



Semi-Annual Report: October 2018 – March 2019

The Morro Bay National Estuary Program (Estuary Program) has continued to move forward on completing new and ongoing tasks in the Fiscal Year (FY) 2019 workplan. All workplans are approved by the Environmental Protection Agency and the Estuary Program's Executive Committee. The budget report shows that our Section 320 expenses under the current grant in the first half of the fiscal year were \$306,742. As of March 31, we have expended 70% of our current 320 grant (started in FY17), with a remainder of approximately \$577,771. The Estuary Program has met 131% of its match requirement for the cumulative grant with cash match and estimated current in-kind contributions (at approximately \$2,500,203).

The Estuary Program requests EPA's continued participation on the Executive Committee and assistance with meeting relevant administrative and programmatic grant conditions. During this reporting period, the Estuary Program continued to work to meet the requirements of the final program evaluation letter, which was completed in FY16. The Estuary Program also requests participation from the EPA Project Officer in providing feedback as the update process for the Comprehensive Conservation and Management Plan (CCMP) moves forward.

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

Habitat and Water Quality Protection and Restoration

Land Conservation

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

Status: Ongoing task

Progress Toward Milestones: The Estuary Program has worked with the Land Conservancy of San Luis Obispo County (LCSLO) to further easement and acquisition projects in the watershed. Staff time has been spent to develop these opportunities and support Land Conservancy efforts. Additional land conservation deals are underway in the watershed.

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

Problems Encountered: None.

Activities Planned for Next Six Months: In the second half of FY19, the Estuary Program plans to coordinate with the Land Conservancy and other partners on potential land conservation efforts.

Pending deliverables include updating a map tracking protected lands and completing NEPORT reporting.

Restoration Maintenance and Monitoring

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

Status: Ongoing task

Progress Toward Milestones: The Estuary Program completed monitoring of flows in Pennington Creek to assess the impacts of a rainwater catchment project and coordinated with the Central Coast Salmon Enhancement (CCSE) on monitoring and data analysis approaches. Data was submitted to CCSE for analysis. Staff collected habitat project information for submission to the NEPORT system. Staff conducted monitoring of eelgrass restoration sites planted in 2017, 2018, and 2019.

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

Problems Encountered: None.

Activities Planned for Next Six Months: In the second half of FY19, the Estuary Program plans to conduct easement monitoring and restoration monitoring. We will also work with partners to address any needed restoration maintenance. Pending deliverables include easement monitoring reports, restoration monitoring reports, and eelgrass restoration reports for CDFW.

Eelgrass Restoration

Objective: Develop eelgrass restoration goals based on ongoing monitoring, restoration, and research efforts with various partners.

Status: Ongoing task

Progress Toward Milestones: Estuary Program staff coordinated with local partners, including California Polytechnic State University at San Luis Obispo (Cal Poly), the city of Morro Bay, the California Department of Fish and Wildlife (CDFW), and the National Oceanographic and Atmospheric Administration (NOAA). Small-scale experimental eelgrass plantings were conducted in February and March 2019 where eelgrass was harvested from healthy beds and transplanted in various areas at different elevations. Post-project monitoring from plots planted in 2018 indicate that the eelgrass plots continue to do well and are at densities similar to the donor beds. In 2018 and 2019, all planting was conducted in the winter and spring based on the results of the 2017 planting, which showed higher survival from the March effort than the July effort. A new method of anchoring eelgrass transplants was tested in 2018, using eelgrass tied to rebar to transplant. Initial results indicate this method is also successful for anchoring eelgrass, and the method was utilized during the 2019 planting efforts. Staff also monitoring initial success of the 2019 plots, but it is too early to determine status at this stage. Staff compiled a report for 2018 with the results of the restoration efforts. Volunteers were central to the

success of the restoration effort, and 31 volunteers contributed a total of 135 hours in February and March.

The Estuary Program continues to manage a grant from CDFW Duck Stamp to support restoration and restoration monitoring efforts for 2019 to 2020. Funding from the Black Brant Group also assisted with eelgrass restoration costs.

Comparison of Actual Accomplishments with Anticipated Outputs/Outcomes: Estuary Program activities under this workplan task supported the long-term outcomes, which are monitoring results to inform future recovery actions and developing numeric targets for eelgrass restoration. The knowledge gained from earlier restoration and restoration monitoring work were utilized for designing the 2019 transplant effort and will inform future efforts and development of numeric targets.

Deliverables: Eelgrass restoration report for CDFW.

Problems Encountered: None.

Activities Planned for Next Six Months: In the second half of FY19, the Estuary Program plans to monitor eelgrass transplanted in 2019. Staff will also communicate restoration results with project partners to support future research and restoration efforts. Staff will manage the Duck Stamp Grant and will seek additional funding to support restoration and restoration monitoring. Staff will also complete the following deliverables: eelgrass restoration monitoring data and analysis, CDFW reports on 2019 eelgrass transplant effort, NEPORT submittal, and the Estuary Program 2018 Eelgrass Report.

Chorro Creek Ecological Reserve Restoration and Planning

Objective: Establish contracts and complete project implementation.

Status: Ongoing task

Progress Toward Milestones: The contract was set up between the Estuary Program and CDFW for the Fisheries Restoration Grant Program (FRGP) award of just over \$1,000,000 for project implementation. An agreement is also in place for \$400,000 from the California Coastal Conservancy for the project. A contract is in place for the revegetation contractor tasks. Estuary Program staff issued the bid package for possible General Contractors in late March 2019. Effort was also spent on coordinating with CDFW and SLO County on permitting and planning for the project including a red-legged frog survey for Army Corps of Engineers (ACOE) permitting. The permit and survey status is as follows:

- The CDFW has waived the need for a Lake and Streambed Alteration permit. The CDFW Mitigation Negative Declaration documentation will be followed in its place.
- The San Luis Obispo County Minor Use Development/Coastal Development permit has been finalized.

Deliverables: List of approved plans and permits (see above).

Comparison of Actual Accomplishments with Anticipated Outputs/Outcomes: Efforts conducted under this task directly support the outcome of supporting climate ready estuary goals including floodplain restoration.

Problems Encountered: None.

Activities Planned for Next Six Months: In the second half of FY19, the Estuary Program plans to review bids, select a General Contractor, and complete implementation by late Fall 2019.

Other Restoration Efforts

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

Status: Ongoing task

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

- Public process for wastewater treatment facility in Morro Bay.
- City of Morro Bay Harbor Advisory Board subcommittee on eelgrass.
- General outreach on invasive species as part of watershed tours and presentations.
- County Stormwater Resource Plan development through Regional Water Management Group meetings.
- SLO County and Caltrans effort to replace the bridge over Los Osos Creek on South Bay Boulevard.
- Los Osos Basin Management Committee.
- Integrated Regional Water Management (IRWM) stakeholder meetings.
- Water Board working group on bioreactor meetings.
- SLO County Weed Management Area meetings.
- Partnership with Morro Bay State Park and California Marine Sanctuary Foundation to implement a grant from California Ocean Protection Council for a stormwater improvement project at the Morro Bay State Park Marina parking lot. Funding was approved and contract is nearly complete. Construction is expected in FY20.

Staff continued progress with a habitat Conservation Planning Initiative to identify and prioritize habitat conservation efforts throughout the watershed. Efforts in this half of the fiscal year focused on establishing measurable targets and future implementation and assessment projects. Staff consulted experts for advice on this process.

Pikeminnow are an invasive fish that are thought to be impacting the recovery of steelhead in the watershed, as they prey on juvenile steelhead and compete with adults for habitat and food. The Estuary Program oversaw a study to assess pikeminnow gut contents and the presence of pikeminnow in surface waters using environmental DNA (eDNA) analysis. The final report was issued in the fall of 2018. The results indicate the presence of steelhead and pikeminnow in the mainstem and tributaries. Predation on steelhead by pikeminnow is high and could have fairly large impacts on steelhead recovery.

The Coastal San Luis Resource Conservation District (CSLRCD) is working with a private ranch to implement a riparian habitat and erosion control enhancement project. The Estuary Project contributed funding to the effort, which was completed in the beginning of FY19.

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

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

Problems Encountered: None.

Activities Planned for Next Six Months: In the second half of FY19, the Estuary Program plans to continue work on the Conservation Planning Initiative and continue to participate in the local restoration and management efforts listed above. Pending Deliverables include the following: draft conservation planning document, updated IRWM plan, County Stormwater Resource Plan, and final engineering plans for Morro Bay State Park Marina parking lot stormwater project.

Conservation and Restoration Project Development

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

Status: Ongoing

Progress Toward Milestones: Staff continues to participate in the IRWM effort at the county level, which covers issues of stormwater management, water supply issues, water quality issues, and potential implementation projects. Staff attend the quarterly meetings of the Central Coast Water Conservancy, a collaborative group working together to bring resources and projects to the Central Coast. Construction was completed on a fish barrier removal on Pennington Creek and improvements to a diversion. The Estuary Program was awarded a \$50,000 grant from the Resource Legacy Fund to be spent on landowner outreach including outreach materials, workshops, and site visits. This funding will primarily be used to support CSLRCD staff as a partner in these efforts.

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

Comparison of Actual Accomplishments with Anticipated Outputs/Outcomes: Completed construction on Pennington Creek met the Workplan task outcome of expanding steelhead access to areas in the watershed with the habitat and water quality to support sensitive species. It also met the outcome of expanding water conservation efforts to protect surface flows.

Problems Encountered: None.

Activities Planned for Next Six Months: In the second half of FY19, the Estuary Program plans to work with partners to further the progress of stormwater management and water conservation projects. The Estuary Program will work with the CSLRCD to implement the Resource Legacy Fund award to further landowner relationships and develop potential implementation projects.

Environmental Monitoring and Research

Monitoring Program Coordination

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

Status: Ongoing task

Progress Toward Milestones: Staff conducted monitoring and coordinated volunteers for work in the watershed and estuary to track long-term ambient trends and project implementation effectiveness. During the first of half FY19, the following occurred:

- Staff conducted ongoing coordination tasks, including training and recruiting volunteers, maintaining and calibrating equipment, overseeing two labs, and coordinating with monitoring partners.
- In the first half of FY19, 48 volunteers contributed 400 hours to the monitoring program and supported watershed and estuary monitoring. Between staff and volunteers, there were 42 monitoring trips for bay water quality, 85 for bacteria, and 158 for creek water quality.
- Staff coordinated with the California Department of Public Health and local shellfish growers on monitoring related to storm flows and bacteria. This includes monitoring of freshwater seeps along the bay to track improvements in bacteria and nitrates since the Los Osos Water Reclamation Facility has come on line.
- Staff continued long-term partnership with Cuesta College, teaching two oceanography laboratory and lecture sessions on water quality topics.
- Staff is planning for an upcoming bioassessment monitoring effort. The Estuary Program won funding in the first half of FY19 from a private foundation to support staff time and lab costs for the effort. Staff are currently selecting sites, organizing a volunteer training, and preparing for the field season.
- Staff analyzed suspended sediment samples collected during the winter of 2019.
- Staff monitored sites watershed-wide for nutrients on a quarterly basis to track long-term trends.

Deliverables: A quality dataset that meets the parameters outlined in the QAPP. 2018 data submitted to CEDEN (see www.CEDEN.org). Activities described in Semi-annual report (see above). Memos describing bay health and creek health for Water Year 2017 and 2018. Bioassessment memo for 2018.

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

Problems Encountered: None.

Activities Planned for Next Six Months: In the second half of FY19, the Estuary Program plans to conduct the following types of monitoring: creek water quality, creek and bay bacteria, bay water quality, suspended sediment concentration, seeps water quality, and bioassessment. Staff will conduct bacteria

and suspended sediment lab work. Pending Deliverables include a Creek Health memo for 2018 and a Sediment monitoring report.

Monitoring Program Reporting and Analysis

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

Status: Ongoing Task

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

Deliverables: Monthly bacteria memos: Example Bacteria Memo. Activities described in Semi-annual report (see above). 2018 Bioassessment Memo. Creek Health Memo for 2017. Bay Health Memo for 2017. Bay Health Memo for 2018.

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

Problems Encountered: None.

Upcoming Activities: In the second half of FY19, the Estuary Program plans to respond to requests for data, create blog posts to share data, issue monthly bacteria memos, and compile sediment, bioassessment, and water quality data to share the results. Pending deliverables include a Sediment Report and a Creek Health Memo for 2018.

Monitoring Program Data Management

Objective: Maintain data in SWAMP-compatible format.

Status: Ongoing task

Progress Toward Milestones: We were delayed in submitting our 2017 data to CEDEN due to funding and contracting issues at the Regional Data Center. These issues were resolved last fall, and the Estuary Program is now caught up with data submittal to CEDEN through December 2018. The six-month data solicitation time period for the Central Coast Regional Water Quality Control Board for their 303(d) update began in December 2018, and Estuary Program data has been submitted to CEDEN and is ready to be incorporated into the Water Board's analysis.

Deliverable: Activities described in Semi-annual report (see above). Submittal to CEDEN of 2018 data.

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

Problems Encountered: None.

Activities Planned for Next Six Months: In the second half of FY19, the Estuary Program plans to work with the Regional Data Center to upload data from the first half of FY19 to CEDEN. Staff will also coordinate with Water Board staff to support the 303(d) update process. The pending deliverable is submittal of 2019 data to CEDEN.

Monitoring Program Quality Assurance

Objective: Maintain an approved Quality Assurance Project Plan (QAPP) and implement necessary quality assurance measures.

Status: Ongoing task

Progress Toward Milestones: Staff is completing updating of the QAPP for 2019 and will submit it to EPA's Office of QA for review. The next step will be to submit it to the Central Coast Regional Water Quality Control Board (CCRWQCB) QA Officer for review. The Estuary Program continues to implement the quality assurance measures contained in the QAPP, including the Sediment Lab QA testing. The QAPP includes documentation of the competency of organizations generating data for our program. The State Environmental Lab Accreditation Program (ELAP) is referenced throughout the QAPP document for each lab used.

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

Comparison of Actual Accomplishments with Anticipated Outputs/Outcomes: The update of the QAPP document directly supports the task outcome of producing a high quality data set with data supporting efforts throughout the watershed including 303(d) and TMDL assessment.

Problems Encountered: None.

Activities Planned for Next Six Months: In the second half of FY19, the Estuary Program will respond to EPA comments on the 2019 QAPP and finalize the plan. The document will be sent to the State for review. Staff will also conduct the QA measures needed to ensure the quality of program-generated data. Pending deliverables include EPA and CCRWQCB approval of the QAPP.

Project Effectiveness Monitoring

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

Status: Ongoing task

Progress Toward Milestones: The Estuary Program conducted suspended sediment monitoring at one sampling site throughout a one-month period during the winter of 2019. At this same time, Cal Poly's Sea Grant project team had sensor arrays deployed in the bay to measure water quality. Cal Poly will utilize the creek sediment loading data in their modeling effort looking at bay hydrodynamics and circulation. Staff conducted monitoring of the freshwater seeps at the bay's edge to assess the impacts of the recently completed Los Osos Wastewater Water Reclamation Facility. The Estuary Program conducts monitoring for a project on Pennington Creek to assess impacts from improvements to a water diversion. Staff also conducted monitoring of eelgrass conditions in the bay.

Deliverables: Monthly bacteria memos: Example Bacteria Memo. Eelgrass Restoration Monitoring: CDFW permit reports. Activities as described in the Semi-annual report (see above).

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

Problems Encountered: None.

Activities Planned for Next Six Months: In the second half of FY19, the Estuary Program plans to continue monitoring the seeps and the water diversion improvement project on Pennington Creek. Staff will also communicate with project partners to share data results and coordinate efforts. A pending deliverable is a Sediment monitoring report.

Eelgrass Monitoring and Research

Objective: Monitor eelgrass to determine distribution in the bay.

Status: Ongoing Task

Progress Toward Milestones: Estuary Program staff coordinated on research and monitoring efforts with Cal Poly, NOAA, CDFW, Cuesta College, and other project partners. Staff compiled a monitoring report to summarize all work conducted in 2017. The Estuary Program established an interagency agreement with NOAA for their Office for Coastal Management to run our bay bathymetry effort. They have the expertise in image acquisition and data classification to create a quality product. The Estuary Program received funding from EPA, USFWS, and NOAA to support the bathymetry survey effort. The results will provide information for the Sea Grant hydrodynamic model, bay sedimentation tracking, and elevation data to guide future eelgrass restoration efforts.

Deliverables: 2017 Morro Bay Eelgrass Report, including 2017 baywide eelgrass map.

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

Problems Encountered: The federal government shutdown did have indirect impacts on this task. Development of the interagency agreement with NOAA was delayed during that time period, although the expectation is that the project should be able to proceed as schedule.

Activities Planned for Next Six Months: In the second half of FY19, the Estuary Program will continue to monitor the progress of eelgrass restoration efforts conducted in 2019. Staff will coordinate with project partners to share our findings. Staff will work with NOAA to complete a bay bathymetry study. Staff will complete a report summarizing all eelgrass related efforts in 2018. Pending deliverables include the 2018 Morro Bay Eelgrass Report, Sea Grant project reports, and a baywide bathymetry survey.

Partner Research Efforts

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

Status: Ongoing task

Progress Towards Milestones: Estuary Program staff coordinated and collaborated with Cal Poly, CDFW, NOAA, Cuesta College, ACOE, the city of Morro Bay, and other project partners to research the causes of eelgrass decline and related water quality issues. Studied eelgrass monitoring and restoration methods in other areas, and reached out to other researchers. Sought results of research efforts in Morro Bay related to nutrients, sedimentation, and other water quality data. Continued work with Cal Poly on the Sea Grant project to study sedimentation in the bay and its past and future impacts on eelgrass. The Estuary Program supports fieldwork, modeling, and other efforts related to the effort. Held an information exchange with the Elkhorn Slough National Estuarine Research Reserve (NERR) on marsh habitat and sedimentation to share information on restoration, monitoring, and research at each of our organizations. We are planning a field visit by Elkhorn Slough later this spring to exchange research, monitoring, and restoration information.

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

- USGS water quality characterization study.
- USGS tidal marsh elevation impacts from SLR.
- Cal Poly study of estuary water quality to assess impacts of ocean acidification.
- Cal Poly mapping via drone of baywide eelgrass.
- Cal Poly research into impact of crabs on eelgrass.
- Cal Poly research on impact of brant grazing on eelgrass.
- Cuesta College research on impact of *Labyrinthula spp.* wasting disease on eelgrass.

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

Deliverables: 2017 eelgrass report.

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

Problems Encountered: None.

Activities Planned for Next Six Months: In the second half of FY19, the Estuary Program plans to coordinate with monitoring and research partners to share data, methods, and knowledge. These partners include Cal Poly, NOAA, CDFW, USGS, EPA, the Water Board, Cuesta College, and Elkhorn Slough NERR. Pending deliverables include the 2018 eelgrass report, a USGS report on water quality sampling effort results, and summaries of results of Cal Poly and Cuesta College research related to eelgrass. A data exchange fieldtrip is planned with Elkhorn Slough NERR for the spring.

State of the Bay Analysis

Objective: Conduct analysis of trends and project effectiveness data for the triennial State of the Bay (SOTB) environmental report card.

Status: New Task

Progress Toward Milestones: Every three years, the Estuary Program compiles available data to answer ten indicator questions about the health of Morro Bay and its watershed. Staff are currently in the process of gathering data, conducting analysis, and reaching out to partners.

Comparison of Actual Accomplishments with Anticipated Outputs/Outcomes: The efforts under this task focused on gathering and analyzing data directly support the outcome of sharing the results of monitoring to increase education on non-point source pollution, restoration, etc.

Problems Encountered: None.

Activities Planned for Next Six Months: In the second half of FY19, the Estuary Program will continue compiling data and conducting analysis. Staff will design graphics and write content for the document. Pending deliverables include a SOTB report card publication available in print and online.

Public Participation, Education and Outreach

Communications

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

Status: Ongoing task

Progress Toward Milestones: Estuary Program staff regularly conducted the following communications tasks:

- Created weekly blog posts which were shared via email, website, and social media. 270 subscribers receive the blog via email each week. The blog is posted on Facebook and Twitter, and corresponding content is posted to Instagram when appropriate for the platform. Popular

blog posts may have as many as 700 reads, not including subscribers. Updated the website to share program news and upcoming events.

- Conducted 30 presentations and fieldtrips that reached 1,461 individuals in person.
- Continued to increase the number of followers on Facebook to 1,915 users. Utilized two-way communication with these users, such as giveaways for rain gauge network participants and King Tides photo contest participants.
- Maintained a Twitter feed that currently has 560 followers.
- Maintained an Instagram feed that currently has 1,750 followers.
- Eight news stories (including articles and video news segments) were published that covered Estuary Program-specific content and projects in the watershed.
- Created new outreach materials for display in our Nature Center.
- Completed and distributed the 2018 Annual Report.
- Issued three news releases and 24 blurbs in online and print calendars promoting Estuary Program events and accomplishments.
- Compiled content and designed elements for a new exhibit on weather, tides, and climate change that is funded by a private foundation grant.

Deliverables: Blog posts at www.mbnep.org/blog Website and Facebook statistics (see above). 2018 Annual Report.

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

Problems Encountered: None.

Activities Planned for Next Six Months: In the second half of FY19, the Estuary Program plans to continue the communications tasks outlined above. Pending deliverables include updated printed materials about the Estuary Program and the Nature Center.

Education

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

Status: Ongoing task

Progress Toward Milestones: Efforts to support Education included the following:

- Maintained the Nature Center and its exhibits. The Nature Center received 11,706 people visiting between October 1, 2018, and March 31, 2019. During the first half of FY19, our touchscreen Estuary Science Kiosk, which includes interactive educational content related to estuarine science, received an estimated 1,900 page visits at its physical location in our Nature Center. The Estuary Science Kiosk content is also available online, and another 127 unique visitors logged 814 sessions and more than 35,000 page views during the same time period.

- Funded two Floating Lab field trips that served a total of 90 students. Continued to partner with Central Coast Aquarium, a local nonprofit focused on marine education for visitors and residents, to provide funding for Floating Lab field trips for K-12 students. This funding is prioritized for schools with Title I status. This field trip allows students to experience the bay and its wildlife, learn about water quality measurements, and practice scientific fieldwork methods.
- Completed publication of a kids' activity workbook on Marine Protected Areas.
- Eight watershed model demonstrations completed in grades K through 6, reaching 108 students.
- Created curriculum for a microplastics monitoring effort. Conducted the protocol with all freshman biology students at the local high school. All 180 freshmen students at the high school participated.

Deliverables: Nature Center statistics (see above). Fieldtrip and presentation statistics (see above). Marine Protected Areas kids' activity workbook.

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

Problems Encountered: None.

Activities Planned for Next Six Months: In the second half of FY19, the Estuary Program plans to continue the Education tasks outlined above. Pending deliverables include the Marine Protected Areas kids' activity workbook translated into Spanish and available via website.

Nature Center Update

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

Status: Ongoing task

Progress Toward Milestones: The Estuary Program applied for and was awarded a grant from a local foundation to support development of a new exhibit focused on weather, tides, and climate change. Content is being developed and the exhibit is being designed. Staff developed an updated wildlife viewing station, which includes an interpretive panel and viewing scopes. This exhibit was installed in early FY19. New trout eggs were procured for the trout tank exhibit through the CDFW Trout in the Classroom program. Ongoing maintenance and upkeep was conducted to keep the Nature Center functioning smoothly.

Deliverables: Wildlife viewing station exhibit panel. User statistics for the Nature Center kiosk (see above).

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

Problems Encountered: None.

Activities Planned for Next Six Months: In the second half of FY19, the Estuary Program will be completing the private foundation grant-funded project to create an exhibit on weather, tides, and climate change. Staff also will develop content and seek funding to update additional exhibits in the Nature Center.

Community Projects

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

Status: Ongoing task

Progress Toward Milestones: Four Community Projects are currently underway. The city of Morro Bay Harbor Department purchased small spill kits to be located at each slip area on the waterfront. Distributing these kits helps reduce spill response time, leading to cleaner water. Dr. John Perrine of Cal Poly purchased wildlife cameras and is deploying them in the watershed to track wildlife movement to target areas for conservation and restoration. Drs. Silvio Favoreto and Laurie McConnico of Cuesta College began research efforts to culture eelgrass blades to detect the presence of a slime mold that may have contributed to Morro Bay's eelgrass decline. The next step is PCR work and another round of sampling this summer. The SLO County MPA Collaborative won funding to purchase a controller for an underwater ROV that was donated to the collaborative to support monitoring, research, and education. A Community Project to educate divers on responsible wildlife interactions was completed. The applicant created a brochure targeted towards divers in Morro Bay, and conducted outreach throughout the area to distribute the materials. This project concluded in early FY19. Staff worked with a local partner on a project to be considered in the next round of funding in early FY19.

Deliverables: Activities described in the Semi-annual report (see above). Educational materials for Community Project to educate divers on minimizing wildlife disturbance and to educate boaters on spill cleanup.

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

Problems Encountered: None.

Activities Planned for Next Six Months: In the second half of FY19, the Estuary Program plans to continue to work on ongoing Community Projects. Applications for the current round of projects will be reviewed and agreements will be developed for the selected projects in FY19. Staff will also work with applicants on developing future Community Project ideas for the application round in the second half of FY19. Pending deliverables include the final reports for completed Community Projects.

Other E&O Tasks/Community Partner Projects

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

Status: Ongoing task

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

- Completed creation of content for Marine Protected Areas educational workbook for kids with other members of San Luis Obispo Marine Protected Area Collaborative (SLOMPAC).
- Established the Estuary Program as the institution to house a mini-ROV donated to the SLOMPAC. Estuary Program staff worked with other Collaborative members to develop the ROV checkout and check-in procedures for researchers and educators who want to use them.
- Partnered with ECOSLO on their Seas to Trees effort. The Estuary Program will lead two cleanups in Morro Bay. The Estuary Program will provide logistics and registration support as well as day-of-event management for cleanups.
- Partnered with the Harbor Department to distribute materials for Clean Boating. All 240 boats kept at docking facilities located on the Morro Bay estuary were reached with educational materials, local resources information, and clean-up supplies.
- Working with Rancho El Chorro Outdoor School staff to develop curriculum related to the recently completed Drought Response Outreach Program for Schools (DROPS) project on their campus.

Deliverables: Outreach statistics (see above). Final MPA Kids' Educational Workbook.

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

Problems Encountered: None.

Activities Planned for Next Six Months: In the second half of FY19, the Estuary Program will continue to work with Rancho El Chorro staff to complete curriculum for DROPS project. We will continue working with the MPA Collaborative to roll out the ROV for use by partners. Pending deliverables include ROV checkout statistics and completed Rancho El Chorro Outdoor school curriculum.

Mutts for the Bay

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

Status: New Task

Progress Toward Milestones: The Estuary Program continued its effort to manage the program, which included accepting and managing donations, installing and maintaining dispensers, coordinating volunteers, and working with partners to install and maintain pet waste bag dispensers throughout the watershed. The program received a grant from a private foundation to fund staff time and related costs to support the program over three years. The grant also funds developing of outreach materials and sharing them with pet owners. In the first half of 2019, 26 dispensers were maintained. 18,300 bags were given away to pet owners. This number of bags prevent an estimated 4,500 pounds of pet waste from negatively impacting the estuary.

Deliverables: Mutts for the Bay program statistics (see above).

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

Problems Encountered: None.

Activities Planned for Next Six Months: In the second half of FY19, staff will continue its financial and coordinating activities to maintain the program. Efforts will also begin on developing outreach materials and delivery methods for pet owners. Pending deliverables include reporting for the private foundation grant and any outreach materials developed.

State of the Bay Planning

Objective: Planning for the triennial State of the Bay report and events.

Status: New Task

Progress Toward Milestones: Staff has begun planning for SOTB events in the spring of 2020. Development of a public-friendly SOTB Report is also underway, with publication expected in winter 2020. The purpose of the SOTB events is to share report card results and a clean water message.

Comparison of Actual Accomplishments with Anticipated Outputs/Outcomes: Activities accomplished to date directly support the task outcomes of sharing the results of monitoring by the program and its partners, to increase education on non-point source pollution, restoration, etc.

Problems Encountered: None.

Activities Planned for Next Six Months: In the second half of FY19, staff will complete compiling of the report and make further progress in event planning. Pending deliverables include the completed report and posters to share the results.

Program Management

Manage Committees and Build Partnerships

Objective: Hold quarterly meetings and support partnerships.

Status: Ongoing task

Progress Toward Milestones: Staff compiled meeting materials and coordinated quarterly meetings of the Executive Committee (EC) throughout the year. Technical Advisory Committee (TAC) meetings were held as needed for review of Community Project applications and technical plans. Membership was updated for the EC and TACs as needed.

Staff has already integrated TACs into the decision-making processes of the organization. They lent their expertise for E&O projects, eelgrass efforts, pikeminnow management, and bioassessment site selection. Staff is planning for a meeting of all TAC members in the summer/fall and is developing a list of planned upcoming TAC meetings for the year.

Partnerships are also supported through collaborative grant development and technical support. The Estuary Program was awarded new grants in this reporting period that are partnership projects developed in collaboration and implemented with partner organizations. We have also conducted technical review of plans for a project. These include:

- A Resource Legacy Funded grant which supports development of implementation projects on private property and will involve partnership with the CSLRCD.
- An Ocean Protection Council grant to implement stormwater management at a parking lot in partnership with California State Parks and the California Marine Sanctuary Foundation.
- Technical review of restoration plans for a CSLRCD projects to restore a wetland in Los Osos.

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

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

Problems Encountered: None.

Activities Planned for Next Six Months: In the second half of FY19, the Estuary Program plans to continue to coordinate quarterly meetings and work with Management Conference members. We will continue to work with the TACs and convene meetings to develop projects, funding, and collaborations. We will partner with the CSLRCD to implement the Resource Legacy Funding. We will complete development of a contract and scope of work for the stormwater management project and begin the planning stages for implementation in 2020.

Grants and Contracts Administration and Financial Management

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

Status: Ongoing task

Progress Toward Milestones: Staff worked on financial reporting, progress reports to the EPA and the Management Conference, and participation in NEP conference calls and committees. We coordinated with EPA to provide required materials for oversight of the 320 grant and managed numerous grants to the Estuary Program to support our project work. We underwent an audit of program finances to ensure that the program was complying with all federal and internal financial management policies and procedures.

Deliverables: Semiannual report for the second half of FY18. Annual Federal Financial Report (FFR) and Minority Business Enterprises-Women Business Enterprises (MBE-WBE) submitted to EPA Region 9 Grants Office.

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

Problems Encountered: None.

Activities Planned for Next Six Months: In the second half of FY19, the Estuary Program will continue to implement the FY19 Workplan and begin preparing required reporting for the FY19 grant. Pending deliverables include the annual FFR and MBE-WBE.

General Administration and Human Resources Management

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

Status: Task ongoing

Progress Toward Milestones: Staff maintained the ongoing financial and administrative functions, including recordkeeping, filing, bookkeeping, and equipment and office space upkeep, as well as interacting with the general public. In addition, the Director spent time managing staff performance and Workplan progress. Other HR tasks included training, professional development, recruitment, and keeping all personnel policies and procedures up to date. We hired an Environmental Planning Intern, a Monitoring Technician, an E&O Specialist, and a Finance & Operations Coordinator during the first half of FY19.

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

Comparison of Actual Accomplishments with Anticipated Outputs/Outcomes: The administrative, hiring, and human resources management tasks conducted in the first half of FY19 directly supported the outcome of providing the administrative support that allows the program to function smoothly so that staff can focus on attaining the goals of the organization.

Problems Encountered: None.

Activities Planned for Next Six Months: In the second half of FY19, staff will conduct all bookkeeping and recordkeeping tasks required for grant management. Staff will conduct all HR tasks including training and professional development.

Tracking Implementation of the CCMP and Workplan

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

Status: Ongoing task

Progress to Date: Tracked progress on CCMP implementation through biannual reports to the Executive Committee and through NEPORT data submissions.

Deliverables: Semi-annual report to EPA submitted Fall 2019. Biannual Executive Committee reports.

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

Problems Encountered: None.

Activities Planned for Next Six Months: In the second half of FY19, the Estuary Program plans to report to the Executive Committee on Workplan progress. Pending deliverables include the NEPORT submittal.

Management Plan Update/Revision

Objective: Update the CCMP per EPA guidance.

Status: Ongoing task

Progress Toward Milestones: Worked with an Environmental Planning Intern to assist with review of Action Plans. All Action Plans were reviewed to determine which were complete or obsolete. The Action Plan tracking database assisted in this process. Action Plans requiring updating were identified and edits are being conducted. The next step involves incorporating the climate vulnerability assessment into the Action Plans.

The Monitoring Plan was updated. The next step involves update of the Communication Plan, another companion document to the CCMP.

Deliverables: Monitoring Plan update.

Comparison of Actual Accomplishments with Anticipated Outputs/Outcomes: The tasks conducted directly support the outcome of working toward a Management Plan that is up-to-date, relevant, and complies with EPA's guidance.

Problems Encountered: None.

Activities Planned for Next Six Months: In the second half of FY19, the Estuary Program plans to complete edits and updates to the Action Plans as well as incorporate climate vulnerability information. The Communication Plan will also be updated. Pending deliverables include a management plan update to be completed in FY20 as well as a Communication Plan update.

Budget Overview

Table 1: Costs expended during this semi-annual report period (October 1, 2018 through March 31, 2019) and cumulative since the beginning of the grant in October 2016.

Category	Subcategory	FY19 Period 1 320 Funds	FY19 Period 1 Cash Match	FY19 Period 1 TOTAL	Cumulative 320 Funds	Cumulative Cash Match	Cumulative TOTAL
Personnel	Salaries	\$200,539	\$6,956	\$207,495	\$823,614	\$49,450	\$873,064
	Fringe	\$19,635	\$174	\$19,810	\$83,359	\$371	\$83,730
	Management Conference	\$0	\$0	\$0	\$0	\$0	\$0
	<i>Subtotal</i>	\$220,174	\$7,131	\$227,305	\$906,973	\$49,821	\$956,794
Travel		\$10,471	\$0	\$10,471	\$24,285	\$0	\$24,285
Supplies	Computers, software	\$475	\$0	\$475	\$4,231	\$79	\$4,310
	Vehicle maintenance, fuel	\$514	\$0	\$514	\$3,956	\$0	\$3,956
	Monitoring supplies	\$4,746	\$88	\$4,833	\$24,320	\$434	\$24,755
	Misc. office supplies	\$3,836	\$0	\$3,836	\$13,658	\$0	\$13,658
	Rent	\$28,992	\$0	\$28,992	\$138,008	\$0	\$138,008
	Utilities	\$1,603	\$0	\$1,603	\$7,418	\$0	\$7,418
	<i>Subtotal</i>	\$40,165	\$88	\$40,253	\$215,877	\$513	\$216,390
Contractual	Audit/Taxes/Accounting	\$1,163	\$3,192	\$4,355	\$25,432	\$15,991	\$41,423
	Education and Outreach	\$8,829	\$15,000	\$23,829	\$29,183	\$30,312	\$59,495
	Monitoring and Research	\$1,704	\$5,686	\$7,389	\$71,946	\$23,022	\$94,968
	Restoration and Protection	\$13,231	\$26,616	\$39,847	\$45,936	\$243,252	\$289,188
	<i>Subtotal</i>	\$24,926	\$50,494	\$75,420	\$172,498	\$312,577	\$485,074
Other	Postage	\$674	\$0	\$674	\$3,145	\$643	\$3,788
	Copying, Printing	\$1,400	\$0	\$1,400	\$5,813	\$0	\$5,813
	Training, Prof. Dev.	\$1,594	\$0	\$1,594	\$4,681	\$0	\$4,681
	Telephone, Internet	\$2,276	\$0	\$2,276	\$9,746	\$0	\$9,746
	Repairs and Maintenance	\$1,522	\$231	\$1,753	\$4,922	\$677	\$5,598
	Insurance	\$3,540	\$0	\$3,540	\$7,075	\$0	\$7,075
	<i>Subtotal</i>	\$11,006	\$231	\$11,237	\$35,382	\$1,319	\$36,701
TOTAL	\$306,742	\$57,943	\$364,685	\$1,330,729	\$364,231	\$1,694,959	

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

Program Area	Project	FY19 Period 1 320 Funds	FY19 Period 1 Match	FY19 Period 1 TOTAL	FY19 Overall TOTAL
Education and Outreach	Communications	\$3,283	\$15,000	\$18,283	\$18,283
	Community Projects	\$0	\$0	\$0	\$0
	Bay Friendly Recreation	\$713	\$0	\$713	\$713
	Education and Nature Center	\$3,083	\$0	\$3,083	\$3,083
	Community Volunteer Program	\$191	\$0	\$191	\$191
	Other E&O Tasks	\$1,560	\$0	\$1,560	\$1,560
	<i>Subtotal</i>	\$8,829	\$15,000	\$23,829	\$23,829
Monitoring and Research	Benthic Invertebrate Monitoring	\$0	\$0	\$0	\$0
	Stats	\$0	\$0	\$0	\$0
	Water Quality Monitoring	\$6,449	\$88	\$6,537	\$6,537
	Eelgrass Monitoring & Analysis	\$0	\$0	\$0	\$0
	<i>Subtotal</i>	\$6,449	\$88	\$6,537	\$6,537
Habitat Protection and Restoration	Restoration & Conservation Planning	\$0	\$0	\$0	\$0
	Eelgrass Restoration	\$76	\$5,686	\$5,762	\$5,762
	Chorro Creek Ecological Reserve	\$2,078	\$0	\$2,078	\$2,078
	Restoration Project Maintenance	\$10	\$0	\$10	\$10
	Other Restoration	\$11,068	\$20,930	\$31,997	\$31,997
	<i>Subtotal</i>	\$13,231	\$26,616	\$39,847	\$39,847
Program Administration		\$0	\$0	\$0	\$0
	TOTAL	\$28,509	\$41,703	\$70,213	\$70,213