WORK PLAN & BUDGET
FOR
FISCAL YEAR 2020

MORRO BAY NATIONAL ESTUARY PROGRAM
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Contents

1.0 Introduction

The Morro Bay National Estuary Program (Estuary Program) works to protect and restore the Morro Bay estuary and its watershed through the implementation of our Comprehensive Conservation and Management Plan for Morro Bay, most recently updated in Federal Fiscal Year 2013 (FY13). The three Estuary Program programmatic focus areas are: (1) habitat protection and restoration, (2) environmental monitoring and research, and (3) public participation, education, and outreach. This Work Program describes our planned efforts for FY20, which covers the period from October 1, 2019 through September 30, 2020.

Morro Bay was accepted into the National Estuary Program in 1995 when the Administrator of the U.S. Environmental Protection Agency (EPA) accepted Governor Wilson's nomination of the program. With financial support from EPA, Estuary Program staff worked with government agencies, non-profits, businesses, and the local community to develop a watershed-based management plan, the Comprehensive Conservation and Management Plan for Morro Bay (Management Plan). The Management 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 our Management Plan in January 2001 and has continued to provide significant grant funding to further the implementation of that plan. Almost every Management Plan action plan was initiated, and nearly a half are either complete or fully in place and ongoing. The Management Plan was revised in 2012 through a public process and approved by the Estuary Program's Management Conference in February 2013. Various action plans from the Management Plan are referenced in this Workplan. The Estuary Program works with its many partners to implement these actions in the watershed.

Congress allocates funding for the National Estuary Program (NEP) under Section 320 of the Clean Water Act. EPA provides a portion of those funds to each of the 28 National Estuaries. The expected funding available to the Estuary Program through these Section 320 funds for FY19 is $600,000. In addition, the Morro Bay National Estuary Program will be receiving $25,000 to support ocean acidification monitoring. This work program serves as the scope of work for those funds, totaling $625,000.

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

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

1.1 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, Estuarine Habitats, and Education and Outreach. These TACs are to provide advice to staff in collaborating and reviewing Community Project options, investigating technical issues, providing advisory oversight to monitoring, restoration, and education efforts, recommending changes to the Management Plan, and tracking and reporting on implementation. The TACs meet on an as-needed basis. Membership is not limited to a specific number of seats, and members are invited by staff to join.

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

2.0 Previous Year's Program Accomplishments

This section reports on accomplishments from the second half of FY18 (April to September 2018) and the first half of FY19 (October 2018 to March 2019). During this reporting period, the Estuary Program completed a number of substantial Workplan tasks. These accomplishments are also included in the semi-annual reports submitted to the EPA in May and November.

Highlighted Success Stories:

Pikeminnow Management

Project Objective: Conduct environmental DNA (eDNA) research to determine the presence of Sacramento pikeminnow (*Ptychocheilus grandis*), South-Central Steelhead (*Oncorhynchus mykiss*), and California Red-legged Frogs (CRLF) in the Morro Bay watershed and better understand pikeminnow predation of steelhead and CLRF.

Upon completion of the Chorro Creek Pikeminnow Management Plan in March 2017, the Estuary Program worked with project partners including CreekLands (formerly Central Coast Salmon Enhancement), the California Department of Fish and Wildlife (CDFW), California Conservation Corps (CCCs), city of San Luis Obispo, and others to implement the plan. In the fall of 2017, an intensive effort was conducted on Chorro Creek to capture pikeminnow, collect the gut content, and remove the invasive fish. A priority effort was removal of invasive pikeminnow from Chorro Creek, a creek that supports steelhead.

In the summer of 2018, the next step of the effort was conducted. Pikeminnow gut content samples were collected for analysis for eDNA to determine the level of pikeminnow predation on steelhead. Water samples were also collected for eDNA analysis to determine if pikeminnow are making use of the tributaries to Chorro Creek. Results indicated evidence of pikeminnow predation on steelhead in 21% of the samples collected in 2017 and 16% of the samples collected in 2018. eDNA analysis was also conducted on creek water to determine the presence of the three target species. Steelhead and CRLF were found on mainstem Chorro Creek and four of the tributaries. Pikeminnow were found on Chorro, San Bernardo, and lower Dairy Creek. Los Osos Creek did not have any of the target species, and Warden Creek had all three of them. This information will be used to support development of future projects and funding sources to continue to improve steelhead habitat in the Morro Bay watershed.

The effort supports the following CCMP Actions: LP-1 (protect special habitats/species), ECR-13 (population dynamics), ECR-14 (support recovery plans), ECR-15 (steelhead barriers and habitat), and ECR-16 (invasive species action plan).

Eelgrass Restoration and Monitoring

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

Eelgrass, a submerged aquatic vegetation, is a valuable habitat type in Morro Bay. It provides nursery habitat for juvenile species, dampens wave action, and helps hold the bay bottom in place. Precipitous declines in eelgrass acreage over the last ten years have been of great concern. The Estuary Program has been working closely with Cal Poly researchers as well as other eelgrass experts to conduct experimental transplanting in different regions of the bay. The transplants are then monitored according to a scientific methodology to determine the optimal season, locations, etc. in which to plant eelgrass. Based on information from experimental transplanting efforts in 2017 and 2018, the Estuary Program conducted a planting effort in February and March 2019.

During this reporting period, the Estuary Program implemented a grant from the CDFWas well as a donation from a local water fowl hunting group to fund eelgrass monitoring and restoration efforts. The Estuary Program worked with volunteers to harvest eelgrass and replant it at carefully selected locations throughout the bay. Monitoring of restoration efforts from 2017 and 2018 show expansion of eelgrass beyond the original one-meter-square quadrats in which it was planted. We will continue to monitor transplant success to inform future efforts and we will continue to seek funding and partnerships to further this effort.

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

Educational Programming

Project Objective: Expand partnerships and opportunities in the area of educational programming.

The Estuary Program strives to support local educational opportunities through numerous pathways, including development of educational content, hosting fieldtrips, and guest speaking in classrooms. In the second half of 2018 and the first half of 2019, the Estuary Program funded estuary fieldtrips in cooperation with the Central Coast Aquarium (CCA). This organization runs a robust program to offer marine science programming for visitors and students. Thus far, the Estuary Program has funded 12 fieldtrips, with plans in place for more in the future.

The Estuary Program was also interested in developing opportunities for student monitoring, in particular those that support expanded scientific understanding. Staff recently developed a microplastics monitoring effort and the curriculum to support it. Staff partnered with the local high school to present background information on the environmental hazards associated with microplastics and to teach students the microplastics protocol. Staff then led students in microplastics monitoring at Coleman Beach, a popular place for recreation along the estuary. After the microplastics collection, staff returned to the classroom to lead a lab session during which students processed their microplastics samples and analyzed the results. This has the dual benefit of providing hands-on science opportunities for local students while broadening our own understanding of plastics pollution on local beaches. All 180 freshmen at Morro Bay High School learned about this emerging contaminant and conducted hands-on monitoring. Staff plan to continue this effort in partnership with teachers and students at Morro Bay High School next year.

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

Partnerships for Steelhead

Project Objective: Support efforts to improve steelhead habitat and access throughout the watershed.

The Estuary Program partnered on two projects to address water quality, water quantity, and habitat quality on Pennington Creek.

The first effort was funded by the Drought Response Outreach Program for Schools (DROPS), a State Water Board grant program. The program involved rainwater catchment and storage, construction of a wetland to treat

stormwater runoff, and the development of related curriculum to support outdoor education. The work occurred at Rancho El Chorro Outdoor School, a San Luis County Office of Education facility that provides outdoor learning opportunities on the Central Coast. Project partners included the SLO County Office of Education, Trout Unlimited, the California Conservation Corps, and Watershed Progressive. The Estuary Program's roles were to conduct ambient monitoring in nearby Pennington Creek, provide technical support in developing monitoring protocols for the school, and assist with development of curriculum related to rainwater harvesting, creek health, etc.

The project is nearly complete, and the system did well through a relatively wet winter. The curriculum is nearly complete and implementation will begin later this spring.

The second effort was the removal of a fish barrier, which will be discussed further in the Completed Major Projects sections.

These efforts support the following CCMP Actions: MON-2 (Monitoring Environmental Indicators), MON-5 (Support Partners), EO-1 (Public Education & Outreach), and EO-4 (Formal Education Programs).

303(d) Solicitation Support

Project Objective: Collect high quality data to support the Central Coast Regional Water Quality Control Board's (CCRWQCB) 303(d) assessment.

One of the primary goals of the Estuary Program's monitoring efforts is to collect high quality data that can be utilized by the CCRWQCB in assessing Total Maximum Daily Loads (TMDLs) and for updating of the 303(d) list. The CCRWQCB opened up its solicitation period on December 14, 2018, and the solicitation period will close on June 14, 2019. The Estuary Program staff and volunteers work to collect data from throughout the watershed and estuary that adheres to the quality control goals set out in our Quality Assurance Project Plan (QAPP). This document is reviewed each year by EPA's Office of QA as well as the State Water Board's QA Office.

The Estuary Program data has been submitted to the California Environmental Data Exchange Network (CEDEN), the state's data portal. From CEDEN, the data is put through the state's assessment tools to determine the lines of evidence that support listing, de-listing, establishment of a TMDL, etc.

These efforts support the following CCMP Actions: MON-1 (TMDL), MON-2 (Monitoring Approaches), and MON-5 (Monitoring Partners).

Community Projects

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

The Estuary Program maintains an active Community Projects Program. Current projects are as follows.

- Morro Bay Harbor Department Oil Spill Containment and Response (OSCAR): The Morro Bay Harbor Department is dedicated to clean water and has earned a Clean Marina Program certification. As part of this program, as each marina's lease comes up for renewal, the city is requiring the new leaseholders to obtain certification under the program. This includes each individual marina maintaining a spill kit to allow for timely response to spills. While the Harbor Department is fully equipped to deal with spills, kits at each marina allows more immediate response. To support this effort, the Estuary Program provided funding to the city for purchase of these kits. Harbor Department employees distributed the kits, along with educational materials developed by the Estuary Program to inform boaters on best management practices and clean boating resources. The spill kits and educational materials reached all

250 boats that are routinely kept in the estuary. These efforts support BMP-8 (Harbor Operations BMPs), BMP-9 (Boating BMPs), USE-1 (Recreational Uses), and USE-2 (Shellfish Farming).

- Upcoming Community Projects: Numerous projects are currently underway. These include a project with a California Polytechnic State University Biology professor to deploy wildlife cameras throughout the watershed to identify migration corridors to guide restoration and conservation efforts; a research project with the local community college to study wasting disease in eelgrass in Morro Bay; and a project with the SLO MPA Collaborative to provide equipment to support an underwater ROV donated to the Collaborative to support monitoring, research, and education efforts in SLO County MPAs. All three projects will be completed during FY2020.

3.0 Goals for CCMP Implementation in Fiscal Year 2020

This work plan describes the Morro Bay National Estuary Program's broad goals, specific projects, and planned budget for FY20, which spans from October 1, 2019 to September 30, 2020. This work plan will guide Estuary Program efforts in FY20 and provide a mechanism to measure our success over the coming year. It is important to recognize that the nature of a collaborative, non-regulatory program such as the Estuary Program demands flexibility; just as some planned projects may be delayed, other unforeseen opportunities and partnerships to further implementation of the Management Plan will present themselves. The program goals are summarized below.

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

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

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

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

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

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

Fostering Collaboration: Local citizens, local government, non-profits, 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 5.

4.0 Budget and Staff Elements

4.1 Budget Discussion

Tables 4.1 and 4.2 provide an overview of the budget for FY20. The Estuary Program meets a portion of the EPA's fifty percent match requirement using the Estuary Program-controlled Morro Bay Restoration Fund. These funds are private, locally-controlled, and already committed and available for these projects. Other sources of match funds include local and state funds and private donations, volunteer time, and contributed services and facilities.

4.2 Budget Overview

Table 4.1: Budget Overview for FY20

Category	Subcategory	FY20 Anticipated Request	Match	Total
Personnel	Salaries	$368,364	$25,659	$394,022
	Fringe	$53,090	$0	$53,090
	Management Conference	0	$21,427	$21,427
	Subtotal	***$421,454***	**$47,086**	***$468,539***
Travel	(category includes local mileage)	$11,000	$0	$11,000
Supplies	Computers, software	$3,000	$0	$3,000
	Monitoring supplies	$10,706	$0	$10,706
	Misc. office supplies	$7,150	$0	$7,150
	Subtotal	***$20,856***	***$0***	***$20,856***
Contractual	Audit/Taxes/Accounting	$18,453	$6,715	$25,168
	Education and Outreach	$19,800	$130,633	$150,433
	Monitoring and Research	$43,300	$170,757	$214,057
	Restoration and Protection	$8,550	$238,069	$246,619
	Subtotal	***$90,103***	***$546,174***	***$636,277***
Other	Rent (no ownership of building)	$57,984	$13,740	$71,724
	Utilities	$3,718	$0	$3,718
	Postage	$1,577	$0	$1,577
	Copying, Printing	$2,765	$0	$2,765
	Training, Prof. Dev.	$1,000	$5,000	$6,000
	Telephone, Internet	$3,284	$0	$3,284
	Repairs and Maintenance	$5,000	$0	$5,000
	Insurance	$3,534	$0	$3,534
	Vehicle maintenance, fuel	$2,725	$0	$2,725
	Community Projects	$0	$13,000	$13,000
	Subtotal	***$81,587***	***$31,740***	***$113,327***
	TOTAL	**$625,000**	**$625,000**	**$1,250,000**

Note: $10,000 of Community Projects match comes from Restoration Fund. Remaining match is from partners.

4.3 Detailed Budget

Table 4.2: Direct Expenses by Program Area

Program Area	Project	320 Grant Request	Match (non-federal)		Total
			MB Restoration Fund	Other	
Education and Outreach A	Communications 1	$7,050	$0	$0	$7,050
	Community Partners 2	$500	$0	$20,900	$21,400
	Bay Friendly Recreation	$0	$0	$40,046	$40,046
	Clean Boating 3	$0	$0	$60,937	$60,937
	State of the Bay	$8,000	$0	$0	$8,000
	Education and Nature Center 4	$2,150	$0	$5,000	$7,150
	Other E&O Tasks 5	$2,100	$0	$3,750	$5,850
	Subtotal	***$19,800***	***$0***	***$130,633***	***$150,433***
Monitoring and Research B	Benthic Invertebrate Monitoring	$0	$0	$7,600	$7,600
	Eelgrass Monitoring 1	$13,000	$0	$0	$13,000
	Stats	$2,000	$0	$0	$2,000
	Water Quality Monitoring 2	$3,300	$0	$163,157	$166,457
	Equipment 3	$25,000	$0	$0	$25,000
	Subtotal	***$43,300***	***$0***	***$170,757***	***$214,057***
Habitat Protection and Restoration	CCER Implementation	$0	$0	$0	$0
	Land Conservation	$0	$0	$0	$0
	Restoration Maintenance and Monitoring	$2,550	$0	$81,452	$84,002
	Eelgrass Restoration	$3,500	$0	$14,305	$17,805
	Other Restoration	$2,500	$10,000	$132,312	$144,812
	Subtotal	***$8,550***	***$10,000***	***$228,069***	***$246,619***
	TOTAL	***$71,650***	***$10,000***	***$529,459***	***$611,109***

Note: Total for Restoration Fund match is **$20,000** because it includes $10,000 for Community Projects (see note for Table 4.1). Expenses shown combined contractual, supplies, and equipment expenses by Program Area to more clearly represent the resources devoted to these aspects of the Estuary Program FY20 Work Program. This table does not include Estuary Program staff time or overhead.

Education and Outreach Expenses (section A):

1. Communications expenses include graphic design work and printing for the annual report; pamphlets and publications; and ongoing maintenance expenses for our electronic newsletter, blog, and website.
2. Community Partners includes support for partner education events such as Coastal Cleanup Day and Harbor Fest.
3. Clean boating match includes the city of Morro Bay's Clean Marina program.
4. Education and Nature Center includes expenses such as aquarium maintenance, binoculars, display repairs and upgrades, watershed model demonstration supplies, handouts, microscopes, educational activity supplies, and coloring supplies.

5. Other E&O Tasks includes work on various community efforts as opportunities arise. Includes costs such as printing, development of education materials, renting venues for scientific talks, and conducting surveys of the public to determine changes in behavior and attitude.

Monitoring and Research Expenses (section B):

1. Eelgrass Monitoring expenses include supplies, contracts, analysis, eelgrass mapping, and coordination with partner efforts to track eelgrass conditions in the bay.
2. Water Quality Monitoring expenses include analytical laboratory services (couriers, sample analysis, and data reporting), equipment servicing and repairs, small equipment purchases, and database support (technical support for maintaining our data management system).
3. Equipment includes purchase of monitoring equipment with a value of $5,000 or greater.

Program Staffing Anticipated for FY20

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

- Executive Director: Leads the organization and Management Plan implementation. Responsible for Management Plan update. Manages CWA 320 grant, staffs committees, and non-profit board. Oversees general operations – budgeting, accounting, records management, and human resources. Supervises Estuary Program staff. Principal liaison to other agencies and organizations. Principal liaison to EPA. Serves as the public face of the organization. Represents the Estuary Program on local committees. Oversees Management Plan tracking, annual report, and workplan. Attends ANEP/EPA meetings.
- Assistant Director: Responsible for assisting the Executive Director with Management Plan implementation, managing CWA 320 and other grants, and staffing committees and non-profit board. Supports budgeting, accounting, records management, and managing NEP staff. Assists with Management Plan tracking, annual reports, and workplan. Coordinates project development and grant writing across the organization. Manages monitoring program strategy and other special projects, such as State of the Bay. Attends ANEP/EPA meetings.
- Restoration Projects Manager: Develops and implements restoration efforts. Oversees restoration projects, including coordinating with partner agencies as appropriate, securing grant funding, obtaining permits, and procuring outside services. Manages monitoring and maintenance of restoration projects. Coordinates a diverse set of external experts to assist with technical aspects of specific projects.
- Communications and Outreach Coordinator: Responsible for public relations and marketing work to engage community, targeted outreach campaigns geared towards increasing environmental stewardship, weekly blog posts, website updates, and representing the Estuary Program at public events. Implements the Finance Plan with Executive Director and non-profit board. Other projects include field trips and tours, educational brochures, press releases, planning outreach efforts, and various other public outreach projects.
- Monitoring Coordinators: Two coordinators conduct Estuary Program monitoring efforts. Under direction of the Assistant Director, complete data analysis, reports, and protocols. Assist with volunteer recruitment, training, and fieldwork. Review and update QAPP, monitoring protocols, and indicators/baselines work. Manage QA/QC functions. Manage data and share with partners. Submit data to state-wide data exchange network for use by agencies and the public.
- Finance & Operations Coordinator: Responsible for records management, bookkeeping, general office functions, front desk liaison to the public, and general administrative assistance. Handles payroll, insurance, and payables.

- Education & Outreach Specialist: Responsible for developing targeted outreach campaigns geared towards increasing environmental stewardship, weekly blog posts, website updates, field trips, and representing the Estuary Program at public events. This is a temporary position which will be filled for only a portion of the year.
- Intern(s) (as needed): Assists with field work, data management, analysis, and outreach. These are part-time positions.

Fringe Details: $53,090

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

Miscellaneous Office Supplies: $7,150

- Expenses:
  - Supplies (printer paper, toner, pens, checks, post-it notes, batteries, business cards, etc.)
  - Water delivery
  - Office furniture
  - Meeting space rentals and materials
  - Phone maintenance and repairs
  - Forms, checks, and employee policy posters and guides
  - First aid supplies and CPR training
  - Library supplies, such as shelving, boxes, bookshelves, and binders

Monitoring Program Supplies: $10,706

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

5.0 New and Ongoing Project Information

Where applicable, the estimated budgets include project and field costs. Staff time is excluded from these budget estimates.

5.1 Habitat Protection and Restoration Activities

5.1.1 Project Name: Land Conservation and Planning

Project Status: ***Ongoing***

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

Description: The Management Plan calls for protection of ecologically-valuable habitats in part to help minimize nonpoint sources of pollution entering the estuary and to promote clean water in the bay. Over 4,000 acres of land have been protected through conservation easements and fee title acquisitions by the Estuary Program and partners. In FY20, the Estuary Program expects to work with the Land Conservancy of San Luis Obispo County to develop conservation easements with interested landowners in the watershed. Some easements may qualify for funding from Army National Guard Base Camp San Luis Obispo (Camp SLO) to limit development encroachment on the base. In addition, the Estuary Program is participating in a community effort within Morro Bay to support open space preservation around the city. This task represents an anticipated share of staff time to develop these opportunities and support partner efforts.
Partners and Their Roles: The Land Conservancy is the recipient of funding to develop a buffer surrounding Camp SLO. Their role is to interface with landowners and the funders to develop easements and acquisitions. Other partners with interest in land conservation in Los Osos and Morro Bay include Morro Bay Open Space Alliance, CDFW, California Coastal Conservancy, Wildlife Conservation Board, Morro Coast Audubon Society, California State Parks, and private landowners.
Output/Deliverables: The deliverable will be a map or similar documentation of acquisitions or easements.
Estimated Milestones: Easement timelines are dependent on landowner and funding timelines.
Estimated Budget: Depends on acquisition and easement opportunities.
Long-Term Outcomes: Achieve land conservation projects as opportunities arise, with a focus on the Los Osos Valley.
CWA Implementation: Addressing diffuse nonpoint sources of pollution. Protecting wetlands. Protecting coastal waters through the National Estuary Program.

5.1.2 **Project Name: Restoration Maintenance and Monitoring**
Project Status: *Ongoing*
Objective: Complete monitoring for conservation easements and restoration projects, as necessary.

Description: The Estuary Program with its partners has implemented multiple complex restoration projects that require ongoing monitoring and maintenance. This work includes monitoring of conservation easement compliance, riparian fencing maintenance and effectiveness, best management practice (BMP) effectiveness, and pre- and post-project restoration effectiveness. These efforts will continue as necessary. Currently, ongoing monitoring occurs on the Maino Conservation Easement. These activities will continue, along with monitoring on the Chorro Creek Ecological Reserve Project. As appropriate, compliance monitoring and photo documenting will be conducted. The Estuary Program and its partners continue to monitor eelgrass restoration beds to track their success.
Partners and Their Roles: Landowner partners include private landowners, Camp San Luis Obispo, CDFW, Cal Poly, PG&E, and US Forest Service. Their role is to permit land access and maintain project sites.
Outputs/Deliverables: Monitoring results kept at Estuary Program as reference for future projects, to identify areas of concern, etc.
Estimated Milestones: Maino Easement monitoring completed in Spring 2020.
Estimated Budget: $2,550 for supplies and gear.
Long-term Outcomes: Conservation easement monitoring is completed annually and landowner communications continue. Eelgrass restoration monitoring continues annually and informs restoration decisions.
CWA Core Program Project Supports: Addressing diffuse, nonpoint sources of pollution. Protecting coastal waters through the National Estuary Program.

5.1.3 Project Name: Eelgrass Restoration
Project Status: *Ongoing*
Objective: Identify eelgrass restoration goals based on ongoing monitoring and research activities with various partners.

Description: Eelgrass in Morro Bay has experienced a precipitous decline in acreage since 2007. Large-scale restoration efforts in 2012 through 2014 did not yield successful eelgrass growth, despite using a well-tested method that had demonstrated success in the bay and many other California locations. The Estuary Program has increased engagement with federal agencies, researchers, and local scientists to help develop a systematic approach to understanding the stressors to eelgrass and what may be driving the decline and limited restoration success. The Estuary Program and partners conducted experimental restoration projects in FY17, FY18, and FY19. These results are being utilized to inform efforts in FY20 (depending on funding available) and allow for eventual development of numeric targets for restoration. Estuary Program staff are actively pursuing multi-year funding opportunities to better understand eelgrass dynamics and identify a strategy for successful recovery of eelgrass in Morro Bay.
Partners and Their Roles: Partners include Cal Poly and California Sea Grant (research expertise and field support), NOAA (funding and technical expertise), CDFW (permitting, funding, and monitoring), the Black Grant Group (funding), and local oyster farmers (monitoring support).
Outputs/Deliverables: Work conducted for this item will be summarized in a semi-annual report.
Estimated Milestones: Apply for a CDFW permit for transplant work, conduct a round of transplanting in the spring, and conduct three rounds of transplant monitoring.
Estimated Budget: Staff time and $3,500 towards restoration. Additional efforts depend on funding opportunities available.
Long-term Outcomes: Monitoring results inform future recovery actions and are comparable across years. Develop numeric targets for eelgrass restoration.
CWA Core Programs the Project Supports: Protecting coastal waters through the National Estuary Program.

5.1.4 Project Name: Chorro Creek Ecological Reserve Restoration Phase 2

Project Status: ***Ongoing***
Objective: Complete implementation of the Chorro Creek Ecological Reserve Restoration Project.

Description: In 2003, the Chorro Creek Ecological Reserve, a580-acre parcel at the base of Hollister Peak, was purchased with Estuary Program support and leadership to prevent future development. The property was transferred to CDFWfor ownership and management. Conceptual designs were completed in 2008 to address floodplain restoration and gully remediation, but it was agreed upon that the 2008 designs strayed from the overall goals of the site and the high implementation costs could have prevented project implementation. As a result of efforts in FY16 to obtain funding and begin planning, coordination with CDFW was conducted through early 2017 in developing designs for a restoration project. Additional CDFW and California Coastal Conservancy funding has been secured for implementation. Permitting for the project has also been conducted. Construction is slated for summer 2019. The final phase of the project involves completing construction, planting native plants, and conducting the final reporting for funders.
Partners and Their Roles: Project partners include CDFW as they are both a funder and the landowner. Other partners include the State Coastal Conservancy, who provides review and feedback and is a funder; EPA, who offers technical assistance and is a funder through the Climate Ready Estuaries program; and California Conservation Corps who provides technical expertise and project labor.
Outputs/Deliverables: Checklist of permits, including type and completion date.
Estimated Milestones: Complete construction by Fall 2019. Complete reporting by Spring 2020.
Estimated Budget: Staff time
Long-term Outcomes: Project implementation supports climate ready estuary goals including floodplain restoration.
CWA Core Programs the Project Supports: Addressing diffuse, nonpoint sources of pollution. Protecting wetlands. Protecting coastal waters through the National Estuary Program.

5.1.5 Project Name: Other Restoration Efforts

Project Status: *Ongoing*

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

Description: Additional water quality and habitat restoration opportunities often arise in the course of the year that are worthy of immediate attention. This task reserves some staff time for these opportunities. Some examples include riparian fencing, the SLO County Integrated Regional Water Management Group, the Central Coast Water Conservancy, supporting partner restoration projects on private property, and supporting the city of Morro Bay and stakeholders in eelgrass management efforts. The Estuary Program will act as a partner on water conservation, habitat restoration, and steelhead projects as needed. Invasives species management will continue in the watershed, and the Estuary Program will continue to work with partners on these efforts. The Estuary Program is working with partners to create a habitat Conservation Planning Initiative. The plan will identify the indicators, projects, and partners involved in protecting and preserving each habitat type.

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

Output/Deliverables: If the opportunity arises and work is conducted for this item, then a description will be provided in the semi-annual progress report provided to the EPA Project Officer (semi-annual report). The draft Habitat Conservation Plan is expected in Winter 2020 with feedback from partners on draft in Spring 2020, and finalization of the plan in Summer 2020.

Estimated Milestones: As opportunities arise.

Estimated Budget: Staff time for partnership support and participation on committees. Current year budget includes $2,500 to support partner projects. Other expenses depend on opportunities that arise.

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

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

5.1.6 Project Name: Conservation and Restoration Project Development

Project Status: *Ongoing*

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

Description: Often plans, permits, and initial monitoring must be conducted before a project is eligible for funding. This task reserves some staff time to work with partners to conduct these initial efforts. Efforts anticipated for FY20 include projects related to instream flow and improving steelhead habitat through invasive management. The steelhead habitat project may include seeking funding for a pikeminnow management component. The Estuary Program is participating in a CCRWQCB-led working group to look at developing bioreactor projects, which could lead to projects that address nitrogen pollution in the watershed. Efforts may also include engaging landowners in implementing best management practices on private property.

Partners and Their Roles: The primary partners for instream flow projects could potentially include CreekLands with the role of winning and managing funding and providing technical expertise; the California Conservation Corps, who would contribute technical expertise, materials and field support; and potential landowners. The primary partners for the steelhead habitat effort are CreekLands with the role of providing technical expertise, California Conservation Corps who would contribute technical expertise, materials, and field support; Stillwater Sciences who would contribute technical expertise and equipment; and the city of San Luis Obispo who would provide technical expertise. For

conservation planning and invasive species management, primary partners include California Department of State Parks and SLO County, who provide technical expertise and field support.
Output/Deliverables: If this condition arises (need before funding) and work is conducted for this item, then a description will be provided in the semi-annual report.
Estimated Milestones: Depends on funding deadlines. For conservation and steelhead projects, the milestones are TBD depending on funding and permitting.
Estimated Budget: TBD, depending on project opportunities.
Long-term Outcomes: Expand steelhead access to areas in the watershed with the habitat and water quality to support sensitive species. Expand water conservation efforts to protect surface flows.
CWA Core Programs the Project Supports: Addressing diffuse, nonpoint sources of pollution.

5.1.7 Project Name: State Park Marina Stormwater Management Project

Project Status: ***New***
Objective: To implement a stormwater management project at State Park Marina.

Description: Stormwater runoff can have significant impacts on waterbodies like Morro Bay. To address these impacts, the Estuary Program partnered with the California Marine Sanctuary Foundation and California State Parks to apply for an Ocean Protection Council grant to fund the design and construction of the State Park Marina parking lot. The Estuary Program is the grantee for the project and will be responsible for project management, invoicing, and reporting. We will also provide support for fiscal and contractual administration as well as monitoring and outreach expertise.
Partners and Their Roles: The primary partners for the project are California Marine Sanctuary Foundation, who led the grant application process and will lend planning and coordination support, assist with project reporting, and conduct public outreach. California State Parks is the landowner and will also provide project management, technical support, and match.
Output/Deliverables: Project designs are expected in Summer 2019 with construction in Summer 2020.
Estimated Milestones: Project designs, project implementation, final grant reporting. The timing is TBD based on award of the contract.
Estimated Budget: All costs, including staff time, are covered by the OPC Grant.
Long-term Outcomes: Eliminate stormwater runoff from this large parking lot to the nearby estuary, resulting in cleaner water. Potential groundwater recharge impacts as water is treated and then allowed to percolate.
CWA Core Programs the Project Supports: Addressing diffuse, nonpoint sources of pollution. Protecting coastal waters through the National Estuary Program.

5.2 Environmental Monitoring and Research

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

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

6. Strengthen collaboration among watershed partners while implementing actions laid out in the CCMP.

5.2.1 Project Name: Monitoring Program Coordination

Project Status: ***Ongoing***

Objective: Continue coordination of Monitoring Program and collect data that meets QAPP guidelines.

Description: The Estuary Program has an extensive and rigorous volunteer monitoring program. The Volunteer Monitoring Program (VMP) plays a lead role in the program's monitoring efforts. Without volunteers, the program could not collect as extensive a data set. The VMP will continue ongoing volunteer monitoring, tracking of key environmental indicators, and developing new efforts to monitor effectiveness of implementation projects. This task includes monitoring coordination, volunteer recruitment and training, equipment maintenance, and program management tasks.
Partners and Their Roles: Primary partners in the Estuary Program monitoring effort include the CCRWQCB, whose Central Coast Ambient Monitoring Program (CCAMP) lends technical advice, monitoring equipment, and field support. Landowners such as State Parks, Cal Poly, Camp SLO, San Luis Obispo County, the city of Morro Bay, and numerous private landowners are also partners, allowing access on their land for monitoring. Program coordination follows the approved QAPP (a deliverable under Task 5.2.4) and data is submitted to the CEDEN database (a deliverable under Task 5.2.3).
Outputs/Deliverables: A summary of work conducted for this item will be provided in the semi-annual report.
Estimated Milestones: As appropriate, monitoring protocols are updated to reflect changes to sites, monitoring methodologies, etc.
Estimated Budget: Staff time and $10,706 for monitoring supplies, $1,000 for laboratory analysis, and $1,300 for small equipment.
Long-Term Outcomes: An increase in understanding of the long-term trends in ambient water quality in the watershed and estuary. Identification of potential projects and assessment of existing projects.
CWA Core Programs the Project Supports: Identifying polluted waters and developing plans to restore them (TMDLs). Addressing diffuse, nonpoint sources of pollution. Protecting coastal waters through the National Estuary Program.

5.2.2 Project Name: Monitoring Program Reporting and Analysis

Project Status: ***Ongoing***

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

Description: The Estuary Program continuously compiles and analyzes program-generated data to assess long-term trends and project-specific effects on water quality and other indicators of environmental quality. These analyses are shared with program partners, local landowners, and the general public to help inform decision-making. A series of data summary memos will be completed in 2020. This includes an analysis of the sediment impacts to macroinvertebrate populations.
Partners and Their Roles: Primary partners in the reporting and analysis of monitoring data include the CCRWQCB, whose CCAMP lends technical advice to the program. Public and private landowners make use of the data in their own land management and monitoring efforts. Cal Poly also lends technical expertise.
Outputs/Deliverables: When work occurs for this item, a summary will be provided in the semi-annual report.
Estimated Milestones: Monitoring updates for sediment, bioassessment, creek health, and bay health are expected in 2020.

Estimated Budget: Staff time and $2,000 for statistical analysis.
Long-Term Outcomes: Outcomes include making analysis available for agencies, project partners, and others throughout the state to inform and improve their own efforts to protect and restore.
CWA Core Programs the Project Supports: Identifying polluted waters and developing plans to restore them (TMDLs). Addressing diffuse, nonpoint sources of pollution. Protecting coastal waters through the National Estuary Program.

5.2.3 Project Name: Monitoring Program Data Management

Project Status: ***Ongoing***
Objectives: Maintain data in SWAMP-compatible format.

Description: This task includes the on-going maintenance of program-generated data in a SWAMP-compatible data format. SWAMP (Surface Water Ambient Monitoring Program) is a California State Water Resources Control Board program to increase usability and compatibility of water quality data from various sources. Data is quality controlled and entered into a SWAMP-compatible database to increase access for groups throughout the state.
Partners and Their Roles: Primary partners in the Estuary Program monitoring effort include the CCRWQCB, whose CCAMP lends technical advice and data management support to the program. The State Water Resources Control Board is a partner, providing support for the state's California Environmental Data Exchange Network (CEDEN). The Moss Landing Marine Lab is a partner in the project as they serve as the Regional Data Center for Region 3. They provide direct assistance in loading program data to the CEDEN system.
Outputs/Deliverables: When work is conducted for this item, a summary will be provided in the semi-annual report.
Estimated Milestones: Continual input of data into SWAMP-compatible database. Semi-annual submittals of data to the CEDEN and/or SWAMP system.
Estimated Budget: Staff time.
Long-term Outcomes: A high quality dataset available to the public and the state for use in TMDL analysis, 303(d) assessment, land management, etc.
CWA Core Programs the Project Supports: Identifying polluted waters and developing plans to restore them (TMDLs).

5.2.4 Project Name: Monitoring Program Quality Assurance

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

Description: The monitoring program maintains a Quality Assurance Project Plan (QAPP), approved by EPA, which documents the program's monitoring methodologies, sites, and equipment. This task includes laboratory sample analysis to aid in assessment of quality assurance. In addition, some staff time is necessary to keep the QAPP up-to-date. The monitoring program collects scientifically rigorous data valued by many of our partners, and the QAPP ensures that the data collection and analysis methods maintain this high level of scientific quality. Data submitted to CEDEN now requires that an accompanying QAPP be included to document the data quality.
Partners and Their Roles: The EPA Office of QA is a primary partner, providing oversight of the QAPP and technical assistance. The CCRWQCB QA Officer also provides review and oversight of the QAPP. Other partners include laboratories that analyze Estuary Program samples, and partners conducting monitoring in the area such as the CCRWQCB's CCAMP, the Cooperative Ag Monitoring Program, and others.
Output/Deliverables: The deliverable will be an EPA and Water Board-approved QAPP document.
Estimated Milestones: The updated document is submitted on an annual basis. This is dependent upon the EPA approval schedule.
Estimated Budget: Staff time plus estimated at $750 for QA laboratory analysis.

Long-term Outcomes: A high quality data set with data supporting efforts throughout the watershed including 303(d) and TMDL assessment.
CWA Core Programs the Project Supports: Identifying polluted waters and developing plans to restore them (TMDLs).

5.2.5 Project Name: Project Effectiveness Monitoring

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

Description: Many monitoring efforts to demonstrate effectiveness of restoration or other projects are conducted by program staff (rather than volunteers) due to safety concerns, technical challenges, or a landowner's request. This task encompasses protocol development and monitoring work that falls into this category. This task will include monitoring of restoration projects and monitoring the freshwater seeps in Los Osos. The seeps are expected to demonstrate reduced nitrate contamination of groundwater by septic systems since the Los Osos sewer system came online in 2016. A fish ladder and improved water diversion on Pennington Creek will also be monitored. Monitoring data will be compiled to support restoration projects, partner data requests, etc.
Partners and Their Roles: Project partners include landowners or responsible entities such as Cal Poly, Camp SLO, and San Luis Obispo County Office of Education. Project partners lending expertise and funding include Trout Unlimited, CreekLands, the California Department of Public Health, and others.
Output/Deliverables: When work is conducted for this item, a summary will be provided in the semi-annual report.
Estimated Milestones: Monitoring and data reports will be compiled as needed.
Estimated Budget: Staff time and $250 for laboratory analysis of seeps samples.
Long-term Outcomes: Conduct monitoring and develop analysis that informs future management and restoration efforts.
CWA Core Programs the Project Supports: Identifying polluted waters and developing plans to restore them (TMDLs).

5.2.6. Project Name: Eelgrass Monitoring and Research

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

Description: Seasonal eelgrass monitoring is conducted to aid efforts to protect and restore eelgrass habitat. In FY20, the Estuary Program will continue to monitor according to the robust approach designed to maximize data quality. The effort is engaging experts and agency participants to help inform the monitoring approach and to seek funding to support research and monitoring (see more information under Task 5.1.3). This task also involves a component of research collaboration with partners to understand eelgrass stressors and gain insights needed for successful restoration efforts. While eelgrass survival depends on many factors, sediment is a primary driver for eelgrass health because of its impacts on elevation and light limitation. An estuary-wide bathymetry map to be created in the second half of FY19 will help determine sediment accumulation and change over time while informing future eelgrass restoration efforts. The information will help drive development of our acreage goals for eelgrass establishment. The bathymetry data will inform the circulation and hydrodynamic study conducted by Cal Poly under a Sea Grant award, which is expected to be completed in mid-2020. In fall 2020, the Estuary Program will collect aerial imagery for creation of a bay-wide submerged aquatic vegetation map, which will allow calculation of eelgrass acreage.
Partners and Their Roles: Project partners include Cal Poly, whose expertise is supporting expanded monitoring and research efforts such as the Sea Grant project to study sedimentation and circulation. They are actively seeking funding to conduct research to understand bay hydrodynamics as it relates to eelgrass beds, sediment impacts, light limitation, etc. Cuesta College, the local community college,

conducts research related to wasting disease and eelgrass health. Other partners include CDFW, who is are also conducting eelgrass monitoring and are potential funders for the effort. NOAA, USFWS, and others have provided funding and technical support for the effort. EPA provides both funding and technical support. Sea Grant provides funding and technical support. Secondary partners with an interest in eelgrass in Morro Bay include the California Coastal Conservancy, the city of Morro Bay, State Parks, local oyster farms, and other local businesses.
Output/Deliverables: The deliverables include an eelgrass monitoring report, reporting required by funders for research efforts, and a bay-wide eelgrass map representing conditions in Fall 2020.
Estimated Milestones: Provide a summary in the semi-annual report when work is conducted for this item.
Estimated Budget: Staff time and $13,000 for supplies, contracts, analysis, and coordination with partner efforts.
Long-term Outcomes: To better understand eelgrass dynamics and stressors, thus enabling the Estuary Program to develop restoration strategies and numeric goals for acres restored.
CWA Core Programs the Project Supports: Protecting coastal waters through the National Estuary Program.

5.2.7 Project Name: Partner Research Efforts

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

Description: The Estuary Program collaborates with partners such as Cal Poly to facilitate research projects through data sharing, the pursuit of funding, and contributed time. Anticipated projects include research into causes of eelgrass decline (biological and physical factors) and related water quality issues and impacts to the biota that depend on eelgrass habitat. Other potential efforts include sea level rise around the bay, bay water quality including ocean acidification (OA), bay sediment characteristics, and others. Reports and results will be compiled in the Estuary Program library. The Estuary Program received an additional award from EPA to support OA monitoring. The Estuary Program will partner with a Cal Poly researcher to purchase monitoring equipment for deployment in the bay.
Partners and Their Roles: Cal Poly, due to its nearby location, is a primary partner in these joint efforts. Cal Poly will conduct monitoring of OA parameters in the estuary. Other research collaboration partners have included University of San Francisco, Southern California Coastal Water Research Program, USGS, Cuesta College, and others.
Output/Deliverables: Deliverables are dependent on partner projects and vary by funding sources. A list will be provided in the semi-annual report of partners' reports that are added to the library during the reporting period. A final report documenting Cal Poly's OA research results, including the plan for future monitoring. The report will be available in the Estuary Program library and via our website.
Estimated Milestones: Variable, depending on funding sources. Fall 2021 for OA results.
Estimated Budget: Staff time and $25,000 for OA equipment.
Long-term Outcomes: Improve understanding of resources in order to better target efforts such as monitoring and restoration.
CWA Core Programs the Project Supports: Protecting coastal waters through the National Estuary Program.

5.3 Public Participation, Education and Outreach

5.3.1 Project Name: Communications

Project Status: ***Ongoing***
Objective: Communicate with a variety of audiences using presentations, printed materials, online

presence, social media, and other venues.

Description: The Estuary Program's Education and Outreach program conducts regular communication with a variety of audiences. Several channels will be employed during FY19 to reach these audiences with meaningful information to educate the public about the program's efforts. These efforts include the following:

- **Website** – The Estuary Program website (www.mbnep.org) will be updated with content on a regular basis.
- **Blog** –The Estuary Program will continue the Estuary Program blog. Posts are made once a week and can be viewed on the website or by subscription. They are also shared via social media.
- **Social Media** –The Estuary Program utilizes Facebook, Instagram, and Twitter extensively; these have proven to be important tools to communicate with the community. Photos and status updates are posted to the Facebook page multiple times a week (https://www.facebook.com/mbestuary). Posts are strategic and integrated with messages posted on our website and in the blog. Messages cover a variety of topics, such as project and field work highlights, volunteer opportunities, community events, presentations given by Estuary Program staff, and other information related to the Estuary Program mission. Currently, the Estuary Program has more than 1,900 Facebook fans, 1,750 Instagram followers, and more than 560 Twitter followers. In FY20, the Estuary Program will continue to increase two-way communication using social media tools.
- **Annual Report** – The annual report summarizes the reach and impact made by the Estuary Program across all programs (Education and Outreach, Restoration and Conservation, and Research and Monitoring). The report is created annually and is available online and in limited print.
- **Speaking and Exhibit Engagements** – Estuary Program staff present watershed and estuarine information for interested groups throughout the area. Estuary Program staff and guest speakers present research and projects that relate to the health of the Morro Bay estuary through our annual Morro Bay Science Explorations with the Estuary Program speaker series.
- **News Releases** – News releases will be distributed for news-worthy activities or milestones, such as the State of the Bay, volunteer opportunities, and others. Key messages will be drafted and incorporated into the news releases. These key messages will be integrated into other communication channels.
- **Brochures** – Brochures about the Estuary Program, volunteer opportunities, and formal educational opportunities will be distributed at the Estuary Nature Center, community events, and presentations in which Estuary Program staff participate. They will also be made available online when possible.

Partners and Their Roles: Partners in Estuary Program communication efforts include the city of Morro Bay, the county of San Luis Obispo, the Morro Bay Natural History Museum, State Parks, and others. These partners provide resources and expertise, promote Estuary Program events, and share our materials and message with the public.
Output/Deliverables: A summary of work conducted for this item will be included in the semi-annual report.
Estimated Milestones: The Estuary Program maintains a social media and blog schedule that addresses current events and other topics and is updated in real time.
Estimated Budget: Staff time and $3,400 for design and printing of annual report, $1,650 for website maintenance, hosting and design, $1,200 for speaking engagement facility costs, $2,000 printing of brochures and other outreach materials. Total: $8,250.
Long-term Outcomes: Residents and visitors better understand their roles as stewards of the Morro Bay estuary. They practice behaviors that help keep our waters clean.
CWA Core Programs the Project Supports: Protecting coastal waters through the National Estuary Programs.

5.3.2 Project Name: Education

Project Status: ***Ongoing***

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

Description: In FY20, the Estuary Program will continue working with partners to integrate estuary-focused activities into existing formal educational programming. Activities include watershed model demonstrations in classrooms, microplastics monitoring with local high school students, hosting estuary fieldtrips for students through the Central Coast Aquarium, and supporting watershed education by partners. The Estuary Program staff and docents will also continue to provide field trips as requested, for K-12 students as well as undergraduate and graduate classes. In addition, the Estuary Program will maintain the Estuary Nature Center, which is visited by approximately 5,200 individuals monthly during the high season.

Partners and Their Roles: Partners include the Morro Bay Museum of Natural History, a direct collaborator in creating education programs. Teachers, parents, and volunteers from local schools reach out to the Estuary Program for direct support in developing education programs on topics such as watersheds and the water cycle. Cal Poly faculty are also partners, bringing classes to the estuary to conduct research and fieldtrips. Staff also visit classrooms from primary through college-level to present the results of our work. Central Coast Aquarium has been a key partner, providing their Floating Lab fieldtrips to students from outside of the area.

Outputs/Deliverables: The deliverable will be Nature Center statistics, watershed model demonstration statistics, and fieldtrip and presentation statistics, included in semi-annual reports to EPA.

Estimated Milestones: The Nature Center promotional materials and statistics will be ongoing. The statistics on watershed model demos and fieldtrips will be included in the semi-annual report.

Estimated Budget: Staff time and $150 for classroom supplies.

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

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

5.3.3 Project Name: Nature Center Update

Project Status: ***Ongoing***

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

Description: About 25,000 visitors have stopped by the Estuary Program's Nature Center each year since it was established in 2005. A fish tank, a watershed mural, and stereoscopic photo images are some of the most popular exhibits. After more than a decade of heavy use, the Nature Center's worn displays need to be updated or replaced. In FY20, the Estuary Program will continue to seek funding for this update effort and engage local partners in developing exhibits and funding. The Estuary Program will develop grant application and reports and deliverables for funders. We expect to be able to complete updates to two exhibits in FY20.

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

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

Estimated Milestones: Updates to two exhibits will be completed by the end of FY20.

Estimated Budget: Staff time, $2,000 for maintenance and repairs, and additional grants that are still to be determined.

Long-term Outcomes: The Estuary Nature Center serves as a learning center about the Estuary, with updated and engaging exhibits.
CWA Core Programs the Project Supports: Addressing diffuse, nonpoint sources of pollution. Protecting coastal waters through the National Estuary Program.

5.3.4 Project Name: Community Projects
Project Status: ***Ongoing***

Objective: Provide support for community projects that further the goals of the Management Plan and engage the community.
Description: Community Projects allow community members to be active participants in conservation efforts by helping to implement the Management Plan. The Community Projects program has a special focus on projects that engage the community. The Estuary Program staff meets with community members, prepares contracts, and monitors and evaluates products. The Estuary Program will continue to oversee current projects and develop new projects in FY20.
Partners and Their Roles: Partners include the City of Morro Bay Harbor Department, Cal Poly and Cuesta College researchers, and the SLO County MPA Collaborative.
Outputs/Deliverables: The semi-annual report will detail the projects completed in FY20. Final reports from Community Projects.
Estimated Milestones: Project ideas are considered in March and September and will be listed in the semi-annual reports.
Estimated Budget: Staff time.
Long-term Outcomes: All projects meet guidelines on community involvement and Management Plan nexus.
CWA Core Programs the Project Supports: Addressing diffuse, nonpoint sources of pollution. Protecting wetlands. Protecting coastal waters through the National Estuary Program.

5.3.5 Project Name: Other E&O Tasks/Community Partner Projects
Project Status: ***Ongoing***
Objective: Support outreach projects in the community that further the Management Plan goals.

Description: Opportunities for various community projects will be maximized throughout the year as they arise. Some of these projects will be pursued as a result of community partner projects.
Partners and Their Roles: Partners include California State Parks through their SeaLife Stewards program, the city of Morro Bay's Harbor Department, and local recreational boating business owners. The effort also includes supporting the Central Coast Aquarium in developing Morro Bay-specific content.
Outputs/Deliverables: Materials completed as projects develop.
Estimated Milestones: Materials are completed as projects develop.
Estimated Budget: Staff time and $1,400 is allocated for partner projects and other opportunities as they arise.
Long-term Outcomes: Coordinate with partner organizations about key messages associated with each community project. Rollout of the messages and education and outreach material will be closely tied to the project implementation.
CWA Core Programs the Project Supports: Addressing diffuse, nonpoint sources of pollution.

5.3.6 Project Name: Mutts for the Bay
Project Status: ***Ongoing***
Objective: Support pet waste management program to prevent bacterial contamination in the bay.

Description: The Estuary Program has managed a Mutts for the Bay Program since 2008. The effort involves accepting donations, installing dispensers, coordinating volunteers, and working with partners to install and maintain pet waste bag dispensers throughout the watershed. Use of the bags

prevents bacteria from pet waste from reaching the estuary, where shellfish farms and recreational bay users require clean water.
Partners and Their Roles: Partners include the city of Morro Bay and San Luis Obispo County, the two entities responsible for stormwater management efforts in the urban areas surrounding the estuary. A portion of the effort involves public education to share a clean water message and encourage responsible pet owner behavior. The Harold J. Miossi Charitable Trust is a private foundation who awarded the Estuary Program three years of funding to support operational and educational costs related to the effort.
Outputs/Deliverables: Program statistics and milestones will be provided in the semi-annual reports.
Estimated Milestones: Program statistics will be ongoing.
Estimated Budget: Staff time.
Long-term Outcomes: Responsible behavior by pet owners reduces bacterial loading to the estuary, protecting beneficial uses such as shellfish farming and recreation.
CWA Core Programs the Project Supports: Addressing diffuse, nonpoint sources of pollution. Protecting wetlands. Protecting coastal waters through the National Estuary Program.

5.3.7 Project Name: State of the Bay

Project Status: ***Ongoing***
Objective: Planning for the triennial State of the Bay report and events.

Description: Every three years, the Estuary Program hosts a State of the Bay (SOTB) conference/event series to share knowledge about the status of the estuary and watershed in terms of clean water and healthy habits. The Estuary Program will be planning for events throughout the first half of FY20 in preparation for events in Spring 2020. The Estuary Program develops a public-friendly report to share data collected by our program and our partners. The series of events will share the data as well as a clean water message.
Partners and Their Roles: Project partners include the Central Coast State Parks Association docents, ECOSLO (a local non-profit focused on environmental conservation), and other education partners.
Outputs/Deliverables: The deliverables include a report card available in print and online, plus attendance statistics from SOTB events.
Estimated Budget: Staff time and $8,000 to support event planning and logistics.
Long-term Outcomes: To share the results of monitoring by the Estuary Program and its partners, with the goal of increasing education on nonpoint source pollution, restoration, etc.
CWA Core Programs the Project Supports: Addressing diffuse, nonpoint sources of pollution. Protecting wetlands. Protecting coastal waters through the National Estuary Program.

5.4 Program Management

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

1. Morro Bay National Estuary Program will maintain good standing with the EPA and ANEP.
2. Morro Bay National Estuary Program will continue to improve administration and program management to successfully support environmental goals and manage resources in a fiscally responsible manner.

5.4.1 Project Name: Manage Committees and Build Partnerships

Project Status: ***Ongoing***
Objective: Hold quarterly committee meetings and support partnerships.

Description: The Estuary Program will continue to staff and coordinate the Executive Committee on a quarterly basis. Staff provides notice, meeting materials, and helps facilitate the meetings.
Partners and Their Roles: The Management Conference committees are made up of representatives from various economic, environmental, and educational organizations. The technical advisory committees that support monitoring, restoration, and education are made up of local experts who can advise the Estuary Program in these various programmatic areas.
Outputs/Deliverables: Deliverables include meeting minutes, agendas, staff reports, and other materials for meetings.
Estimated Milestones: These deliverables are produced quarterly.
Estimated Budget: Staff time.
Long-term Outcomes: Committees meet as needed to provide input and direction for the Estuary Program and to ensure that other partnerships are well supported.
CWA Core Programs the Project Supports: Support contribution toward all CWA core programs.

5.4.2 Project Name: Grants and Contracts Administration and Financial Management

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

Description: Each year we must evaluate our prior year's progress, anticipate the upcoming year's potential, and develop a workplan and budget. The workplan for FY21 is due to EPA Region IX in April 2020. Other grants and financial management tasks include reporting and tracking for grants, preparing financial reports for the Bay Foundation and management committees, and completing year-end financial statements and an annual audit. Estuary Program staff will attend the fall 2019 and spring 2020 NEP Tech Transfer meetings.
Partners and Their Roles: Partners include the Bay Foundation, the board that serves as the bursar for the Estuary Program. EPA is a primary partner, providing oversight and guidance for the program.
Outputs/Deliverables: The deliverables include the work program and budget (Spring 2020), biannual EPA grant reports (Spring 2020 and Fall 2020), annual financial statements submitted to the federal clearinghouse (Spring 2020), and annual state and federal tax submission submitted to the State of California and the IRS (Spring 2020).
Estimated Milestones: See above.
Estimated Budget: Staff time; accounting/auditing costs of $18,453; NEP Tech Transfer meetings and other travel costs of $6,000. Total cost of $24,453.
Long-term Outcomes: Grant administration and financial management tasks are completed in a timely and accurate manner.
CWA Core Programs the Project Supports: Support contribution toward all CWA core programs.

5.4.3 Project Name: General Administration and Human Resources Management

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

Description: The Estuary Program requires ongoing financial and administrative functions, including recordkeeping and filing, bookkeeping, preparing audited financial statements, equipment and office space upkeep, as well as interacting with the general public. In addition, the Director spends time managing staff performance and workplan progress. Other HR tasks include training and professional development, recruitment when applicable, managing interns, and keeping all personnel policies and procedures up to date. Staff maintains up-to-date bookkeeping records, public-friendly office space, orderly and properly operating office and field equipment, annual staff performance reviews, and updated policies and procedures. Bi-weekly staff meetings will be conducted.
Partners and Their Roles: The primary partner for this task is the Bay Foundation board. As the employer of Estuary Program staff, they set the policies and procedures for the organization.

Outputs/Deliverables: The Estuary Program provides program management updates in the EPA semi-annual reports.
Estimated Milestones: See above.
Estimated Budget: Staff time, and professional development costs of $1,000.
Long-term Outcomes: Policies and procedures must remain up to date so that the organization can function smoothly, allowing staff to focus on attaining the goals of the organization.
CWA Core Programs the Project Supports: Support contribution toward all CWA core programs.

5.4.4 Project Name: Tracking Implementation of the Management Plan and Work Plan

Project Status: ***Ongoing***
Objective: Keep track of workplan and Management Plan implementation.

Description: The Estuary Program tracks progress on the Management Plan Action Plans on a biannual basis. Workplan implementation is tracked with biannual reports on deliverables. Tracking project and program effectiveness is ongoing and includes biannual reports, NEPORT reporting, grant reporting, monitoring, and general project management.
Partners and Their Roles: The primary partner is the Bay Foundation board who oversees the organization's finances.
Outputs/Deliverables: The deliverables include semi-annual reports to EPA (Spring 2020 and Fall 2020), and NEPORT data (Summer 2020).
Estimated Milestones: See above.
Estimated Budget: Staff time.
Long-term Outcomes: Management Plan and workplan tracking occurs to ensure that tasks are completed in a timely and accurate manner.
CWA Core Programs the Project Supports: Support contribution toward all CWA core programs.

5.4.5 Project Name: Management Plan Update/Revision

Project Status: ***Ongoing***
Objective: Update the Comprehensive Conservation and Management Plan (CCMP) per EPA guidance.

Description: Complete CCMP update, following the most up-to-date EPA guidance. The updated CCMP will include minor changes to Action Plans, integration of climate vulnerability assessment content, updated communication and finance plans, and Management Conference review.
Partners and Their Roles: The primary partners are the Bay Foundation board, the EC, advisory committees, and other project partners. All will contribute input and guidance throughout this process.
Outputs/Deliverables: The final updated CCMP will be completed by the end of FY20.
Estimated Milestones: See above.
Estimated Budget: Staff time.
Long-term Outcomes: Working toward a Management Plan that is up-to-date and relevant, per EPA's guidance.
CWA Core Programs the Project Supports: Support contribution toward all CWA core programs.

5.4.6 Project Name: Program Evaluation

Project Status: ***New***
Objective: Facilitate EPA site visit and review of program in the five-year Program Evaluation process.

Description: Every five years, each National Estuary Program is visited by EPA to review the program's compliance with EPA guidelines and to assess the progress of their CCMP. It is an opportunity for EPA staff to meet Estuary Program staff and partners.

Partners and Their Roles: The primary partner is EPA staff from headquarters and the regional office. A director from another NEP will also participate.
Outputs/Deliverables: The deliverables include the Program Evaluation package that is assembled prior to the visit. This will be completed in Spring 2020 in preparation for the visit in Summer 2020.
Estimated Milestones: See above.
Estimated Budget: Staff time.
Long-term Outcomes: Program Evaluation by EPA provides guidance for complying with National Estuary Program requirements.
CWA Core Programs the Project Supports: Support contribution toward all CWA core programs.

6 Completed Major Projects

This section reports on major projects that were completed or expected to be completed in FY19. These accomplishments are also included in the biannual reports submitted to the EPA in April and October.

Project Name: Land Conservation

Project Objective: Conserve land within the Morro Bay watershed through conservation easements, acquisitions, or other practices. Land conserved will have specific conservation and water quality protection values, such as riparian habitat, special status species protection, or other important qualities.

Project Description: The Estuary Program has long history of partnership to protect and conserve lands. Two conservation deals were recently completed. The Land Conservancy of SLO County (LCSLO) received funding from the Department of Defense to conserve lands near military facilities with Army Compatible Use Buffer (ACUB) funding. An easement on a 133-acre farm in the Los Osos Valley took a few years to develop. The deal was completed in the beginning of FY19. The Estuary Program contributed to the deal (from the private Restoration Fund), which was also funded by LCSLO donors, ACUB funds, and landowner contribution. The property includes coast live oak woodland that support wildlife species that migrate through the nearby Irish Hills ecosystem.

Also recently completed was an easement on a 320-acre ranch in the Chorro Creek subwatershed. The ranch features rolling hills of annual grasslands, oak-studded riparian corridors, and large serpentine outcrops with shrublands along the hills. This project was also funded through ACUB, LCSLO donations, and landowner contribution.

Lead Implementer, Partners and Their Roles: The LCSLO was the lead implementer for both easements. They were recipient of the primary source of funding, ACUB, and they developed the landowner relationship to orchestrate the agreements. The Estuary Program contributed substantial funding for the easement in the Los Osos Valley. The landowners were crucial project partners because of their willingness to conserve their lands and through their financial contributions to these agreements.

Accomplishments and Deliverables: As a result of the easements, acreage throughout the watershed is protected from extensive development and intensive agriculture operations such as feedlots. The Estuary Program is meeting our deliverable and milestone goals at this time. Land conservation addresses climate adaptability and vulnerability by protecting habitat to maintain biodiversity and ecosystem function.

Amount of 320 Grant/Cooperative Agreement Funds Spent: Staff time.

Expected Long-term Outcomes: The expected outcome is protection of lands throughout the watershed and maintaining a heritage of agriculture.

CWA Core Program Project: The Estuary Program played the central role in implementing a CWA tool: Protecting coastal waters through the National Estuary Program.

External Constraints: The greatest challenges with land conservation are developing relationships with willing landowners and obtaining funding for supporting these agreements. At this time, Estuary Program efforts are implementing the workplan and attaining objectives, and all milestones and deliverables are on schedule.

Project Name: Explore the Coast App

Project Objective: Communicate with visitors to Morro Bay to educate and promote stewardship.

Project Description: The California Coastal Conservancy maintains an Explore the Coast Grant Program. It funds accessibility to the coast and includes projects such as transportation for school fieldtrips to the coast and environmental education support. A recent initiative included developing a web-based app called Explore the Coast. The goal of the app is to draw people to the coast, to teach them about the natural resources and outdoor recreation opportunities available here, and to encourage them to visit natural areas that they might otherwise miss. Various coastal locations were part of the effort, including Morro Bay. The Estuary Program received a grant to create content for the app that highlights our local sights and species. We completed our app content for twelve points of interest around the Morro Bay estuary in FY18. Our content includes videos, podcasts, information about responsible recreation and bay stewardship, updates about the health of the bay, and interactive quizzes that foster stewardship. A prototype of the app is available and the full public roll-out expected soon. The Coastal Conservancy staff brought their board members to Morro Bay in December 2018 to unveil the app and highlight the Estuary Program's contribution to the effort with a visit to several points of interest along the bay. The field visit was well-received by board members.

Lead Implementer, Partners and Their Roles: The Estuary Program was the lead implementer of developing Morro Bay-specific content. Estuary Program staff planned and developed content and contracted with content providers such as computer programmers, photographers, and videographers. The Coastal Conservancy was a primary partner, as the developer of the app platform, the funder of the effort, and the recipient of the content for incorporation into the app. Other partners included State Parks, Morro Coast Audubon Society, and other partners who contributed content or their expertise for review.

Accomplishments and Deliverables: Deliverables include app content, photos, videos, PDFs, interactive web forms, and a Morro Bay estuary passport sheet that visitors complete as they utilize the app. The passport sheet provides an analog alternative to the web forms, increasing access to the content for visitors who do not have access to mobile devices.

Amount of 320 grant/cooperative agreement funds: Staff time.

Expected Long-term Outcomes: The expected long-term outcomes include public-friendly app content to share with residents, visitors, partners, and others. The content promotes stewardship of the natural resources and stresses the importance of a clean water message.

CWA Core Program Project: The Estuary Program played a central role in implementing a CWA tool: Protecting coastal waters through the National Estuary Program.

External Constraints: The objectives, milestones, and deliverables of the workplan are being met.

Project Name: Partnerships for Steelhead

Project Objective: Support removal of a fish barrier and monitor improvements to a water diversion.

Project Description: The Estuary Program maintains an active monitoring effort, working with volunteers and partners to create a robust data set to allow for trend analysis and assessment of project effectiveness. Monitoring to protect water quality and water quantity for steelhead is also a program priority. The Estuary Program has conducted long-term ambient monitoring for flow and water quality on Pennington Creek. Trout Unlimited partnered with the landowner, the SLO County Office of Education, to remove a fish migration barrier and make improvements to an uncontrolled diversion. The project improves fish passage by removing an outdated fish passage structure that had become a barrier and by keeping more water in the creek during the dry

season. The Estuary Program installed a pressure transducer at the site prior to the project work and reinstalled it following the completion of implementation. Staff continue to monitor flows and water quality at the site to detect the impacts of the project.

Lead Implementer, Partners and Their Roles: The Estuary Program is the lead implementer in the project monitoring support. Estuary Program staff implement monitoring and coordinate with partners to share data. Partners in implementing the project were Trout Unlimited, the California Conservation Corps, and the SLO County Office of Education, as well as NOAA who provided funding for the effort.

Accomplishments and Deliverables: Deliverables include a high quality data set that is available to partners and the public through the California Environmental Data Exchange Network (CEDEN), a State Water Board-maintained data portal.

Amount of 320 grant/cooperative agreement funds: Staff time.

Expected Long-term Outcomes: The expected long-term outcomes include well-documented high quality monitoring data, which increases its usability.

CWA Core Program Project: The Estuary Program played a central role in implementing a CWA tool: Protecting coastal waters through the National Estuary Program.

External Constraints: The objectives, milestones, and deliverables of the workplan are being met.

7 Areas of Special Interest

Nutrient Management and Control Activities

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.

Bioreactor Working Group: The CCRWQCB is concerned about elevated nutrient levels in the surface waters of the region. As a result, they have created a bioreactor working group to share information on implementation of this tool to help spread its use throughout the region. Estuary Program staff participates in this group and hopes to work with partners to implement bioreactor technology in the watershed.

Los Osos Wastewater Treatment Project: Construction was completed in Spring FY16 and the final phase of sewer lateral connections was completed in March 2017. The county continues to work with the few households which have not yet connected to the system. San Luis Obispo County has contracted for on-going monitoring of groundwater nitrate levels. Monitoring conducted in 2018 showed an increase in nitrate levels for half of the sites monitored, and 15 of the wells had average nitrate concentrations greater than the safe drinking water standard.

The Estuary Program is conducting monitoring of freshwater seeps along the Los Osos shoreline that empty into the bay. Sampling began in April 2014. To date, nitrate data is essentially unchanged from before the plant came online. The Estuary Program will continue seeps monitoring to document reductions in nitrate concentrations following the wastewater treatment project coming online. The Estuary Program has a long history of involvement in the effort, serving on the Technical Advisory Committee that made project-related decisions when the effort began in 2007.

Restoration Efforts to Address Nutrients: The Estuary Program is involved in numerous restoration efforts to address nutrients. These include the Los Osos Wetland acquisition by the CSLRCD and the subsequent planning for restoration. The Estuary Program provided funding for the appraisal required for the acquisition and also assisted with review of the restoration plans. The Estuary Program continues its restoration work on the Chorro

Creek Ecological Reserve. The planned implementation project will restore the floodplain, which will in turn reduce nutrient loading to the bay.

Coastal Community Resiliency

A changing climate presents threats to coastal communities around the globe. The Estuary Program works with partners, agencies, and others to work to understand potential changes and how we can increase our resiliency to protect habitats and infrastructure.

Climate Vulnerability Assessment Implementation: To identify potential risks and adaptations, the Estuary Program developed a Climate Vulnerability Assessment according to the protocol developed by EPA. The effort included climate modeling, analysis of historic data, and analysis of associated risks. It also identified future actions to improve resiliency. Floodplain restoration is one of these identified actions, and the Estuary Program is moving forward with efforts to restore the Chorro Creek Ecological Reserve. The plans and permits are complete and the project will be going out to bid. The Estuary Program received a Climate Ready Estuary grant from EPA to assist with implementation.

CCMP Update with Climate Analysis: As part of the CCMP update process continues, the Estuary Program is assessing the status of CCMP Action Plans with an eye toward actions, threats, and outcomes outlined in the climate vulnerability assessment. Staff are in the midst of updating Action Plans and wherever relevant, the plans include a climate assessment component.

Climate and Adaptation Education: As part of our education & outreach efforts, the Estuary Program has integrated climate change and adaptation into our curriculum and our messaging. A nearly completed Nature Center exhibit funded by a local foundation will educate the public on tides, climate, and climate change. The Estuary Program also participates in the Central Coast Climate Collaborative, which brings together local municipalities and non-profits to develop the tools the central coast needs to help understand climate change and its impacts. These tools include the CosMoS, which is localized coastal storm monitoring, and the city of Morro Bay's sea level rise analysis.

Climate Ready Estuaries Funding: This funding is supporting the Chorro Creek Ecological Reserve Floodplain Restoration Project. Funding has supported a sensitive plant survey and a Red-Legged Frog habitat and frog presence survey to support permitting for the project. Additional Climate Ready Estuaries funding will go towards a pre-project California Rapid Assessment Monitoring (CRAM) survey, geomorphic surveys, and a portion of invasive species removal efforts before project construction begin.

7.1 Community Projects in prior year

Table 7.1: Community projects (Spring 2018 - Spring 2019):

FY Year	Partner	Project Title	Purpose and Deliverables	Amount
2018	City of Morro Bay Harbor Department	Oil Spill Containment and Response	Purchase spill kits for individual docks to increase efficiency in spill response. Distribute clean boating educational materials to boat owners.	$4,192
2018	Dr. John Perrine	Documenting Large and Medium-sized Mammals in the Morro Bay Watershed Using Automatic Wildlife Cameras	Purchase wildlife cameras to deploy throughout the watershed. Work with students to manage the cameras and the data. Collect information on wildlife presence and corridor use, which will support future conservation and restoration efforts.	$4,400
2019	Drs. Laurie McConnico and Silvio Favoreto	*Labyrinthula spp.* and eelgrass wasting disease in the Morro Bay estuary	Purchase reagents and other supplies needed to conduct culturing and qPCR of Labyrinthula, a pathogenic slime mold that is thought to play a role in eelgrass decline. Support student lab	$4,998

FY Year	Partner	Project Title	Purpose and Deliverables	Amount
			assistants. Send a student to a technical conference to present project results.	
2019	San Luis Obispo Marine Protected Area Collaborative	Outfitting Exploration	Purchase a controller to operate an underwater ROV donated to the San Luis Obispo MPA Collaborative. Supports underwater research and education.	$450
Total Amount Expended:				**$14,040**

Table 7.1 summarizes the Community Projects over the last year (Spring 2018 – Spring 2019). All projects help implement the Comprehensive Conservation and Management Plan with an emphasis on engaging the community in the project. Funds used to support Community Projects come from the Morro Bay Restoration Fund, a match source to the EPA 320 funding.

7.2 Travel Expenses

Table 7.2: Travel expenses charged to 320 funds (October 1, 2018 – March 31, 2019)

Event	Location	Trip Purpose	Dates	Staff Attended	Costs Included	Total Amount
NEP Tech Transfer Conference	San Francisco, CA	Information sharing and technology transfer between NEPs and partners	10/3/18 to 10/5/18	Lexie Bell	Mileage, meals, incidentals, lodging	$1,718
NEP Tech Transfer Conference	San Francisco, CA	Information sharing and technology transfer between NEPs and partners	10/4/18 to 10/5/18	Carolyn Geraghty	Mileage, meals, incidentals, lodging	$457
NEP Tech Transfer Conference	San Francisco, CA	Information sharing and technology transfer between NEPs and partners	10/4/18 to 10/5/18	Ann Kitajima	Mileage, meals, incidentals, lodging	$639
NEP Tech Transfer Conference	San Francisco, CA	Information sharing and technology transfer between NEPs and partners	10/4/18 to 10/6/18	Rachel Pass	Mileage, meals, incidentals, lodging	$1,116
Bioassessment Training	Davis, CA	Bioassessment monitoring training to discuss field protocols, data analysis, and research	10/22/18 to 10/25/18	Karissa Willits	Mileage, meals, lodging, incidentals	$598
RAE Conference	Long Beach, CA	Technical conference focused on estuary restoration and monitoring	11/10/19 to 11/12/19	Carolyn Geraghty	Mileage, meals, lodging, incidentals	$1,009
RAE Conference	Long Beach, CA	Technical conference focused on estuary restoration and monitoring	11/10/19 to 11/12/19	Karissa Willits	Mileage, meals, lodging, incidentals	$1,253
NEP Tech Transfer Conference	Washington, DC	Information sharing and technology transfer between NEPs, EPA, and other groups	3/11/19 to 3/15/19	Lexie Bell	Airfare, lodging, per diem, incidentals	$2,034
National Water Quality Monitoring Conference	Denver, CO	Conference on monitoring methods and analysis	3/24/19 to 3/29/19	Karissa Willits	Airfare, meals, lodging, incidentals	$1,652
TOTAL						**$10,476**

Table 7.2 details travel expenses incurred so far during FY19, including attendance at the biannual NEP meetings, professional development trainings, and conferences.

No travel is planned for the second half of FY19.

7.3 Outreach Events and Field Trips

Table 7.3: Outreach Events and Field Trips for April 2018 through March 2019

Date	Organization	Presentation Topic	Audience Size	Audience Type
4/10/2018	Windward School in LA through Atlas Travel	Watershed model, stewardship, nonpoint source pollution, Estuary Program overview	25	Students
4/11/2018	Baywood Kindergarten Classes	Watershed model, stewardship, nonpoint source pollution, Estuary Program overview	48	Students
4/23/2018	Cuesta College	Oceanography class - nitrates	30	Students
4/24/2018	Monarch Grove Kindergarten Classes	Watershed model, stewardship, nonpoint source pollution, Estuary Program overview	44	Students
4/27/2018	Girl Scout Troop from Arroyo Grande	Watershed, wildlife, stewardship, nonpoint source pollution, Estuary Program overview	7	Students
5/4/2018	San Benito Elementary School Science Fair with Cuesta College	Biodiversity of estuary environment, food chain basics, shorebirds and beak adaptations.	65	Students
3/30/2018 to 5/7/2018	San Luis Obispo Public Library	Effects of plastics and other trash on water quality and wildlife. Importance of estuary habitat, loss and restoration of eelgrass.	21,121	Public
5/8/2018	State Parks and Del Mar Elementary School	Watershed, basic creek food chain, water quality and macros.	61	Students
5/21/2018	Audubon Society	Building Partnerships for Eelgrass Recovery	25	Public
6/1/2018	Fresno County Adult Transitional program	Watershed model, stewardship, nonpoint source pollution	30	Students
6/14/2018	Morro Bay National Estuary Program	Morro Bay Science Explorations with the Estuary Program: Fish and Fisheries.	27	Public
6/16/2018	Morro Bay Natural History Museum	Aquatic Insect Program	45	Public
6/28/2018	Delphinius School	Watershed model, stewardship, nonpoint source pollution	7	Students
6/29/2018	Delphinius School	Watershed model, stewardship, nonpoint source pollution	13	Students
7/10/2018	Morro Bay Library/Free School Lunch program	Estuary Program overview	4	Public
7/17/2018	Cuesta College for Kids, Marine Science Class	Wildlife of Morro Bay and eelgrass habitat connections	13	Students
7/30/3018	Delphinius School	Watershed model, stewardship, nonpoint source pollution	7	Students
8/24/2018	Elkhorn Slough NERR	Estuary Program overview, all three program areas' work in eelgrass	15	Technical
8/25/2018	NOAA San Simeon's Discovery Center	Bird beak adaptations and scientific process, Estuary Program overview	315	Public
9/28/2018	Oceanography class for Cuesta College	Morro Bay water quality monitoring and field measurement techniques lab	30	Students
10/1/2018	MBHS Biology class	Morro Bay Estuary eelgrass, food webs, restoration, creek health, climate change, stewardship	100	Students
10/1/2018	Oceanography class for Cuesta College	Morro Bay water quality monitoring and field measurement techniques lab	14	Students
10/12/2018	CA Naturalist Class at Cuesta College	Estuary Program intro, eelgrass monitoring and restoration, citizen science through bioassessment case study	19	Public
10/22/2018	MBHS Biology class	Morro Bay Estuary eelgrass, food webs, restoration, creek health, climate change, stewardship	100	Students

Date	Organization	Presentation Topic	Audience Size	Audience Type
10/24/2018	Los Osos Kiwanis Club	Morro Bay eelgrass update	12	Public
11/9/2018	Central Coast Chapter of the Wildlife Society	Estuary Program 101	30	Technical
11/10/2018	Los Osos Library/Children's Librarian	Macroinvertebrate monitoring, adaptation, estuary, watershed	20	Public
11/14/2018	Cal Poly Biology 227	Estuary Program intro, CCMP Action Plans, issues facing the estuary	45	Students
11/14/2018	City of SLO	GIS Day; professional networking, data communication, student outreach	70	Public
11/16/2018	Oceanography class at Cuesta College	Morro Bay nutrients	30	Students
11/19/2018	Oceanography class at Cuesta College	Morro Bay nutrients	14	Students
12/10/2018	Coastal Estuarine Restoration Federation Conference	Morro Bay Esuary eelgrass	40	Technical
1/17/2019	City of Morro Bay Tourism Department	Estuary basics, biodiversity, wildlife, responsible wildlife viewing and paddling	32	Public
1/18/2019	Morro Bay Winter Bird Festival	Estuary Program, watershed basics, restoration projects	12	Public
1/18/2019	Morro Bay Winter Bird Festival	Estuary Program, eelgrass, sedimentation, brant geese	14	Public
1/22/2019	Cal Poly Social Sciences Department	Estuary Program, Bioassessment monitoring, careers in environmental restoration and preservation	31	Students
1/28/2019	Cal Poly Wetlands Class	Environmental problems and restoration solutions being implemented in watershed.	20	Students
1/31/2019	Estuary Program and SLOPE Painters	SLOPE show in support of Estuary Program and CCSPA	4	Public
2/21/2019	Estuary Program, the public	South Central Steelhead, barriers, recovery efforts, etc. (external speakers were Ken Jarrett and Steph Wald)	35	Public
3/18/2019	Oceanography class for Cuesta College	Morro Bay water quality monitoring and field measurement techniques lab	35	Students
3/11/2019	Morro Bay High School Freshman Biology Classes	Effects of microplastic on environment and wildlife and microplastic monitoring training	180	Students
3/13/2019	Morro Bay High School Freshman Biology Classes	Microplastic monitoring sampling	90	Students
3/14/2019	Morro Bay High School Freshman Biology Classes	Microplastic monitoring sampling	90	Students
3/15/2019	Morro Bay High School Freshman Biology Classes	Review of field work activity and lab analysis to determine mass/weight of microplastics in sand samples	180	Students
3/20/2019	Baywood Kindergarten classes	Watershed model demonstration	52	Students
3/21/2019	Estuary Program, the public	Wildlife and restoration in our creeks (Speakers were Karissa Willits, Freddy Otte, and Kate Lundquist)	44	Public
3/23/2019	Girl Scouts of the Central Coast	Watershed model demonstration	56	Public
3/26/2019	NWQM Conference poster session	Bioassessment and partnerships	50	Technical

8.0 Glossary

The following terms and acronyms are used in this workplan:

Acronym	Explanation
ANEP	Association of National Estuary Programs. www.nationalestuaries.org
Cal Poly	California Polytechnic State University, San Luis Obispo. www.calpoly.edu
CCC	California Conservation Corps
CCER	Chorro Creek Ecological Reserve

Acronym	Explanation
CCMP	Comprehensive Conservation and Management Plan
CCRWQCB	Central Coast Regional Water Quality Control Board
CEQA	California Environmental Quality Act
CSLRCD	Coastal San Luis Resource Conservation District
CWA	Clean Water Act, the enabling legislation for the National Estuary Program.
DFW/CDFW	California Department of Fish and Wildlife
EPA	Environmental Protection Agency www.epa.gov
GIS	Geospatial Information System
HCP	Habitat Conservation Plan
IS/MND	Initial Study/Mitigated Negative Declaration
LCSLO	Land Conservancy of San Luis Obispo County www.lcslo.org
LIDAR	Light Detection And Ranging. LIDAR is an established method for collecting very dense and accurate elevation values using light pulses to determine distance.
LOCSD	Los Osos Community Services District http://www.losososcsd.org/cm/Home.html
MBNEP	Morro Bay National Estuary Program. www.mbnep.org
NEPA	National Environmental Protection Act
NEPORT	National Estuary Program Online Report Tool. NEPORT is an online system where all Estuary Programs report annual habitat restoration and leveraging reports.
NPS	Non-Point Source
QAPP	Quality Assurance Project Plan. A QAPP describe the quality assurance procedures, quality control specifications, and other data collection and analysis details required to complete a project. Estuary Program maintains an up-to-date QAPP for the VMP.
QA/QC	Quality Assurance/Quality Control
RWQCB/CCRWQCB	Central Coast Regional Water Quality Control Board
SWAMP	Surface Water Ambient Monitoring Program – a program created to coordinate water quality monitoring collected by the State and Regional Water Boards. http://www.waterboards.ca.gov/water_issues/programs/swamp/
SWRCB	State Water Resources Control Board
TMDL	Total Maximum Daily Loads. TMDL is the maximum amount of a pollutant that a waterbody can receive and still safely meet water quality standards.
VMP	Volunteer Monitoring Program