



Semi-annual Report: October 2019 – March 2020

The Morro Bay National Estuary Program (Estuary Program) has continued to move forward on completing new and ongoing tasks in the Fiscal Year (FY) 2020 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 \$336,455. As of March 31, we have expended 81% of our current 320 grant (started in FY17), with a remainder of approximately \$476,158. The Estuary Program has met 199% of its match requirement for the cumulative grant with cash match and estimated current in-kind contributions (at approximately \$5,030,455).

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) is finalized. EPA participation is also a necessary component of the current Program Evaluation process.

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 was spent to develop these opportunities, conduct landowner outreach, and support LCSLO efforts. Potential land conservation deals in the watershed are being explored.

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: Updated map tracking protected lands completed in 2020 State of the Bay Report (see State of the Bay Planning task).

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

Pending Deliverables: NEPORT Habitat project reporting completed.

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 are 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. Staff monitored eelgrass planted in 2019 to assess restoration success.

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. The Estuary Program is also developing a potential project with Camp San Luis Obispo Army National Guard Base to repair off-creek watering systems on their leased grazing lands.

Problems Encountered: None.

Deliverables: Pennington Creek data submitted to CEDEN.

Activities Planned for Next Six Months: In the second half of FY20, the Estuary Program plans to conduct eelgrass restoration monitoring for transplanting conducted in February and March 2020. We will also work with partners to address any needed restoration maintenance. We will conduct annual monitoring on the Maino easement.

Pending deliverables: Eelgrass restoration monitoring reports for CDFW. Easement monitoring report for Maino property.

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). The Estuary Program developed a restoration plan for 2020 and submitted it to CDFW to obtain the necessary Scientific Collection Permit and Letter of Authorization to conduct the

restoration work. Small-scale eelgrass plantings were conducted in February and March 2020 where eelgrass was harvested from healthy beds and transplanted in various areas at different elevations.

The Estuary Program concluded a grant from CDFW Duck Stamp to support transplanting and restoration monitoring efforts for 2019. 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 in 2020 and partial funding for 2021. Staff coordinated with PMEP to establish the contract and implement the grant, which funded much of the 2020 planting effort. Additional funding was provided by the Black Brant Group.

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 monitoring work were utilized for designing the 2020 transplant effort and will inform future efforts and development of numeric targets.

Deliverables: CDFW permit for 2020 restoration effort. PMEP report for grant funding for 2020 restoration.

Problems Encountered: None.

Activities Planned for Next Six Months: In the second half of FY20, the Estuary Program plans to conduct eelgrass transplanting at subtidal depths using SCUBA, if feasible given the state's "stay at home" executive order, or postpone until 2021. Staff will also conduct further monitoring of the 2020 transplant plots. Staff will communicate restoration results with project partners to support future research and restoration efforts. Staff will manage the PMEP grant.

Pending Deliverables: CDFW reports on 2020 eelgrass transplant effort. NEPORT Habitat submittal. 2019 Eelgrass Report.

Chorro Creek Ecological Reserve Restoration Phase 2

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

Status: Ongoing task

Progress Toward Milestones: Construction was completed in October 2019 with grading of two side channels, installation of large wood structures and willow baffle, implementation of erosion control measures, and improvements to the road crossing. Installation of extensive native plants on the site was also largely completed this winter. A small number of plants (e.g., willow stakes, sycamores) remain to be planted in fall 2020.

The project 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 and materials for planting and irrigating the site. The project is currently coming in under budget.

The post-project work included establishing the monitoring required by the project permits. This includes the following monitoring activities:

- Frequency and extent of side channel activation: Side channels flows will be monitored with field cameras and temperature loggers on site.
- Success of native plantings: Revegetation efforts will be monitored through direct counting of plantings quarterly to track success over the next three to five years.
- Fish entrapment: Side channels will be monitored during specific flows to assess the potential for fish stranding.
- Geomorphic conditions: Repeat cross-section and long-profile surveys of the side channels will be conducted periodically to evaluate changes in side channel conditions.
- California Rapid Assessment Monitoring (CRAM): A CRAM survey will track changes in the channel and riparian vegetation over time.

Deliverables: Project completion reports for ACOE.

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 FY20, native plant installation should be completed or nearing completion. Plant success monitoring will continue under a State Coastal Conservancy grant for three years. Post-project monitoring as required by the project permits will be conducted.

Pending Deliverables: Final project monitoring report. NEPORT reporting.

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.
- 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. Attended their annual meeting to develop the workplan for the upcoming year.
- 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.
- SLO County Weed Management Area meetings.

The Estuary Program completed a grant from the Resource Legacy Fund to work with the Coastal San Luis Resource Conservation District (CSLRCD) to reach out to private landowners to provide educational resources on conservation practices such as rotational grazing, keyline ploughing, etc. This funding concluded at the end of FY19. Currently the Estuary Program is providing support to the CSLRCD to apply for grants to procure funding to implement projects developed under the Resource Legacy Fund grant. This included conceptual designs for three projects, and the CSLRCD is working on three additional designs. Project types include irrigation design, farm plans 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), [County Stormwater Resource Plan](#).

Problems Encountered: None.

Activities Planned for Next Six Months: In the second 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. Plan to conduct management efforts for the invasive pikeminnow to help recovery of native steelhead populations.

Pending Deliverables: Final conservation planning document and updated IRWM plan.

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: Working with partners such as the CSLRCD to provide resources to private landowners with the end goal of implementing projects to improve water quality.

Problems Encountered: None.

Activities Planned for Next Six Months: In the second 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 effort. The Estuary Program will also work with Camp San Luis Obispo on stormwater implementation projects.

State Park Marina Stormwater Management Project

Objective: To implement a stormwater management project at State Park Marina.

Status: New

Progress Toward Milestones: Partnership with Morro Bay State Park and California Marine Sanctuary Foundation to implement a grant from California Ocean Protection Council (OPC) for a stormwater improvement project at the Morro Bay State Park Marina parking lot. Staff developed and managed a contract to conduct pre-construction stormwater runoff monitoring. Two rounds of sampling occurred, one of which was the First Flush for the rain year. Staff worked with State Parks and other partners to establish the contract and coordinate with partners to move the project forward.

Currently, OPC and State Parks are negotiating an amendment to the project scope. Instead of using a pump setup to divert stormwater to a leach field across the street, the project will now address stormwater through low impact development installations along the bay side of the parking lot. This approach is more cost effective and easier to maintain, but requires significant changes to the grant that have not yet been agreed upon. Changes were prompted by State Parks leadership in Sacramento. This negotiation process has significantly delayed the project.

Deliverables: Stormwater monitoring data submitted to CEDEN.

Comparison of Actual Accomplishments with Anticipated Outputs/Outcomes: Anticipated output is installed stormwater BMPs. Anticipated outcome is improved water quality in stormwater entering the bay.

Problems Encountered: Engagement from State Parks leadership in Sacramento has generated some sticking points on design and scope. Negotiating these issues with State Parks and OPC has significantly delayed the project. Final revised timeline and project scope is pending final agreed upon decision from State Parks and OPC.

Activities Planned for Next Six Months: In the second half of FY20, the Estuary Program plans to support partners in developing a final revised scope and partner agreement.

Pending Deliverables: Final completed project report and outreach materials.

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 first half of FY20, 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 FY20, 20 volunteers contributed 210 hours to the monitoring program and supported watershed and estuary monitoring. Between staff and volunteers, there were 42 monitoring trips for bay water quality, 96 for bacteria, and 121 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 bacteria in Chorro Creek and monitoring 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 planning for our spring bioassessment monitoring effort, which will be funded in part by a grant from a private foundation.
- 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 Quality Assurance Project Plan (QAPP). 2019 data submitted to California Environmental Data Exchange Network (CEDEN) (see www.CEDEN.org). Activities described in Semi-annual report (see above). [Sediment monitoring report for 2017 and 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 FY20, the Estuary Program plans to conduct the following types of monitoring: bioassessment, 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. Bioassessment memo for WY 2019. Sediment monitoring report for 2019.

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 that 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). [Sediment Report for 2017 and 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 Morro Bay and its watershed.

Problems Encountered: None.

Upcoming Activities: In the second 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 monitoring results.

Pending Deliverables: Sediment Report for 2019. Bioassessment, Bay Health, 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 for bay and creek water quality through December 2019 has been submitted to CEDEN.

Deliverable: Activities described in Semi-annual report (see above). Submittal to CEDEN of data through December 2019 (see <http://ceden.org/>).

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

Problems Encountered: None.

Activities Planned for Next Six Months: In the second half of FY20, the Estuary Program plans to work with the State Water Resources Control Board (SWRCB) to upload data from the first half of Water Year (WY) 2020 to CEDEN. The Moss Land Marine Labs Regional Data Center ended its funding from the state at the end of March. Now all support will come from the SWRCB. With the closure of the Regional Data Centers, the SWRCB may have challenges in providing statewide support for data submittal. This is a potential challenge in the second half of FY20.

Pending Deliverables: Submittal of WY 2020 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: The Estuary Program continues to implement the quality assurance measures contained in the QAPP to ensure data quality.

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

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

Problems Encountered: None.

Activities Planned for Next Six Months: In the second half of FY20, the Estuary Program staff will update the QAPP and submit it to EPA's Office of QA for review. 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: Staff worked with Cal Poly's Sea Grant project team to analyze and summarize the results of the project. The Estuary Program organized and hosted a meeting for partners to share the research results in a one-day seminar. Attendees included representatives from State Parks, NOAA, CDFW, Cal Poly, USFWS, Cuesta College, and others. 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. [Sediment monitoring report for 2017 and 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 second half of FY20, the Estuary Program plans to continue monitoring the seeps. Staff will coordinate with the Sea Grant project team on reports for funders and for publication. Staff will also communicate with project partners to share data results and coordinate efforts.

Pending Deliverable: Sediment monitoring report for 2019. Eelgrass Restoration Monitoring CDFW permit reports. Publications from the Sea Grant effort.

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. The Estuary Program worked with NOAA's Office for Coastal Management to finalize a bay topobathy lidar mapping effort, which was funded by EPA, USFWS, and NOAA. The results provided information for the Sea Grant modelling effort looking at hydrodynamics and bay sedimentation. Staff worked with NOAA to complete the tidal station data collection, which is the second phase of the project and crucial data for calculating bay tidal prism. Staff selected a contractor to create a baywide eelgrass map in late 2019. The flight was conducted in November 2019 to collect multi-spectral imagery. Staff conducted groundtruthing for the eelgrass map. Staff coordinated with Cal Poly who created an eelgrass map during the same timeframe using a drone. Staff conducted monitoring of permanent transects.

Deliverables: Monitoring activities documented in the Semi-annual report (see above).

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 second half of FY20, the Estuary Program will work with the contractor to complete the 2019 baywide eelgrass map. Staff will create the 2019 Eelgrass Report, which will include the results of the November 2019 eelgrass mapping effort as well as field data collected during the year. Staff will coordinate with project partners to share our findings. Staff will work with a contractor to conduct tidal prism calculations for the bay for comparison to TMDL targets and historic data.

Pending Deliverables: 2019 Morro Bay Eelgrass Report. Sea Grant project reports. 2019 baywide eelgrass map. 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 concluded 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 supported fieldwork, modeling, and outreach for the effort. Staff coordinated with native oyster restoration efforts headed up by the Elkhorn Slough NERR. Staff coordinated with a Cal Poly researcher and purchased ocean acidification monitoring sensors that were deployed in the bay in early 2020. This equipment was funded by EPA in partnership with the Central and Northern California Ocean Observing System (CeNCOOS).

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 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 *Labrynthula spp.* wasting disease on eelgrass.
- Cal Poly research on ocean acidification in Morro Bay, in partnership with CeNCOOS.
- 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: Agenda from Sea Grant partner meeting in December 2019.

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 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. Publications and reports from the Sea Grant effort.

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 that were shared via email, website, and social media. 324 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 2,500 reads, not including subscribers. Updated the website to share program news and upcoming events.
- Conducted 11 presentations and fieldtrips that reached 595 individuals in person.
- Continued to increase the number of followers on Facebook to 2,285 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 575 followers.
- Maintained an Instagram feed that currently has 2,078 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 was 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 second half of FY20, the Estuary Program plans to continue the communications tasks outlined above.

Pending Deliverables: Additions to the Nature Center exhibits.

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 first half of FY20. Our touchscreen Estuary Science Kiosk received 50 unique visitors, who logged 596 sessions and about 20,700 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 250 students.
- Finished translation and editing, design, and printing of a Spanish version of a kids' activity workbook on Marine Protected Areas. Distribution of physical copies will occur in the second half of FY20. An online version is available now.
- Implemented curriculum for a microplastics monitoring effort. Conducted the protocol with all freshman biology students as well as juniors and seniors in an environmental science course at the local high school. All 180 freshmen students at the high school participated, for a total of 240 students reached.

Deliverables: Nature Center statistics (see above). Fieldtrip and presentation statistics (see above). The Spanish version of the kids' activity workbook focused on Marine Protected Areas is available at www.mbnep.org/kids.

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

Pending Deliverables: Statistics for distribution of Marine Protected Areas kids' activity workbook translated into Spanish, as well as statistics of use of the online version.

Nature Center Update

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

Status: Ongoing task

Progress Toward Milestones: The Estuary Program continues to update the Nature Center. A new, more modern and accessible display was constructed for the stereoscopic images. A section with reference books was added for use by visitors. A new wildlife viewing station and an exhibit on weather, climate, tides, and sea level rise panel was designed, produced, and installed. The exhibit includes hyper-local weather station data, an interactive sea level rise viewer, and a children's weather and wildlife corner. New viewing scopes were installed. Plans are underway to update an informational panel related to the habitat information depicted in a mural. The Nature Center includes a fish tank and the program participates in the Trout in the Classroom program. We received fish eggs in the spring for the upcoming year. Ongoing maintenance and upkeep was conducted to keep the Nature Center functioning smoothly.

Deliverables: 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 FY20, the Estuary Program 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 continues to work with recipients on ongoing projects and foster new applications with community partners.

Two Community Projects were recently completed:

- 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 San Luis Obispo Marine Protected Area Collaborative (SLOMPAC) received funding to purchase a controller for an underwater ROV. The applicant worked with Cal Poly engineering students to design and build an ancillary water sampler to be used in conjunction with the unit. The controller and ROV supported fieldtrips and other outreach efforts by the Central Coast Aquarium, State Parks, and others.

Three Community Projects are ongoing:

- Dr. John Perrine of Cal Poly deployed wildlife cameras on a property in the watershed in 2020 to track wildlife movement. The goal is to target areas for conservation and restoration.
- The SLOMPAC received Community Project funding to translate a kids MPA activity booklet into Spanish and print copies for distribution.
- California State Parks received funding for a Watershed Demonstrator project to design curriculum and build a learning station to demonstrate soil health.

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

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 FY20, the Estuary Program plans to continue to work with partners on ongoing Community Projects.

Pending Deliverables: Final reports for completed Community Projects. SLOMPAC Kids' MPA activity booklet in Spanish available in print and online. Wildlife camera monitoring report for 2019/2020 plus additional deployments in 2020 and 2021.

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:

- 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 a cleanup effort that was documented by the Discovery Channel in an Earth Day special that airs on April 22.
- 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 on developing and sharing key messages.

Problems Encountered: None.

Activities Planned for Next Six Months: In the second half of FY20, the Estuary Program will continue working with the MPA Collaborative to manage the ROV for use by partners. We will work with ECOSLO on the Coastal Cleanup Day 2020 effort in September.

Pending Deliverables: ROV checkout statistics. Coastal Cleanup Day 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: Ongoing

Progress Toward Milestones: The Estuary Program continued its work managing the program, which included accepting and managing donations, installing and maintaining dispensers, and coordinating volunteers. The program received a grant from a private foundation to fund staff time and related costs for three years. The grant also funds developing outreach materials and sharing them with pet owners. In the first half of FY20, 31 dispensers were maintained. More than 195,000 bags were given away to pet owners. This number of bags prevents an estimated 47,950 pounds of pet waste from negatively impacting the estuary. Estuary Program staff developed educational curriculum on the negative impacts of pet waste and presented it at local schools. Staff are making available online educational content for kids 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, thus improving water quality and protecting beneficial uses such as shellfish farming and recreation.

Problems Encountered: None.

Activities Planned for Next Six Months: In the second 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: Ongoing

Progress Toward Milestones: Staff conducted planning for State of the Bay (SOTB) events in the spring of 2020. A public-friendly SOTB report was developed, designed, and printed. Additional online content was compiled and made available on the Estuary Program website. Brief videos for each indicator were created and are available on the website. An evening public science talk was held in January on the topic of eelgrass and included presentations by Estuary Program staff and Cal Poly researchers. A second evening of science talks was held in March to share results on estuary health. Speakers included staff from the Estuary Program, State Parks, and USGS. Both events were well attended. Staff also developed a public-friendly presentation summarizing report results and reached out to partners, service organizations, community groups, and others to attend their meetings and share the results of the report card.

Deliverables: 2020 SOTB report in print and online. Posters to share the results. Promotional materials for events throughout Spring 2020. Online content related to the report results are available at <https://www.mbnep.org/state-of-the-bay-2020/>.

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: The SOTB activities planned for the most part involved public gatherings. Due to the current pandemic situation, the remainder of the activities planned for SOTB were canceled, including an additional evening science talk, a trivia night, hikes, and paddles. Staff is working to convert as many of the activities as possible into remote events that will still engage members of the public. Brief videos were developed for each indicator question in the report and shared on the Estuary Program website. This allows more access to the report results despite our inability to conduct in-person outreach. See more details of these changes at [mbnep.org/events](https://www.mbnep.org/events).

Activities Planned for Next Six Months: In the second half of FY20, staff will conduct a poetry contest, an online trivia night, and a video streaming evening science talk. We will also promote the online version of the report. Later in the year, we hope to be able to conduct in-person presentations for service clubs, community groups, and others organizations to share the report results.

Pending Deliverables: Outreach statistics for in-person and remote events held throughout the spring and summer.

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) members were called on as needed for review of Community Project applications and technical plans. Membership was updated for the EC and TACs.

Staff has already integrated TACs into the decision-making processes of the organization. They lent their expertise for Community Project application review, eelgrass efforts, native shellfish restoration, and pikeminnow management.

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:

- 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.
- 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 coordinated with PMEP to establish the contract and began implementing the grant, which funded much of the 2020 planting effort.

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 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 tap members for their expertise to develop projects, funding, and collaborations. We will continue to 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. We completed our annual audited financial statements, including a required Federal Single Audit.

Deliverables: Semi-annual report for the second half of FY19. Minority Business Enterprises-Women Business Enterprises (MBE-WBE) submitted to EPA Region 9 Grants Office. Final FY19 audited financial statements.

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 FY20, the Estuary Program will implement the FY20 Workplan and complete required reporting for the FY20 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 hired an Environmental Planning Intern, a Monitoring Technician, and a Monitoring Coordinator in 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 first half of FY20 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 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. Worked with Regional and Headquarters EPA to prepare for the Program Evaluation (PE) process. Compiled and submitted the PE package to EPA. Scheduled and began planning for the PE visit.

Deliverables: Semi-annual report to EPA submitted Fall 2019. Biannual Executive Committee reports. PE package submitted in March 2020.

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 FY20, the Estuary Program plans to report to the Executive Committee on Workplan progress. Continue to prepare for the next phase of EPA's Program Evaluation process, which includes a virtual site visit in the summer and follow-up with the Program Evaluation team. These activities are expected to take place throughout FY20.

Pending Deliverables: NEPORT submittal on Leverage and Habitat efforts in FY20.

Management Plan Update/Revision

Objective: Update the CCMP per EPA guidance.

Status: Ongoing task

Progress Toward Milestones: Worked with a graphic designer to incorporate all changes to the updated CCMP. Compiled sub-plans, including the Communication Plan, Finance Plan, and Monitoring Plan. The updated CCMP and sub-plans were approved by the Management Conference and submitted to Regional and Headquarters EPA for review.

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 FY20, the Estuary Program plans to work with EPA to finalize the CCMP and sub-plans.

Pending Deliverables: Management plan update.

Budget Overview

Table 1: Costs expended during this semi-annual report period (October 1, 2019 through March 31, 2020) and cumulative since the beginning of the grant in October 2016.

Category	Subcategory	FY20 Period 1 320 Funds	FY20 Period 1 Cash Match	FY20 Period 1 TOTAL	Cumulative 320 Funds	Cumulative Cash Match	Cumulative TOTAL
Personnel	Salaries	\$190,090	\$11,616	\$201,706	\$1,216,944	\$77,152	\$1,294,097
	Fringe	\$17,798	\$274	\$18,073	\$115,982	\$1,321	\$117,302
	Management Conference	\$0	\$0	\$0	\$0	\$0	\$0
	<i>Subtotal</i>	\$207,889	\$11,890	\$219,779	\$1,332,926	\$78,473	\$1,411,399
Travel		\$3,832	\$0	\$3,832	\$30,008	\$0	\$30,008
Supplies	Computers, software	\$696	\$0	\$696	\$5,851	\$79	\$5,930
	Vehicle maintenance, fuel	\$465	\$0	\$465	\$5,014	\$0	\$5,014
	Monitoring supplies	\$2,543	\$119	\$2,662	\$32,406	\$906	\$33,313
	Misc. office supplies	\$8,133	\$0	\$8,133	\$26,947	\$0	\$26,947
	Rent	\$28,992	\$0	\$28,992	\$191,364	\$0	\$191,364
	Utilities	\$1,817	\$0	\$1,817	\$10,713	\$0	\$10,713
	<i>Subtotal</i>	\$42,646	\$119	\$42,765	\$302,305	\$985	\$303,290
Contractual	Audit/Taxes/Accounting	\$2,414	\$4,506	\$6,921	\$40,462	\$23,485	\$63,947
	Education and Outreach	\$23,822	\$6,435	\$30,257	\$73,888	\$37,853	\$111,741
	Monitoring and Research	\$25,038	\$2,776	\$27,814	\$161,200	\$64,261	\$225,461
	Restoration and Protection	\$21,002	\$103,832	\$124,834	\$96,573	\$490,579	\$587,153
	<i>Subtotal</i>	\$72,277	\$117,549	\$189,826	\$372,123	\$616,178	\$988,301
Other	Postage	\$676	\$0	\$676	\$4,329	\$893	\$5,221
	Copying, Printing	\$1,350	\$0	\$1,350	\$8,440	\$0	\$8,440
	Training, Prof. Dev.	\$389	\$0	\$389	\$5,368	\$0	\$5,368
	Telephone, Internet	\$2,942	\$0	\$2,942	\$14,211	\$0	\$14,211
	Repairs and Maintenance	\$1,668	\$203	\$1,871	\$8,011	\$879	\$8,890
	Insurance	\$2,786	\$0	\$2,786	\$9,629	\$0	\$9,629
	<i>Subtotal</i>	\$9,812	\$203	\$10,015	\$49,988	\$1,772	\$51,760
TOTAL		\$336,455	\$129,760	\$466,216	\$2,057,342	\$697,408	\$2,754,750

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

Program Area	Project	FY20 Period 1 320 Funds	FY20 Period 1 Match	FY20 Period 1 TOTAL	FY20 Overall TOTAL
Education and Outreach	Communications	\$3,781	\$0	\$3,781	\$23,942
	Community Projects	\$0	\$2,945	\$2,945	\$2,945
	Bay Friendly Recreation	\$0	\$0	\$0	\$713
	Education and Nature Center	\$4,664	\$3,490	\$8,155	\$21,721
	Community Volunteer Program	\$166	\$0	\$166	\$580
	State of the Bay	\$15,211	\$0	\$15,211	\$15,211
	Other E&O Tasks	\$0	\$0	\$0	\$4,110
	<i>Subtotal</i>	\$23,822	\$6,435	\$30,257	\$69,221
Monitoring and Research	Benthic Invertebrate Monitoring	\$0	\$0	\$0	\$7,000
	Stats	\$0	\$0	\$0	\$3,010
	Water Quality Monitoring	\$25,038	\$2,776	\$27,814	\$41,633
	Eelgrass Monitoring & Analysis	\$0	\$0	\$0	\$81,723
	<i>Subtotal</i>	\$25,038	\$2,776	\$27,814	\$133,366
Habitat Protection and Restoration	Restoration & Conservation Planning	\$2,750	\$13,897	\$16,647	\$50,955
	Eelgrass Restoration	\$3,126	\$1,600	\$4,726	\$18,902
	Chorro Creek Ecological Reserve	\$5,240	\$86,170	\$91,410	\$185,791
	Restoration Project Maintenance	\$0	\$0	\$0	\$39
	Other Restoration*	\$9,886	\$2,165	\$12,051	\$45,203
	<i>Subtotal</i>	\$21,002	\$103,832	\$124,834	\$300,890
Program Administration		\$0	\$0	\$0	\$0
	TOTAL	\$69,862	\$113,043	\$182,905	\$503,477