



Semi-Annual Report: April – September 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 second half of the fiscal year were \$392,645. As of September 30, we have expended 91% of our current 320 grant (started in FY17), with a remainder of approximately \$177,452. The Estuary Program has met 223% of its match requirement for the cumulative grant with cash match and estimated current in-kind contributions (at approximately \$4,261,943).

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, conduct landowner outreach, and support LCSLO 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.

Deliverables: NEPORT Habitat project reporting completed. Updated map tracking protected lands completed.

Activities Planned for Next Six Months: In the first half of FY20, the Estuary Program plans to coordinate with the LCSLO and other partners on potential land conservation efforts.

Restoration Maintenance and Monitoring

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

Status: Ongoing task

Progress Toward Milestones: The Estuary Program conducted flow monitoring on Pennington Creek following removal of a fish passage barrier and improvements to a water diversion. Data is submitted to Trout Unlimited and the San Luis Obispo County Office of Education on a regular basis to determine if diversion permit requirements are being met. Monitoring of eelgrass planted in 2017, 2018, and 2019 was conducted to assess restoration success. Conducted annual monitoring of the easement on the Maino Ranch. Conducted monitoring of road erosion treatment sites from the State Water Resources Control Board (SWRCB) 319(h) grant. The sites were on Camp San Luis Obispo, Cal Poly, and US Forest Service lands.

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.

Deliverables: Maino easement monitoring report. Road erosion site photo monitoring report. Eelgrass restoration reports for CDFW.

Activities Planned for Next Six Months: In the first half of FY20, the Estuary Program plans to conduct eelgrass restoration monitoring. We will also work with partners to address any needed restoration maintenance.

Pending deliverables: Eelgrass restoration monitoring 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. The 2019 plots were monitored. The February plantings did not initially have as high success as the March plantings, likely due to the stormy weather and high bay turbidity in February.

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 for 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 reports for CDFW. 2018 Eelgrass Report. NEPORT Habitat submittal.

Problems Encountered: None.

Activities Planned for Next Six Months: In the first half of FY20, the Estuary Program plans to develop a restoration plan for 2020, develop a permit application and submit it to CDFW, and work with funders to plan for the upcoming restoration season. Staff will also communicate restoration results with project partners to support future research and restoration efforts. The Estuary Program was awarded a US Fish & Wildlife Service (USFWS) grant through the Pacific Marine and Estuarine Fish Habitat Partnership (PMEP) to fund restoration efforts over the next two years. Staff will coordinate with PMEP to establish the contract. Staff will manage the Duck Stamp Grant and manage new funding for restoration and restoration monitoring.

Pending Deliverables: CDFW reports on 2019 eelgrass transplant effort permit application for 2020 restoration work.

Chorro Creek Ecological Reserve Restoration and Planning

Objective: Establish contracts and complete project implementation.

Status: Ongoing task

Progress Toward Milestones: The spring was spent finalizing the permit requirements for the project. The permit and survey status is as follows:

- The CDFW completed an individual Lake and Streambed Alteration permit for the project. 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.
- An Army Corps of Engineers permit (under Nationwide Permit 27) was completed, with biological opinions from USFWS and NOAA.
- A Water Board 401 certification was completed.

A contractor was selected to conduct the construction work and a contract was established. Construction began in early July. Biological monitors first cleared the site of fish and California red-legged frog. The creek was temporarily dewatered while a road crossing was installed. Biological monitors checked the site each day prior to the start of construction to ensure no sensitive species would be impacted. Project activities include site clearance, concrete removal, grading, and filling. Willow baffles were completed in the secondary channel to slow the flows during large storm events. Electric power to a well was restored to supply irrigation water to the project. The work is funded by a CDFW Fisheries Restoration Grant Program (FRGP) award of just over \$1,000,000 and a \$400,000 award from the California State Coastal Conservancy. The California Conservation Corps is providing labor for willow harvesting, willow baffle construction, and irrigating.

The project has stayed on schedule and is currently coming in under budget. During implementation, a few minor changes were made to the engineered plans to reflect conditions on the ground, such as adjusting the channel tie-in grades and extending a willow mattress to stabilize a bank. In addition, some unexpected buried concrete was found on the site and was removed.

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 first half of FY20, construction will be completed, the road crossing will be removed, and native plants will be installed. Implementation will be completed by the end of Fall 2019. Plant success monitoring will continue under the State Coastal Conservancy grant for three years.

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, which completed at the end of this reporting period.
- Participation on the Pacific Marine and Estuarine Fish Habitat Partnership (PMEP) Steering Committee, which funds restoration projects and develops data resources for estuaries across the West Coast.
- 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. The contract was finalized. A contractor was selected to conduct pre and post-project stormwater runoff monitoring. Construction is expected in FY20/21.

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 results indicate that predation on steelhead by pikeminnow is high and could have fairly large impacts on steelhead recovery. The Estuary Program plans to conduct pikeminnow suppression work in early FY20.

The Coastal San Luis Resource Conservation District (CSLRCD) is working with private landowners to provide educational resources on conservation practices such as rotational grazing, keyline ploughing, etc. The Estuary Program is supporting the effort with staff time to manage a grant from a private foundation that supports work of conservation groups with private landowners to implement conservation efforts. The CSLRCD has developed conceptual designs for three projects and is working on three additional designs. The Estuary Program and CSLRCD are researching funding opportunities to complete the designs and implement these projects. Project types include irrigation design, farm plan for soil health management, and bank stabilization.

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 first half of FY20, the Estuary Program plans to continue work on the Conservation Planning Initiative and to continue to participate in the local restoration and management efforts listed above.

Pending Deliverables: Draft conservation planning document, updated IRWM plan, County Stormwater Resource Plan, final engineering plans for Morro Bay State Park Marina parking lot stormwater project, final report from CSLRCD project partnership, and stormwater monitoring results from the State Park Marina parking lot 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. The Estuary Program completed implementation of a \$50,000 grant from the Resource Legacy Fund for landowner outreach including outreach materials, workshops, and site visits. This funding primarily supported CSLRCD staff as a partner in these efforts (see previous task).

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

Comparison of Actual Accomplishments with Anticipated Outputs/Outcomes: Completed Resource Legacy Fund grant to provide resources to private landowners with the end goal of implementing projects.

Problems Encountered: None.

Activities Planned for Next Six Months: In the first half of FY20, 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 seek funding for project ideas developed under the Resource Legacy Fund.

Environmental Monitoring and Research

Monitoring Program Coordination

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

Status: Ongoing 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 second half of 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 second half of FY19, 44 volunteers contributed 397 hours to the monitoring program and supported watershed and estuary monitoring. Between staff and volunteers, there were 42 monitoring trips for bay water quality, 102 for bacteria, 145 for creek water quality, and 10 for bioassessment.

- 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 four oceanography laboratory and lecture sessions on water quality topics.
- Staff conducted our spring bioassessment monitoring effort, which was funded in part by a grant from a private foundation. Staff conducted a volunteer training session and coordinated the monitoring at ten sites throughout the watershed. Macroinvertebrate samples were collected and sent to a lab for sorting, counting, and identification. Lab analysis was completed over the summer.
- Staff completed analysis of suspended sediment samples collected during the winter of 2019.
- Staff monitored sites watershed-wide for nutrients every other month to track long-term trends.

Deliverables: A quality dataset that meets the parameters outlined in the QAPP. 2018 and 2019 data submitted to California Environmental Data Exchange Network (CEDEN) (see www.CEDEN.org). Activities described in Semi-annual report (see above). Memos describing creek health for Water Year (WY) 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 first half of FY20, the Estuary Program plans to conduct the following types of monitoring: creek water quality, creek and bay bacteria, bay water quality, seeps water quality, and flow. Staff will conduct bacteria lab work.

Pending Deliverables: Bay Health and Creek Health memos for WY 2019, a bioassessment memo for WY 2019, 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, and creek and bay water quality data.

Deliverables: Monthly bacteria memos: Example Bacteria Memo. Activities described in Semi-annual report (see above). Creek 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 first half of FY20, 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: Sediment Report, Bay and Creek Health memos for WY 2019.

Monitoring Program Data Management

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

Status: Ongoing task

Progress Toward Milestones: Estuary Program data through June 2019 has been submitted to CEDEN. Estuary Program data through December 2018 were submitted to CEDEN before the June deadline for the Central Coast Regional Water Quality Control Board (CCRWQCB) data solicitation for their 303(d) update.

Deliverable: Activities described in Semi-annual report (see above). Submittal to CEDEN of data through June 2019.

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 first half of FY20, the Estuary Program plans to work with the Regional Data Center to upload data from the second half of WY19 to CEDEN. Staff will also coordinate with Water Board staff to support the 303(d) update process.

Pending Deliverables: Submittal of WY 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 completed updating the QAPP for 2019 and submitted it to EPA's Office of Quality Assurance (QA) for review. All comments from EPA have been addressed, and the document was approved by EPA in July. Next, the CCRWQCB QA Officer reviewed the document and approved it. The Estuary Program continues to implement the quality assurance measures contained in the QAPP. 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 first half of FY20, the Estuary Program staff will conduct the QA measures needed to ensure the quality of program-generated data.

Pending Deliverables: QAPP update for 2020.

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. Staff completed analysis of samples for suspended sediment concentration and shared the results with Cal Poly to support their modeling effort of 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 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. Eelgrass Report for 2018. 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 first half of FY20, 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.

Pending Deliverable: 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 2018. The Estuary Program worked with NOAA's Office for Coastal Management to manage a bay topobathy lidar mapping effort. The Estuary Program received funding from EPA, USFWS, and NOAA to support the survey effort. The results will provide information for the Sea Grant hydrodynamic model and bay sedimentation tracking. The topobathy lidar survey is complete, and the data is now available to support eelgrass restoration efforts. Staff created a request for cost estimates to select a contractor to create a baywide eelgrass map in late 2019. A contractor was selected, and project coordination is underway. Staff will coordinate with Cal Poly who will create an eelgrass map during the same timeframe using a drone.

Deliverables: 2018 Morro Bay Eelgrass Report.

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

Problems Encountered: None.

Activities Planned for Next Six Months: In the first half of FY20, 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 the tidal prism volume work, which is the second phase of the project. Staff will complete a report summarizing all eelgrass related efforts in 2019.

Pending Deliverables: 2019 Morro Bay Eelgrass Report, Sea Grant project reports, 2019 baywide eelgrass map, and bay tidal prism calculations.

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. Staff studied eelgrass monitoring and restoration methods in other areas, and reached out to other researchers. Staff sought results of research efforts in Morro Bay related to nutrients, sedimentation, and other water quality data. The Estuary Program continued working 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. Staff hosted a site visit by the Elkhorn Slough National Estuarine Research Reserve (NERR) staff to the Morro Bay estuary and met with project partners such as State Parks and Morro Coast Audubon Society to share information on our marsh habitats. Staff coordinated with a Cal Poly researcher on selecting the appropriate ocean acidification monitoring sensors, to be purchased in early FY20.

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

- United States Geological Survey (USGS) tidal marsh elevation impacts from sea level rise (SLR).
- Cal Poly study of estuary water quality to assess impacts to eelgrass.
- 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.
- Cal Poly research on ocean acidification in Morro Bay.
- Cal Poly research on herbicide use and potential impacts on Morro Bay and its 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: 2018 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 first half of FY20, 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: 2019 eelgrass report. Summaries of results of Cal Poly and Cuesta College research related to eelgrass.

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 nine indicator questions about the health of Morro Bay and its watershed. Staff collected data, conducted analysis, and coordinated with partners to compile content for the report.

Comparison of Actual Accomplishments with Anticipated Outputs/Outcomes: The efforts under this task focused on gathering and analyzing data to 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 first half of FY20, the Estuary Program will compile additional data for the online version of the report card. Staff is currently working with a graphic designer to create the print version of the report.

Pending Deliverables: 2020 SOTB report card publication 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. 293 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 12 presentations and fieldtrips that reached 657 individuals in person.
- Continued to increase the number of followers on Facebook to 2,004 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 578 followers.
- Maintained an Instagram feed that currently has 1,878 followers.
- Three news stories (including articles and video news segments) were published that covered Estuary Program-specific content and projects in the watershed. One was a front-page article that detailed the state of eelgrass in Morro Bay as well as the Estuary Program and partners' efforts to study and restore it.
- Issued two news releases promoting Estuary Program events and accomplishments.

- Completed creation of a new exhibit on weather, tides, and climate change that is funded by a private foundation grant.

Deliverables: Weekly blog posts (26 for this time period) at www.mbnep.org/blog Website and social media statistics (see above).

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 first half of FY20, the Estuary Program plans to continue the communications tasks outlined above.

Pending Deliverables: Additions to the new Nature Center exhibit on weather, tides, and climate.

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 14,403 visitors during the second half of FY19. Our touchscreen Estuary Science Kiosk received 61 unique visitors, who logged 436 sessions and about 20,300 page views during the same time period.
- 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. During this time period, the field trips served more than 200 students.
- Finished translation and editing of a Spanish version of a kids' activity workbook on Marine Protected Areas. Graphic design is currently in production.
- 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).

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 first half of FY20, the Estuary Program plans to continue the Education tasks outlined above.

Pending Deliverables: Marine Protected Areas kids' activity workbook translated into Spanish and available in hard copy and online.

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 was developed and the exhibit has been constructed and installed. Ongoing maintenance and upkeep was conducted to keep the Nature Center functioning smoothly.

Deliverables: Content for new exhibit on climate, tides, and weather. 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 first half of FY20, 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: Staff continue to work with recipients on ongoing projects and foster new applications with community partners.

Two Community Projects were recently completed:

- The city of Morro Bay Harbor Department completed a project to supply small spill kits located at each slip area on the waterfront. Distributing these kits helps reduce spill response time, leading to cleaner water. City staff also provided instruction in how to use the kits and conducted a follow-up survey to assess the impact of the effort.
- The SLO County MPA Collaborative (SLOMPAC) purchased a controller for an underwater ROV that was donated to the collaborative to support monitoring, research, and education. This was used during the Floating Lab Field Trips described above.

Three Community Projects are ongoing:

- Dr. John Perrine of Cal Poly purchased wildlife cameras and deployed them in two locations in the watershed to track wildlife movement to target areas for conservation and restoration.
- Drs. Silvio Favoreto and Laurie McConnico of Cuesta College conducted research efforts to culture eelgrass blades to detect the presence of a slime mold that may have contributed to Morro Bay's eelgrass decline. They worked with students to collect samples in summer 2019, culture them, and conduct PCR work.
- The SLOMPAC received Community Project funding to translate a kids MPA activity booklet into Spanish and print copies for distribution.

Staff worked with a local partner on a project to be considered in the next round of funding in early FY20.

Deliverables: Activities described in the Semi-annual report (see above). Wildlife camera monitoring report for 2019.

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 first half of FY20, 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 FY20. Staff will also work with applicants on developing future Community Project ideas for the application round in the second half of FY20.

Pending Deliverables: Final reports for completed Community Projects. SLOMPAC Kids' MPA activity booklet in Spanish available in print and online.

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 physical distribution of printed Marine Protected Areas educational workbook for kids with other members of San Luis Obispo Marine Protected Area Collaborative (SLOMPAC). These were distributed across the state of California, with concentrated distribution in local classrooms.
- Managed checkout of a mini-ROV donated to the SLOMPAC. Estuary Program staff worked with other Collaborative members to maintain effective ROV checkout, check-in, and maintenance procedures for researchers and educators who want to use the ROV.
- Partnered with ECOSLO on their Coastal Cleanup effort. The Estuary Program lead two cleanups in Morro Bay.
- 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).

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 first half of FY20, the Estuary Program will continue to work with Rancho El Chorro staff to complete curriculum for the DROPS project. We will continue working with the MPA Collaborative to manage the ROV for use by partners.

Pending Deliverables: ROV checkout statistics. 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 work managing 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 second half of FY19, 30 dispensers were maintained. More than 23,000 bags were given away to pet owners. This number of bags prevents an estimated 5,655 pounds of pet waste from negatively impacting the estuary. Estuary Program staff developed educational curriculum on the negative impacts from pet waste and presented it at local schools. Staff are finalizing the development of a teacher packet to accompany the educational kids coloring book focused on pet

waste impacts, as well as a dog-poop monitoring protocol that can be used to teach science skills as well as nonpoint source pollution and stewardship concepts.

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 first half of FY20, staff will continue its financial and coordinating activities to maintain the program. Efforts will also continue on developing outreach materials and delivery methods for pet owners.

Pending Deliverables: Reporting for the private foundation grant. Outreach materials.

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 first half of FY20, staff will complete compiling of the report and make further progress in event planning.

Pending Deliverables: 2020 SOTB report in print and online. Posters and other materials to share the results. Promotional materials for events throughout Spring 2020. Online content related to the report results and events.

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 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 continues its work on grants that are partnership projects developed in collaboration and implemented with partner organizations. 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.

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 first half of FY20, 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 seek funding to implement projects developed with Resource Legacy Funding. We will proceed with planning for implementation of a stormwater management project 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.

Deliverables: Semiannual report for the first half of FY19. 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 first half of FY20, the Estuary Program will implement the FY20 Workplan and complete required reporting for the FY19 grant.

Pending Deliverables: 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 began efforts to hire an Environmental Planning Intern and a Monitoring Technician for FY20.

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 second 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 first half of FY20, 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: NEPORT submittal on Leverage and Habitat efforts in FY19. Semi-annual report to EPA submitted Spring 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 first half of FY20, the Estuary Program plans to report to the Executive Committee on Workplan progress. Prepare for EPA's Program Evaluation process which is expected to take place throughout FY20.

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 were updated, and the climate vulnerability assessment actions were integrated into the Action Plans.

The Communication Plan was updated, including a survey to identify the priority message and efforts for the program. The Monitoring Plan was updated and submitted to the EPA Region.

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 first half of FY20, the Estuary Program plans to finalize updates to the Action Plans, including incorporation of climate vulnerability information.

Pending Deliverables: Management plan update. Communication Plan. Finance Plan.

Budget Overview

Table 1: Costs expended during this semi-annual report period (April 1, 2019 through September 30, 2019) and cumulative since the beginning of the grant in October 2016.

Category	Subcategory	FY19 Period 2 320 Funds	FY19 Period 2 Cash Match	FY19 Period 2 TOTAL	Cumulative 320 Funds	Cumulative Cash Match	Cumulative TOTAL
Personnel	Salaries	\$203,240	\$16,031	\$219,271	\$1,026,854	\$65,484	\$1,092,338
	Fringe	\$20,087	\$575	\$20,662	\$103,446	\$947	\$104,393
	Management Conference	\$0	\$0	\$0	\$0	\$0	\$0
	<i>Subtotal</i>	\$223,327	\$16,606	\$239,933	\$1,130,300	\$66,431	\$1,196,731
Travel		\$1,962	\$0	\$1,962	\$26,247	\$0	\$26,247
Supplies	Computers, software	\$925	\$0	\$925	\$5,155	\$79	\$5,234
	Vehicle maintenance, fuel	\$670	\$0	\$670	\$4,627	\$0	\$4,627
	Monitoring supplies	\$5,543	\$353	\$5,896	\$29,863	\$787	\$30,650
	Misc. office supplies	\$6,660	\$0	\$6,660	\$20,398	\$0	\$20,398
	Rent	\$28,992	\$0	\$28,992	\$167,000	\$0	\$167,000
	Utilities	\$1,736	\$0	\$1,736	\$9,154	\$0	\$9,154
	<i>Subtotal</i>	\$44,526	\$353	\$44,879	\$262,444	\$866	\$263,310
Contractual	Audit/Taxes/Accounting	\$12,560	\$2,988	\$15,548	\$37,998	\$18,979	\$56,977
	Education and Outreach	\$10,571	\$4,563	\$15,134	\$47,342	\$34,920	\$82,262
	Monitoring and Research	\$64,670	\$28,449	\$93,119	\$136,617	\$59,884	\$196,501
	Restoration and Protection	\$29,082	\$107,127	\$136,209	\$75,018	\$340,094	\$415,112
	<i>Subtotal</i>	\$116,883	\$143,127	\$260,010	\$296,975	\$453,877	\$750,852
Other	Postage	\$630	\$250	\$880	\$3,776	\$892	\$4,668
	Copying, Printing	\$1,502	\$0	\$1,502	\$7,315	\$0	\$7,315
	Training, Prof. Dev.	\$298	\$0	\$298	\$4,979	\$0	\$4,979
	Telephone, Internet	\$1,870	\$0	\$1,870	\$11,616	\$0	\$11,616
	Repairs and Maintenance	\$1,647	\$0	\$1,647	\$6,568	\$677	\$7,245
	Insurance	\$0	\$0	\$0	\$7,075	\$0	\$7,075
	<i>Subtotal</i>	\$5,947	\$250	\$6,197	\$41,329	\$1,569	\$42,898
	TOTAL	\$392,645	\$160,336	\$552,981	\$1,731,048	\$522,743	\$2,253,791

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

Program Area	Project	FY19 Period 2 320 Funds	FY19 Period 2 Match	FY19 Period 2 TOTAL	FY19 Overall TOTAL
Education and Outreach	Communications	\$1,613	\$265	\$1,878	\$20,161
	Community Projects	\$0	\$0	\$0	\$0
	Bay Friendly Recreation	\$0	\$0	\$0	\$713
	Education and Nature Center	\$8,735	\$1,748	\$10,483	\$13,566
	Community Volunteer Program	\$223	\$0	\$223	\$414
	Other E&O Tasks	\$0	\$2,550	\$2,550	\$4,110
	<i>Subtotal</i>	\$10,571	\$4,563	\$15,134	\$38,963
Monitoring and Research	Benthic Invertebrate Monitoring	\$0	\$7,000	\$7,000	\$7,000
	Stats	\$3,010	\$0	\$3,010	\$3,010
	Water Quality Monitoring	\$6,885	\$397	\$7,282	\$13,819
	Eelgrass Monitoring & Analysis	\$60,318	\$21,405	\$81,723	\$81,723
	<i>Subtotal</i>	\$70,213	\$28,802	\$99,015	\$105,552
Habitat Protection and Restoration	Restoration & Conservation Planning	\$0	\$34,308	\$34,308	\$34,308
	Eelgrass Restoration	\$0	\$8,414	\$8,414	\$14,176
	Chorro Creek Ecological Reserve	\$36,567	\$55,736	\$92,303	\$94,381
	Restoration Project Maintenance	\$29	\$0	\$29	\$39
	Other Restoration*	-\$7,514	\$8,669	\$1,155	\$33,152
	<i>Subtotal</i>	\$29,082	\$107,127	\$136,209	\$176,056
Program Administration		\$0	\$0	\$0	\$0
	TOTAL	\$109,866	\$140,492	\$250,358	\$320,571

*Some expenses were moved from the 320 grant to other funding sources during the second half of FY2019. Over the full grant funding cycle, these changes zero out.