage to attract visitors and spread our educational messaging.

# 6. Areas of Special Interest

The EPA's Office of Water has several priority areas of interest relevant to the NEPs. The following summarizes Estuary Program activities in these four areas. Additional priority areas associated with IIJA are also described below.

## Reductions in Nutrient Pollution

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

- Resource Conservation District Partnerships to Address Nutrients: The Estuary Program previously worked with the CSLRCD through a grant to develop plans for BMPs on private property. The CSLRCD is currently managing a Water Board grant to implement these efforts throughout the watershed, and many projects target a reduction in nutrient and sediment pollution.
- Monitoring Data Support for Regulators: The Estuary Program and partners collect nutrient data from throughout the watershed, bay, and bay shoreline freshwater seeps. The data is submitted to the California Environmental Data Exchange Network (CEDEN), where it is then available to the CCRWQCB and SWRCB to support TMDL assessment, 303(d) review, implementation of a new Agricultural Order, etc. The bay nutrient monitoring is conducted in partnership with Cal Poly.
- Los Osos Water Reclamation Facility Effectiveness: The Estuary Program collects nutrient data from the bay shoreline seeps in the community of Los Osos to track changes in nitrate concentrations in the shallow groundwater.
- Stormwater Management Efforts: The Estuary Program partnered with the Ocean Protection Council (OPC) and State Parks to complete implementation of a parking lot upgrade at the State Park Marina to reduce stormwater pollution reaching the bay. Following completion of the project, three storms were sampled during the 2023 water year. Although it can be difficult to draw finite conclusions from such limited data, the results indicate an encouraging improvement in water quality. In comparing pre- and post-project data, in general we saw a decrease in concentrations of gasoline-range organics, diesel-range organics, oil & grease, total suspended solids, dissolved lead, and dissolved zinc. There was no real change in concentrations of *E. coli* and dissolved copper. Staff are collaborating with the CSLRCD and Camp SLO to develop designs for stormwater projects on the Camp SLO Army National Guard base.
- Central Coast Regional Water Quality Control Board Irrigated Lands Program: The CCRWQCB regulates discharges from irrigated agricultural lands to protect surface water and groundwater. Also known as the Agricultural Order, it applies to owners and operators of irrigated land used for commercial crops. The effort focuses on priority

water quality issues such as pesticides and toxicity, nutrients, and sediment. Nitrate impacts to drinking water is a particular focus area. For more information, visit https://www.waterboards.ca.gov/centralcoast/water_issues/programs/ilp/

## Water Reuse and Conservation

- Community of Los Osos Water Conservation Efforts: The Los Osos Community Services District (LOCSD) is one of the principal water purveyors for the community of Los Osos. As such, one of their roles is to work with the community to encourage water conservation. In 2023 to 2024, the LOCSD water conservation program gave out rebates for water metering devices that allowed customers to view their water usage rate in real time via a smart phone or computer. Rebates were also available for low flow toilets, clothes washing machines, tank-less water heaters, hot water recirculation systems, and rain catchment. For more information, visit https://www.losososcsd.org/district-rebate-program
- City of Morro Bay Water Conservation Efforts: The city of Morro Bay manages the municipal water supply for city residents. As they receive State Water where the delivered amounts can fluctuate, the city has a system in place with different levels of conservation required depending on supply. Additionally, the city provides materials for restaurants and hotels explaining water saving efforts such as serving water and laundering linens only upon request. The city offers a rebate program to residents for rain barrels, lawn removal, and irrigation control systems. The city also funds a Green Building Incentive Program that provides a 20% permit fee rebate for eligible graywater projects. The city website also has general water conservation tips for residents. For more information, visit https://www.morro-bay.ca.us/320/Water-Conservation
- Estuary Program Water Conservation Outreach: The Estuary Program shares water conservation messaging via various outreach venues. On our website, we spotlight our rainwater catchment tank project with Cal Poly and share guidelines for bay-friendly gardening. Our outreach efforts include blogs, social media, and publications such as the State of the Bay report card with What You Can Do messaging that includes water conservation tips.
- Flow Study: As part of our Habitat Protection & Restoration Strategy effort to identify potential projects to protect and restore habitats in the bay and watershed, the Estuary Program is following recommendations set out in an analysis of the watershed's rainfall and surface flows. Using IIJA funding, the Estuary Program installed an expanded network of water depth sensors to track flows during crucial times of year for fish (spring and summer) and to conduct intensive surface flow monitoring during those two critical seasons. One monitoring goal is to identify locations that would benefit from water conservation efforts that could help maintain flows for fish. Data collection is underway, with detailed analysis expected to be conducted over the upcoming year.

## Marine Litter Reduction

- Marine Debris Education: The Estuary Program developed a reusable coaster that highlights the main types of marine debris and messaging on preventing its spread. These coasters are being handed out at Estuary Program events and will be distributed to local restaurants to share a marine debris prevention message with residents and visitors.
- Central Coast Clean: SLO County is leading a county-wide effort to address trash, in partnership with the city of Morro Bay and other municipalities in the county. The campaign targets the major sources in each community. For Morro Bay and Los Osos, the campaign focused on reducing cigarette butt litter with the slogan "The world is your oyster, not your ashtray," and the message is shared on social media, signage, etc. throughout Morro Bay and Los Osos.
- Creeks to Coast Cleanup Day: Each year, a local environmental organization hosts a county-wide cleanup day focused on waterways in an effort formerly known as Coastal Cleanup Day. The Estuary Program has been a long-time supporter of the effort. In 2023, the Estuary Program hosted a cleanup site and contributed informational brochures and Mutts for the Bay materials in take-home cleanup kits.
- Morro Bay Triathlon Post-Race Cleanup: In November 2023 and 2024, the Estuary Program helped to organize the environmental nonprofit and organization tabling area for the Morro Bay Triathlon. The Estuary Program tabled near the start and finish line to talk to racers and spectators about water quality and picking up trash around the race area.
- Field Trips: Marine litter reduction and cleanups have become recurring themes in our educational field trips with schools and youth groups. In the summer of 2024, we hosted two cleanups per month with local summer camp groups in Morro Bay, including the Morro Bay Junior Guards and Morro Bay Little Guards.

## Water Infrastructure and Habitat Resiliency

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

- Drinking Water Supply Resilience: With funding from IIJA, the Estuary Program supported the LOCSD in installing an additional groundwater monitoring well to support drinking water management efforts in the basin. Planning is underway to rehabilitate two existing wells to further expand the groundwater monitoring well network.
- Habitat Restoration Efforts: The Estuary Program has focused efforts on management of invasive plants to help support native habitats. This includes work in the watershed to map *Arundo* for future removal efforts, invasive sea lavender monitoring and removal around the bay, and ice plant mapping and management efforts on the sandspit to protect fragile dune habitat. Efforts are underway to develop initial studies and planning for a fish passage barrier removal project on San Luisito creek and floodplain

enhancement on Walters Creek. Staff are coordinating with UCSB and other partners on monitoring and restoration, with the Estuary Program representing the SLO County region. The Morro Bay sandspit is a pilot project location for the effort. A historical ecology project focused on the lower watershed and estuary increases our understanding of natural conditions and directly supports future restoration efforts intended to increase resilience to shifting environmental conditions in these vulnerable habitats.

- Expansion of Rainwater Capture System: Several years ago, the Estuary Program completed a successful project to install rainwater catchment tanks at a Cal Poly beef facility on Pennington Creek. Use of rainwater during the dry season reduces use of riparian wells. A new effort is underway with the support of Creek Lands Conservation and the CSLRCD to design and install two additional tanks that will be filled during the wet season from the creek for use during the dry season. The plans are nearly complete and permitting work is underway to handle any needed changes to water rights. Construction is expected to be completed next year.

Workplan tasks have been strategically developed to meet overarching CCMP program goals. In addition, workplan tasks have been prioritized to meet IIJA specific guidance to accelerate and more extensively implement CCMPs, ensure benefits reach the community, 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 6.1.

**Table 6.1. Workplan Tasks and NEP IIJA Priorities.**

| Workplan Task | Implement CCMP | Benefits to Communities | Build Adaptive Capacity | Leverage Resources |
|---|---|---|---|---|
| Capacity-1: Capacity Building | 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 Assessment | X | | X | X |
| Monitoring-4: Data Analysis and Management | X | | X | |
| Restoration-1: Invasive Species Management | X | | X | X |
| Restoration-2: Habitat Restoration & Coastal Resilience 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 IIJA funding period, and the Estuary Program finalized a IIJA Long-Term Plan that was approved by the Management Conference and submitted to EPA on June 1, 2023.

## Ensure benefits reach the community

Workplan tasks highlighted in Table 2.1 have potential benefits to the communities in the Morro Bay watershed.

Several tasks in this workplan include multi-year projects that will be implemented through the lens of providing direct and indirect benefits to local and regional communities. Several projects listed in this workplan will consider benefits to communities, including, but not limited to:

- Free access to an upgraded Nature Center to increase educational opportunities.
- Partnering with local environmental education organizations to increase opportunities for field trips and camps.
- Teacher training and development of online educational content.
- Monitoring groundwater to ensure safe drinking water for residents.
- Restoring water quality and protecting habitat.
- Supporting open space and access improvements.

## Build the adaptive capacity of ecosystems and communities

Understanding, planning, and implementing adaptation strategies to address short- and long-term environmental changes are at the forefront of the Estuary Program's efforts. The Estuary Program builds off its CCMP and strategic planning documents to implement projects that 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 shifting conditions and developing adaptation strategies to protect sensitive habitats and crucial infrastructure.
- Increasing educational programming on important environmental topics.
- Implementing a Habitat Protection & Restoration Strategy plan 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 IIJA 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 IIJA funding as match.
- Utilizing IIJA 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.

## 7. Travel Expenses

IIJA funding may support professional development for staff, including travel to conferences or trainings, and has been allocated in the budget.

The following table contains the travel expenses charged to IIJA funds in FY24.

| Event | Destination | Trip Purpose | Dates | Number of Staff Attended | Costs Included | Total Amount |
|---|---|---|---|---|---|---|
| Institute for Watershed Resiliency Educator Workshop | Big Bear, California | Educator professional development with partner organization | 4/10/24 – 4/12/24 | 1 | Mileage, Meals/Incidentals, Lodging | $1,287.57 |

## 8. Glossary

The following terms and acronyms are used in this workplan:

| Acronym | Explanation |
|---|---|
| BABA | Build America Buy America Act |
| 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 |
| EPA | Environmental Protection Agency |
| Estuary Program | Morro Bay National Estuary Program |

| Acronym | Explanation |
|---|---|
| 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 |
| LOCSD | Los Osos Community Services District |
| MCAS | Morro Coast Audubon Society |
| NEP | National Estuary Program |
| NEPORT | National Estuary Program Online Report Tool |
| NOAA | National Oceanic and Atmospheric Administration |
| PRAE | Protect and Restore America's Estuaries Act |
| 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 |