Morro Bay National Estuary Program 320 Grant
Semi-annual Report: April to September 2024

The Morro Bay National Estuary Program (Estuary Program) is moving forward on completing new and ongoing tasks in the Fiscal Year (FY) 2024 320 workplan. All workplans are approved by the Environmental Protection Agency and the Estuary Program's Executive Committee. The budget report shows that our Section 320 expenses under the grant (Grant Number 98T25101) in the second half of the fiscal year were $320,274. As of September 30, we have expended 85% of the 320 grant (started in FY22). The Estuary Program has met 225% of its match requirement for the cumulative grant with cash match and estimated current in-kind contributions (at approximately $5,116,393).

The Estuary Program requests EPA's continued participation on the Executive Committee and assistance with meeting relevant administrative and programmatic grant conditions. During this reporting period, the Estuary Program continued to address the final Program Evaluation (PE) letter, which was completed at the end of FY20.

The following report summarizes activities and deliverables completed during the semi-annual report period. As the Estuary Program does not have any subawards under this federal grant, a reporting of subaward monitoring activities carried out under 2 CFR 200.331(d) does not apply.

The Estuary Program received grants to implement Bipartisan Infrastructure Law (BIL) funding in January 2023 and in February 2024. Some of the organization's work is funded by BIL but supported and implemented by staff funded through the Estuary Program's 320 grant. Thus, the status of BIL-funded efforts are included in this semi-annual report. Deliverables for efforts with project costs other than staff time directly funded by BIL will be reported in the BIL semi-annual report.

Habitat and Water Quality Protection and Restoration

Land Conservation

Objective: Conserve land to achieve Management Plan goals as opportunities arise.

Status: Ongoing task

Progress Toward Milestones:

The Estuary Program continues to work with The Land Conservancy of San Luis Obispo (LCSLO) to explore potential easement projects in the watershed. The Coastal San Luis Resource Conservation District (CSLRCD) is conducting a conservation easement planning effort in conjunction with the State Coastal Conservancy to look at Chorro Flats and actions needed to protect nearby critical infrastructure. The CSLRCD is also in contact with private landowners regarding potential easements.

Comparison of Actual Accomplishments with Anticipated Outputs/Outcomes: These efforts directly support the task outcome of completing land conservation projects as opportunities arise.

Problems Encountered: None.

Deliverables: Activities described in the semi-annual report (see above).

Activities Planned for Next Six Months: The Estuary Program plans to coordinate with the LCSLO and other partners to continue outreach to landowners and support new easements as opportunities arise.

Pending Deliverables: NEPORT reporting. Updated map tracking protected lands included in next State of the Bay report.

Restoration Maintenance and Monitoring

Objective: Conduct maintenance and monitoring for conservation easements and restoration projects, as necessary.

Status: Ongoing task

Progress Toward Milestones: The Estuary Program conducted flow monitoring on Pennington Creek following a project to remove a fish passage barrier and improve a water diversion. Data are submitted to Trout Unlimited on a regular basis to manage the flow diversion and comply with water rights.

Staff are assessing conditions at Chorro Creek Ecological Reserve (CCER) following the storms of winter 2023 that caused significant shifts at the site. Staff hired a contractor to conduct channel surveys and drone flights in September 2024 to better understand conditions at the site and support planning for adaptive management efforts. Final data will be available in November 2024. The California Conservation Corps (CCC) continues to conduct annual site maintenance such as weed management and quarterly plant monitoring to track plant success rate.

Comparison of Actual Accomplishments with Anticipated Outputs/Outcomes: The accomplished tasks directly support the outcomes of conducting easement monitoring and maintaining landowner communications. Efforts also support the outcome of meeting eelgrass restoration targets.

Problems Encountered: None.

Deliverables: Pennington Creek data submitted to the California Environmental Data Exchange Network (CEDEN) and shared with partners.

Activities Planned for Next Six Months: The Estuary Program is conducting planning efforts to address impacts to CCER from the 2023 winter storms. We will also work with partners to address any needed restoration maintenance.

Pending deliverables: None.

Other Restoration Efforts

Objective: Engage in other restoration efforts that arise to help achieve Management Plan goals.

Status: Ongoing task

Progress Toward Milestones: The Estuary Program participated in numerous efforts to meet Management Plan goals. These included participation in the following efforts:

- San Luis Obispo (SLO) County and Caltrans effort to replace the bridge over Los Osos Creek on South Bay Boulevard.
- Collaboration and support of CSLRCD restoration of their Los Osos Wetland project, including installation of additional plants.
- Worked with CSLRCD to install fencing and off creek water sources in the watershed. The work was conducted through a subaward under our BIL grant.
- Local invasive management efforts in the estuary, including managing eradication of an invasive sea lavender within tidal marsh habitat and iceplant on the sandspit.
- Partnering with University of California, Santa Barbara (UCSB) on a Climate Adaptation grant to understand state-wide dune vulnerability and restoration, with Morro Bay acting as a pilot project for dune restoration efforts.
- Collaboration with SLO County on management of *Arundo* (giant reed) and mapping invasive riparian species in the Chorro Creek watershed. Surveys of riparian areas in the Chorro Creek watershed were conducted in the spring to map and help prioritize invasive species management. Next steps include obtaining funding for invasive removal efforts, with an initial focus on *Arundo* removal.
- Completed a project with Cuesta College to support their Sustainable Agriculture program through installation of water infrastructure for grazing livestock and wildfire resilience. The project was completed in November 2023, and the subaward under our BIL grant has since been completed.
- Partnered with the United States Geological Survey (USGS) to monitor and model impacts to sensitive salt marsh habitat with sea level rise through a Restore America's Estuaries grant. Monitoring and modeling are underway with community engagement planned for winter 2024.
- Coordination with California Polytechnic State University, San Luis Obispo (Cal Poly) is ongoing in scoping out future floodplain enhancement and restoration projects along Walters Creek. Staff are partnering with Trout Unlimited to develop a low tech process-based restoration conceptual design for middle and upper Walters Creek. Project installations could include beaver dam analogs, post-assisted log structures, and gully erosion repair. Permitting for the project is also in development. A prospective floodplain restoration project at the confluence of Walters and Chorro Creeks is being explored with partners. Funding has been set aside for channel and drone surveys of both locations, anticipated to be in winter 2024/2025.
- Staff completed a Habitat Protection and Restoration Strategy that meets EPA requirements. The plan was submitted to EPA for review and comments were provided. Staff are currently addressing comments from the EPA.

Comparison of Actual Accomplishments with Anticipated Outputs/Outcomes: The Estuary Program met the anticipated outputs and outcomes by staying involved in partner efforts related to the estuary and watershed as opportunities arise that support CCMP implementation and partner projects.

Deliverables: Activities described in Semi-annual report (see above). NEPORT reporting.

Problems Encountered: None.

Activities Planned for Next Six Months: The Estuary Program plans to finalize the Habitat Protection and Restoration Strategy and to continue to participate in the local restoration and management efforts listed above.

Pending Deliverables: Final Habitat Protection and Restoration Strategy planning document.

Conservation and Restoration Project Development

Objective: To develop projects and funding for conservation and restoration.

Status: Ongoing

Progress Toward Milestones: Staff works closely with multiple partners from the watershed and beyond to develop conservation and restoration efforts to help meet CCMP goals.

In FY19, the Estuary Program completed a grant from the Resource Legacy Fund to work with the CSLRCD to educate private landowners on conservation practices such as rotational grazing, keyline ploughing, etc. and to identify potential projects. With support from the Estuary Program, the CSLRCD was awarded a state grant to implement a subset of these projects. The CSLRCD is also adding two stormwater/sediment reduction projects sites on Army National Guard Base Camp San Luis Obispo (Camp SLO) property to address sediment sources to Chorro Creek. With increased coordination with Camp SLO, the Estuary Program financially supported project development and full designs for another stormwater project at the facility along Calaveras Ave. This project had to be scaled back due to underground utilities but was implemented in September 2023 with additional plantings in fall/winter 2023. The Estuary Program is working with partners to evaluate future projects to address stormwater runoff quality, volume, and rates to mitigate downstream impacts in a section of Chorro Creek watershed. This evaluation focuses on developed areas of Camp SLO including the CCC Center and Cuesta College, which ultimately discharge to Chorro Creek and Pennington Creek.

The Estuary Program partnered with the San Luis Obispo Council of Governments (SLOCOG) on a transportation planning grant to study sea level rise impacts on South Bay Boulevard (the only road directly connecting Morro Bay and Los Osos) and adjoining roads that ring the estuary. The awarded grant also supports extending the existing bay-wide circulation/flooding model. The Estuary Program began providing match to the CSLRCD in fall 2023 for a State Coastal Conservancy (SCC) grant to model lower Chorro Creek flooding due to increasing storminess and accelerated sea level rise. The project will also consider potential solutions to flooding in the lower Chorro Creek area. Staff are engaged in ongoing stakeholder meetings associated with both projects.

Estuary Program staff also supported SLO County planning efforts to improve the coastal access point and restore habitat at Pasadena Point in Los Osos. This access point is popular for launching kayaks and paddleboards from the beach. Because the access is through soft sand, users have been walking over salt marsh habitat to avoid the sand. The County seeks to improve the original access area to protect the marsh habitat from trampling. The Estuary Program and partners are seeking funding for the effort.

Estuary Program staff are working with San Francisco Estuary Institute (SFEI) to complete a historical ecology study of the lower Morro Bay watershed and areas surrounding the bay. The project will document landscape conditions prior to recent Euro-American modification, providing information to inform management and restoration planning that will enhance climate resilience. SFEI has compiled 32 maps (e.g., US coastal survey t-sheets) that have been georeferenced for use in the study. These resources have been reviewed. SFEI has also reviewed an extensive range of archival institutions and online databases for material on ecological patterns and processes. Through these archive visits and database searches, SFEI compiled approximately 75 maps, 130 textual accounts, and 300 photos and sketches.

Staff have partnered with Caltrans and SLO County to address two fish passage barriers on San Luisito Creek at Highway 1 and Adobe Road. Staff hired a consultant to complete a geomorphic report, hydrology report, and two alternative conceptual designs. Materials have been shared with project partners and a discussion of alternatives is anticipated in fall 2024.

Researchers at Cal Poly are monitoring for the presence of native Olympia oysters within Morro Bay. In addition, through a partnership with Grassy Bar Oyster Company, Cal Poly researchers are continuing to track survival and growth of native Olympia oysters in an estuarine shellfish aquaculture setting.

Deliverables: Activities described in this Semi-annual report (see above).

Comparison of Actual Accomplishments with Anticipated Outputs/Outcomes: Working with partners such as the CSLRCD to provide resources to private landowners with the end goal of implementing projects to improve water quality.

Problems Encountered: None.

Activities Planned for Next Six Months: The Estuary Program plans to work with partners to further the progress of stormwater management and water conservation projects. The Estuary Program will work with the CSLRCD to implement projects described above. The Estuary Program will also work with Camp SLO on stormwater implementation projects. A stakeholder meeting will be held with SLO County and Caltrans on the best alternative for improving fish passage along San Luisito Creek.

Fisheries Management

Objective: To implement projects to benefit native species and other opportunities as they arise.

Status: Ongoing

Progress Toward Milestones: Planning is underway for a fall 2024 management effort of invasive pikeminnow, which prey on steelhead populations.

A steelhead growth and tracking study is underway in Chorro Creek. PIT tags were inserted into netted steelhead, and antennae arrays were set up in lower Chorro Creek. The movement of steelhead are tracked as they move from Chorro Creek into the estuary and back again. This movement of steelhead was measured during the storms of early 2024 and indicated that steelhead in Chorro Creek were making their way out to the estuary and then returning to the creek. Fish that are re-captured after the initial PIT tagging are measured to assess growth rates over time. Additional PIT tags will be placed in October 2024, and monitoring will continue through the fall of 2024 and potentially spring 2025 with additional funding secured

A project has been implemented to study fish populations in the estuary. In fall 2023 and spring 2024, fish were captured in locations throughout the bay using various methods. Fish were measured, identified, counted, and returned unharmed to the bay. Data analysis is now underway, including comparisons to historic data before and after the bay's eelgrass decline and recovery.

Deliverables: None.

Comparison of Actual Accomplishments with Anticipated Outputs/Outcomes: Control of the invasive pikeminnow population and a better understanding of sustainable ratios of pikeminnow to steelhead that support steelhead recovery. Improved understanding of steelhead use of lower Chorro Creek to help inform locations for future potential management actions that improve flows, passage, and water quality. Improved understanding of bay fish populations and how they have shifted over time with eelgrass decline and recovery.

Problems Encountered: None.

Activities Planned for Next Six Months: Review and share analysis of bay fish data. Continue tracking of tagged steelhead movement in Chorro Creek. Conduct fall pikeminnow management effort.

Pending Deliverables: Results of bay fish monitoring and Chorro Creek steelhead growth study.

Environmental Monitoring and Research

Monitoring Program Coordination

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

Status: Ongoing

Progress Toward Milestones: Staff conducted monitoring in the watershed and estuary to track long-term ambient trends and project implementation effectiveness. During the second half of FY24, the following occurred:

- Staff continued to work with long-time volunteers and began training new volunteers to conduct monitoring to support understanding of bay and creek health. Staff and volunteers were able to conduct the following monitoring in the second half of FY24: 43 monitoring trips

for bay water quality, 107 for bacteria, 220 for creek water quality, ten for bioassessment, and four for toxicity.

- Staff coordinated with the California Department of Public Health (CDPH) and local shellfish growers on monitoring related to storm flows and bacteria. This included monitoring bacteria in Chorro Creek, Upper Los Osos Creek, and Warden Creek. Staff also monitored nitrates in the freshwater seeps along the bay shoreline to track improvements in water quality following the Los Osos Water Reclamation Facility coming online. Staff implemented a new monitoring project with CDPH to focus on post-storm monitoring in the shellfish growing areas to determine if the current rainfall closure guidelines are still adequate or whether they need to be revised.
- Staff continued a long-term partnership with Cuesta College, providing lecture and class materials for an oceanography course.
- Staff continued its bacteria monitoring effort in partnership with the Cuesta College Biology Department. Cuesta students completed their spring 2024 semester of monitoring and began the fall 2024 semester work. The partnership continues the Estuary Program's long-running ambient bacteria data set while providing monitoring and research opportunities for local community college students.
- Staff monitored sites watershed-wide for nutrients every other month to track long-term trends.
- Staff monitored water quality conditions monthly at three sites to assess impacts from agricultural land use.
- Staff collected water and sediment samples from three creek sites during the dry season for toxicity testing to assess the impacts to creek water quality from agricultural land use.
- Staff conducted planning to develop a pesticide monitoring effort to track the impacts from wastewater, agriculture, and golf course chemical application in the watershed.
- Staff maintained a network of water depth sensors to track flows year-round. Staff conducted spring low flow monitoring and are planning for a summer effort to determine if adequate water is present for fish passage during crucial times.
- Staff conducted bay macroalgae monitoring to track macroalgae abundance over time and space. This is particularly of interest due to the potential of macroalgae to crowd out eelgrass.
- Staff are implementing a monitoring protocol to track recreational use at popular spots around the estuary. This data helps in estimating the economic value of recreational use of the bay.
- Staff deployed continuous monitoring sensors to measure temperature, dissolved oxygen, pH, chlorophyll-a, and conductivity at watershed sites.
- Staff conducted spring bioassessment monitoring throughout the watershed at ten sites. Samples were delivered to a taxonomy lab for analysis and the results were available in September. Analysis is ongoing to create a memo summarizing the 2024 effort.
- Staff coordinated with the city of SLO and Cal Poly on bioassessment monitoring in the SLO watershed. Staff lent technical expertise and guidance in planning, coordination, fieldwork, and data analysis. This project is funded by a grant from a private foundation.
- Staff conducted the spring monitoring of bay fish populations. Data analysis is now underway.

Deliverables: A quality dataset that meets the parameters outlined in the Quality Assurance Project Plan (QAPP). Activities described in Semi-annual report (see above). Creek Health Memo for Water Year (WY) 2023. Bioassessment Memo for WY23.

Comparison of Actual Accomplishments with Anticipated Outputs/Outcomes: Activities for this task involved collecting and sharing data, resulting in an increased understanding of the long-term trends in ambient water quality in the watershed and estuary.

Problems Encountered: None.

Activities Planned for Next Six Months: The Estuary Program plans to conduct the following types of monitoring: creek water quality (including bimonthly nutrient monitoring and monthly agricultural site monitoring), creek and bay bacteria, bay water quality, seeps water quality, water toxicity, and streamflow monitoring.

Pending Deliverables: Creek Health and Bay Health memos for WY24. Bioassessment memo for WY24. Sediment report for WY23.

Monitoring Program Reporting and Analysis

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

Status: Ongoing

Progress Toward Milestones: Estuary Program staff compiled data in formats appropriate for various audiences, including academic classes, researchers, regulators, landowners, and the general public. Staff responded to requests for program-generated data. Several blog posts on monitoring-related topics were created over the year, including popular monthly "Field Updates" posts that provide a rundown of what staff have been up to in the estuary and watershed. Analysis is underway on creek water quality, bioassessment, and sediment data.

Deliverables: Activities described in Semi-annual report (see above). Creek Health Memo for WY2023. Bioassessment Memo for WY2023. Example monthly bacteria memo.

Comparison of Actual Accomplishments with Anticipated Outputs/Outcomes: Activities conducted under this task involved analyzing and sharing data and results with partners, landowners, and the general public. These activities directly support the task outcome of making analysis available for others to support their own efforts to protect and restore Morro Bay and its watershed.

Problems Encountered: None.

Upcoming Activities: The Estuary Program plans to respond to requests for data, create blog posts to share data, and compile bioassessment, bacteria, and water quality data to share monitoring results.

Pending Deliverables: Sediment Report for WY23. Creek Health and Bay Health memos for WY24. Bioassessment memo for WY24.

Monitoring Program Data Management

Objective: Maintain data in Surface Water Ambient Monitoring Program (SWAMP)-compatible format.

Status: Ongoing

Progress Toward Milestones: Estuary Program staff prepared monitoring data and submitted it to CEDEN. Staff communicate with the Central Coast Regional Water Quality Control Board (CCRWQCB)

and State Water Resources Control Board (SWRCB) to discuss updating of the California Environmental Data Exchange Network (CEDEN). Staff worked with the SWRCB on submittal of our bioassessment, toxicity, and water quality data. Data through the first quarter of WY24 has been submitted to CEDEN. Staff worked with a database developer to implement updates to the Access database used to manage our data. Updates are now complete, allowing for timely data submittal of data to CEDEN.

Deliverable: Activities described in Semi-annual report (see above). Data submittal to CEDEN.

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

Problems Encountered: None.

Activities Planned for Next Six Months: The Estuary Program will continue to manage data and work with the SWRCB to upload data to CEDEN. Staff will submit program data in response to the CCRWQCB's data solicitation for the 2028 Integrated Report.

Pending Deliverables: Submittal of WY24 data to CEDEN. Submittal of data for the 2028 Integrated Report.

Monitoring Program Quality Assurance

Objective: Update and submit a Quality Assurance Project Plan (QAPP), work with reviewers to approve document, and implement necessary quality assurance measures.

Status: Ongoing

Progress Toward Milestones: The Estuary Program continues to implement the quality assurance (QA) measures contained in the QAPP to ensure data quality. Staff compiled four addenda to the QAPP for short-term monitoring efforts, which included continuous water quality sensors in the bay, genetic analysis in the bay, sediment monitoring in the bay tidal marsh, and phytoplankton monitoring in the bay. These were approved by EPA.

Deliverables: Activities as described in this Semi-annual report (see above). Four QAPP addenda, submitted and approved by EPA's Office of Quality Assurance.

Comparison of Actual Accomplishments with Anticipated Outputs/Outcomes: An accurate and up-to-date QAPP document directly supports the task outcome of producing a high-quality data set to support efforts throughout the watershed, including 303(d) and TMDL assessment.

Problems Encountered: None.

Activities Planned for Next Six Months: Staff will conduct the QA measures needed to ensure the quality of program-generated data. Staff will update the QAPP and addenda for 2025.

Pending Deliverables: Update to QAPP and addenda.

Project Effectiveness Monitoring

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

Status: Ongoing

Progress Toward Milestones: Staff conducted monitoring of the freshwater seeps at the bay's edge to assess the impacts of the Los Osos Water Reclamation Facility. The Estuary Program conducted monitoring for a project on Pennington Creek to assess the impacts of a water diversion improvement project.

Deliverables: Activities as described in the Semi-annual report (see above).

Comparison of Actual Accomplishments with Anticipated Outputs/Outcomes: The activities under this task support the outcome of conducting monitoring and developing analysis that informs future management and restoration efforts.

Problems Encountered: None.

Activities Planned for Next Six Months: The Estuary Program plans to continue monitoring the seeps. Staff will collect Pennington Creek flow data and share it with Trout Unlimited to manage a water diversion. Staff will coordinate with Cal Poly researchers on future monitoring and potential publications. Staff will also communicate with project partners to share data results and coordinate efforts.

Pending Deliverable: None.

Eelgrass Monitoring and Research

Objective: Monitor eelgrass to determine its condition and distribution in the bay.

Status: Ongoing

Progress Toward Milestones: Staff coordinated with Cuesta College faculty on their eelgrass research efforts. This includes genetic analysis of the prokaryotic communities in Morro Bay eelgrass. Cal Poly conducted analysis of imagery from drone flights to create baywide eelgrass maps. The baywide map from data collected in spring 2023 was completed and indicated 750 acres of subtidal and intertidal eelgrass in the bay. Staff conducted macroalgae monitoring to track its presence throughout the bay and how it changes over time. Staff communicated with the Army Corps of Engineers (ACOE) on spring dredging of the bay mouth to support efforts to ensure that the work does not negatively impact sensitive species and habitats in the bay.

Deliverables: Monitoring activities documented in the Semi-annual report (see above). 2023 Eelgrass Report. Baywide eelgrass map for 2023 (see 2023 Eelgrass Report).

Comparison of Actual Accomplishments with Anticipated Outputs/Outcomes: Monitoring and planning for mapping efforts as well as working with research partners all support the outcome of better

understanding eelgrass stressors and dynamics. This improved understanding directly supports the outcome of development of restoration and monitoring strategies and goals.

Problems Encountered: None.

Activities Planned for Next Six Months: Staff will conduct winter macroalgae monitoring. Staff will complete the 2024 eelgrass report. Staff will plan for the 2025 eelgrass mapping efforts.

Pending Deliverables: Baywide eelgrass map for 2025. Eelgrass Report for 2024.

Partner Research Efforts

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

Status: Ongoing

Progress Towards Milestones: Estuary Program staff coordinated and collaborated with Cal Poly, the California Department of Fish & Wildlife (CDFW), the National Oceanographic and Atmospheric Administration (NOAA), Cuesta College, ACOE, the city of Morro Bay, and other project partners to research bay eelgrass and related water quality issues. Staff sought results of research efforts in Morro Bay and other relevant coastal areas related to nutrients, macroalgae, sedimentation, ocean acidification, and other water quality data. Staff coordinated with Cal Poly on ocean acidification monitoring efforts in the bay. Staff collaborated with partners such as Cal Poly and USGS on future research efforts related to eelgrass, climate change, and marsh habitat. Monitoring of sediment accretion and water levels was conducted to support a project with USGS to study sea level rise impacts to the tidal marsh habitat. Staff worked with Cal Poly to plan for the 2024 drone flight. Staff collaborated with the UCSB dune resiliency project to plan for a drone flight on the sandspit in October 2024. Staff collaborated with researchers from Southern California Coastal Water Research Project (SCCWRP), the California Estuary Monitoring Workgroup, the Estuary Marine Protected Area monitoring effort, EPA, and others on potential collaborative monitoring efforts.

The Estuary Program has coordinated with Cal Poly on numerous ongoing monitoring efforts, including bay nutrient monitoring, Olympia oyster research, microplastic research, and phytoplankton monitoring. Staff coordinated with CDPH on a project to sample shellfish growing waters following storms. The data will help CDPH determine whether the current rainfall closure guidelines are still relevant or whether they need to be updated.

The Estuary Program continued supporting a neighboring watershed whose stakeholders are working to create a bioassessment monitoring effort. Estuary Program staff supported data management and analysis efforts for the group's bioassessment monitoring in 2024, conducted by Cal Poly students in partnership with the city of San Luis Obispo. Staff supported monitoring coordination and data management for the 2024 monitoring season.

The Estuary Program and our Cal Poly research partners participated in calls and coordination with EPA to compile ocean acidification data from NEPs around the country. Cal Poly researchers provided the Morro Bay data, and it is being incorporated into EPA's analysis.

Research efforts conducted in the Morro Bay estuary and watershed include:

- USGS tidal marsh elevation and plant species monitoring to help assess future impacts from sea level rise.
- Cal Poly research into the impact of crabs on eelgrass.
- Cal Poly and California State University, Northridge research on marine mammal relationships with eelgrass.
- Cal Poly research on microplastics in Morro Bay.
- Cal Poly research on Olympia oysters in the bay.
- Cal Poly research on bay nutrient levels.
- Cal Poly research on bay phytoplankton populations in water and sediment.
- UCSB environmental DNA monitoring related to Morro Bay eelgrass.
- Cuesta College research on impact of *Labyrinthula spp.* wasting disease on eelgrass.
- Cal Poly research on ocean acidification and water quality in Morro Bay, in partnership with Central and Northern California Ocean Observing System (CeNCOOS).
- Central Coast Wetland Group monitoring under the Estuary Marine Protected Area biannual monitoring protocols completed in fall 2023, spring 2024, and fall 2024.
- SCCWRP research related to ocean acidification on the Central Coast of California.
- California Estuary Monitoring Workgroup efforts to coordinate monitoring and research throughout the state.
- EPA efforts to coordinate and publish data focused on ocean acidification conducted by NEPs around the country.

We also track research that is occurring elsewhere but is relevant to Morro Bay, including nutrient target development in Elkhorn Slough and pathogen TMDL development in Southern California.

Deliverables: Water quality data collected by Cal Poly and shared on the CeNCOOS web portal for the front bay and back bay. 2023 Eelgrass Report.

Comparison of Actual Accomplishments with Anticipated Outputs/Outcomes: Coordination with research partnership efforts directly supports the task outcome of improving understanding of resources in order to better target efforts such as monitoring and restoration.

Problems Encountered: None.

Activities Planned for Next Six Months: Staff will coordinate with Cal Poly, Cuesta, and other partners on ongoing research efforts. Staff will continue to work with USGS staff on salt marsh monitoring.

Pending Deliverables: 2024 Eelgrass Report.

Public Participation, Education and Outreach

Communications

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

Status: Ongoing

Progress Toward Milestones: Estuary Program staff regularly conducted the following communications tasks in the second half of FY24:

- Created regular blog posts that were shared via email, website, and social media. 553 subscribers receive the blog via email each week. The blog is posted on Facebook and corresponding content is posted to Instagram and LinkedIn when appropriate for the platforms. Popular blog posts have as many as 2,500 reads, not including subscribers.
- Developed spring and summer issues of a seasonal/quarterly newsletter that was posted on the website, delivered to over 300 email subscribers, and distributed on social media channels.
- Maintained a Facebook feed for the Estuary Program that currently has 2,674 followers. Utilized two-way communication with these users, such as recognition of rain gauge network volunteers and beach cleanup participants.
- Maintained an Instagram feed for the Estuary Program that currently has 3,658 followers and a Mutts for the Bay Instagram account that currently has 149 followers.
- Maintained a LinkedIn account with 436 followers.
- Four news stories were published that covered Estuary Program-specific content and projects in the watershed.
- Continued updates on the program website to refresh current content. In the second half of FY24, the website had 36,175 visits.
- Continued our Science on Tap science talk series that rotates among different venues around the watershed and county. Staff hosted an event featuring eelgrass research efforts in June 2024 that had over 40 attendees.
- Organized and hosted a Science Explorations science talk event was held in August 2024 focused on eelgrass restoration, monitoring, research, and wildlife impacts. The event had 30 attendees.

Deliverables: Blog posts published on a regular basis at www.mbnep.org/blog. Website and social media statistics (see above). Relevant news stories available online and press releases submitted at www.mbnep.org/news. Quarterly newsletter at http://www.mbnep.org/newsletter.

Comparison of Actual Accomplishments with Anticipated Outputs/Outcomes: The activities listed above enhanced communication with residents, visitors, and the general public. This works toward the task outcome of increasing their understanding of their roles as stewards of the estuary and encouraging behaviors that protect clean water.

Problems Encountered: None.

Activities Planned for Next Six Months: The Estuary Program plans to continue the communications tasks outlined above including blog posts, published reports, seasonal newsletters, upcoming events, and stewardship tips.

Pending Deliverables: Regular blog posts. Social media statistics included in semi-annual report. News stories posted to website.

Education

Objective: Develop partnerships and services to support formal education and other education efforts.

Status: Ongoing

Progress Toward Milestones: Efforts to support education in the second half of FY24 included the following:

- Hosted six field trips in various locations around the watershed for school groups and youth organizations, reaching 96 individuals. Topics included watershed health, careers in the environmental field, local wildlife, nature journaling, tidepooling, and estuarine habitats.
- Completed a series of monthly recurring field trips with the Heartland Charter School for their Estuary Adventure Club. This included 15 to 30 students along with their parents from various locations around SLO and Kern Counties.
- Presented to Cuesta College classes on water quality monitoring, the Estuary Program, and science careers that reached 45 students.
- Presented at a high school marine science summer camp career panel organized by Cal Poly's Center for Coastal Marine Sciences.
- Led a Morro Bay educational hike for a visiting class from the Masters in Conservation and Restoration Science program at the University of California, Irvine.
- Attended three different summer camps to share information on the Morro Bay estuary, demonstrate the watershed model, host beach cleanups, and practice nature journaling. This included trips with Creek Lands Conservation's summer camp, Morro Bay Junior Guards, and Morro Bay Little Guards. Over 700 students were reached during summer programming trips, and 16 pounds of trash was collected during the beach cleanups at Morro Rock.
- Attended four SLO County library storytime events to share education content on watersheds, sea otters, and environmental stewardship.
- Continued distribution of marine education-focused coloring books and activity books available in English and Spanish. The project is a partnership of SLO and Monterey Marine Protected Area (MPA) Collaboratives. A new version of this coloring book was translated into Chinese and distributed across California in spring and summer of 2024. They are available online in English at https://www.mpacollaborative.org/project/mpa-coastal-explorer-guide-english-v2/ and in Spanish at https://www.mpacollaborative.org/project/a-descubrir-areas-marinas-protegidas-guia-del-explorador-costero-de-california-2/
- Continued to work with Camp Ocean Pines to develop a watershed and marine lab at their Cambria campus. Estuary Program staff supported curriculum development and activities related to estuary and watershed science.
- Established an educational partnership with Cal Poly to support a new four-unit course at the university in the College of Science and Mathematics called "Environmental Literacy: An Integrative STEM Approach." This partnership also supported the creation of professional development teacher training workshops.
- Hosted the third teacher training workshop of FY24. The workshops provided curriculum and support for teaching nature journaling, ocean literacy, climate resilience, and stewardship through restoration. The same cohort of 25 educators attended all three workshops of the series. The attendees included 20 traditional schoolteachers. The remaining five attendees were a combination of informal educators, docents, volunteers, and environmental educators. The

participants were from SLO, Monterey, Santa Barbara, Kings, Fresno, Sonoma, and Contra Costa counties.
- Continued to work with California State Park Interpreters at the Morro Bay State Park Natural History Museum and the SLO Coast District on educational programming.

Deliverables: Fieldtrip and presentation statistics (see above in the Communications section).

Comparison of Actual Accomplishments with Anticipated Outputs/Outcomes: The activities under this task directly support the outcome of providing formal education partnerships to share watershed and estuary-related messaging with students and youth.

Problems Encountered: None.

Activities Planned for Next Six Months: The Estuary Program plans to continue the education tasks outlined above and host the next series of three teacher training workshops in early 2025.

Pending Deliverables: None.

Nature Center Maintenance & Operations

Objective: Maintain the content and displays in the Nature Center.

Status: Ongoing

Progress Toward Milestones: Staff conduct activities to maintain the Nature Center. In the second half of FY24, the Nature Center had 11,246 visitors. Staff continue to update the Kid's Corner with new activities. A new logo and entrance artwork were produced and will be installed in the next six months along with other needed maintenance. Estuary Program staff are planning for the addition of new exhibits and updates to maps and interpretive information. Staff conducted ongoing maintenance to keep the Nature Center functioning smoothly.

Deliverables: Visitor statistics for the Nature Center (see above).

Comparison of Actual Accomplishments with Anticipated Outputs/Outcomes: The maintenance and updates to the Nature Center conducted as part of this task directly support the outcome of providing a learning center for the estuary that contains updated and engaging exhibits.

Problems Encountered: None.

Activities Planned for Next Six Months: The Estuary Program will continue activities to maintain the Nature Center. The Estuary Program will continue to provide field trips and educational programming in the Nature Center.

Pending Deliverables: Nature Center statistics.

Other E&O Tasks/Community Partner Projects

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

Status: Ongoing

Progress Toward Milestones: Efforts to support outreach projects in the community included:

- Estuary Program staff continued discussions with ECOSLO to plan adopt-a-spot cleanups across SLO County. ECOSLO will create and distribute cleanup kits to help keep marine debris out of the county's waters. The Estuary Program will be the organizational liaison for any adopt-a-spot cleanup groups formed in Morro Bay and Los Osos. Site selection will occur in the fall of 2024 with an anticipated launch in the next six months.
- Staff participate in the SLO MPA Collaborative to work with partners on initiatives related to education and outreach.
- Staff have been active members in the newly formed Environmental Education Coalition of SLO County, hosted by One Cool Earth. The group works to effectively communicate and collaborate on environmental education initiatives and programs in the county.
- Staff worked with the SLO MPA Collaborative to develop and print new versions of the MPA coloring books that are bilingual English-Traditional Chinese. State-wide distribution of these coloring books began in January and will continue until all books are distributed.
- Staff partnered with local organizations to engage the community, including Woods Humane Society, Sea Otter Savvy, Camp Ocean Pines, Creek Lands Conservation, El Camino Homeless Organization, SLO Beaver Brigade, and more.
- Staff tabled at the Downtown SLO Farmers Market on average once a quarter, reaching approximately 200 people in the second half of FY24.
- Staff hosted four cleanups at Morro Rock in the second half of FY24, with 180 volunteers recovering 115 pounds of trash.

Deliverables: Outreach statistics (see above).

Comparison of Actual Accomplishments with Anticipated Outputs/Outcomes: Activities conducted under this task directly support the outcome of coordinating with partner organizations on developing and sharing key messages.

Problems Encountered: Staff changes at ECOSLO have delayed progress on the Adopt-a-Spot cleanup partnership. Estuary Program staff are looking at ways to potentially host this individually. Inclement weather delayed or canceled some events.

Activities Planned for Next Six Months: Staff will develop an effort to establish and manage the Los Osos and Morro Bay groups of adopt-a-spot cleanup crews. Staff will continue to be active members of the SLO MPA Collaborative and to host and attend community events.

Pending Deliverables: Cleanup statistics. Event participation statistics.

Mutts for the Bay

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

Status: Ongoing

Progress Toward Milestones: The Estuary Program continued to manage the Mutts for the Bay program, which included accepting and managing donations, installing and maintaining dispensers, and coordinating volunteers. In 2018, the program received a grant from a private foundation to fund staff time and related costs for three years. In March 2021, the grant was extended and will now support the Mutts for the Bay Program through 2025. The grant also funds the development and sharing of outreach materials with pet owners. There are 36 dispensers that are maintained by the program. More than 150,000 bags were given away to pet owners in the second half of FY24. These bags prevented an estimated 40,000 pounds of pet waste from reaching the estuary. The Estuary Program continued its Mutts for the Bay Instagram account (see above in Communications). The Estuary Program continued its partnership with Woods Humane Society on educating pet owners on eco-friendly practices.

Staff launched a new logo and branding kit in spring 2024 and implemented new social media campaigns including sponsorship appreciation, Mutts for the Bay trivia, and Fun Fact Fridays. Staff updated and added new activity pages to the Mutts for the Bay coloring book about how to be an eco-friendly dog owner and the impacts of pet waste on the environment. Staff will distribute these activity books in FY25. Staff will continue to partner with the SLO County Stormwater Program to fund the bags in all the Los Osos dispensers. An interactive map of dispenser locations is available at https://www.mbnep.org/mutts-for-the-bay/.

Deliverables: Mutts for the Bay program statistics (see above). Mutts for the Bay educational materials available online.

Comparison of Actual Accomplishments with Anticipated Outputs/Outcomes: Activities under this task directly support the outcome of encouraging responsible behavior by pet owners to reduce bacterial loading to the estuary, thus improving water quality and protecting beneficial uses such as shellfish farming and recreation.

Problems Encountered: None.

Activities Planned for Next Six Months: Staff will continue its financial management and coordination activities to maintain the program. Staff will also continue to develop outreach materials and connect with pet owners. The partnership with Woods Humane Society's educational programming will be further developed to bring Mutts for the Bay curriculum and materials to students across SLO County. Estuary Program staff will continue to table at pet-focused events and farmers markets.

Pending Deliverables: Statistics on students reached as applicable.

Program Management

Manage Committees and Build Partnerships

Objective: Hold quarterly meetings and support partnerships.

Status: Ongoing

Progress Toward Milestones: Staff compiled meeting materials and coordinated quarterly meetings of the Executive Committee (EC) throughout the year. Technical Advisory Committee (TAC) members were called on as needed for review of Community Project applications, eelgrass efforts, monitoring, data analysis, and technical plans.

Partnerships are also supported through collaborative project development and technical support. The Estuary Program continues its work on partnership projects developed and implemented in collaboration with partner organizations. These include:

- Staff served on the Pacific Marine and Estuarine Fish Habitat Partnership (PMEP) Science and Data Committee.
- The Estuary Program is a partner on the Santa Monica Bay National Estuary Program's vessel pump-out monitoring program. Staff monitor three pump-outs three times a year and share the results via a publicly-accessible app.
- The Estuary Program partnered with USGS to implement a project to study tidal marsh vulnerability with rising sea levels.
- The Estuary Program is working with Caltrans, SLO County, and other partners to study the feasibility of removing fish passage barriers on San Luisito Creek.
- The Estuary Program staff serve on a TAC for a lower Chorro Creek floodplain improvement project with CSLRCD.
- The Estuary Program staff serving on a TAC for SLOCOG's planning study of South Bay Boulevard to support public access and transportation given sea level rise impacts.
- Staff participated in the Caltrans led Toro Creek Technical Advisory Committee to support a climate resilience and hazards adaptation study.
- Staff served on the California Coastal Dune Science Network Advisory Team. The organization strives to expand understanding of coastal dunes and their role in building a resilient, transitional, and adaptive coast for the future.
- Staff participate in the SLO County Weed Management Area program to discuss emerging invasive species and partner on implementation projects.
- Staff served on the board of the California Shore and Beach Preservation Association.

Deliverables: Minutes, agendas, staff reports, and materials completed for each EC meeting. List of partnerships and project activities (see above).

Comparison of Actual Accomplishments with Anticipated Outputs/Outcomes: The activities conducted under this task directly supported the task outcome of providing input and direction for the program and ensuring that partnerships are well supported.

Problems Encountered: None.

Activities Planned for Next Six Months: The Estuary Program plans to continue to coordinate quarterly meetings and work with Management Conference members. We will continue to work with the TACs to develop projects, funding, and collaborations. We will continue to partner with the CSLRCD to seek funding to implement projects developed with funding from Resource Legacy Fund and support work at the Los Osos Wetland property. Staff will continue monitoring efforts in partnership with USGS to support modeling and planning to address the impact of sea level rise on the tidal marsh.

Grants and Contracts Administration and Financial Management

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

Progress Toward Milestones: Staff worked on financial reporting, progress reports to the EPA and the Management Conference, and participation in NEP conference calls and committees. We coordinated with EPA to provide required materials for oversight of the 320 and BIL grants and managed numerous outside grants to the Estuary Program to support our project work. Staff developed semi-annual reports on the first half of FY24 for the BIL and 320 grants. Staff managed the 320 and BIL workplans and budgets for FY24. Staff developed a workplan for the 320 grant for FY25, which was approved by the Management Conference. Staff began development of a workplan and budget for FY25 for the BIL funding, to be reviewed and approved by the Management Conference in November. The Executive Director attended the spring Association of National Estuary Programs (ANEP) meeting in Washington, D.C. and plans to attend the fall meeting on the East Coast.

Deliverables: Minority Business Enterprises-Women Business Enterprises (MBE-WBE) submitted to EPA Region 9 Grants Office. Semi-annual reports for FY24 funding. Workplan for the 320 grant for FY25.

Comparison of Actual Accomplishments with Anticipated Outputs/Outcomes: Activities under this task directly supported the outcome of conducting grant administration and financial management tasks in a timely and accurate manner.

Problems Encountered: None.

Activities Planned for Next Six Months: The Estuary Program will implement the FY24 BIL and FY25 320 Workplans. The Estuary Program will create a BIL Workplan for FY25. Staff will develop semi-annual reports for the second half of FY24.

Pending Deliverables: Annual FFR and MBE-WBE. FY25 BIL workplan. Semi-annual reports.

General Administration and Human Resources Management

Objective: Maintain accurate financial and human resources records and manage personnel.

Status: Ongoing

Progress Toward Milestones: Staff maintained ongoing financial and administrative functions including recordkeeping, filing, bookkeeping, and equipment and office space upkeep, as well as interacting with the general public. In addition, the Director spent time managing staff performance and workplan

progress. Other HR tasks included training, professional development, recruitment, and keeping personnel policies and procedures up to date. The employee policy guide was updated, as was the non-discrimination plan that meets the requirements of EPA's Form 4700. The Estuary Program hired a full-time Monitoring Technician and a part-time Environmental Planning Intern.

Deliverables: Summary of task activities (see above). Bookkeeping and other recordkeeping tasks contribute to the completion of the deliverables included in the previous tasks (financial management).

Comparison of Actual Accomplishments with Anticipated Outputs/Outcomes: The administrative and human resources management tasks conducted in the second half of FY24 directly supported the outcome of providing the administrative support that allows the program to function smoothly so that staff can focus on attaining the goals of the organization.

Problems Encountered: None.

Activities Planned for Next Six Months: Staff will conduct all bookkeeping and recordkeeping tasks required for grant management. Staff will conduct all HR tasks including training and professional development. Staff will participate in the FY24 single federal audit.

Tracking Implementation of the Management Plan and Workplan

Objective: Keep track of Workplan and Comprehensive Conservation and Management Plan (CCMP) implementation.

Status: Ongoing

Progress to Date: Tracked progress on CCMP implementation through biannual reports to the EC. Compiled information and developed a "dashboard" to share with the public the status of CCMP Action Plans.

Deliverables: Semi-annual report to EPA submitted in spring 2024. Biannual EC reports.

Comparison of Actual Accomplishments with Anticipated Outputs/Outcomes: The tasks completed directly support the outcome of conducting tracking to ensure that tasks are completed in a timely and accurate manner.

Problems Encountered: None.

Activities Planned for Next Six Months: The Estuary Program plans to report to the EC on Workplan progress and develop semi-annual reports.

Pending Deliverables: BIL and 320 semi-annual reports.

Community Projects

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

Status: Ongoing

Progress Toward Milestones: Two Community Projects were completed. One Cool Earth, a nonprofit focused on outdoor education in the county, completed school garden support, lessons, curriculum, and other activities for Baywood Elementary School in Los Osos for the 2023 to 2024 academic year. A project started in FY23 to monitor phytoplankton monitoring in Morro Bay was completed. A public-friendly poster summarizing the work was developed and is now displayed in the Nature Center. The researcher and her students developed a poster for a professional conference and presented it at the event.

A project for FY25 was developed and approved, and implementation is underway. The effort is a partnership with California State Parks. The Estuary Program funded the reprinting of a popular MPA activity book for kids. The nearly 24,000 copies of the book will be distributed by State Parks employees throughout the San Luis Coast District during the upcoming year.

Deliverables: Final report for the completed Outdoor Education Community Project. Final report, research poster, and education poster for the Phytoplankton Research Community Project.

Comparison of Actual Accomplishments with Anticipated Outputs/Outcomes: The activities conducted under this task included working with existing funding recipients and coordinating with partners to develop new projects that support CCMP goals and Action Plans. These activities directly supported these goals, thus meeting the task outcomes of developing and completing projects that meet program guidelines on community involvement and CCMP nexus.

Problems Encountered: None.

Activities Planned for Next Six Months: The Estuary Program plans to continue to work with partners on ongoing Community Projects. Staff will work with the EC and TAC to develop and approve projects for FY26.

Pending Deliverables: Final report for completed Community Project.

Lab Competency Documentation

The Estuary Program utilizes laboratories that have met the certification requirements for their technical area. During FY24, the following labs were used:

For Water Quality: The Estuary Program works with Fruit Growers Laboratory (FGL) and the County of SLO Public Health Laboratory. Both labs maintained Environmental Laboratory Accreditation Program (ELAP) certification during this time period. The certification for FGL is available online. The certification for the County of SLO Public Health Laboratory is under ELAP certification number 2114 and is available online. The Marine Pollution Studies Laboratory at Granite Canyon Laboratories (GC) conducts toxicity monitoring for the Estuary Program. This laboratory is ELAP-certified under certificate number 2821.

For Bioassessment: The Estuary Program works with EcoAnalysts, Inc. for analysis of bioassessment samples. Bioassessment labs certify their individual taxonomists rather than the lab as a whole. They provided their taxonomists' certifications. Any of the lab's taxonomists listed could be assigned to our

projects. The list of taxonomists' certifications is provided with the deliverables for this semi-annual report.

For Bay Nutrient Analysis: The UCSB Marine Sciences Laboratory conducts analysis of Morro Bay waters for nutrients. Although the laboratory is not ELAP-certified, it undergoes similar steps to ensure data quality. Their detailed QA manual was provided and reviewed by Estuary Program staff, and the lab's QA activities were deemed sufficient to ensure data quality.

Budget Overview

Table 1: Costs expended during this semi-annual report period (April 1, 2024 to September 30, 2024) and cumulative since the beginning of the grant in October 2021.

Category	Subcategory	FY24 Period 2 320 Funds	FY24 Period 2 Cash Match	FY24 Period 2 TOTAL	Cumulative 320 Funds	Cumulative Cash Match	Cumulative TOTAL
Personnel	Salaries	$221,349	$12,109	$233,458	$1,331,693	$48,756	$1,380,449
	Fringe	$18,585	$223	$18,808	$132,885	$1,100	$133,985
	Management Conference	$0	$0	$0	$0	$0	$0
	Subtotal	*$239,934*	*$12,332*	*$252,266*	*$1,464,578*	*$49,856*	*$1,514,434*
Travel	*(category includes local mileage)*	$6,664	$409	$7,073	$28,256	$1,283	$29,539
Supplies	Software	$1,160	$0	$1,160	$6,510	$0	$6,510
	Monitoring supplies	$5,054	$531	$5,585	$41,259	$12,634	$53,893
	Misc. office supplies, computers	$3,134	$0	$3,134	$19,539	$0	$19,539
	Subtotal	*$9,348*	*$531*	*$9,879*	*$67,308*	*$12,634*	*$79,942*
Contractual	Audit/Taxes/Accounting/Fees	$18,315	$1,547	$19,862	$55,074	$19,595	$74,669
	Education and Outreach	$1,167	$12,924	$14,091	$41,029	$43,954	$84,983
	Monitoring and Research	$8,409	$10,567	$18,976	$68,377	$65,704	$134,081
	Restoration and Protection	$1,980	$30,608	$32,588	$17,703	$1,033,940	$1,051,643
	Subtotal	*$29,871*	*$55,646*	*$85,517*	*$182,183*	*$1,163,193*	*$1,345,376*
Other	Rent	$26,101	$0	$26,101	$150,618	$0	$150,618
	Utilities	$2,093	$0	$2,093	$9,205	$0	$9,205
	Postage	$143	$0	$143	$722	$0	$722
	Copying, Printing	$1,504	$0	$1,504	$6,597	$0	$6,597
	Training, Prof. Dev.	$214	$0	$214	$4,423	$0	$4,423
	Telephone, Internet	$2,651	$0	$2,651	$13,693	$0	$13,693
	Repairs and Maintenance	$878	$0	$878	$13,537	$0	$13,537
	Insurance	$0	$0	$0	$7,885	$0	$7,885
	Vehicle maintenance, fuel	$873	$0	$873	$9,809	$0	$9,809
	Community Projects	$0	$17,555	$17,555	$0	$53,142	$53,142
	Subtotal	*$34,457*	*$17,555*	*$52,012*	*$216,489*	*$53,142*	*$269,631*
	TOTAL	**$320,274**	**$86,473**	**$406,747**	**$1,958,814**	**$1,280,108**	**$3,238,922**

Table 2: Costs by program area and task. Match numbers do not include in-kind match.

Program Area	Project	FY24 Period 2 320 Funds	FY24 Period 2 Match	FY24 Period 2 TOTAL	FY24 Overall TOTAL
Education and Outreach	Communications	$49	$0	$49	$4,734
	Bay Friendly Recreation	$0	$0	$0	$70
	Education and Nature Center	$618	$0	$618	$639
	Community Volunteer Program	$500	$0	$500	$500
	Mutts for the Bay	$0	$12,924	$12,924	$24,307
	Other E&O Tasks	$0	$0	$0	$1,837
	Subtotal	*$1,167*	*$12,924*	*$14,091*	$32,087
Monitoring and Research	Benthic Invertebrate Monitoring	$0	$10,567	$10,567	$10,567
	Water Quality Monitoring	$4,873	$0	$4,873	$8,069
	Equipment	-$419	$0	-$419	$37,500
	Eelgrass Monitoring & Analysis	$3,955	$0	$3,955	$3,955
	Subtotal	*$8,409*	*$10,567*	*$18,976*	$60,091
Habitat Protection and Restoration	Restoration & Conservation Planning	$0	$0	$0	$0
	Restoration Maintenance & Monitor	$115	$26,673	$26,788	$27,301
	Other Restoration	$1,865	$0	$1,865	$2,177
	Fisheries Management	$0	$3,935	$3,935	$3,935
	Subtotal	*$1,980*	*$30,608*	*$32,588*	$33,413
Program Administration	Community Projects	$0	$17,555	$17,555	$37,327
	TOTAL	**$11,556**	**$71,654**	**$83,210**	**$162,918**